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in Africa - Conference Proceedings**

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Development of Entrepreneurs and Small/Medium Enterprises



**Hochschule
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Edited by Prof. Dr. Jürgen Bode & Christine Freitag

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Foreword

These proceedings are the outcome of the 5th annual joint conference on “Universities Entrepreneurship and Enterprise Development in Africa” between the University of Nairobi, Kenya, the University of Cape Coast, Ghana, and Bonn-Rhein-Sieg University of Applied Sciences, Germany, held on 10-11 November 2016 on Campus Sankt Augustin, Bonn-Rhein-Sieg University of Applied Sciences.

The conference was developed in the context of the trilateral University partnership project **“German-African University Partnership Platform for the Development of Entrepreneurs and Small/Medium Enterprises”** between the above named Universities, generously funded by the German Academic Exchange Service (DAAD) and the German Federal Ministry for Economic Cooperation and Development (BMZ). The conference was made possible by further financial support from the German Federal Ministry of Education and Research (BMBF), the NRW Ministry of Business, Energy, and Innovation (MWEIMH) as well as the Chamber of Commerce and Industry Bonn/Rhein-Sieg.

Our joint project started off as a small cooperation to establish business incubators at the University of Cape Coast and the University of Nairobi, and to learn from each other’s experience in incubation, entrepreneurship and application orientation in teaching and research. Thereby, we started a process of reflection on the roles of Universities for the professional lives and orientations of students and their responsibilities to local economies and the society at large. The project aims at providing a platform for actors from various sectors to create networks between Universities, students and graduates, business communities and government representatives, between Germany and African Countries. Each year our conference as one format for networking and knowledge sharing has grown bigger and has raised more and more attention and awareness about opportunities for business activities with African partners. We do believe that there is still potential for growth and will continue to facilitate exchange internationally as well as between sectors, and contribute to the discussion on entrepreneurship and development in Germany and Africa.

We would like to thank all contributors who have made this conference a successful event! Our special thanks go to Mr. Afraz Gillani, Dr. Luc Da Gbadji and Ms Sonja Keller for supporting the publication of these proceedings.



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ENTREPREN



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Abstract

Access to affordable energy - for basic needs as well as for national economic development - is a crucial concern for developing countries. Access to modern and sustainable energy services in rural areas, where the majority of the population is living in poverty, is a particularly urgent challenge, and one which has been recognized as crucial within the global development agenda.

The current dominant development model, focused on achieving macro-economic growth, gives priority to large-scale or centralized energy infrastructures for national growth or for meeting the urban demand. Rural areas of poorer countries are often at a disadvantage in terms of access to all types of services – roads, health facilities, markets, information and clean water. The high cost of providing these services in remote areas has led to new approaches being tried, based on self-help and the private sector rather than traditional government-led solutions. The missing access to electricity is primarily the reason for the poor operational environment of entrepreneurship especially in rural areas of developing countries, which poses many barriers to their development and limits their competitiveness. Energy services for household, agriculture and production serve as best examples as sectors exposed to enable entrepreneurship by productive use of renewable energy. This paper describes the line-up, the challenges and the outcome of a development project in rural Ethiopia to support entrepreneurship based on the usage of renewable energy, in this case mainly photo-voltaic technology. In particular, this study tries to show up key features which are required to enable sustainable energy access and foster implementation challenges of developed business models in practice. Based on this experience, the paper discusses implications and lessons learned for a further development.

1 Introduction – The global context: Enabling Sustainable Energy Access

Research by the Global Network on Energy for Sustainable Development (GNESD 2004) has shown that even a modest level of modern energy services brings multiple and substantial benefits to poor households in remote rural areas. Thus, for sub-Saharan Africa, prioritizing energy access for the rural poor may be the first step to fostering human development and achieving the Millennium Development Goals (Kirai and Hankins 2009; East African Community 2007; Arvidson 2007). The issue of energy access has recently ascended the global policy agenda and is now a central topic in international development policy-making. The United Secretary-General Ban Ki Moon is leading a global Sustainable Energy for All Initiative (SE4All), a key objective of which is to attain universal access to modern energy services by 2030. The initiative prioritizes access to electricity and to clean fuels for household cooking and heating, as well as energy for productive use, especially in agriculture and local industry (Birol et al. 2012). It envisions three pathways: country actions by host governments, private-sector (commercial) initiatives, and bottom-up actions led by civil society.

In terms of productive use of energy, decentralized production and supply of electricity has an enormous potential to improve the economic situation of the rural population and deliver considerable welfare benefits. Traditional grid extension is no longer seen as the only solution. Decentralized supplies, whether at an individual household level or at community level, are now an established, cost-effective alternative for the people living in remote areas of poorer countries who are currently without access to electricity: "In developing economies, battery/solar systems have the potential to bring reliable power to places it has never reached." (McKinsey 2013). With easier access to electric power, a positive regional economic development should be initiated, especially if the new resources are used for productive use. More locals will have and use electrical power, enabling employment causing other entrepreneurs to follow suit. Thus a self accelerating effect is initiated. In addition better access to communication technology will stimulate local economies by allowing more efficient agricultural trade, higher quality education, and exposure to small business ideas and trends.

2 Energy access in Ethiopia

The vast majority of the Ethiopian population (83.2% as of 2010) lives in rural areas, where modern energy services are rarely available. Only 4.8% of the rural population have access to electrical energy (Central Statistical Agency 2012). While many nations in sub-Saharan Africa face similar challenges, Ethiopia ranks particularly low in terms of energy progress, last out of 80 per the IEA's 2012 Energy Development Index (EDI), with an EDI of 0.04. Even Liberia and the Democratic Republic of Congo are rated better, with EDIs of 0.05 and 0.09, respectively (see Figure 1).

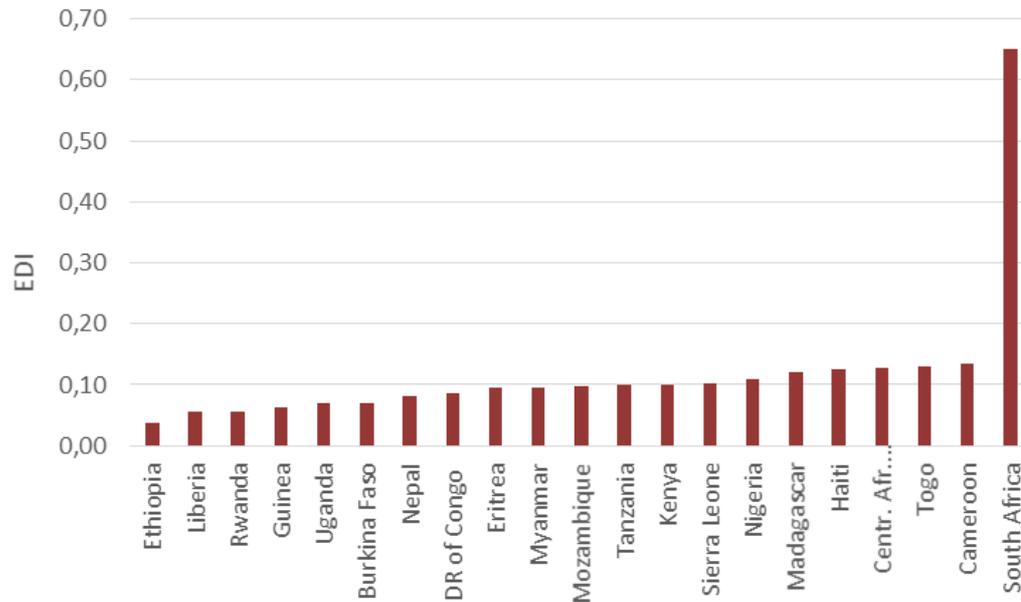


Figure 1: Ethiopia compared to other developing countries and South Africa

Source: http://webcache.googleusercontent.com/search?q=cache:EV-lmJLmJrUJ:www.iea.org/media/weoweb/energydevelopment/2012updates/WEO2012EDIdatabase_WEB.xlsx+&cd=2&hl=de&ct=clnk&gl=de

Ethiopia has made large efforts to develop electrical power supply in recent years, with 48.3% of towns and villages connected to the grid as of July 2012, according to the Ethiopia Electric Power Corporation (EEPCO 2012). Increasing energy production is also a priority under Ethiopia's current five-year Growth and Transformation Plan (MoFED 2011), which aims to achieve a GDP growth of 11–15% per year from 2010 to 2015. The plan has an estimated total cost of \$75–79 billion USD and includes specific targets on economic growth, poverty reduction, agriculture and rural development, industry and infrastructure development, and power and energy. Several large scale electrification projects are under development, most notably the 6,000 MW Grand Ethiopian Renaissance Dam on the Blue Nile, the subject of an intense dispute with Egypt and strong criticism from environmental groups. Along with meeting Ethiopia's own energy needs, the new hydropower capacity is meant to help the country become a major exporter of electricity. Rural electrification has also remained a priority, and the extent of high-voltage transmission lines across Ethiopia increased by a third in just three years, to 11,796 km in 2011/12 (EEPCO 2012). The total number of electricity customers had risen to 1.9 million by July 2012. In remote areas, Ethiopia is installing solar power at schools, health centres and other facilities. However, per capita electricity consumption remains at only about 200 kWh per year, far lower than the sub-Saharan average of 517 kWh in 2009, and a fraction of the 2009 world average, 2800 kWh per person. This suggests a great deal of work remains to be done to bring power to individual households and ensure they can afford to plug in.

3 The context between decentralized electrification and entrepreneurship

Integrating energy access for the rural poor into national development strategies would explicitly recognize the crucial role of energy in poverty reduction by productive use and support public and private actors' efforts accordingly by fostering entrepreneurship. Most non-state actors working on energy currently operate in a fragmented way, following their own objectives and policies. Yet research suggests that rural energy access projects will be most effective when they are demand-driven, not donor-driven (Mulugetta 2008; Wolde-Ghiorgis 2002).

The Government of Ethiopia generally supports the development of small and medium enterprises (SME). A competitive SME sector stimulates private-sector led growth and contributes to poverty alleviation through providing employment and income generation opportunities to the working poor. SME's are also a primary distribution system for basic goods and services for the majority of the population. In rural areas, however, very few small enterprises tend to graduate into medium enterprises. One of the most important constraints for SME development is the lack of access to sufficient and reliable electricity in rural areas. Given this the Government of Ethiopia promotes decentralized systems based on renewable energy resources – solar, wind, biomass and small-scale hydroelectric power – for rural electrification. While most projects provide reliable and cost-effective electricity, usually about 20%-25% fail (MoFED 2011) due to substandard equipment, inadequate after-sales services and poor monitoring and maintenance. Generally, the lack of skills generally constitutes a major problem for people in rural areas, because of lacking employment opportunities due to their limited employability or because they lack basic competencies necessary for self-employment or founding new SME's. Having said that there is potential in defining the appropriate decentralized electrification technology as well in training users and communities by improving the understanding of operating and maintaining the energy systems. In the field of education, a special focus is placed on sector and regional value chains, through supporting private sector initiatives and actors identifying regional potentials of production, the development of new value chains and the realisation of investments of private businesses.

From a broader perspective Ethiopia can be regarded as sweet spot to develop business models to foster entrepreneurship: First, the effectiveness of governmental and institutions can be regarded as highly developed. In addition the country showed up double-digit GDP growth rates in the previous years. The GDP/head of roughly 500 USD (MoFED 2011), however, is remarkably poor in a global context. Going along with that 85% of Ethiopians live in rural areas in impoverished conditions. Further, only 15% of Ethiopians have access to a reliable power source, usually from the electric grid in urban areas (Central Statistical Agency 2012). However, this has not stopped technology from moving into rural areas. Cellular phone purchases, in addition to portable lamps, radios and televisions, and even hair care tools, continue to slowly rise despite limited access to power sources. Thus, the unique combination of a politically stable environment and a large potential for decentralized electrification produces a rare opportunity for creating business models.

4 Project design and expected outcome

The project under discussion was conducted by the Neu-Ulm University of Applied Sciences, Germany, (HNU) together with the Arba Minch University (AMU) in Ethiopia to develop, test and implement the project in Arba

Minch. The Neu-Ulm University of Applied Sciences (HNU) is an international connected business school. It prepares bachelor and master students orientated towards future management tasks and runs different kinds of interdisciplinary projects in several African countries. The solar company Phaesun GmbH, the consulting company XCOM Africa GmbH, the association Sahay Solar Initiative e.V. and the Chamber of Crafts Ulm supported the project as industrial partners. The project was funded by the German Academic Exchange Service (DAAD) and focuses on entrepreneurial education with the objective to create job opportunities. That means, HNU and lecturers of the Arba Minch University developed jointly an applied entrepreneurship education programme at the Arba Minch University in Ethiopia. The term “applied” means that these business models for entrepreneurs were developed by student groups and then had to be applied in practice. Hence, the component of education works on a technical and entrepreneurial level. Micro-entrepreneurs were trained to build and maintain prototypes for diverse kinds of businesses such as for productive use of energy businesses.

4.1 Entrepreneurship as the global project objective

The education on entrepreneurial skills is the key to integrate poorer population groups into regular employment. Poor population groups are rarely able to become entrepreneurs and are usually living from subsistence farming. For the people – especially in rural areas – the lack of qualification is a major obstacle in order to escape the poverty trap. Neither are they capable to find off-farm employment nor do they possess the necessary competence for autonomy. At present, value added production in rural areas in Ethiopia is low, further processed products are mainly imported. Thus there is room for activities as well as strategies for business environment improvement, value chain extension and investment promotion. The education in entrepreneurship supports the building of small manufacturing or servicing companies, changes the production structure by enabling value added production in the value-chain and creates economic diversity with high-quality characteristics. That means the dependency on pure commodity production is reduced. The increased regional wealth creates employment for rural people and leads to a substantial reduction in poverty. Thus, the educational part of the project follows an integrative approach in the sense that the two elements of the missing access to electricity – namely the entrepreneurship and technological side - are addressed simultaneously and developed in an integrated way (Figure 2).

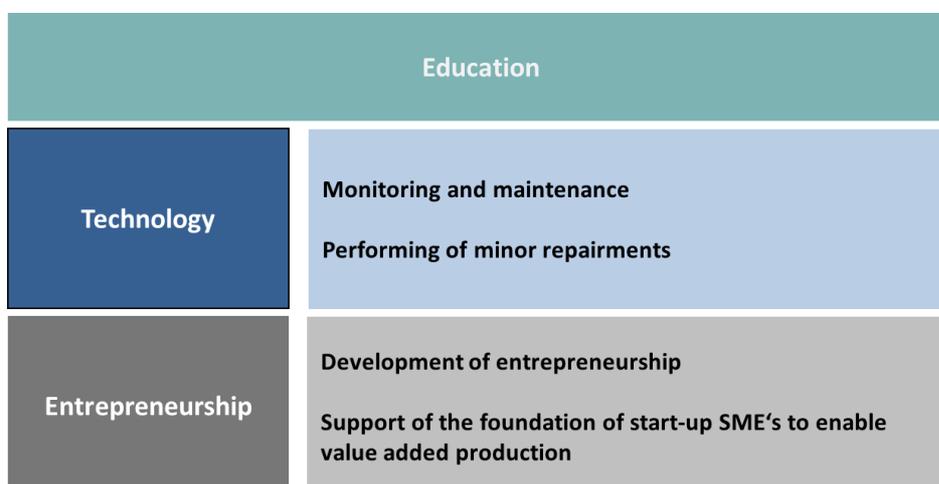


Figure 2: Components of the education module

Ethiopia is well endowed with renewable energy resources, which could be used to generate electricity to serve rural communities in an effective, powerful and ecological way. Promising results should be achieved in the field of solar technology due to the widespread natural availability. Thus the project focus lies on this technology to apply for enabling entrepreneurship.

4.2 The expected socio-economic impacts of the project

The global objective of the project was: The economic potential of small and medium enterprises (SME) and employment opportunities are improved by a sustainable and reliable access to decentralized electrification systems. In addition a particular objective is to show up innovation opportunities for entrepreneurship given an improved access to electricity for SME in a rural area of Ethiopia. Moreover, important socio-economic benefits can be expected:

- Generally the region's employment potential is improved through better performance in the respective economic sectors. The strengthening of SME performance capacity increases the real chances of accessing entrepreneurship, employment and income. Thus the project contributes to poverty alleviation by providing new employment opportunities in the SME sector.
- The fact that more people leave subsistence agriculture to work in the handicrafts and service sector, coupled with SME capacity development, results in an expansion of the market economy, which especially benefits the poor and female population.

In addition the introduction of training courses improves the employability of following target groups:

- Existing start-up companies and existing SME businesses as well as larger businesses in different value chains
- Employees and entrepreneurs in formal and informal SMEs as well as cooperatives in the non-agricultural sector (handicrafts, trade, services, small industry)
- School leavers and potential young business starters due to improved business prospects and the creation of new local employment opportunities

Given that the expectation for the outcome was that the developed business models should incorporate following characteristic features:

- Based on solar technology the application should be in rural areas.
- The businesses should be developed by local groups and finally locally owned and run.
- The developed enterprises should support local employment, meaning should contribute to productive use of renewable energies.
- The project outcome provides an answer how academic skilled persons in developing countries approach the challenge of entrepreneurship.

Following questions going along with the challenge to develop entrepreneurship were expected to be answered additionally:

- How can decentralized sustainable energy access for the rural poor be mainstreamed into Ethiopia's national development planning processes?
- What would be effective business ventures that could be profitable to local entrepreneurs and providing benefit to people living in rural Ethiopia?
- Which challenges are seen and experienced as most severe to develop enterprises from the ground on?
- What are viable business models developed by academic skilled persons familiar with the circumstances in Ethiopia?

5 Project implementation

5.1 Basic principles

The unique feature of the educational part of the project was the embedded practical part to enable experience for the students by implementing business models in practice. That is quite uncommon, but necessary to foster innovative entrepreneurship. "The really important entrepreneur – Schumpeter's who disrupts equilibrium with his innovations and thus creates economic growth – could not easily be formalized, and was left outside the system." (Reinert 2007). Corresponding to a special train-the-trainer concept from HNU, selected lecturers of AMU were trained at HNU and at Arba Minch with focus on the theoretical know-how in entrepreneurship. Following this, the lecturers of AMU took up the responsibility to initiate, develop and monitor the practical parts. HNU lecturers acted thereby as coaches and provided consulting on-demand. The practical part was divided into two phases (Figure 3). In the first phase of the project, AMU lecturers together with the students developed a number of business models on a concept base. It has to be noted that these business models were developed by the discretion of the AMU lecturers and students solely. The second phase was dedicated to the implementation and evaluation of the business models originated in phase 1. Besides producing the prototypes and ensuring the commitments of local authorities, the implementation phase confronted the students to organize the necessary funding by investors, mainly either by Micro Finance Institutions (MFI) or by Ethiopian private business people. Looking back, this proved to be the most important and difficult part of the project. To achieve the awareness and the commitments of these potential investor groups an investor road show was held in Addis Abeba. The evaluation period of the implemented business models in practice covered nine months. These business models which were profitable at the end of the evaluation period were regarded as successful.

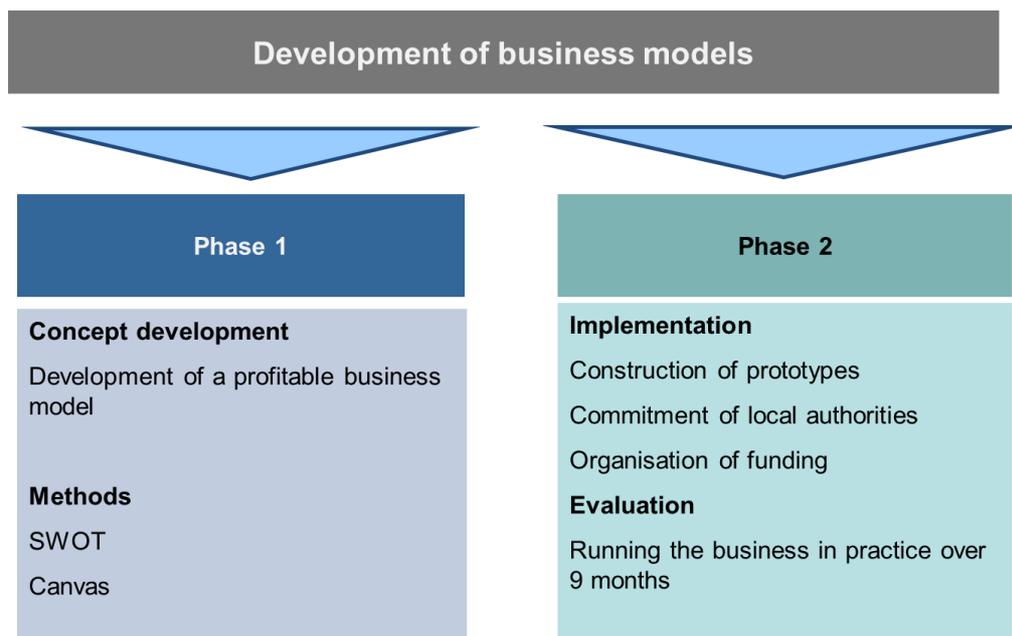


Figure 3: Structure of business model development and implementation

5.2 The chosen business models

In total 15 business models were developed in phase 1. Seven of these models can be classified as service provider, four can be regarded to provide entertainment, two can be assigned to agricultural productive use and two to general productive use. In detail:

Service provider:

- Mobile Solar Charger Wagon
- Mobile Solar Ice Cream Wagon
- Mobile Solar Hairdresser Wagon
- Mobile Solar Sandwich Wagon
- Mobile Solar Photography Service
- Solar Cafeteria
- Solar ICT Center

Entertainment:

- Mobile Solar Cinema
- Mobile Solar Rural Photographer
- Mobile Solar City Photographer
- Mobile Solar x-Box

Agricultural productive use

- Mobile Solar Cool Box

- Solar cooled warehouse chain

General productive use

- CNC Machine
- Solar Wagon Producer

5.3 The example of the Solar Wagon

Most of the developed business models based on the application of the solar wagon as a mobile energy generator. That is a moveable wooden box covered with solar panels providing a power of 50 W until 100 W. Different services for rural people can be provided by the solar wagon, mainly by using the electricity generated for cooling and entertainment purposes. The intentions of one of the business models, the Solar Wagon Producer, was to produce the solar wagon itself.

The originators of the solar wagon described the idea behind of it as follows: “Currently there is no solar wagon production in Ethiopia, but when we come to Africa there is one manufacturer from Rwanda. He produced the wagons from expensive materials so it is expensive. Also the service and mobility doesn’t target rural peoples. Because in rural areas there is no such a road which is suitable for that prototype. The service is also for urban peoples than rural peoples. This is new technology in Ethiopia and it is renewable energy supply and also supports government’s goal of rural development. This product increases their life quality because they can get services which was only found in cities. Our wagon is mobile which makes it suitable for rural areas. Because in rural areas there is less people in one place so the service should be mobile.” (Addis Abeba Roadshow 2015a).

This business model seemed to be attractive from the ground on. This generally positive appraisal was shared by all lecturers and participants of the project especially as the solar wagon was considered as an investment good dedicated to serve the other entrepreneurs and their later adapters as necessary prerequisite. The Solar Wagon production could - because of missing support by an investor - not be established as a distinct business. Nevertheless, prototypes of the solar wagon had to be manufactured as they were needed for the other entrepreneurs of the project as mobile energy generator. The prototype production showed that the needed functionality is given and that the wagon even in piece production can be delivered at a reasonable price. It is important to note: The respective business model can be used to start a business at a later point of time. Being an investment good, the wagon could be an encouraging example of an extended value chain. Even during a first marketing phase characterized typically by low demand and incoming orders, these wagons could be manufactured as a secondary product within a product range of an already existing company. Of course, that practice may fit best for a business being active in a similar market and possessing experience in handling related operative assembling processes.

BUSINESS MODEL

<p><u>Key Partners</u></p> <ul style="list-style-type: none"> ➤ Suppliers for Solar Panels & Accessories ➤ Suppliers for wagon row materials ➤ Small & microenterprises Institution ➤ Gov't ➤ Micro entrepreneurs 	<p><u>Key Activities</u></p> <ul style="list-style-type: none"> ➤ Sourcing materials ➤ Production ➤ Promotion ➤ Sale ➤ Training customers ➤ Maintenance <p><u>Key Resource</u></p> <ul style="list-style-type: none"> ➤ Small Workshop ➤ Solar Panels & its accessories. ➤ Raw materials like, metal, timber, wheels ➤ Human Resource 	<p><u>Value Proposition</u></p> <p>Solar Wagon (With Business Opportunity)</p>	<p><u>Customer Relationship</u></p> <ul style="list-style-type: none"> ➤ Personal assistance ➤ Through gov't microfinance institution. <p><u>Channels</u></p> <p>Awareness</p> <ul style="list-style-type: none"> ➤ Through gov't media ➤ Advertising using model rural customers. <p>Sales</p> <ul style="list-style-type: none"> ➤ Delivering from a fixed location and through small & microenterprise institutes 	<p><u>Customer segments</u></p> <ul style="list-style-type: none"> ➤ Micro entrepreneurs from rural area ➤ People in rural area who wants to run their own profitable mobile businesses
<p><u>Cost structure</u></p> <p>Investment cost for - Workshop materials, Solar panels and its accessories</p> <p>Fixed Cost for - Rent and employers</p> <p>Variable cost for - Electricity and Raw materials</p>		<p><u>Revenue streams</u></p> <ul style="list-style-type: none"> ➤ Asset sales and rent fees for wagons ➤ Asset sales for accessories ➤ Sharing the profit of the customers business <p><u>Market potential</u></p> <p>168,000,000 from 6,000 customers</p>		

Figure 4: Canvas model for the Solar Wagon producer

This example made clear that the organization of the necessary funding was the most difficult hurdle to move the business model from the concept status of phase 1 to a real business application implemented and evaluated in practice in phase 2.

5.4 The example of the CNC Machine production

To develop the business models in phase 1 classical methods like SWOT and the Business Canvas were applied. Figure 4 and 5 show as an example the Canvas models developed by the Ethiopian lecturer and students for the business models "Solar Wagon producer" and "CNC machine".

1.4 Business Model Canvas

Table 1

Business model				
Key partners Suppliers of woods Importers of stepper motor, circuit board, & drillers (cutters)	Key activities Manufacturing machine Maintenance service Customization of different designs	Value proposition <ul style="list-style-type: none"> Manufacturing CNC machine Characteristics <ul style="list-style-type: none"> Newness Performance design 	Customer relationship <ul style="list-style-type: none"> Personal assistance 	Customer segment <ul style="list-style-type: none"> Micro entrepreneur Souvenir Architect models Furniture makers
	Key resources Different types of woods Humans, technicians Importing materials		Channels By brochures By flyers Mouth-to-mouth to special sales By direct market By social media <ul style="list-style-type: none"> Channel phases Awareness Purchase & delivery	
Cost structure Investment cost =2,000,		Revenue stream Customer willing for to pay quality products Asset sale Subscription for mass sales Working capital=1,000,000 birr		

Figure 5: Canvas model for the business model CNC machine

The business canvas was extended by a strategic rationale of the business model itself. An example may be the business model “CNC machine” which was at the Addis Ababa Roadshow presented by one of the entrepreneurs as follows: “Our business is manufacturing CNC machine of wood working in Ethiopia. CNC is computer numerical controlled machine, conventionally, an operator decides and adjusts various machines parameters like feed, depth of cut etc depending on type of job, and controls the slide movements by hand. In a CNC Machine functions and slide movements are controlled by motors using computer programs. It works a 3D shapes like toys, souvenir & 3D architect models. Every work is controlled by computer. Our main goal is to achieve the most moderate designs, suitable & accurate sizes based on our customers’ need. When we conduct a survey at different sites, we only can get one competitor. CNC machine will take advantage of the strong market demand for wood workers to drive its growth. Wood workers can be used for a variety of different applications, Such as Kitchen cabinet, Furniture, Frames, Statues & etc. Our business provides the technology in all over Ethiopia .these machines sold under the company’s own brand as well as many private levels. It is located in southern Ethiopia former business town of shashemane. Usually this type of machine is imported for laboratory purpose only & imported by high cost in Ethiopia but we make it in Ethiopia with cheap price for micro entrepreneurs, souvenir, & 3D architect models. Our goal is to satisfy the customers & inspiring technology. The business expects to gain a profitable markets share with in a very short period of time. Determinations have been made for the size of the market, amounts of budgeted advertising and promotion, and the number and kinds of distribution channels.” (Addis Abeba Roadshow 2015b).

5.5 The search for starting capital and the practical tests

Finally the 15 business models were prepared as a presentation for possible financial investors as Micro Finance Investors and possible local investors to achieve a funding for the implementation phase 2. The business model “CNC machine” serves as an example for the presentation slides shown at the event (Figure 6 and 7).

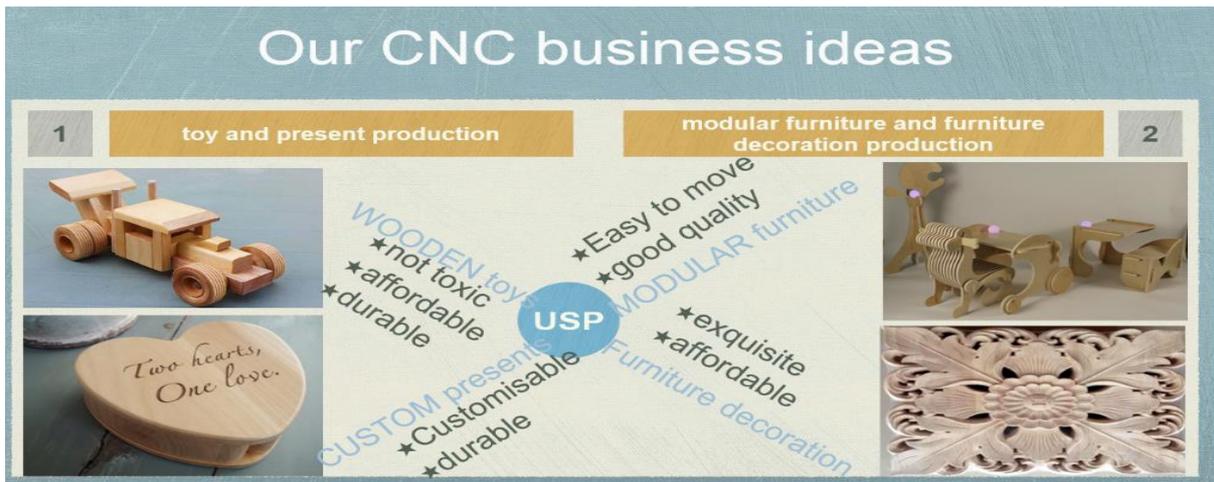


Figure 6: Overview CNC machine applications



Figure 7: Profitability calculation CNC business model

During the second project phase, nine of the 15 business models could actually be made a reality and start as an income generating business. These business models achieved a funding commitment and could be realized and evaluated in practice over nine months. The necessary solar wagon as energy provider and the further equipment business-related equipment was constructed on a prototype base and implemented in Arba Minch and rural surroundings (see Figures 8 and 9).



Figure 8: Mobile Solar Rural Photographer



Figure 9: Mobile Solar Sandwich Wagon

It is important to note that all nine business models were financially profitable after the evaluation period. So it can be stated that the business concept of the following nine business models was a successful one:

Service provider:

- Mobile Solar Charger Wagon
- Mobile Solar Hairdresser Wagon
- Mobile Solar Sandwich Wagon
- Mobile Solar Photography Service
- Solar ICT Center

Entertainment:

- Mobile Solar Rural Photographer
- Mobile Solar City Photographer
- Mobile Solar x-Box

General productive use

- CNC Machine

6 Challenges in the project implementations

Productive use of energy is needed to increase the quality of life and reduce the need for rural people to walk into the city to obtain electricity services.

6.1 Important outcomes

In cities, productive use of energy offers the possibility to offer mobile moveable services for local customers and thereby, enables entrepreneurs to achieve a substantially higher turnover and income than with a stationary solution. For rural areas moveable solutions are needed to increase the target area and thus the income possibilities for such businesses. However, infrastructure conditions are often a major bottleneck. Hence, when considering moveable solutions, the area conditions have to be selected carefully. Moveable

vehicles such as the mobile solar solutions are generally preferable for cities and flat ground areas. Stationary solutions should be targeted for hilly areas.

When it comes to the project organization it is inevitable that, involvement of different stakeholders tends to support an easier way for project implementation. Provided that they are identified properly at planning phase and awareness about their responsibility in the project properly communicated, they can input various resources for the success of the project implementation. In contrast to this, it has been observed that the multi-stakeholder nature of the project creates difficulty for the micro entrepreneurs facing the various rules and regulations. In addition, failure of key stakeholders at various levels induced negative impact to achieve on the planned outcome. This has been happened in an attempt to access loans from local micro finance institution. Concerning the entrepreneurship training, it has been conducted in long chain approach that is train the lecturers then the students again, students train the micro entrepreneurs. In the first project implementation phase coordinating such a chain stimulate extra activities, which were not in a plan before and resulted in additional time wasted on organizational tasks. In the second project, implementation phase the training directly delivered to the students together with micro entrepreneurs. The modification not only breaks the long chain but also creates opportunity to work together and share constructive skill and knowledge in the classroom. Furthermore it is also clear that loss of commitment of some of the lecturers, students and other local stakeholders has brought negative impacts on the implementation. Interesting to note is that two proposed business models in the field of agricultural productive use were not implemented due to prohibitive high capital costs and low profitability. It was not possible to encourage Micro Finance institutions or local private investors to step in the funding of these business models - despite the fact that exactly these two business models would have delivered the highest benefit to local employment and to rural living conditions. The major positive impact of the program was the creation of jobs with sustainable income for people who were previously jobless. They founded a business and learned to run that successfully as single entrepreneurs. Rural businesses have also improved the quality of life of the villagers. Potentially successful businesses in the field of productive use could be scaled up in the form of a production facility. This happened in the case of the CNC business model. It turned out that this business model was highly successful. The responsible AMU lecturer as the originator of the CNC business model earned in the implementation phase so much that he decided to leave the university and to found a company with several employees in the Ethiopian capital Addis Abeba.

Concerning the benefits for Arba Minch University, the long-term training program has enabled the university to deliver additional community services. Furthermore, the project concept has a convincing potential to be replicated throughout the country and can be transferred even to other countries with rural areas in need of decentralized electricity, as e. g. Tanzania.

6.2 Important lessons learned

Altogether, by comparing the expectations and the outcome some relevant lessons learned could be drawn. Assessing the compilation of the chosen business models, one has to state that the project objectives and expected socio-economic outcomes as described above were only met partly:

- Five of the developed 15 business models had the application in urban areas. The preference for urban business models was not only given by a higher expected profitability. Much more important was the fact

that the originators of these business models wanted to found a start-up in the city due to their own personal preferences. Living in urban areas is considered as much more attractive than living in rural ones.

- Only two business models showed up characteristics of productive use. Further, four had clear entertainment purposes, meaning that the contribution to local development can be seen as quite limited. Particularly one business model, the mobile x-box, could be regarded as a business with the potential of specific negative consequences to the rural society. First there is no benefit by generating additional productive employment, simply due to the fact that the x-box has to be imported completely without any local manufacturing content. Secondly, the success of this business was extremely positive from a financial perspective, but incorporates the dangerous potential to make customers, especially young rural people, addicted by using the x-box in an over-exaggerated way.
- Most of the developed business ventures can be assigned to the field of food and services. These business models can be regarded as micro-enterprises with the characteristics to provide a positive effect usually to only one entrepreneur. Again, the potential for productive use in this case has to be classified as low.

7 Key insights and conclusions

It has to be noted that the business models were developed by the local student groups on their own discretion. The driving force behind was the expected profitability of a business model – other targets, as employment creation or productive use in the agricultural sector were regarded of minor importance. However, some ideas were diverted to those within the limits of resources we had. The limited resources were a specific challenge for business models in the field of rural productive use.

Following recommendations could be made for similar development projects in future:

- 1) **Entrepreneurship and application of innovative technology:** The combination of the usage of renewable energies and educating entrepreneurship is a systematic and fruitful way to support and promote successfully business activities and job creation in a rural area of a developing country. When it comes to the benefit for the Arba Minch University, the long-term training program has enabled to deliver additional community services and gained capacity building of its lecturers who were involved in the project.
- 2) **Implication to students' attitude:** Students are provided with practical Entrepreneurship training. It has to be underlined that entrepreneurship is included as a course in almost every university in Ethiopia, which is theoretically driven. However, students involved in the project were enabled to develop their own entrepreneurial mind set to create own businesses rather than waiting for the government to provide them a job. In addition, it was an eye opening moment for them to see what sort of business solutions can be made out from what they learnt in their normal engineering classes. For instance, engineering students got the know-how to come up with different renewable energy solutions for various business opportunities in both rural and urban Ethiopia.
- 3) **Socio-economic teaching framework:** By introducing entrepreneurship programmes for productive use, a regulatory framework seems to be important to avoid negative socio-economic impacts for the society by focusing solely on profitability targets. Concentrating on profitability alone bears the risk to develop entertainment business models with the potential to influence the local society in a debatable way. Entrepreneurs in the area of entertainment could be economically highly profitable, but on the

other hand provide poorly to regional development. Then the application of renewable energies could rather lead to destructive use rather than productive use. Thus, future projects have to consider the socio-economic, environmental and cultural situations of the selected area.

- 4) **Inclusion of local cultivators and farmers:** Future activities in the field of supporting rural entrepreneurship by renewable energy should include local farmers as participants. Local farmers are entrepreneurs from the ground on and therefore have the natural interest in improving their business by applying renewable energy for productive use. Finally there is a natural hedge against the negative effect that the entrepreneurship know-how is used for creating start-ups in urban areas. As a result selection criteria have to ensure the level of commitments of direct participants and external local stakeholders.
- 5) **Start-up financing as most challenging hurdle:** Finding interested investors and gaining their commitment to provide the necessary capital proved to be the most challenging part of the whole project. For this reason, the training of participants needs to work earlier and more profound on how to gain access to the necessary financial means. Already in phase 1 participants should be trained on working regularly on a comprehensive and credible market analysis. As well, the ability to develop credible plans on monthly and yearly sales and as well as on the corresponding cost structures deserves significantly more room within the training. The difficulties with these issues should not be underestimated: According to the experience gathered in the course of the project, most of the students could deal better with the technical challenges than with the commercial topics. Receiving also support on how to find access to finance institutions and how to carry out a good presentation, the young entrepreneurs might have a much easier start and by this also might encourage others.
- 6) **Safeguarding the sustainability of project results:** Against the backdrop of the promising project results, the Arba Minch University proposed to establish a "Business Innovation Center (BIC)" with the objective to train young entrepreneurs on an ongoing basis. The job of the BIC will be to continue the training process started in the AEEP project and thus ensure sustainable ongoing results.
- 7) **Evaluation of impacts at later points of time:** A final lesson learned concerns the importance, to understand the project process as a ongoing learning process with relevance for all involved in the project. In case of the AEEP project, this included e.g. the staff from Ethiopia as well as from Germany both trainers and students and it even may include the organization of the donor. For the benefit of all stakeholders involved, the described learning process should not be aborted with the formal end of the project. Many important lessons learned may be missed in this case. Instead, to complete the learning outcome, a further evaluation of the project results should be carried out, e.g. about three years after the formal end of the project. The key questions may be: Which further positive unfolding impact can be identified. Or in case of a negative development: Which results remain at all? How did the established "Business Innovation Center" develop and how advanced the enterprises established during the AEEP project. Finally, it will be of ultimate importance to evaluate the feedback of this late evaluation and to understand the lessons which can be learned from this.

Recapitulating history and result of the project, it can be expressed that the design of the AEEP concept is well qualified for further replication. Using the gathered know-how and routine, as well as incorporating the above recommendations, the approach can be effectively used for repetition even on a broader scale and thus achieving an increased impact.

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Determinants of Non-Farm Micro and Small Enterprise Participation in Rural Ghana

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Abstract

The non-farm sector is critical for the socio-economic development of Ghana especially the rural poor. Literature suggest that people engage in non-farm enterprises as a way out of poverty or a survival strategy, perhaps as a substitute for the landless. This paper analyses the determinants of individual participation in non-farm enterprises and the intensity of participation. The paper uses EGC/ISSER Socio-Economic Panel Survey data collected in 2009. The paper estimated the determinants of participation using a probit model and then estimated the intensity of participation using a truncated regression model. The results indicate that majority of women (about 73%) are engaged in non-farm enterprises in rural Ghana. The study found that females tended to participate more in non-farm self-employment and are less likely to participate in non-farm wage employment. The results further showed that individual characteristics such as the gender of the individual, being head of a household, being the spouse of a household head, having formal education, age of the individual, having access to credit, possessing a mobile phone, per capita land holding and ownership of livestock influenced the participation of individuals in self-and wage employment. Results from truncated regression model for self-employed enterprises showed that having access to mobile phones, owning more livestock and electricity are important in determining the intensity of participation in self-employed enterprises. For wage-employment, being a household head, spouse of household head, having access to mobile phone and owning more livestock increased the number of days working on wage employment. Education is relevant for employment in the non-farm sector especially wage-employment. Government should play a lead role in making formal education accessible to the rural people. Deliberate policies should focus on addressing critical factors such as access to credit, mobile phone, electricity and education which are relevant for increasing participation intensity in rural enterprises.

1. Introduction

Micro and small enterprises (MSEs) are very important and play a critical role in the socio-economic development of many countries over the world. MSEs have been recognized to have contributed to the socio-economic development in both the industrialized and developing countries (Carree and Thurik, 2008; Nichter and Goldmark, 2009). Majority of MSEs are found in the informal sector of developing countries and are the major source of employment and income, especially for the poorest members of society (Mead and Liedholm, 1998). In Africa for instance, MSEs have contributed tremendously to economic development. In Ghana, MSEs account for around 22 percent of GDP, principally in the agricultural, and transport sectors (AfDB, 2005). In 2003, Kenyan MSEs employed 3.2 million people and accounted for 18 percent of national GDP. In Nigeria, small and medium enterprises account for 95 percent of formal manufacturing activity and 70 per cent of industrial employment while in Morocco, 93 per cent of industrial firms are small and medium enterprises, contributing 38 percent of production, 33 per cent of investment, 30 percent of exports and 46 per cent of all jobs (Masakure et al., 2009). In South Africa, micro and small enterprises provided more than 55 percent of total employment and 22 per cent of GDP in 2003 (Kauffman, 2005). Studies in five African countries (Botswana, Kenya, Malawi, Swaziland, and Zimbabwe) found that micro and small enterprises generate nearly twice the level of employment that registered large-scale enterprises and the public sector do (Mead and Liedholm, 1998).

Studies have shown that the share of income from non-farm sources has increased over the last decade in some continents. Recent studies suggest that non-farm sources account for 40-45 percent of average rural household income in Sub-Saharan Africa and Latin America and 30-40% in South Asia with the majority of this coming from local rural sources rather than urban migration (Barrett et al., 2001, Bryceson and Jamal 1997, Reardon et al., 2001, Lanjouw and Shariff, 2001 and Seddon and Subedi, 2000). Evidence provided by Haggblade et al., (2002) suggest that most rural communities in Africa derive about 42% of their income from rural non-farm activities and this is a high share considering that only about 10% of the rural labour force is employed in the rural non-farm sector. Islam (1997) reports that the share of non-farm sector in rural employment in developing countries varies from 20 to 50 percent. Non-farm work offers the poor a potential escape route from poverty, since they usually require little capital or training to set up and are labour intensive (Owusu et al., 2011). The extra income from agricultural growth can create demand for goods and services from non-farm sector, thus starting a virtuous cycle in which agricultural and rural off-farm income grow and sustain each other's growth (Stamoulis and Zezza, 2003).

In Ghana, the non-farm sector plays an important role in providing employment and income for majority of the people especially the rural poor. According to the 2005/2006 Ghana Living Standards Survey report, approximately three million two hundred (3.2 million) households operate a non-farm enterprise with women operating 72 percent of these businesses. A larger majority of the population in Ghana work in the informal sector of which

non-farm is the main contributor. The results of the 2000 Population and Housing Census (PHC) showed that about 80 percent of the economically active population work in the informal sector.

Agriculture is the mainstay of the Ghanaian economy employing majority of the people. In 2006, the sector contributed about 39.3 percent to GDP and accounted for about 41.1 percent of foreign exchange earnings (ISSER, 2007). Even though agriculture is pivotal in the Ghanaian economy, its contribution to Gross Domestic Product (GDP) has been declining slowly over the years. For example, the share of the sector in national output declined from 44 percent in 1990 to 37 percent in 2005 (FASDEP II, 2007). In the year 2009, the agricultural sector contributed about 34.1% to GDP, the service sector contributed 31.8 percent and the industry sector 25.7 percent (GSS, 2010). Yet, diversification beyond agriculture is often considered a promising pathway out of poverty for impoverished rural economies, and there is a widespread belief that small enterprises may play an important role in especially the early stages of diversifying beyond agriculture (see for example Barrett et al., 2001; Lanjouw and Lanjouw (2001), and Reardon et al., 2000). This shows the strategic nature of the non-farm enterprises which provide a dynamic pathway out of poverty and serve as survival strategies and perhaps as a substitute for agriculture for the landless. According to the GLSS, 2008 report, approximately three million two hundred thousand households representing about (46.4 percent) of households in Ghana operate non-farm enterprises and about 72 percent of non-farm business enterprises are operated by females. The report further indicates that about 52 percent of these households are found in urban localities and most of the households are engaged mainly in trading (50 percent) and manufacturing (33 percent).

Despite the critical role of micro and small enterprises in processes of socio-economic development in developing countries, they face problems of low growth rates and high failure rates (ILO, 2002). The sector is typified by stagnation and high rates of enterprise failure (Daniels and Mead, 1998; Hung Manh, et al., 2007; McPherson, 1996) suggesting the need to transform the sector in order to free micro-entrepreneurs from capture by a 'low level poverty trap' (McKenzie and Woodruff, 2006). The micro and small enterprise sector is also associated with poor and/or costly access to credit, problems acquiring new and more productive technologies, low levels of technical and/or managerial skills, high levels of competition among enterprises, etc (Livingstone, 1991, Daniels and Mead, 1998, Mead and Liedholm, 1998). Studies have shown that in many countries, macroeconomic policies have also not favoured a vibrant micro and small enterprise sector (Atieno, 2001, Fisman and Raturi, 2003, Steel and Andah, 2004). Access to credit is often at the 'top of the list' of problems faced by micro and small enterprises especially among proponents of microcredit (Aryeetey et al., 1997).

Some amount of studies has been done on small and medium enterprise sector (see for example; Sleuwaegen and Goedhuys, 2002, Soderbom and Teal, 2004, Aworemi et al., 2010 and Mahmoud, 2011). Specific studies have examined the nature and determinants of non-farm work in rural areas of developing countries (Abdulai and Delgado, 1999, Abdulai and CroleRees, 2001, Barrett et al., 2001 and Canagarajah et al., 2001). In Ghana, there have been a number of studies highlighting the constraints faced by microenterprises and determinants of performance (see for example Aryeetey et al., 1997, Baah-Nuakoh, 2003, Nissanke and Aryeetey, 2006, Steel and

Webster, 1992). Studies on individual's participation in non-farm enterprises in Ghana include, Newman and Canagarajah (2000), Owusu-Boateng (2011), Ackah (2013) but these did not examine the determinants of intensity of participation, which is usually ignored though potentially important because of its effects on low agriculture productivity (Matshe and Young, 2004). This study is therefore intended to examine the factors influencing individuals' participation in rural non-farm MSEs as well as the intensity of participation.

1.2 Motives for Participation in Non-Farm Sector

Rural farm households are expected to focus exclusively on agriculture and do little of non-farm activities. According to FAO (1998), the traditional image of farm households in developing countries has been that they focus almost exclusively on farming and undertake little rural non-farm activity, and that policy debate still tends to equate farm income with rural incomes, and rural/urban relations with farm/non-farm relations. Income diversification activities in the rural areas are being recognised as constituting the rural non-farm sector (Eliss, 1998; Lanjuow and Lanjuow, 2001). Barrett et al. (2001), noted that despite the persistent image of Africa as a continent of "subsistence farmers", non-farm sources may already account for as much as 40–45 percent of average household income and seem to be growing in importance (Reardon, 1997).

The motivations of household to enter the non-farm sector can be categorized into two main factors: "pull" and "push" factors. Households are either "pushed" into or "pulled" out of non-farm activities. Barrett et al. (2001) recognized that multiple motives prompt households to diversify assets, incomes, and activities. The first set of motives comprise what are traditionally termed "push factors", and these include risk reduction, response to diminishing factor returns, presence of land constraints driven by population pressure and fragmented landholdings, reaction to crisis or liquidity constraints and high transactions, among others. The second set of motives comprise "pull factors", which include the realization of strategic complementarities between activities, such as crop-livestock integration or milling and hog production, specialization according to comparative advantage accorded by superior technologies, skills or endowments among and others.

2. Methodology

2.1 Survey Design, Sampling and Data

The study was conducted in Ghana and data was obtained from the EGC/ISSER Socio-Economic Panel Survey data collected in 2009. The survey provides a regionally representative data for all the 10 regions of Ghana. It covered 5009 households with a total of 18,889 individuals. It was a nationally representative survey from 334 Enumeration Areas (EAs) across the country. Fifteen households were selected from each of the EAs. A two-stage stratified clustered sample design was used for the survey. Stratification was based on the regions of Ghana. The first stage involved selecting geographical precincts or clusters from an updated master sampling frame constructed from the 2000 Ghana Population and Housing Census (EGC/ISSER, 2011). A total of 334 clusters (census enumeration areas)

were selected from the master sampling frame. The clusters were randomly selected from the list of EAs in each region. A complete household listing was conducted in 2009 in all the selected clusters to provide a sampling frame for the second stage selection of households. The second stage of selection involved a simple random sampling of 15 of the listed households from each selected cluster. The primary objective of the second stage of selection was to ensure adequate numbers of completed individual interviews to provide estimates for key indicators with acceptable precision at the regional level. The main field work for the survey covered a 6-month period (November 2009 to April 2010) in order to ensure that enough household baseline information was gathered.

In Ghana, there are several definitions of micro, small and medium size enterprises. Some definitions are based on the number of people employed while others consider the turnover and value of fixed assets. There have been various definitions given for small-scale enterprises in Ghana, but the most commonly used criterion is the number of employees of the enterprise (Kayanula and Quartey, 2000). However, the National Board for Small Scale Industries (NBSSI) considers both fixed assets and number of employees. It defines a small scale enterprise as one with not more than 9 workers, has plant and machinery (excluding land, buildings and vehicles) not exceeding 10 million Cedis (US\$ 9506, using 1994 exchange rate). This study adopted this definition.

2.2 Modeling the Determinants of Participation and Participation Intensity

The study employed a probit model in estimating the factors influencing individual participation in non-farm MSEs and a truncated regression model in determining the factors influencing the intensity of participation. Based on previous studies, including Dabalén, Paternestro and Pierre (2004); Woldenhanna and Oskam, (2001); Reardon (1997), four sets of variables which influence individual participation in non-farm enterprises are identified. First, the individual characteristics, which include education, age, gender, parental and migration history and household member status; the personal assets of individuals. These factors to some extent will influence the quality of jobs that one expects to get. Second, household level characteristics, which include the number of dependents, number of household members, land holdings, and livestock. Third, community level variables which include community social capital, and lastly, location characteristics of the enterprise captured by a dummy variable, which may be regional or ecological.

According to Dabalén et al. (2004), an individual's decision to participate in the non-farm sector is a function of his productive assets (ability, skills and motivation, the financial and structural status of his household) and the array of opportunities available in the environment in which he/she lives. According to Ackah (2013), the following sets of factors influence the individual decision to participate in non-farm enterprises in Ghana: the individual characteristics (age of the individual, gender, education, marital status, status as household head, status as spouse of household head; household characteristics (land size, access to electricity, distance to drinking water source; and a location variable (Northern zone, Afram Basin and Southern zone). This study followed Ackah (2013) in specifying the variables, but included three other equally important variables (access to credit, use of mobile phone

and total livestock units). Senadza (2012) found that access to credit is an important determinant of multiple non-farm activities as well as non-farm income in rural Ghana. According to the Rural Poverty Report (2011), improved communication and information systems, particularly the diffusion of mobile phone coverage in rural areas played a role in stimulating the rural non-farm sector. Sanchez (2005) found that owning more livestock reduces the number of days worked in non-farm wage employment and that ownership of livestock is not important for wage-employment.

From the labour supply function by Sadoulet and de Janvry (1995), the individual characteristics correspond to the individual capital that is available to the household. These factors condition the household and put it in a better position to either participate in non-farm activity or not. Household access to certain essential services such as electricity and drinking water further enhances its ability to engage in non-farm. The physical location of the enterprise is also relevant. The location variable captures the expected effect of household access to labour and product markets.

In order to model the factors that determine the participation of individuals in non-farm enterprises in Ghana, the study employed a standard probit model. The dependent variable is dichotomous in that it takes two modalities, zero and one, depending on whether the individual participates in a non-farm enterprise or not. Since the dependent variable is not continuous, the application of linear regression models is not appropriate. This means that the use of probit or logit models is more appropriate. Probit model was chosen for its appropriateness in allowing for the estimation of marginal effects and its fitness to the data. This model is specified as;

$$P(y = 1/x) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + u$$

Where: y is the 0-1 outcome with 1 corresponding to an individual participating in non-farm activities (either as self-employed or wage earner) as the primary occupation and 0 corresponding to an individual participating in agriculture as the main occupation. X_1 - X_3 correspond to sets of individual, household and community (location) characteristics, respectively. β_1 - β_3 are the vectors of estimated parameters, and u is the error term, which is assumed to follow a standard normal distribution with mean zero and variance 1.

To model the factors influencing the intensity of participation, the study used a truncated regression as in the case of the second stage of the Double-hurdle model. The use of truncated regression is to address the bias introduced when using ordinary least squares (OLS) regression on truncated data. The double-hurdle approach allows distinction between the determinants of participation and the level of participation through two separate stages. The model was developed by Cragg (1971) and has been applied by Matshe and Young (2004) in modeling household labour allocation decisions in Zimbabwe. They found out that it is possible to establish that the two decisions are sequential. The second approach is the use of a truncated regression which determine the intensity of participation or otherwise analyse the determinants of how many days per year an individual allocates to the non-farm enterprise. Following Sanchez (2005), the model is specified following equation 3.1. as follows;

$$L = L^* \text{ if } L^* > 0 \text{ and } P^* > 0, \quad L = 0 \text{ otherwise}$$

$$L^* = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + U$$

Where: L^* is the observed level of participation (number of days worked on non-farm enterprises) in non-farm micro and small enterprise, P^* is the probability of participation, and X_1 - X_3 correspond to sets of individual, household and community (location) characteristics, respectively. β_1 - β_3 are the vectors of estimated parameters and u is the error term.

The individual first decides whether to participate in non-farm enterprise or not, and based on that decision, chooses the number of days to commit to non-farm work. Using a single stage procedure to estimate the factors that influence individual participation in non-farm enterprise and the number of days one would commit to working on non-farm activity could raise the issue of sample selection bias. The study therefore tested for the presence of sample selection bias using the Heckman selection model (Heckman, 1979). The decision to estimate the two equations separately or together was determined based on the significance of the statistical independence between the two (the decision to participate in non-farm enterprise equation and the number of days one would commit to working on the non-farm enterprises). If the null hypothesis is rejected based on the statistical independence between the two, then a multistage procedure must be used in the estimation.

2.3 Description of Variables used in the Analysis

Variables for the study were selected based on theoretical foundation. There are four dependent variables in this study. The first two are dichotomous variables which takes on the value one if the individual participates in non-farm activities (either as self-employed or wage earner) as the primary occupation and 0 corresponding to an individual participating in agriculture as the main occupation. In this study an individual participates in non-farm enterprises if the individual owns at least a non-farm enterprise. Participation in wage employment means the individual earns a wage by working on non-farm enterprises. The second two dependent variables are continuous variables which are used in modeling the intensity of individual participation in non-farm enterprises (either self-employed or wage earner). Intensity here refers to the number of days individuals commit to working on non-farm either as owner or wage earner. The study considers a set of independent variables that corresponds to the theoretical frameworks in the labour supply equation as given by Sadoulet and de Janvry (1995). These variables include individual characteristics, household characteristics and community or location variables. The individual characteristics are considered as assets and capabilities that the household possesses. According to the theoretical framework, these will motivate the individual to participate in the non-farm enterprise. The independent variables considered in this section are outlined below. The dependent and independent variables are described in Table 2.1 below.

Table 2. 1: Description of Variables used in the Analysis (Participation and Participation Intensity)

Variable	Description	Value
Dependent Variable		
Self-employment	Participation in non-farm self-employment	1=yes, 0=no
Wage employment	Participation in non-farm wage employment	1=yes, 0=no
Intensity self-employment	Number of days worked per year self-employment	Number of days worked
Intensity wage employment	Number of days worked per year wage-employment	Number of days worked
Individual Characteristics		
Female	Individual gender	1=female, 0=male
Married	Individual marital status	1=married, 0=otherwise
Hh head	Individual is household head	1=yes, 0=no
Spouse hh head	Individual is spouse of household head	1=yes, 0=no
Education	Individual had formal education	1=yes, 0=no
Age	Age of the individual	Number of years
Age squared	Age of the individual squared	Number of years squared
Credit	Individual had access to credit	1=yes, 0=no
Mobile phone	Individual had a mobile phone	1=yes, 0=no
TLU	Number of livestock kept	Tropical livestock units
Landholding	Landholding per individual	Hectares
Household Characteristics		
Electricity	Household access to electricity	1=yes, 0=no
Distance water	Distance to potable drinking water	Kilometers
Location/Zone Characteristics		
Coastal	Enterprise is located in Coastal zone	1=yes, 0=no
Savannah	Enterprise is located in Savannah zone	1=yes, 0=no
Forest	Enterprise is located in Forest zone	1=yes, 0=no

Note: Tropical livestock unit (TLU) was calculated following Al-Hassan et al. (1997) and Ramakrishna and Demeke (2002). 1 cattle = 1 TLU; 1 draught = 1 TLU; 1 pig =0.25 TLU; 1 sheep = 0.2 TLU; 1 goat = 0.15 TLU; 1 rabbit = 0.005 TLU; 1 poultry = 0.005 TLU.

3. RESULTS AND DISCUSSIONS

3.1 Determinants of Non-farm MSEs Participation in Rural Ghana

Women dominate the non-farm sector across all the ecological zones. About 73% of those self-employed in non-farm enterprises in rural Ghana are females. Non-farm enterprises owners were older, more educated and more married as compared to those in agriculture. They also used more mobile phones and had more accessed to credit as compared to their colleagues in farming. However, those in farming had more acreage of land holdings and owned more livestock as compared to those in non-farm. It is worth noting here that almost every household in the rural areas engages in farming and may engage in non-farm for additional income. It is not of place to state that households in the rural areas engaged in non-farm enterprises as additional source of income to smoothen consumption and reduce the risks associated with farming. FAO (1998) states that the traditional image of farm households in developing countries is to focus almost exclusively on farming and undertake little rural non-farm activity. There were more female headed households and more households with access to electricity in the non-farm sector as compared to those in farming. Farming households had larger household size and had to travel more distance for portable drinking water as compared to those in non-farm enterprises. Details of the comparison between participants and non-participants are presented in the Table 3.1.

Table 3.1: Characteristics of participants and non-participants in the rural non-farm sector

Variables	Non-farm owners	Farmers	t-statistic
Individual Characteristics			
Gender (% female)	72.94	51.28	-
Individual age	42.42	38.84	5.59***
Formal education (%)	74.27	63.31	6.51***
Individual (% married)	60.34	51.69	5.09***
Land holding (hectares)	2.16	2.85	-3.27***
Livestock (TLUs)	0.67	0.89	-1.42
Credit (% that had access)	18.53	9.25	8.96***
Mobile phones (% possessing)	77.68	60.71	10.40***
Household Characteristics			
Female headed households (%)	44.47	17.36	-

Household size	3.58	4.25	-5.53***
Access to electricity (%)	42.70	31.84	6.79***
Distance to drinking water source (Km)	0.49	0.69	-1.66*

Generally, the percentage of female headed households in the sample was low and in particular that for the Savannah zone. There were less female headed households in the Savannah zone as compared to the Forest and Coastal zones. Households in the Savannah had less accessed to electricity compared to the other zones and inhabitants had to travel more distance for portable drinking water. An interesting finding is the high usage of mobile phone in the rural communities. On the average, about 63% used mobile phones. The Savannah zone had the lowest usage of mobile phones and owned more livestock as compared to the Forest and Coastal zones. Individuals in the Savannah zone were less educated, more married and younger as compared to those in the other zones. Individuals in the Forest zone had more acreage of land as compared to those in the Savannah and Coastal zone. This may be surprising giving the fact that the largest region in Ghana in terms of land size is located in the Savannah zone. It is possible that a lot of the land in the Savannah zone is not under cultivation. Details are in Table 3.2.

Table 3.2: Characteristics of individuals and households by ecological zone in Rural Ghana

Variables	All zones	Savannah Zone	Forest Zone	Coastal Zone
Individual Characteristics				
Gender (% Female)	54.22	54.24	53.16	57.60
Individual age (years)	39.32	38.42	39.78	40.85
Ever being to school (%)	64.78	48.84	78.42	73.46
Technical school (%)	2.79	2.64	2.44	4.27
Tertiary (%)	2.53	2.21`	2.09	4.65
Individual (% married)	52.87	62.05	45.80	45.31
Land holding (hectares)	2.74	2.84	3.01	1.39
Livestock (TLUs)	0.91	1.11	0.54	0.77

Credit (%)	10.34	7.84	13.53	9.56
Mobile phones (%)	63.03	50.36	72.62	73.97
Household Characteristics				
Households	3,143	1,124	1,512	507
Female headed households (%)	26.27	11.22	28.22	39.39
Age of household head (years)	49.12	49.53	48.66	49.58
Household size	3.77	5.35	3.57	3.05
Access to electricity (%)	33.32	24.46	40.03	41.03
Distance to water source (Km)	0.67	0.85	0.54	0.47

3.2 Determinants of Participation in Non-Farm Self-employment

The study used a probit model to estimate the factors influencing individual participation. The decision to estimate the models separately using a probit and a truncated regression was based on the fact that the Wald test of independence of equations (Rho) was not significantly different from zero, hence failure to reject the null hypothesis of no difference. The results from the Heckman selection model for self-employment (see appendices 1 and 2) showed that the Rho was 0.02 and the probability of the chi-square (chi²) was 0.8884. This implied that the “decision to participate model” and the “intensity of participation model”, could be treated as two independent equations and estimated separately.

The results from the Heckman selection model for wage-employment (see appendix 2) showed that the Rho was 0.87 and the probability of the chi-square (chi²) was 0.3510 also indicating that the “decision to participate” and the “intensity of participation” could be treated as two independent equations. Results from the regression analysis show the marginal effect on participation given a one unit change or a discrete change, in the explanatory variables. Results presented separately for non-farm wage and self-employment. Participation in the non-farm sector is a function of individual, household and locational characteristics. The following individual variables were significant determinants of participation in the non-farm sector. These include the gender of the individual, being head of a household, being the spouse of a household head, having formal education, age of the individual, having access to credit, possessing a mobile phone per capita land holding and ownership of livestock. Generally, the effects of individual characteristics on the probability of individual participation in non-farm self-employment were consistent with a priori expectations. Except gender, ownership of livestock and being the spouse of the household head, the rest of the variables had the same signs and were significant across wage and

self-employment. The results indicate that females are more likely to participate in non-farm self-employment. This finding is consistent with studies of the non-farm sector in Ghana by Newman and Canagarajah (1999) and Owusu-Boateng (2011). The greater participation of Ghanaian women in non-farm self-employment according to Newman and Canagarajah (1999) conforms more easily to the culturally accepted role of women as market traders. However, females were less likely to participate in non-farm wage employment. This finding is similar to the findings of Women are less likely to participate in non-farm wage employment. These findings are similar to the findings of Corral and Reardon (2001) who found that in Nicaragua, women mostly participate in self employment activities. Sanchez (2005) in studying the non-farm sector in rural Bolivia found that females are more likely to participate in non-farm self-employment. Glick and Sahn (1997) in earlier studies, argued that the less participation of women in non-farm wage employment could be due to the many roles played by women. Being the spouse of the household head does not increase the probability of participating in non-farm wage employment but it matters for non-farm self-employment. An interesting finding of this study is that owning more livestock decreases one probability of participation in the non-farm wage employment. In this case, one may prefer to raise livestock as supposed to offering labour to someone else (see Table 3.3 below).

Table 3.3: Determinants of Individual Participation in non-farm Self-employment: results estimated using a Probit model

Variable	Non-farm wage and self-employment	Non-farm self-employment	Non-farm wage
employment			
Individual Characteristics			
Female	0.0917*** (0.0113)	0.1262*** (0.0096)	-0.0225*** (0.0042)
Married	-0.011 (0.0112)	0.0024 (0.0094)	-0.0040 (0.0030)
Household head	0.2504*** (0.0207)	0.1902*** (0.0187)	0.0367*** (0.0091)
Spouse of household head	0.1154*** (0.0249)	0.0865*** (0.0212)	0.0111 (0.0092)
Education	0.0398*** (0.0087)	0.0182** (0.0073)	0.0150*** (0.0027)
Age	0.0157*** (0.0018)	0.0110*** (0.0014)	0.0027*** (0.0006)
Age squared/100	-0.0178*** (0.0019)	-0.0123*** (0.0015)	-0.0032*** (0.0006)
Credit	0.0511***	0.0311**	0.0311**

	(0.0145)	(0.0119)	(0.0119)
Mobile phone	0.0720***	0.0473***	0.0473***
	(0.0084)	(0.0069)	(0.0069)
TLUs	-0.0011	-0.0000	-0.0039*
	(0.0011)	(0.0007)	(0.0022)
Landholding per capita	-0.0125***	-0.0046**	-0.0031***
	(0.0031)	(0.0021)	(0.0009)
Household Characteristics			
Electricity	0.0506***	0.0200**	0.0151***
	(0.0092)	(0.0075)	(0.0032)
Distance to drinking water	-0.0046	-0.0029	-0.0011
	(0.0037)	(0.0027)	(0.0014)
Location/zone Characteristics			
(reference: Coastal)			
Savannah zone	-0.0614***	-0.0370***	-0.0084**
	(0.0122)	(0.0101)	(0.0037)
Forest zone	-0.0572***	-0.0360***	-0.0056*
	(0.0112)	(0.0092)	(0.0031)
Log pseudolikelihood	-2444.2215	-2131.3421	-895.2528
Wald χ^2 (15)	703.22	508.46	389.03
Prob > χ^2	0.0000	0.0000	0.0000
Pseudo R ²	0.1917	0.1744	0.2254
Observations	6530	6530	6530

Robust standard errors are reported below the estimates in parenthesis. *, ** and *** are levels of significance at 10%, 5% and 1%, respectively.

Being a household head increases the probability of participating in non-farm employment. Here it is not clear whether the household head is male or female. However, analyzing non-farm income diversification in rural Ghana, Sanadza (2012) found no significant difference between male-headed and female-headed households in non-farm activity participation. In a related study, The results further showed that being a household head and being the spouse of the household head are significant determinants of participating in non-farm enterprises. The effect of human capital on non-farm participation was positive and significant. Human capital captured here as having formal education exerted a positive and significant effect on participation. Older people were more likely to participate in non-farm self-employment as compared to younger ones. This may be because older people have accumulated some capital to go into non-farm enterprise. This finding is consistent with Sanchez (2005). Sanchez found that the probability of participating in the non-farm sector increases with age. Bigsten and Kayizzi-Mugerwa

(1995) stress the importance of life-cycle aspects arguing that the youngest are often better endowed with human capital (such as health or education) but have not yet accumulated assets (land or cattle). Escobal (2001) obtained similar results in analyzing the determinants of nonfarm income diversification in rural Peru. Corral and Reardon (2001) and Ferreira and Lanjouw (2001) find that the likelihood of undertaking a non-agricultural activity, whether self-employed or not, increases with age. Age was quadratically modeled to determine the marginal rate of return of age on the probability of participation. The results showed that age has a U-shaped effect on participation. Age increases the probability of participation but reaches an apex and then declines. This finding is consistent with Micesva and Rahut (2008) who modeled quadratically the effect of age on household participation and found that the probability of participation first increases with age, peaks at age 55 and thereafter declines. These findings are contrary to the findings of Owusu-Boateng (2011). Owusu-Boateng found that younger people are more likely to participate in non-farm. However, Ackah (2013) did not find age to be important in determining the probability of participation in non-farm enterprises.

Having access to credit increases the probability of the individual to participate in non-farm enterprises. It is worth noting that studies in Ghana do not often consider access to credit as an explanatory variable but this study found it relevant to include it. This study found that having access to credit increases the probability of participating in non-farm employment. In a related study Sanadza (2012) found that access to credit is an important determinant of multiple non-farm activities as well as non-farm income. Ruben and van den Berg (2001) find that access to credit had no impact on non-farm self-employment.

In an attempt to capture the effect of technology on the probability of participating in the non-farm economy, this study included having access to mobile phone. The results indicate that having access to mobile phone increases the probability of participation in both wage and self-employment. This emphasizes the importance of technology in the rural areas. As expected, individuals' having large size of landholding decreases the probability of participating in the non-farm enterprise. Loening et al., (2008) discusses the argument that non-farm enterprises are set up by households primarily as a survival strategy, perhaps as a substitute for agriculture for the landless. This finding is consistent with the findings of Owusu-Boateng (2011) and Malchow-Moller and Svarer (2001). The former found that the lack of access to land increases participation in the non-farm sector. Malchow-Moller and Svarer (2001) state that low access to productive resources such as land will push households to allocate labour to the non-farm sector. Some studies have indicated that acreage of land owned seem not to have an impact on non-farm self-employment. For instance Ackah(2011), Escobal (2001), Ruben and van den Berg (2001), Corral and Reardon (2001) and Sadoulet and de Janvry, (2001) found that land ownership do not have an impact on non-farm self-employment.

Household access to electricity increases the probability of participating in the non-farm economy. This finding corroborates with the finding of Gibson and Olivia (2010) found that households are less likely to have a non-farm enterprise if they lack access to electricity and suffer from frequent electricity blackouts. Freese (2010) in analyzing the rural non-farm sector in Burkina Faso finds that access to electricity increases the probability of participating in the rural non-farm sector.

Savannah and Forest zones are less likely to participate in non-farm employment as compared to the Coastal zone. From the descriptive statistics, average land holding per person in the Coastal zone was the smallest, thus an indication that primary agriculture is very low thus suggesting that the people may be engaging in non-farm enterprises. The capital city of Ghana (Accra) is located within the Coastal zone and the zone also contains big industries which pull people into non-farm enterprises. Going by the assertions made earlier, less land ownership means more participation in non-farm work. Residing in a town or “populated center” makes the options of participation in wage and self-employment more accessible, generating more income opportunities for individuals (Elbers and Lanjouw, 2001, Barrett et al. 2001). Residing in a favourable climatic region could offer individuals the opportunities to diversify into the non-farm sector. A vibrant agricultural sector could offer more opportunities in the non-farm sector. Stamoulis and Zezza (2003) note that extra income from agricultural growth can create demand for goods and services from non-farm sector, thus starting a virtuous cycle in which agricultural and rural off-farm income grow and sustain each other’s growth.

3.3 Modelling the Factors Influencing the Intensity of Participation

The study used a truncated regression to estimate the factors influencing the intensity of participation (number of days worked). Once the decision has been made to participate in the non-farm sector, then analysis can be made about how many days are committed to working in the non-farm sector. Results from the truncated regression showed that an additional increase in Tropical Livestock Unit (TLU) will result in an increase in participation in both wage and self-employment. Individuals who possess mobile phones are likely to increase their participation in the non-farm sector. Households that have access to electricity are likely to work more on their non-farm enterprises. It is interesting to note that ownership of livestock was not relevant in deciding whether or not to participate in non-farm self-employment but important in determining the number of days committed to non-farm self-employment once the individual decides to participate in the non-farm sector. Being a household head and spouse of the household head increases the number of days committed to non-farm wage employment. The household head and the spouse have the responsibility of providing the needs of the households and will work more to be able to get more income for their households. Self-employed individuals worked less days as compared to those working on wage employment. On the average self-employed individuals worked 224 days in a year as compared to 294 days of work by those on wage employment. Results from the truncated regression are presented on Table 3.4.

3.4: Determinants of level of individual participation in non-farm self-employment: Results estimated using a truncated regression on days worked per year.

Variable	Non-farm Self-employment	Non-farm Wage employment
Individual Characteristics		
Female	-13.0006 (13.0922)	-27.5333 (17.0851)
Married	-9.9525 (12.1203)	-3.4063 (11.4369)
Household head	14.1806 (26.8515)	50.1511* (26.9278)
Spouse of household head	17.8378 (27.9578)	63.8379* (33.2687)
Education	-5.6236 (11.5678)	3.0093 (16.6872)
Age	0.1439 (1.9332)	0.6586 (2.5818)
Age squared	-0.1652 (2.0042)	-0.0004 (0.0283)
Credit	12.7569 (11.4711)	-8.9427 (12.2836)
Mobile phone	33.3210** (12.7417)	41.2243** (16.8971)
TLUs	8.9464** (3.5118)	0.4299*** (0.0867)
Landholding	-2.9427 (2.3801)	0.9629 (1.8713)
Household Characteristics		
Electricity	39.9217*** (9.3930)	13.5106 (10.4043)
Distance to drinking water	3.5634 (2.9322)	1.9298 (2.0592)
Zone Characteristics		
(reference: Coastal)		
Savannah zone	-3.5934	-1.4282

	(13.3143) 1	(7.1341)
Forest zone	5.7314	12.7988
	(11.5450)	(12.2268)
Constant	167.3013***	161.9937**
	(49.4348)	(60.2689)
<hr/>		
Log pseudolikelihood	-4880.013	-2417.690
Wald χ^2 (15)	43.21	85.24
Prob> χ^2	0.000	0.000
<hr/>		

Robust standard errors are reported below the estimates in parenthesis. *, ** and *** are levels of significance at 10%, 5% and 1%, respectively.

The results also indicate that as the individual advances in terms of age, the individual works more on self employed enterprises, until old age sets in when the individual working days begin to reduce. An additional increase in TLU will result in 0.425 increase in the number of working days on wage employment. This implies that individuals having more livestock will as well increase the number of days working on the wage-employment. This is contrary to the findings of Sanchez (2005) who found that owning more livestock reduces the number of days worked in non-farm wage employment and that ownership of livestock is not important for wage-employment. In this study, ownership of livestock was captured as tropical livestock unit (TLU) which has become the standard practice in Africa (see for example, Al-Hassan et al. (1997), Ramakrishna and Demeke (2002) and Senadza (2012). Ownership of livestock reduces the probability of participating in non-farm wage employment but is important in determining the number of days committed to non-farm wage employment. This is possible in the sense that most rural households do not practice the intensive system of keeping animals where they are confined and fed from time to time. The animals are allowed to roam freely, and sometimes children are the sole keepers. This means that an adult livestock keeper can still have enough time to engage in wage employment and can even work more. This also indicates that once the individual decides to participate in the wage labour market, the individual is likely to commit days to working.

Having large farms (captured here as landholding) reduces the number of days one commits to working on self employment. This is expected because individuals have to devote time for agriculture as well as non-farm enterprises. The more time spent on farming, the less time there is to working on non-farm. Individuals who possess mobile phones tend to increase their working days in either self or wage employment. The Rural Poverty Report (2011) indicated that improved communication and information systems, particularly the diffusion of mobile phone coverage in rural areas have played a role in stimulating the growth of the non-farm economy. Individuals who had access to credit work more on self employed enterprises. This is expected because they may be required to pay back the credit including interest, and this implies that they would have to work more in order to make enough profits to be able to pay. However, access to credit is not important for non-farm wage-employment.

Households that have access to electricity are more likely to work more days in self employed enterprises than those not having access to electricity. Enterprises that have electricity are better able to work in the evening as compared to those not having electricity. Self-employed individuals worked fewer days as compared to those working in wage employment. Results from the truncated regression are presented in Table 4.5.

Being a household head had the greatest magnitude of effect on the number of days worked in self-employment. Household heads worked 36.78 days more as compared to those who are not. Females worked 27.30 days more as compared to that of males. An additional hectare of land owned will result in 1.624 decrease in the number of days worked in the non-farm activity. Spouse of household variable had the greatest magnitude of effect on the number of days worked on wage-employment. Spouse of household heads worked 60.86 days more as compared to those who are not. Possessing a mobile phone had a significant effect on the number of days worked on wage-employment. People who possess mobile phones worked 39.87 days more as compared to those who do not have mobile phones.

4. Conclusions

Results from the probit regression model showed that individual characteristics such as the gender of the individual, being head of a household, being the spouse of a household head, having formal education, age of the individual, having access to credit, possessing a mobile phone, per capita land holding and ownership of livestock influenced the participation of individuals in self-and wage-employment. However, females are more likely to participate in non-farm self-employment and less likely to participate in wage-employment. In addition, individuals who owned less livestock were more likely to engage in non-farm wage-employment. Individuals with more landholding are less likely to participate in non-farm self or wage employment. This finding supports the argument in the literature that individuals and household may set up non-farm enterprises primarily as a survival strategy, perhaps as a substitute for agriculture for the landless.

For wage-employment, being a household head, spouse of household head, having access to mobile phone and owning more livestock increased the number of days working on wage-employment. The study showed that being a female increases the probability of participation in self-employment by 0.1262. Contrary, being a female, decreases the probability of participating in wage-employment by 0.0225. Being a household head increases the probability of participation in self-employment by 0.1902 and 0.0367 in wage-employment.

This study contributes to the existing knowledge on participation in the non-farm sector and in particular, intensity of participation which is virtually lacking in the Ghanaian context. The study also included three important variables (access to credit, mobile phone and ownership of livestock) which are often missing in previous studies of participation in the non-farm sector in Ghana. In analysing the intensity of participation using the truncated regression, the results indicated that having access to mobile phones, access to electricity and owning more livestock increased the number of days committed to working on non-farm self-employment.

The study found that females tended to participate more in non-farm self-employment and are less likely to participate in non-farm wage employment. The findings suggest that, there may not be significant barriers to entry into self-employment and the finding that females are less likely to engage in wage-employment may suggest there are significant barriers to entry. Senadza (2012) found that education was the single most important factor contributing to inequality-increasing of non-farm income in rural Ghana. Thus emphasizing the essence of education to working in the non-farm sector especially wage-employment. Policies should gear towards reducing constraints to entry in the non-farm sector, particularly targeting wage-employment.

Having formal education increases the probability of participation in non-farm self-and wage-employment. Government should play a lead role in making formal education accessible to the rural people. It should encourage female education, since females were less educated as compared to males. Efforts targeting to reduce rural poverty requires strategic investments in rural electrification projects. Deliberate policies should focus on addressing critical factors such as access to credit, mobile phone, electricity and schooling which are relevant for increasing the number of days worked in rural enterprises.

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Appendix 1: Heckman Selection model for self-employment

Heckman selection model (regression model with sample selection) Number of obs = 6508
 Censored obs = 5650
 Uncensored obs = 858
 Wald chi2(14) = 36.88
 Prob > chi2 = 0.0008
 Log pseudolikelihood = -7393.544

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
i~self_emp~t						
female	-5.995219	17.80347	-0.34	0.736	-40.88938	28.89895
hh_head	21.23075	29.72086	0.71	0.475	-37.02107	79.48257
spouse_hhh~d	20.32183	24.12966	0.84	0.400	-26.97143	67.6151
school	-4.864445	10.16164	-0.48	0.632	-24.7809	15.05201
TLU	9.39891	3.134606	3.00	0.003	3.255196	15.54262
landholding	-3.481167	2.269876	-1.53	0.125	-7.930043	.967709
credit	11.04705	10.81368	1.02	0.307	-10.14739	32.24148
electricity	20.80271	8.842433	2.35	0.019	3.471858	38.13356
mobilephone	41.71843	11.94748	3.49	0.000	18.30179	65.13506
age	.8205127	2.022523	0.41	0.685	-3.14356	4.784585
agesquared	-.658626	2.155932	-0.31	0.760	-4.884175	3.566923
distance_w~r	-.5214347	3.775936	-0.14	0.890	-7.922134	6.879265
savannah	-5.495144	12.24009	-0.45	0.653	-29.48528	18.495
Forest	-17.25254	11.15224	-1.55	0.122	-39.11053	4.605442
_cons	139.048	93.04044	1.49	0.135	-43.30789	321.4039
self_emplo~t						
female	.8563271	.0697439	12.28	0.000	.7196317	.9930225
hh_head	1.110476	.1016698	10.92	0.000	.9112072	1.309745
married	.008655	.0620948	0.14	0.889	-.1130486	.1303586
spouse_hhh~d	.5021644	.1071341	4.69	0.000	.2921854	.7121435
school	.1274486	.0509128	2.50	0.012	.0276613	.2272358
TLU	-.000115	.0047427	-0.02	0.981	-.0094105	.0091805
landholding	-.0286666	.0134519	-2.13	0.033	-.0550319	-.0023013
credit	.1703772	.0647025	2.63	0.008	.0435626	.2971917
electricity	.1330007	.0466708	2.85	0.004	.0415276	.2244739
mobilephone	.3279338	.0516078	6.35	0.000	.2267843	.4290833
age	.0716567	.0098307	7.29	0.000	.0523888	.0909246
agesquared	-.0797442	.0107658	-7.41	0.000	-.1008449	-.0586435
distance_w~r	-.0206341	.018793	-1.10	0.272	-.0574677	.0161995
savannah	-.2541787	.0681713	-3.73	0.000	-.3877921	-.1205654
Forest	-.2552328	.0632401	-4.04	0.000	-.3791812	-.1312845
_cons	-3.862569	.207938	-18.58	0.000	-4.27012	-3.455018
/athrho	.0269845	.192301	0.14	0.888	-.3499185	.4038876
/lnsigma	4.765161	.0157188	303.15	0.000	4.734353	4.79597
rho	.026978	.192161			-.3363033	.3832704
sigma	117.3501	1.844598			113.7898	121.0217
lambda	3.165867	22.56294			-41.05669	47.38842
Wald test of indep. eqns. (rho = 0): chi2(1) = 0.02 Prob > chi2 = 0.8884						

Appendix 2: Heckman Selection model for wage employment

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Heckman selection model
(regression model with sample selection)      Number of obs   =      401
                                              Censored obs   =      125
                                              Uncensored obs =      276

Log pseudolikelihood = -1853.436           wald chi2(14)  =      26.26
                                              Prob > chi2    =      0.0240
    
```

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
i~wage_emp~t						
female	-28.49225	17.23591	-1.65	0.098	-62.27401	5.289523
hh_head	34.02127	25.98095	1.31	0.190	-16.90046	84.943
spouse_hhh~d	61.0701	30.53599	2.00	0.046	1.220658	120.9195
school	3.987875	19.17793	0.21	0.835	-33.60017	41.57592
TLU	-24.67152	15.56223	-1.59	0.113	-55.17293	5.829889
landholding	1.696786	2.69261	0.63	0.529	-3.580633	6.974205
credit	-14.11703	13.83128	-1.02	0.307	-41.22585	12.99178
electricity	11.69879	12.58506	0.93	0.353	-12.96747	36.36505
mobilephone	57.15322	22.82152	2.50	0.012	12.42386	101.8826
age	-1.246675	2.75795	-0.45	0.651	-6.652157	4.158807
agesquared	1.995891	3.102936	0.64	0.520	-4.085752	8.077535
distance_w~r	2.008232	1.792475	1.12	0.263	-1.504955	5.521419
savannah	22.6544	17.30493	1.31	0.190	-11.26263	56.57144
Forest	9.297857	13.74573	0.68	0.499	-17.64329	36.239
_cons	195.819	66.82706	2.93	0.003	64.84035	326.7976
wage_emplo~t						
female	.1071191	.2110745	0.51	0.612	-.3065794	.5208176
hh_head	-.3713002	.3214187	-1.16	0.248	-1.001269	.2586689
married	.0672706	.162384	0.41	0.679	-.2509962	.3855374
spouse_hhh~d	-.4649295	.4500525	-1.03	0.302	-1.347016	.4171572
school	.6043663	.2051578	2.95	0.003	.2022644	1.006468
TLU	-.07238	.1496949	-0.48	0.629	-.3657765	.2210166
landholding	-.0607957	.0296122	-2.05	0.040	-.1188346	-.0027568
credit	-.0186404	.163668	-0.11	0.909	-.3394238	.3021429
electricity	.5435843	.1456874	3.73	0.000	.2580423	.8291263
mobilephone	.3662624	.1963246	1.87	0.062	-.0185267	.7510516
age	-.0163714	.0364218	-0.45	0.653	-.0877568	.0550139
agesquared	.0265631	.0417619	0.64	0.525	-.0552887	.1084149
distance_w~r	.0072218	.0397949	0.18	0.856	-.0707749	.0852184
savannah	.9239918	.2457639	3.76	0.000	.4423034	1.40568
Forest	-.0040736	.1704319	-0.02	0.981	-.3381139	.3299667
_cons	-.1276897	.7877272	-0.16	0.871	-1.671607	1.416227
/athrho	.1090807	.116957	0.93	0.351	-.1201507	.3383121
/lnsigma	4.51192	.0498821	90.45	0.000	4.414152	4.609687
rho	.1086501	.1155763			-.1195759	.3259697
sigma	91.09652	4.544088			82.6118	100.4527
lambda	9.897647	10.68241			-11.0395	30.83479
wald test of indep. eqns. (rho = 0): chi2(1) =				0.87	Prob > chi2 = 0.3510	

Examining activities in the E-waste Sector:

Evidence from Two Metropolis in Ghana

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Abstract

Over the past decades, growing trends in social media, e-literacy and globalisation have led to the increased use of electrical and electronic equipment (EEE) in offices, schools, homes, hospitals and other institutions. Although, there are more efforts at introducing diversity, innovation and increased use of EEE, there had been limited effort at managing the end-of-life of these electronic devices. Evidence from previous research showed that the management of the end of life of electronic waste is highly dominated by Micro, Small and Medium Sized Enterprises (MSMEs) in the informal sector who employ more crude technology in their operations. This exploratory study therefore, sought to examine the activities of corporate bodies and MSMEs (formal and informal) in the e-waste sector in the Accra and Kumasi Metropolitan Areas in Ghana. Data was collected via questionnaires and interview from randomly selected respondents in the two metropolises. Results reveal that even though corporate institutions import a lot of electrical and electronic equipment, they do not have any policies on disposal of the e-waste generated. Thus, a high percentage of the e-waste generated is processed by the informal sector. The implications of the results are that policy makers and other stakeholders should encourage MSMEs to formalize their activities, support investment and green business development as well as funding and training for MSMEs operating in the sector.

Keywords: Electrical and Electronic Equipment, E-waste, MSMEs, Corporate Bodies

1 Background

Over the last few decades, electrical and electronic equipment (EEE) have revolutionized and change direction of human life in multiple ways. These products have now become indispensable part of life around the globe. Modern day life would not be comfortable in both developed and developing countries without these products. They serve in such critical areas as medicine, transport, education, health, food supply, communication, security, environmental protection and culture. Appliances such as refrigerators, washing machines, mobile phones, personal computers, printers, toys and TVs among others have now become defining factors in human endeavours. The demand for newer and more efficient technology is reducing the life span of electronic products at the global level. Consequently, older and out-dated electronic equipment are becoming obsolete and are being discarded in significant amounts worldwide (Herat and Agamuthu, 2012; Oteng-Ababio, 2012). Managing e-waste has become a major challenge for governments and policy makers particularly in developing continents where the need to bridge the digital divide is driving importation of both used and new electrical and electronic equipment (EEE). In Ghana, studies have shown that informal e-wastes processing activities has led to massive environmental pollution in places such as Agbogbloshie in the Greater Accra Region (Oteng-Ababio and Amankwaa, 2014.). These pollution activities come at the backdrop of loss of precious metals thereby putting sustainability of scarce metals at high risk. The present research was aimed at conducting an e-waste inventory assessment to ascertain the e-waste generated in the study areas and also identify the challenges MSMEs who are recyclers and refurbishers face in the Greater Accra (Accra and Tema) and Ashanti Regions (Kumasi) of Ghana.

2. Literature Review

2.1 National Inventory

In 2009, Ghana imported 215,000 tons of Electrical Electronic Appliances. Out of this number, 150,000 were new appliances and 64,500 used appliances (Amoyaw-Osei et al, 2011). Available statistics (Pawmang and Amoyaw-Osei, 2011, SBC 2012) showed that up to 70% of all electrical and electronic equipment imported are second hand products and out of this number, about 97,825 (representing 65%) of these second hand products arrive in working condition, another 37,625 (representing 25%) can be repaired or refurbished to get them functioning and about 15,050 (representing 10%) are broken and sent directly to the informal recycling.

It is estimated that consumers build up an installed base of about 984'000 tons of EEE, with more than 90% used by the private consumer. Furthermore, there was about 215,000 tons of obsolete items stored growing at a rate of 20% in 2009 (Prakash et al, 2010, Amoyaw-Osei et al, 2011). The high amount of used EEE imports makes electrical and electronic products easily available which can be purchased at relatively low prices. For this reason, used EEE are available for a high percentage of the population and gives many people the opportunity to use electrical and electronic products in their everyday life. The equipment that arrives already in broken condition is

added to the internally generated waste electrical and electronic equipment (WEEE) and thus, again, increases the large amount of e-waste generated. Out of the obsolete devices generated in 2009, 57% went to repair, 8% to storage and 34% directly to recycling via the informal collectors (Prakash et al, 2010; Amoyaw-Osei et al, 2011). Only 1% was collected via communal collection.

Data from the Customs Excise and Preventive Service (CEPS) and Environmental Protection Agency (EPA) shows an increasing importation of EEE into the country. As can be observed in (Fig.1), since 2011 the imports of new personal computers have surpassed the importation of used personal computers. This phenomenon means that the rate at which this equipment comes to its useful end of life might be delayed. However, with increasing competition among corporate consumers it is likely that the rate at which these materials come to their useful end-of-life will be shorter.

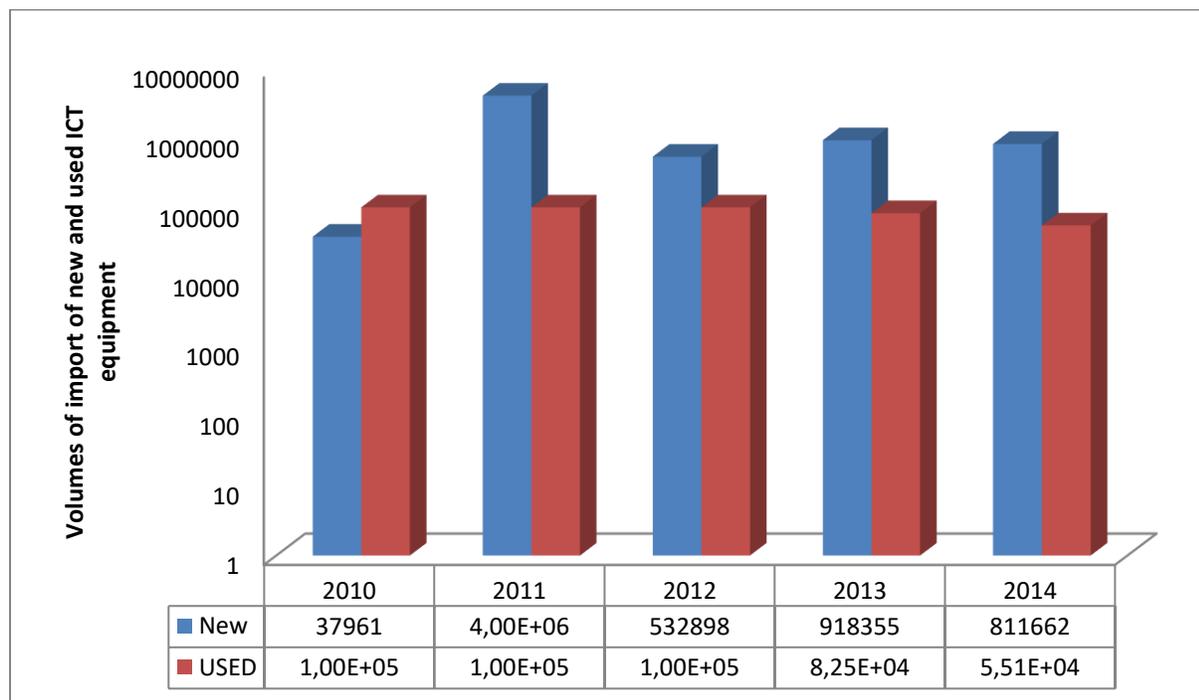


Figure 1: Volume of importation of personal computer (Used and New)

From figure 1, one can observe that there were far more laptops imported as brand new than used. This means that with time, the importation of second hand equipment is most likely to come down. Laptops and most flat screens are quite difficult to manage hence will require some amount of both technical and financial know-how to overcome them.

One of the problematic fractions which are Cathode Ray Tubes (CRT) was found to have more second hand imports over the period than new ones (Fig 2). Cathode Ray Tube (CRT) is a display device that uses electrons fired at phosphors to create images. It is about 85% glass accounted for 55% of the entire weight of a TV and 32% of the PC monitor (Fernanda et. al., 2005). In most e-wastes related businesses, CRTs have been an issue of concern

and they are looking for ways to manage them sustainably. In Ghana, CRTs are often discarded by refurbishers because there is no market or available technology to manage them.

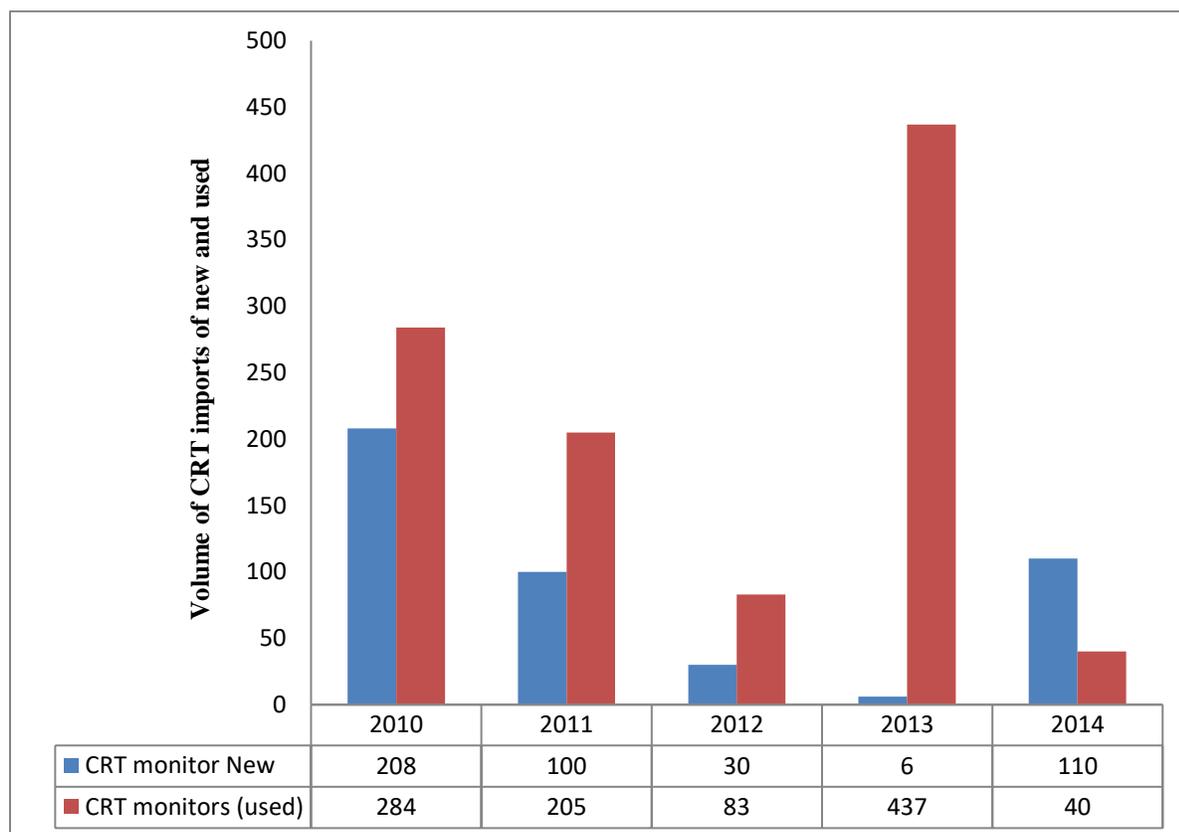


Figure 2: Import volumes of new and used CRTs (tonnage)

3 Methodology

3.1 Data and Instrument

Primary and secondary data used for the purpose of this study. The secondary data came from review of reports such as those country assessment reports, national policy documents as well as other relevant documentations. The primary data on the other hand, was collected by utilising field observation, questionnaire and interview guides for selected stakeholders. The questionnaires were administered to corporate institutions who usually import the electrical and electronic equipment, whilst stakeholders (MSMEs) from the informal sector who undertake the processing of the electronic waste were interviewed due to their low level of literacy.

3.2 Questionnaire development

The questionnaire for the data collection was adopted from EMPA (2010) with some major modifications. The questionnaire developed was tested at various departments, sections of the University of Cape. It was noticed there was low level of awareness among respondents hence the data collectors were trained to enable them explain the issues to the respondents.

3.3 Training

Field staff were trained. The training curriculum included; introduction to e-wastes, global e-wastes regulation, hazardous chemicals in e-wastes, environmental impacts of e-wastes, e-wastes in Ghana, environmental pollution from e-wastes in Ghana, legal and legislative framework from e-wastes in Ghana, questionnaire for corporate institutions, recyclers, repairers and refurbishers.

3.4 Sampling Strategy

In line with the objectives of this study about 234 stakeholders were selected from two cities (i.e Accra, and Kumasi). Industries earmarked for sampling were grouped into three categories; corporate institutions that deploy ICT for their operations, recyclers of e-wastes, repairers and refurbishers. Industries that deploy information communication technology for their operations were selected for the questionnaire administration. The data collectors relied on procurement officers, ICT managers and another official designated by the companies. Each industry answered only one questionnaire in order to avoid duplication. As much as possible data collectors employed one-on-one interview technique to ensure maximum return of the questionnaires. Industries that were sampled include; financial services institution, hospitality, education, health care, IT companies, telecom companies. Sampling also considered private and public institutions. Recyclers of e-wastes included collectors, dismantlers and end-processors. Refurbishers and repairers included institutions that repair and refurbish electrical and electronic equipment in order to give second life to used equipment. Field observations were conducted in the course sampling. The sample breakdown is as follows:

Table 1: Sample from each City

City	Corporate Institutions (Users)	Recyclers and Refurbishers (Mainly in the informal sector)	Subtotal
Accra	70	84	154
Kumasi	40	40	80
Total	110	124	234

4 Results and Discussion

This section presents results from the data analysis. The Ghana Country assessment studies revealed that, the country generate about 70% (Amoyaw, et al., 2012) of the e-wastes that are sent to various scrap yards in the country. The report further indicates that individual households and institution are the main sources of e-wastes for the informal sector collectors, recyclers and refurbishers. This study was designed to understand the reasons behind the selection disposal options by corporate entities when discarding their end-of-life electrical and electronic equipment. We begin by presenting results on corporate respondents' knowledge on e-waste, their e-waste disposal options, challenges of e-waste management and drivers of improper e-waste management. The second section presents results from the interview with the stakeholder from the informal sector (collectors, recyclers and refurbishers) who undertake the processing of the e-waste.

4.1 Results from Corporate Users

4.1.1 General knowledge about e-wastes

A sound knowledge about e-waste management is associated to good policies that ensure environmental and human health protection when selecting disposal options. This study has revealed that most institutions interviewed appear to have some understanding of e-wastes issues. The results revealed that 147 (Fig. 3) respondents representing about 79% said they have heard or know something about the e-waste problem and the environmental hazards associated. However, about 40% of this number could not explain e-waste beyond what they heard on radio or television. Among the institutions samples 39 of the respondents representing about 21% indicated that they knew nothing nor heard about e-waste and its environmental hazards. It was observed during the fieldwork that awareness levels about e-wastes issues is not restricted to a particular sector but are evenly distributed across all the sectors.

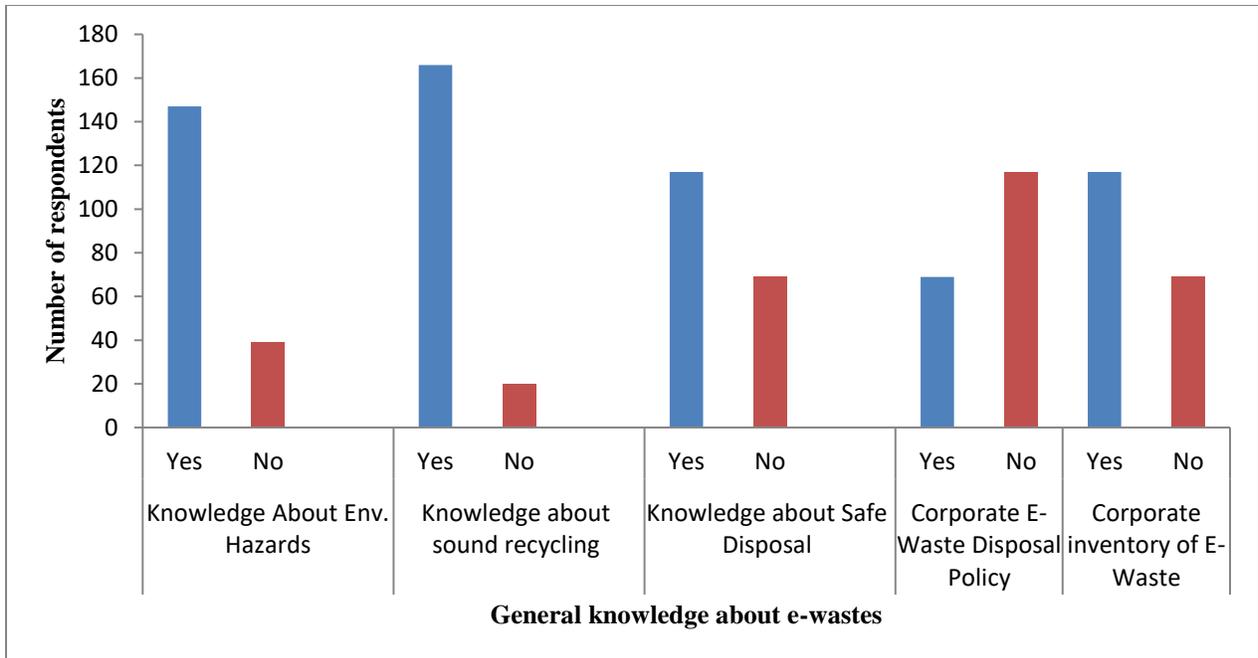


Figure 3: General knowledge of corporate users on e-waste

The results from Fig. 3 again revealed that 166 respondents representing about 89% indicated that they are aware e-waste can be recycled in an environmentally friendly manner. These high levels of awareness appear to have come from continuous mass education about recycling of general wastes. Only 20 respondents representing 11% said they had no knowledge about the recyclability of e-waste.

Assessing their knowledge about safe disposal of e-waste, 117 respondents representing about 62% indicated that they knew e-waste can be disposed of in environmentally safe manner. Some mentioned organised collection system as a means by which e-waste can be safely disposed. But 69 of the respondents representing about 39% said had no idea how e-waste can be disposed of safely. For them, the only disposal options are adding to the normal wastes bin or selling to scrap dealers. E-wastes disposal policy ensures that appliances are discarded in accordance with laid down principles of the organisations. This study revealed that only 69 respondents representing 38% said they had a policy in place. But only 6 corporate entities were able to show what the policy entails. Conversely, 117 respondents (62%) said they had not e-wastes policy in place. They indicated that they do not know what such a policy will entail and how it will be implemented.

The study further showed that 117 making up 62% indicated that they have inventory but these were items that were brought into the organisation. But the inventories did not include end of life equipment that were discarded. This means that such institutions could not trace their equipment that was discarded.

4.1.2 E-Waste Disposal Options

Research has shown that the life span of most electrical and electronic equipment in corporate institution is about four years on the average. It emerged from the results that when electrical and electronic equipment come to their useful end of life, corporate consumers have several disposal options. The study showed that 84 respondents constituting about 45% said they sell their end-of-life equipment to scrap dealers. In most cases these equipment are auctioned to the highest bidder. Majority of the respondents indicated that they do not worry about the formality or informality of the bidding companies. As long as the offer is good enough, they are ready to do business with that entity. Furthermore, 10 consumers (5%) indicated that they sell their end of life products to second hand dealers who in in turn may refurbish for resale in the open market. The entities in this category insisted that they ensure that sensitive data are taken out of the system or request total destruction of data storage components before the equipment are allowed to leave their premises.

The results also showed that 60 respondents (32%) said they are storing their electrical and electronic equipment. Majority of the respondents in this group who are government agencies cited the procurement process as the main reason for keeping the items. Some indicated that immediately the bureaucratic procedures are sorted they will be in the position to discard as by law requires. From Fig.4 it can be observed that, 13 respondents said they donate their end-of-life equipment. Some of the organizations explained that they give options to their workers to own equipment for which the institutions have no need. According to them it was a way to motivate the staff in order to work faithfully and loyally to the organisation. The study uncovered that some respondents (12) dispose their e-wastes as part of general wastes (Fig 4).

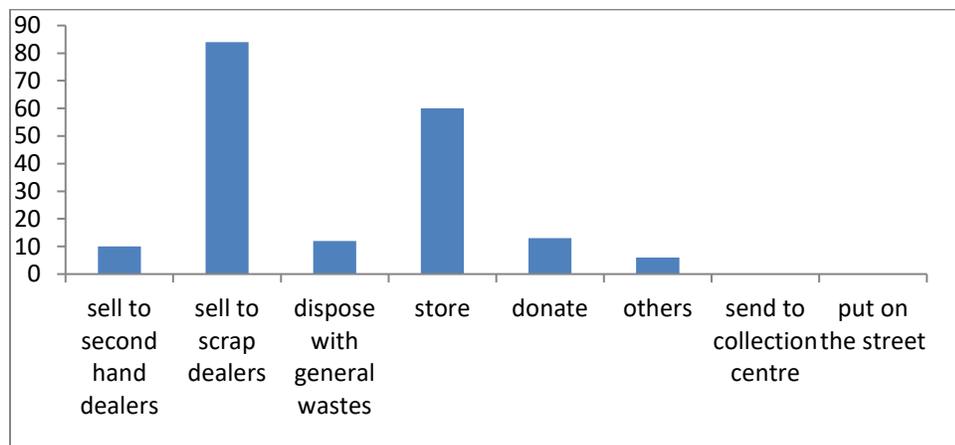


Figure 4: E-wastes disposal options among corporate users.

Detailed observation revealed that the wastes are mostly small batteries, used tonner and ink cartridges, broken parts as well as other components that are considered to be of no value. Six (6) of the respondents who fall into

other categories had no idea what is done to their e-wastes. Some indicated that they normally send such appliances to their corporate head office and they do not know what happens after that. Considering the results above, the corporate consumers asked whether they follow up on the equipment they discard. Most respondents (143 or 77%) answered that they do not follow up. For them, once the items are discarded they have no idea what happens afterwards. However, 43 respondents indicated that they occasionally do follow to ensure that the items are safely discarded. Some intimated that they need to protect their brand image. Asked whether they are willing to pay for sound disposal, about 130 respondents said they would not pay whereas 56 said they are willing to pay. Those who said they will not pay reasoned that, they are already making money from the sale of the end-of-life products hence they see no reason to pay. However, those who indicated their willingness to pay cited environmental benefits and brand image as the main reason. None of the respondents said they sent their e-waste to collection centres or leave them on the streets.

4.1.3 Challenges of e-wastes management among selected corporate institutions in Ghana

Corporate entities wishing to dispose of their e-waste face manifold of challenges. Some these challenges can be traced to issues relating to general municipal waste management. The study showed that the major setback is lack of corporate policy which gives direction for proper disposal. This is highlighted by the 32% of the respondents who complained that lack of corporate policy is the main barrier for sustainable disposal of e-wastes. However, corporate policy must feed into national policy and legislation. Although Ghana has e-waste policy, it appears that almost all the respondents have no knowledge of the policy. About eight percent (8%) mentioned that lack of national legislation was a major barrier for e-waste disposal. Non-availability of infrastructure was also mentioned as one of the causes of improper e-waste disposal. It was observed that some corporate consumers do sell their e-waste to recyclers, the components that are considered to be of no value (e.g. printers, cartridges etc) are disposed of together with general waste. Consequently, 21% of the respondents attributed this to the lack of general infrastructure to deal with the entire e-waste stream. During the field study, it came to light that most of the institutions have waste bins at strategic locations within their premises (these bins are labelled paper, plastics and general waste). However, none of them have bins labelled for e-waste. Hence, 18% of the respondents said lack of organized collection system is a major setback for e-wastes disposal. Cost of recycling and absence recycling solutions were other major setbacks mentioned by the corporate institutions. Eight percent (8%) mentioned that cost of organising collection and transporting same to recyclers are the major causes of concern. This group of respondents mentioned that producer responsibility may help to absorb this cost. The absence of recycling facility has been one of the reasons why corporate users of electrical and electronic appliances do not properly dispose of their wastes. According the study, 11% of the respondents mentioned the absence of recycling facility as a major setback. To them, if such facilities were to be available, it helps in organising the collection system. The study also showed that only 2% of the respondents indicated that low level of public awareness was a cause of concern.

According to these respondents, even if the general public was not aware of the dangers inherent in improper e-wastes disposal, corporate institutions can take the lead.

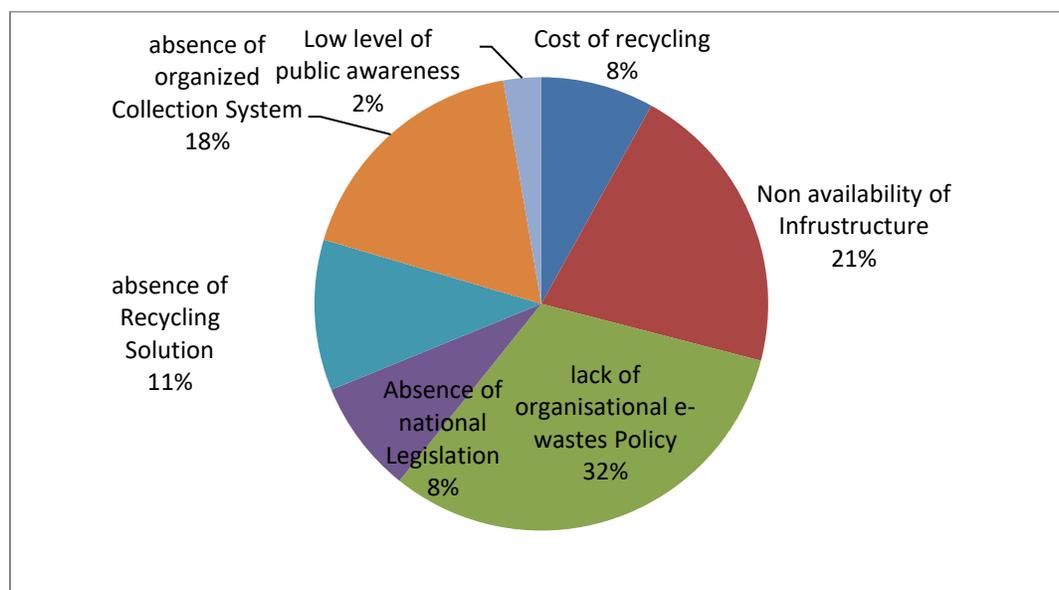


Figure 5: Challenges faced by corporate users in disposing off their e-wastes

4.1.4 Drivers of Improper e-waste management

The results of this study have revealed that there are several factors that drive the improper e-waste management and level of environmental pollution observed at the Agbogbloshie scrap yard. It came to light during the field study and interviews that these factors include social, economic and policy issues. A few cross-cutting ones are discussed in this subsection.

Prices of copper and other exportable scrap continue to drive informal waste pickers to scavenge for such metals. It was observed during sampling at Agbogbloshie that copper was the main metal of interest for the scrap dealers. According to Hammer and Jones (2012), the demand for copper will continue to rise every year due to extensive consumption by the electronic industry. The prices of copper will also continue rise which will give further incentives for scrap dealers to increase their output. The scrap dealers in Ghana, who make a living from these activities, try to get every available copper bearing cables and sell. This phenomenon will result in increased burning of cables thereby polluting the environment further. Unless there is a complete moratorium on export of oxidized copper, the environmental pollution resulting from burning of copper cables will continue to be driven by the impact of the international copper market.

Another driver of environmental pollution was the abundant availability of unskilled and cheap labour. The recycling industry in Agbogbloshie and elsewhere is organised in clusters or groups. Each cluster has a master and

group young men working with him. The master is financier of the group. He goes to the corporate institutions to buy the e-wastes while the dismantling and burning is done by the other team members. In a conversation with some of the young boys at the burning site, it was realized that they make between GHc 5.00-10.00 on the average which, for them is enough to meet their daily needs. The cheap labour is being fuelled mainly by the north-south migration of young men in search of jobs. Studies by Prakash et al (2010) revealed that majority of the workers at the scrap yard have migrated from the northern part of the country in search of economic opportunities. As no formal jobs are readily available to absorb them, they are willing to take up any job, including hazardous ones so that they can earn some living for themselves and their families.

Inadequate e-wastes recycling facility has pushed a large chunk of bulk users of electrical and electronic appliances to sell their end-of-life appliances to the informal sector. This situation has made e-waste fractions available to the informal sector. The absence of the recycling systems makes it imperative for corporate users who wish to dispose of their e-waste to see the informal sector as the first point of call. Interview with some of the scrap dealers revealed that even government agencies do sometimes sell their e-waste fractions to the informal collectors. As long as the informal system continues to take large amount of e-waste from the system, there will be little motivation for them to improve.

The national e-waste policy was promulgated in the year 2010 with the promise of passing the Ghana e-waste management bill in 2011. However, this has not been realized, thereby giving room for the sector to operate without regulation until the Hazardous and Electronic Waste Control and Management Act, 2016 was passed. The burning of cables for instance can be prohibited through national legislation. The absence of regulation of any form, provide incentives for people to engage in environmentally hazardous operations. Corporate entities are not encouraged to enact policies governing e-waste disposals because there are regulations compelling them. After selling their e-wastes fractions as stated above, 77% of the corporate organizations contacted said they never follow up to find out how their waste are treated. They attributed the lack of regulation at the time to compel them to do so. Such a situation gives recyclers the field day to engage in environmentally hazardous practices. However, with the passage of the e-waste Act, it is expected that, their activities will be formalised and more appropriate technologies would be adopted in processing e-waste.

An interview with some of the formal recyclers revealed that informal recyclers were posing serious threats to the survival of the formal sector. Studies by Amoyaw-osei et al (2011) revealed that the informal sector collects about 80% of the e-wastes generated in the country. The reasons given by Jurgen Mienel (personal communication) are: the informal sector has no obligations to the environment agencies and so can afford to buy the e-waste at cheaper costs; they do not invest in sustainable management of hazardous fractions; they are more diverse and wide spread than the formal sector; and they are capable of corrupting the system with prices that the formal sector cannot match.

These reasons have been aided by the corporate users who are unwilling to pay for the cost of e-wastes collection and treatment. Seventy percent (70%) of the corporate users interviewed indicated that they will not pay for the cost of collection and treatment. The 30% who expressed willingness to pay cited proper treatment as precondition to entice them to pay. These observations highlight the fact that regulations to solve the e-wastes problem must allocate clear responsibilities and provide equal playing field. As it stands now, it is impossible for the formal recyclers to conform to environmental regulations whiles competing with the informal sector for volumes of e-wastes. It was observed that as long as informal sector persists in its present state, the environmental pollution observed in the present study will continue to prevail.

Low level of awareness on the environmental and human health impacts of the activities of scrap dealers is also a contributor to the environmental pollution at the scrap yard. In an interview with some of the scrap dealers, it came to light that they were not aware of the hazards caused by their activities to the environment. For them, their main objective is to get incomes from the activities. Although some of the scrap dealers, especially those doing dismantling and burning of cables have suffered various degrees of injuries, the prospects of economic gain far outweighs the human health and environmental concerns.

4.2 Results from the MSMEs (Recyclers and Refurbishers)

4.2.1 E-waste Recycling in Ghana

E-waste recycling in Ghana is denoted by two sectors the informal and the formal recyclers. The informal recyclers are characterised by MSMEs who either collect the e-waste directly or employ other waste pickers to help them collect. Ghana has one of the most efficient e-waste collection systems worldwide. According to Amoyaw-osei et al (2011), up to 97% of e-waste generated is collected through the participation of informal private sector. The ensuing section presents interview with some of the recyclers at Accra and Kumasi

4.2.2 Informal Recycling in Accra

Agbogbloshie a suburb of Accra the capital of Ghana has become a central location of e-waste recycling activities. It has to be noted that the Agbogbloshie metal scrap yard is also a hub for scrap metals from other sources than e-waste including waste automobile and waste lead-acid batteries. It is also the hub of a network of e-waste and scrap metal collectors searching the city Accra for metal containing wastes.

Private individuals move from house-to-house to buy all types of e-waste fractions from householders. Also EEE that arrive in broken and unserviceable conditions are sold to the operators at the scrap yard for further processing. Another collection channel is through businesses that have end-of-life equipment often sell them to scrap dealers either directly or through middlemen. The e-waste that are collected from Accra are often transported to Agbogbloshie. Agbogbloshie has gained international acclaim as one of the most polluted sites in West Africa.

Once the items arrive at the scrap yard, they are immediately sorted for further processing. Computers fridges, air conditioners and other electronic equipment are manually dismantled using hammers, screw drivers and other simple tools. The valuable fractions, based on the prevailing market value of the equipment, are segregated after dismantling and those without value are discarded within the scrap yard. Plastic coated wires are often burned to retrieve the copper for sale (Prakash et al., 2010). Valuable fractions which are retained include copper, zinc, magnets, iron, stainless steel, aluminum, motherboards among others.

Those discarded include high carbon metals, some plastics, cathode ray tubes with copper yoke removed, non-valuable wooden motherboards from radios and television sets among others. According to Mr. Mohammed Ali, the chairman of the Greater Accra Scrape Dealers Association, the informal scrap activities generates about over millions of US dollars annually.

4.2.3 Informal Recycling in Kumasi

Most of the e-waste narratives (including media lenses about e-wastes issues) in Ghana have almost exclusively focused on Accra and most specifically Agbogboshie. But a visit to both Dagomba line and Suame Magazine in Kumasi revealed that the magnitude of the environmental and human health implication of the e-waste problem is huge. In conversation with one of the dealers from Dagomba line, he mentioned that there are over thousands of people who work on e-waste and general scrap processing at the Dagomba line. He mentioned Aboabo and Angloga as some of the places where e-waste processing takes place on the large scale. Mr Karem Abdul Ismaila, the second vice-chairperson of the Dagomba line Scrap Dealers Association, in an interview mentioned that their members collect large proportion of their e-waste from household but they also purchase from business that discard the end-of-life materials. Mohammed Sanusi (a repairer at Dagomba line) mentioned that most of the televisions they are not able repair are sold to the scrap dealers. Once the items arrive at the scrap yard they are manually disassembled and the precious parts sold to dealers. Copper coated cables are burnt in locally construct stacks. This according to Abdul Karem is to avoid pollution of the local area. The stacks actually disperse the thick smoke over the wide area which causes a lot of pollution. It came to light during my interaction with some of the scrap dealers that they have little knowledge about the environmental and human health implications of their activities. The non-valuable components such as plastics and mother boards from tape recorders and radio sets are openly burnt which further exposes them to contamination. It became obvious during my interaction with them that most of the information relating to health and safety has not reached them yet.

Suame Magazine: Suame Magazine is the hub of scrap activities in Kumasi. It is wide area and has population running into thousands of people. The area is mostly dominated by end-of-life vehicle processing. Ibrahim Dagadu (organiser of the scrap dealers association) mentioned that the scraps work started in Kumasi before it moved to Accra. However he believes that most of the interventions are more focused in Accra to the detriment of other regions. It was observed at Suame that the e-waste buying (middle men) is largely dominated by women whiles the men do the collection and manual disassembly. At Suame local emission stacks have been constructed for the

burning of plastic coated cables. Also, vehicle tires are openly burnt to recover the steel which are sold to the local market. The aluminum rims from the tires are smelted under high temperature for the production of local industrial machinery parts. The exposure to high temperature fires is major risk to the workers at the site. The scrap dealers in Suame face several other risks which need to be addressed. For instance Abdul Aziz (Secretary of the Kumasi scrap dealers association) informed me during conversation that they continue to face a lot of dangers including risk of chemical poisoning from the variety of materials they handle. Another challenge faced by the informal sector in Kumasi is the perception of stealing among their members. Abdul Aziz said often times their members are branded as thieves and this affect the inflow of materials. Their lack of knowledge about downstream market encourages discard of perceived non-valuable components. For this reason, large quantities of CRT glass, plastics and some motherboards are discarded indiscriminately.

As stated already the informal e-waste in Kumasi appears bigger than that of Accra. But the e-waste workers in Kumasi do not have access to information as their colleagues have in Accra. With the kind of innovation happening in Kumasi (construction of locally made emission stacks), a little support will enable them construct their own version of cable strippers. The massive involvement of women in the e-waste business means that the livelihood issues need to be taken seriously whiles deciding on intervening measures.

4.3 Formal Recycling in Accra and Kumasi

The scale of formal recycling activities in particularly Accra, Tema and Kumasi has been largely underestimated. While most of the recycling companies are based in Accra for obvious reasons there are other companies situated in Kumasi and Tema. There are hundreds of repairers and refurbishers of various electrical and electronic equipment all over the cities considered under this project. It emerged from discussions with some of the repairers that although vary in scope of activities, their challenges are very similar.

4.3.1 Recyclers

General scrap recycling activities appear to have started in Ghana in the early nineties because most of the companies visited have started operations around the same period. Most of them started as either used lead acid battery (ULAB) recyclers before venturing into e-waste at the dawn of the new century. For instance, FIDEV Recycling started in 1991 as recyclers of end-of life vehicles. With time the Company has grown into full e-wastes recycler. The formal recyclers currently average of 30 permanent (with about 70 temporary workers) hence it can be estimated that the formal e-waste sector employs about 1000 (both direct and indirect) workers across the three cities under this project. Most of formal recyclers do collection, depollution, dismantling and segregation. Most of the companies procure e-waste from business to business operations, waste pickers and network of collection centres. According to him the business to business operation yields more e-wastes than other City Waste Management Company for instance has established a network of collection centres from whom they get some of their e-waste fractions. They have to bid for almost all the fractions they get which come at a huge cost to them.

Most Companies indicated that they handle all e-waste fractions including CRT, system units, LCD monitors, among others.

Component fractions (motherboards, hard disks ROMs, drives and magnets) that are obtained from the activities are either sold to downstream markets in Ghana or exported to other countries. The metals (steel and aluminum) are usually sold to the steel manufacturing companies. Whereas the glasses including the leaded ones are dumped at the municipal wastes dumps. Although all the companies visited indicated that they strongly discourage open burning of any component of e-waste, open dumping is more rampant. Again, most companies do not directly recycle plastics. All plastic wastes that arrive on site are sold to downstream markets. However the ABS plastics are difficult to sell because of lack of market for e-waste plastics hence they are reluctant to take them in. Further, almost all the companies visited have something to do with lead acid batteries (ULAB). In some cases, the companies cut open the ULABs and drain the acid before selling to downstream markets. This has cause severe environmental pollution in some of the premises. However some companies do not open their ULABs before selling. However these are mostly exported to other countries especially European countries.

5 Conclusion and Implications

The present baseline assessment has revealed that Ghana still high inflow of second hand equipment coming into the country although the volumes of new electrical and electronic equipment continue to rise steadily. That rise in the volumes of new equipment comes at the back drop of cheap import of electrical and electronic equipment from Asia and other regions. This means that the lifespan of electrical and electronic equipment will continue to dwindle overtime (current estimate of about three years). The corporate institutions will continue to face challenges of how to dispose of the end-life equipment. The current arrangement where they are sold to the highest bidder is not environmentally sustainable. As long as there little incentives for sound disposal of e-waste corporate entities will continue to feed the environmentally unsustainable practices of the informal sector. This is because the formal recyclers will continue to face stiff competition from the informal sector who by their activities can afford higher prices of e-waste.

The current legislative arrangement needs improvement as has been suggested if it were to meet its objectives. For instance, excessive governmental control over the e-waste fund could be one of such risks to recyclers as political interferences may impede the objectives of the fund.

In the light of the above, the following recommendations are put forward:

1. Complete ban on the importation of e-waste may not be feasible, because when properly processed, it would provide jobs and income. In view of this, the e-waste law must be fully enforced but special provisions must be made for companies who can prove that they are capable of managing it in environmentally sound manner.
2. The informal sector need to be transformed and this must be done in phased-in approach taking into consideration the social and economic impact.

3. There is the need to provide training to MSMEs in the informal sector on the need to use appropriate technologies in the processing of e-waste.

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Viability of alternative online news media in developing and transition countries

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1. Introduction

1.1 Topic and Relevance of Study

Media development cooperation has aimed for decades at enhancing free and independent media in developing countries as well as economies in transition. Within this field of activity, the concept of media viability has gained more and more attention in recent years. This is mainly due to a proposal of UNESCO's intergovernmental Bureau of the International Programme for the Development of Communication (IPDC). The UNESCO, in partnership with DW Akademie, has drafted a list of indicators that delineate the influencing factors of media viability for media organizations in any given country (UNESCO 2015).

As a consequence of the novelty of the media viability concept, the state of scientific research is restricted. It is frequently focused on isolated case studies without providing a scientific basis for comparison. Empirical studies and comparative analyses are limited to certain media sectors such as the print market, as well as for journalism startups and spin-offs in developed economies.

When looking for studies with a focus on developing countries the outcome is very limited. In 2011, four years before the UNESCO first commissioned Robert G. Picard from the University of Oxford to develop draft indicators on media viability, WAN-IFRA published a report on "Financially Viable Media in Emerging and Developing Markets" which includes sub-chapters about 5 developing countries. Even more aged is a paper developed by the Center for International Media Assistance (CIMA) titled "Toward Economic Sustainability of the Media in Developing Countries" (CIMA 2007). Research in developing and transitional countries is direly needed not only in order to counterbalance the perspective of industrialized nations in international media studies in general but within the field of media viability especially.

Aspiring to fill the described gaps, a research team of DW Akademie gave birth to a project that compares the status of media viability of alternative online news media in five selected developing and transition countries

representing different world regions including Southeast Asia, Latin America, Sub-Saharan Africa, the Middle East and Eastern Europe.

1.2 Terminological Demarcation and Theoretical Frameworks

In 2015, UNESCO's intergovernmental Bureau of the International Programme for the Development of Communication (IPDC), together with DW Akademie published a set of indicators on media viability that are designed to help measure the level economic sustainability and editorial independence of news media organizations.

Even though by now it has become apparent that technological developments and digital change are challenging traditional business models for media in general and news media especially, "a major gap in the existing initiatives that assess the conditions of a country's media system, such as the rankings and indices by Reporters Without Borders, Freedom House, IREX, and the Friedrich Ebert Foundation" (Schneider et al. 2016: 1) persist. These analyses do not sufficiently take the economical aspects of media into consideration.

The above mentioned draft on media viability indicators is aimed exactly at this reinforcing of "the business side of media development" (Schneider et al. 2016: 1). It shall serve as an amendment to UNESCO's Media Development Indicators (MDIs)¹ from 2008 that also did not integrate the economical perspective of media in an adequate manner. The MDIs are currently comprised of five categories containing 50 key indicators and 190 sub-indicators and aiming to serve as an "analytic tool designed to help stakeholders assess the state of the media and measure the impact of media development programmes" (UNESCO 2008: 7). The Media Viability Indicators (MVIs) shall become MDIs' sixth category correcting this deficiency.

The relevance of media viability arises not only because of the before named reasons such as changes in technology. Understanding media viability – and identifying conditions that may enhance it – is crucial for media owners to grasp what they will need to do in order to achieve the interconnected goals of economic sustainability, editorial independence and journalistic quality.

Furthermore, it is also critical for media developers to comprehend the links between their projects, national conditions and the performance of media in developing countries and economies in transition. Only this way they will be able to "develop adequate strategies and project designs" (Schneider et.al 2016: 2).

¹In 2008 UNESCO published a paper that defines indicators of media development, such as the promotion of freedom of expression and media pluralism; development of community media; and human resource development (capacity building of media professionals and institutional capacity building) (see UNESCO 2008).

In order to get a clearer conception of media viability it can be helpful to make the comparison between the terms “viability” and “sustainability”. While “sustainability” is referring to the ability to be maintained at a certain level or the ability to be upheld or defended, “viability” already includes a normative component by referring to the capacity of working successfully.² Transferred onto media, economic sustainability is focusing purely on the financial survival of a media organization, meanwhile media viability supplements economic sustainability with editorial independence, and journalistic quality. Within the UNESCO’s draft of media viability key indicators the identification of conditions takes place that are central to the emergence and persistence of viable media within any given country.

These conditions are located on three levels of analysis (see figure 1).

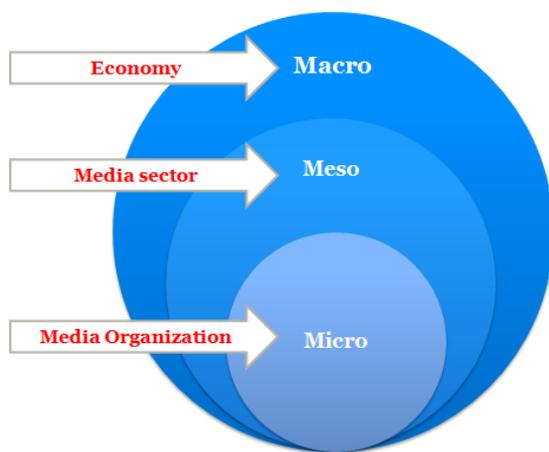


Figure 1: Structural Analysis of Media Viability

2. Methodology and research design

2.1 Research Questions

² Both definitions are based on the entry of the Oxford dictionary. <https://en.oxforddictionaries.com>. Accessed on October 2, 2016.

The principal aim of this study is to assess the viability of alternative online news media organizations with a specific focus on developing and transition countries. Accordingly, three general research questions have been formulated:

1. Which factors determine the viability of alternative online news media organizations in developing and transition countries?
2. What are the transnational similarities and differences for media viability of alternative online news media organizations in developing and transition countries?
3. How are financial sustainability, editorial independence and journalistic quality interrelated in the context of media viability of alternative online news media organizations in developing and transition countries?

2.2 Methodological Approach and Research Design

In order to find answers to the research questions, the Media Viability study combines secondary desk research and empirical data collection in the chosen countries.

By taking on a qualitative research approach, this study aims not only at analysing the status quo of alternative online news media in the selected countries but also at identifying potential sustainable business models for such media outlets within the respective national contexts sustained by empirical findings. At the same time, the approach allows for an “awareness check” of media managers and media experts regarding the importance of media viability.

The selection of the country cases of this research was based strongly on congruence with the DW Akademie’s focus countries and the wish to represent different world regions. Further, all of the countries received “not free” or “partially free” within the rankings of Freedom House on Press Freedom in recent years.³

The selected countries are Cambodia, Ecuador, Tunisia, Uganda, and Ukraine, representing Southeast Asia, Latin America, the Middle East, Sub-Saharan Africa, and Eastern Europe.

2.3 Data Collection

Semi-standardized interviews have been chosen as the main research instrument in order to explore the topic of media viability systematically and to allow for a transnational comparison of similarities and differences.

³ „Freedom of the Press“ annual reports are available at <https://freedomhouse.org/report-types/freedom-press>.

To this end, desk research on the selected countries and their media landscapes mounted in the selection of four to five media organizations per nation, which fulfilled the criteria of being:

- a) Alternative media, i.e. non-state media such as journalism start-ups and community media (in contrast to legacy and privately-owned commercial media);
- b) News media organizations (in contrast to other creative media, e.g., film, video games, books);
- c) Online media, i.e., media organizations with strong online presence;
- d) Spin-offs or start ups;
- e) In existence for at least two years.

In a first phase of empirical data collection (Phase I), four to six media representatives, i.e. founders, owners and/or managers of the selected alternative online news media were interviewed per country. In all of the interviews which have been conducted in person, via Skype or phone, the researchers applied a common interview guideline that in its structure reflects the category system of this study.

In Phase II, between six and eight selected media experts will be interviewed for each of the five countries in order to attain a more comprehensive knowledge of media viability within the given context. The expert interview partners have been grouped in accordance with preselected criteria relevant to the research questions.

Group A: Academic Experts (Representatives of universities, think tanks etc. specialized in issues of Media Economics and Business Studies and/or Digital Media and New ICT)

Group B: Labor Market Experts (Representatives of journalism associations and unions; private consultancy firms)

Group C: Media Development Cooperation Experts (Representatives of international, national or local development cooperation institutions)

Group D: Experts for Legal and Regulatory Aspects (Representatives of media authorities from information ministries, regulatory institutions, media councils; media lawyers etc.)

2.4 Data Analysis

For the data analysis, the Qualitative Content Analysis approach of Mayring (2002) has been the instrument of choice. The strength of qualitative interpretation of text material lies in a theory-based, systematic, step-by-step deconstruction of the content into smaller fragments based on a pre-defined category scheme which determines the relevant units of analysis.

Mayring and other scholars like Krippendorf and Früh (Krippendorf 2013; Früh 2011) stress the central role of the category scheme for qualitative content analysis considering it to be the key precondition for the reliability and comparability of results, which is particularly important in comparative research projects, such as this study. The

category scheme of this research project was derived from the structure of the UNESCO Media Viability Indicators Draft (UNESCO 2015) and consists of six main categories. It has been the basis for identifying key questions of the interview guidelines and has been applied to the qualitative content analysis of the interview transcripts.

These are the categories and subcategories of the research project:

- | |
|--|
| <ul style="list-style-type: none">A. MOTIVATIONAL BACKGROUNDB. EDITORIAL/PRODUCT MANAGEMENT<ul style="list-style-type: none">a. Audienceb. Journalistic Product/ ContentC. BUSINESS MODELD. FINANCIAL MANAGEMENT<ul style="list-style-type: none">a. Funding and Revenues/ Economic Sustainabilityb. Monitoring and Transparencyc. Editorial IndependenceE. HUMAN RESOURCE MANAGEMENT<ul style="list-style-type: none">a. Organizationb. Advisory Mechanisms |
|--|

Dependent on the group of interviewees, the focus and number of the interview guidelines' questions has shifted slightly from 22 questions with a focus on the micro and meso-level for the media representatives to 19 questions including inquiries of a more general nature within the expert interviews. The structure of the interview guideline however remained the same for both interview phases.

3. Transnational comparative analysis

All results presented in this paper are based on interviews with representatives of alternative online news media from the countries examined within the Media Viability research project that have been conducted between July and September 2016. They are of a preliminary nature, since the research project is still ongoing and Phase II (interviews with media experts) is yet to be concluded in 2017.

In the following, the results of Phase I will be compared with the aim to determine similarities and differences in the economic sustainability and editorial independence of the case studies from the five countries included in the study. Results are presented according to the structure of the category system and the interview guideline.

3.1 Motivational Background

Most of the interviewed media representatives named the provision of journalistic quality products, namely independent news, as their main motivation to found an alternative online news media outlet in the first place. The importance and growth of this kind of media however, is linked to very diverse situations and events within the countries.

While the relevance of alternative online news media in Tunisia has increased strongly with the Jasmine Revolution of 2011 (Carty 2014), in Uganda interviewees named a lack of online news in general and breaking news especially as their main motivation to establish their companies. In the case of Ecuador, the Organic Law on Communications, approved by the National Assembly in 2013, has led to the establishment of alternative online media as a counterweight to traditional media that find themselves under growing pressure from the State (see Conaghan 2015). These newly created alternative media are often run by journalists formerly working for legacy media that were shut down or by those who decided to drop out of mainstream media in order to escape the constraints exerted on these organizations. Cambodian media owner's answers seemed quite pragmatic, naming mainly the perceived business opportunities that a growing online news market offers in a country with a young and growing population, rising educational levels, and increasing internet access.

3.2 Editorial Product/ Management

Concerning the target audiences of the media organizations taken into consideration it can be said, that most of them are aimed at people with a higher than average educational level.⁴ Age groups differ widely with Cambodian and Ecuadorian alternative online news media defining their audience as young educated people (18 to 35 years of age) mainly from urban areas, while Ugandan online news media are focussing on the educated English-speaking middle class. In Ukraine, no specific focus can be pointed out, but it became apparent, that some of the media had defined their target groups according to geographical criteria, providing local news for specific regions.

The online media under scrutiny primarily made use of market and audience research instruments, such as Google Analytics, Alexa or through an analysis of Facebook Page View or likes and views on Twitter. Only in Cambodia, according to the interview partners, no formal market research has been conducted so far. In Ukraine, the approach and extent of market and audience research depends strongly on the company size and financial ability of the organizations. However, Ukraine was the only case in which some of the media had resorted to external consultancies for market and audience research.

⁴ The educational average level of each country is considered separately.

With the aim to control the quality of their journalistic products, all media outlets named “checking and verifying before publishing” as their main tool for ensuring quality. More specifically, the existence of internal guidelines for reporting news and codes of conducts have been named by Cambodian and Ugandan media entrepreneurs, while the hiring of qualified professional staff in general and well-educated journalists was considered as crucial for journalistic quality by their Tunisian counterparts. In Ukraine, the aspect of hiring highly qualified professionals is considered to be the right approach by some of the media outlets, while others believe that shaping the staff to the media organization’s needs through continuous mentoring and trainings – both in-house and outsourced – is more important for producing journalistic quality products.

3.3 Business Model

Looking at the motivational backgrounds for founding the alternative online news media included in this study, it may come as no surprise that all of the business models evolve around the provision of high quality journalistic content. The huge majority of the interviewees mentioned that high quality content is their media’s main success factor. Unique Selling Points (USPs) are defined similarly with some exceptions. In Ecuador, two of the four media organizations have a strong focus on investigative journalism, while one Ugandan website is specialized on topics of Information Technology.

Concerning the chosen legal forms of the organizations it can be said that most of the alternative online news media in all five countries are privately owned and commercial or revenue oriented. Still, the differences of the business entities’ legal forms are remarkable, revealing political and legal singularities of the countries.

While three out of four media outlets in Cambodia have the form of for-profit companies (limited), the fourth online news media being part of an NGO, in Ecuador, four of the five media organizations remain unregistered. This can be explained by fear of State interference with the work of the media organizations that is based on the experiences of repression that some of the interviewees have experienced themselves and which have influenced their decision to found an independent news media outlet.

In Tunisia, two of the four samples are not legally independent online news media but rather sub-companies of a bigger enterprises, relying to some extent on funding of the parent companies. This limitation is always taken into consideration in the analysis of the results.

The Ugandan alternative online news media included in the study are all limited companies, or “Private Limited Liability Companies”, as they are called officially in that country.

Meanwhile in Ukraine, two out of four media organizations have chosen the legal form of a non-profit media organization, another is an enterprise of public organization, while the fourth is run by a private entrepreneur.

With regard to market entry barriers encountered by the media organizations when first setting up, in all countries at least one of the following human resource, financial, and technological constraints has been mentioned:

- (1) Lack of professional employees – referring not only to a lack of qualified journalists, but also to a deficiency of financial expertise or the absence of specialized administrative staff;
- (2) Lack of funding or availability of financial sources;
- (3) Unreliable or slow internet connection that led to problems of website access.

Further, in Ecuador there existed the specific challenge for those media organizations that focus more on storytelling and investigative journalism than on news reporting, to find acceptance for their way of doing journalism, which included the accounts of “normal citizens” as well as covering taboo issues. Media representatives ascribed this difficulty to the Ecuadorian society being conservative and foreign to coverage that does not focus on representing the views of experts and the political and economic elite.

In Uganda, the existence of strong and witty competitors made starting a news media organization difficult. One of the interviewees reported that his initial idea of founding a print newspaper failed because the paper’s first issue was bought up completely by a competitor leaving no copies at the newsstands so that it stood no chance in winning a readership. Due to this experience, the entrepreneur shifted from print to creating an online news medium.

3.4 Financial Management

One of the key indicators for media viability is that the “media organisations have sufficient access to sources of capital required for investments” and that “there are stable and diversified revenue sources that allow managers to plan for the future” (UNESCO 2015: 8). In order to assess this, media representatives have been asked for their sources of revenue and funding within this study.

While some of the included media organizations rely fully on the funding of NGOs (one out of four in Cambodia) or parent companies (two out of four in Tunisia), the majority relies on a variety of funding and revenue sources.

Cambodian media representatives named advertising as the most important source of revenue by far (see Figure 2). In Ecuador, both the unregistered as well as registered media are relying on a diversity of sources for revenue generation with advertisement, funding from international donors and offering training and consulting services as the most important ones. Tunisian interview partners named individual investors, advertising, offering consulting and training services as well as the sales of tickets, merchandising and other non-journalistic products as equally important sources of income, leaving no definitive picture. In Uganda, advertising is the main source of revenue for the alternative online news media, followed closely by corporate sponsoring. Meanwhile in Ukraine the importance of funding from international donors became apparent as it is not only higher compared to the other four countries but also because it is considered to be the most important source of revenue by the media representatives.

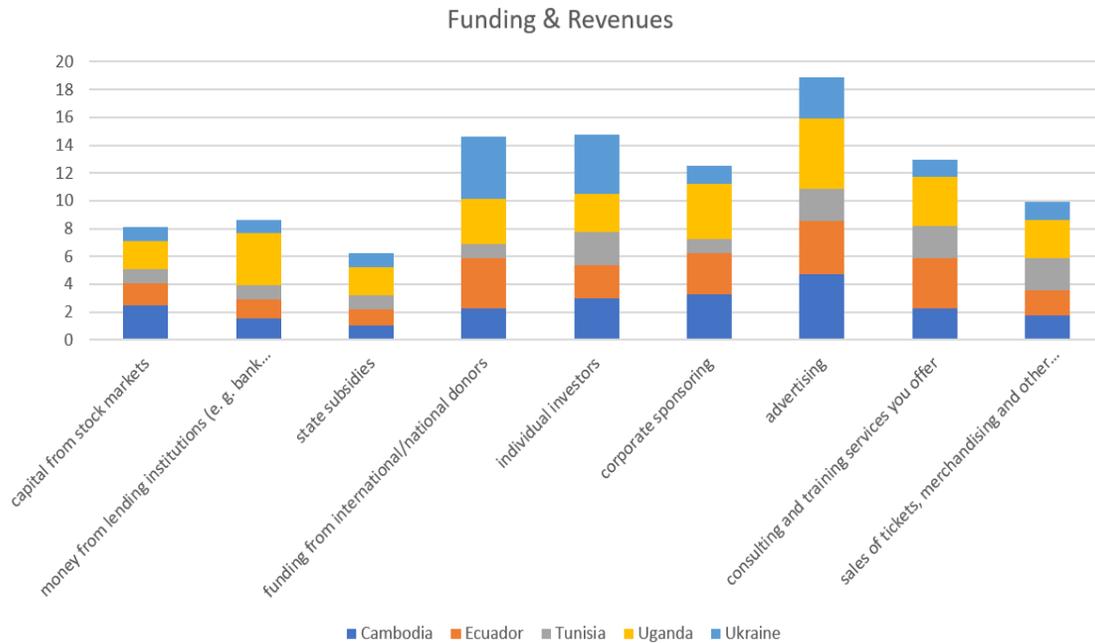


Figure 2: Funding and Revenues

When asked about the main challenges for their economic sustainability, most of the interview partners answered that exogenous factors are dominant. They have been referring to weaknesses or even crises of the national economy of their countries as well as to technical constraints such as weak and slow internet connections or the absence of access (whether due to missing infrastructure or affordability). This issue is also closely connected to the matter of low literacy rates in some of the countries.

3.4.1 Monitoring and Transparency

In many but not the majority of the cases included in this study, financial control is being exerted by non-editorial staff or specialized departments within the organization. Information on ownership structure, funding, revenue streams and business performance are not publicly available for most cases, not fulfilling the sub-indicator for media viability that calls for “Transparency such as in ownership, investment, advertising rates, and audience penetration” (UNESCO 2015: 8). Exceptions are the organizations funded by international donors in Ukraine and the media organizations integrated into NGOs in both Cambodia and Tunisia. Further, information about ownership structure is made available for all media organizations in Cambodia.

3.4.2 Editorial Independence

Editorial independence is generally not seen at risk by the media representatives interviewed. Only in Cambodia and Uganda accounts of attempts to influence media reports by external parties have become known. While in

Cambodia it has been an advertiser who did not want to see a critical report after an incident with his firm's involvement, in Uganda it has been politicians trying to pressure journalists to report in their favor. For both cases however, the interview partners assured that external parties were unsuccessful with their efforts to influence their media's content.

3.5 Human Resource Management

3.5.1 Organization

All media organizations included in this study are micro and small enterprises, with functional structures prevailing. Employee numbers of the organizations range from 1 to 50 people. Generally, these organizations are structured into different departments, specialized on administrative, financial, and editorial management.

Regarding wages and compensation of journalists and other media personnel a great variety of salary levels can be observed. The same accounts for contracts.

Interestingly none of the organizations – not even the larger ones or those funded by international donors – had specific diversity policies in place concerning the finding and hiring of staff, a condition for media viability included in the UNESCO draft (UNESCO 2015).

3.5.2 Advisory Mechanisms

Around 50 percent of the media organizations had some kind of advisory mechanisms, such as a board of directors. Furthermore, most of the media organizations have at some point resorted to external consultancies to optimize their strategies and operations – including IT consultancy services, legal advice, and journalistic trainings.

3.6 Future Perspective

The interviewees' answers to the question about future changes and challenges reveal a few similarities, but also show considerable differences that may be linked to national peculiarities. Cambodian media organizations' outlook seems very positive, with two of them expecting to produce more content while maintaining the quality of journalistic products in order to retain their market share in the future. Another is expected to generate revenue through media productions instead of getting funding from donors. Meanwhile, the fourth is expected to become the leading online radio station in the country.

In Ecuador, most of the interviewees see the rapid evolution of technological tools, platforms and communication channels as a challenge for their media companies. Another defiance will be related to the financial sustainability of these media in the market.

Tunisian alternative online new media are thinking of increasing their staff and hoping to find other, more secure, and sustainable business models that help acquire a larger audience in the future.

For the Ugandan media representatives mobile optimization of their websites is an important issue. They are fearing fiercer competition in the years to come, especially from social media.

Ukrainian interview partners considered it difficult to name future perspectives with conditions of constant changes in the political, social and economical environment of their country.

4. Conclusion

The issue of media viability proved to be of great importance to the media representatives interviewed within the research project. Even if the assembly of factors defined as media viability by UNESCO and DW Akademie might not yet be known by this name to a majority of media workers globally, there is awareness about economic sustainability not being independent from other factors such as editorial independence and journalistic quality.

While the challenges that alternative online news media are facing are very diverse and strongly dependent on the national context, a few similarities became visible in Phase I of this research project. All media organizations are feeling the pressure of needing to adapt to technological change, such as growing competition of social media and even those media organizations funded by international donor's are sensing that economic sustainability must be achieved at some point in the future to really become editorially independent. Many others are facing the difficulty of finding diverse and reliable sources that may secure their economic sustainability without interfering with their editorial independence.

There is little doubt about the applicability of the media development indicators to the case studies within this research project. Most of the issues raised in the interview guidelines revealed to be considered as highly relevant by the media representatives interviewed. UNESCO's (2015) view on which conditions are conducive to media viability seem to be widely shared by media representatives in developing and transition countries. To apply the MVIs in order to measure the state of the media in developing and transition countries for deriving actions to further the freedom, sustainability and quality outcome of media is the next step that needs to be taken through more studies like the research project presented.

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Intercultural challenges:

University – Business Partnerships

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Abstract

In today's business, culture plays a vital role or to a high degree influences the attitude, perception and decision making process of an individual. Culture is an unavoidable state of rules and regulations that defines people's daily life in a particular environment or society. There are plenty examples of business failures or stagnation or failure of joint ventures, on account of the management's inability to recognize cross-cultural challenges and tackle them appropriately.

1. Where the challenges start

Traffic jam: chaotic traffic in a city like Lagos or Nairobi, people can get stuck for hours on daily commute, which can mean a limit of 4 meetings per day,

Port congestion: Congested port could cause delays to your supply chain.

Appearances and loudness: This may be a cultural challenge when doing business in Nigeria.

Sometimes Germans perceive that Nigerians shout, because their voice is unusually loud.

Example:

Energy and physical stamina are personal characteristics that tend to be associated with power. Nigerians physical appearance can be intimidating, and most especially when it comes along with a loud voice.

This may be a cultural challenge when doing business in Nigeria, Appearances may be deceptive. "Most people don't understand Nigerians. They think that they shout, because their voice is unusually loud. If you meet Nigerians in a meeting you might think they are shouting. They are not shouting: they are just passionate about what they are saying. You might think that they are shouting at you, but they are not. A lot of Nigerians are loud, the same way Indians nod their heads."

When you witness conversations among Nigerians, you will think they were having a serious argument.

So when doing business or having conversations with Nigerians it is worth bearing in mind that they are probably not as intimidating as they might appear.

2 Overcoming challenges between Nigeria and Germany

Comparison between German and Nigerian cultures when conducting business

Cultural Trust in doing business:

Trust is central to the formation of society, and it's evident that there are different levels of trust in different societies and culture.

Types of trust:

Cognitive: Task based from the heart, counterpart accomplishment, skill and reliability (Germany is a cognitive based business culture).

Affective: Relationship based from the heart, it arises from feeling, closeness, empathy and friendship. Develop gradually through sharing meals, evening drinks and coffee breaks.

(Nigeria and Africa more generally have affective based business cultures).

a) Power Distance: the way people in a culture accept power inequality or gaps among themselves regarding allocation of authority.

Hierarchical: Emphasizes legitimacy of an unequal distribution of power, roles and resources. Comply with the obligations and rules attached to their hierarchical roles and show deference to superiors.

Comparison between German and Nigerian culture: Nigeria has a very high power distance culture and Germany has a very low power distance.

Authorities in Nigeria are centralized and orders are given from top-down. There is downwards flow of information and authority which justifies Nigeria as a High Power Distance culture.

Value for old age and authority: In Africa more generally, there is much more respect and value for old age. Respect for elders is common in many parts of the world but in the case of Nigeria it goes beyond and includes both prostrations in greeting, titles etc.

b) Individualism and Collectivism: This refers to the degree of importance between individual's interest against that of the group

Comparison between German and Nigerian culture: Nigeria has a collectivist culture while German culture is based on individualism.

Nigerians practice collectivism over individualism meaning that issues are viewed from the perception and consideration of a group. This can further be explained by the extended family social fabric and concept in Nigeria and most African societies.

Value for family unity: Family is highly valued in Nigerian culture and seen as the basis of existence. Unlike the Western world family in Nigeria is viewed beyond husband, wife and children but rather extend to other relatives.

c) Uncertainty avoidance: This centers on how people in a society accept or perceive threats of a new situation and its uncertainties.

Comparison between German and Nigerian culture: Nigerians prefer structure, stability and old routine over change and uncertainties.

d) Time management: African cultures more generally do not actually view time from "Clock Time" rather from the convenience perspective, Nigerians are normally 30 minutes late from the scheduled time (meeting and appointments), though things are changing gradually.

Business meetings and outfit: Though the official business dress in Nigeria is suit, never be surprised that your Nigerian partner will come to business meeting wearing native clothes.

Nigerian outfits are based on the culture and the quest to exhibit the Nigerian style. Example of President Buhari of Nigeria.

Women in business: The Nigerian business scene is still dominated by men as women still face obstacles participating in businesses. This is especially the case in areas where religion plays an important role, though things are changing gradually.

Decision making: In Nigeria decisions are mainly taken at the apex and communicated downwards without much room for objection.

3. Competencies to overcome those mentioned cultural challenges

3.1 Understanding communication styles

Different cultures have different communication styles. On the scale of communication context, cultures are divided into "High Context" and "low context" cultures.

Examples of High context cultures include African, Indian, and others. Examples of Low context cultures include Australian, German, US culture, etc.

In high context cultures, communication involves more of the information in the physical context; internal meaning is usually embedded in the information, so meaning is not explicitly stated in written or spoken words.

Conversely, a low context culture is characterized by communication that is direct, precise, open and based on feelings.

3.2 Understanding the Cultural Values

Understanding the four mentioned dimensions of value perspectives between national cultures: Power distance; Individualism and Collectivism; Uncertainty avoidance; Short/ Longterm orientation. Understanding the host country's cultural values on the scale of these four dimensions helps students and practitioners to understand the cultural chasm that they must recognize and make conscious effort to bridge.

3.3 Developing right competencies:

Once we understand the various facets of a culture, then we need to develop the right competencies to equip students and practitioners with the right frame of mind, attitude, and skills to feel comfortable and business-ready in the host culture.

Here's the summary of the 3 cross cultural competencies that we need to develop:

Tolerance for Ambiguity: We need to be more aware of differences the communication styles and cultural values and take cognizance of the value system of the other culture. Otherwise, the listener might not only lose part of the message but also develop an incorrect perspective about the delivered information.

Cultural Flexibility: we need to become more aware of the cultural basis of our own behavior, perceptions, beliefs, and values to enable us to see any interaction from a cultural perspective.

Reduced Ethnocentrism: Since ethnocentrism is often an unconscious behavior, it is understandably difficult to prevent in advance. When confronted with a different culture, individuals judge it with reference to their own standards, and make no attempt to evaluate the new culture from the host country's point of view.

4. Notes on business etiquette in Nigeria and other Africa countries

Business Card: Never give your Nigerian partner your business card using your left hand because they may turn you down. Always give with your right hand and if possible with two hands.

Gift: Always make sure that the gifts are properly wrapped and do not use black or red paper to wrap gifts. Items like drinking glasses, wall clocks, pens, pencils, hard drives etc. are appreciated gifts. Always be careful giving expensive gifts because that could give a negative signal to the recipient.

Negotiation: Always remember to send the right team for negotiation, but bear in mind unlike the status of the team members e.g. titles, positions and age will directly affect how they will be perceived by their Nigerian partners and that will likely determine the outcome of the negotiation. As mentioned earlier, Nigeria has a high power distance culture so titles and positions are highly appreciated. Also try as much as possible to include a Nigerian (native) as part of your negotiating team.

Dining: Western dining habits demand for cutleries but when you find yourself in Nigeria or any other African country with your partners and the dish is native African, do not be surprised if your partners eats with their hands. Most African native foods are better enjoyed with bare hands.

Time: As discussed earlier do not be in a hurry. Patience is very important in doing business in Nigeria, learn to accept lateness to business meetings.

5. Intercultural Learning

How to teach intercultural competences to students and practitioners (Intercultural learning)

Intercultural field trip or service learning: where students can observe and experience authentic cultural contexts. These intercultural experiences offer personal involvement with people in authentic cultural contexts where students and practitioners are open-minded and willing to learn from experience and people.

Bicultural or multicultural conferences and seminars: bicultural or multicultural speakers can share their personal stories of multicultural perspectives and experiences with the students and practitioners. Storytelling is a powerful tool because it is someone's real voice, not something in lectures or readings (Merriam & Caffarella, 1999). While watching and listening to the guest speaker, students have a chance to reflect on what they observe and to form their opinions and insights with a variety of perspectives.

Intergroup interactions: Participation in intergroup interactions, including in-class and outside-of-class intergroup discussions or team projects where students discuss assigned topics by exchanging different cultural values and norms. Students not only learn from lectures and readings or the experience and observation of a cultural event, but they also learn intercultural concepts through actual interactions with classmates from different cultural backgrounds. At the beginning, they may feel uncomfortable in communicating with the group members from different cultures. However, after trying out different intercultural communication skills that they have learned and gaining mutual understanding, they may start to feel more comfortable or connected with each other.

6. Conclusion

Open-mindedness:- Open-mindedness relates to the way in which we approach the views and knowledge of others cultures, and "incorporate the beliefs that others should be free to express their culture style and that the value of that culture be recognized."

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Do the approaches to entrepreneurship education matter in start-up intentions?

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Abstract

Entrepreneurship education serves a conduit for new venture creation as it provides the knowledge and skills needed to increase the self-efficacy of individuals to start and run new businesses and to grow existing ones. This study, therefore, sought to assess the relationship between the approaches to the teaching of entrepreneurship and entrepreneurial intention on a cohort of 292 respondents consisting of students who have studied entrepreneurship in three selected Universities. A structured questionnaire was used to obtain data randomly from students. The canonical correlation results indicate that education for and through entrepreneurship is the best approach to promoting entrepreneurial intensity among University students, if the aim of teaching entrepreneurship is to promote start-up activities. The findings provide valuable insights for institutions of higher learning and policy makers in Ghana with respect to the appropriate methodologies to be adopted in the teaching of entrepreneurship in our universities.

1. Introduction

Entrepreneurship has become one of the keys to economic and social development. This is because it is viewed as a conduit for innovation, income generation and job creation and hence has become the subject of research and a field of education (Bachiri 2016; Gartner, 1985)). Interest in the development of programmes that encourage and promote entrepreneurship in developed countries in general and African countries in particular, have there-fore, been intensified. Factors that have necessitated this increased attention include; government concern for unemployment amongst the teeming youth who graduate from our universities; entrepreneurship and its' contribution to economic development; students themselves taking to the study entrepreneurship to develop the skills and know-how to start up their own businesses; students wishing to acquire entrepreneurial knowledge which will be helpful in their careers in organisations (intrapreneurship); and academic institutions using entrepreneurship to understand basic commercial issues (Jack and Anderson, 1999).

However, this increase in demand has not been transformed into an increase in an expected outcome of entrepreneurship education, which is entrepreneurial intention. This contradicts, for example, Cho's (1998) assertion that entrepreneurship education provides students with the motivation, knowledge and skills essential for launching a successful business venture. Despite the fact that most institutions of higher learning in Ghana are emphasizing on the importance of entrepreneurial education, unemployed graduates from the Universities are rather increasing. For instance, the Head of the economic division at the Institute of Statistical, Social and Economic Research (ISSER) Ghana, Dr. Charles Ackah, indicated that, as at 2015 there were over 200,000 unemployed graduates in Ghana (Ackah 2015). This is a worrying concern and the question this study is asking is, is the approach used in the teaching and learning of entrepreneurship right in producing students who have entrepreneurial intentions to be translated into start-up activities?

Various researchers have identified the importance of entrepreneurship education and factors that influence entrepreneurial intentions. Amongst them are attitudes, demographic characteristics, entrepreneurial environment, personal and individual characteristics (Bachiri 2016, Kreuger et al. 2000). Yet, Henderson and Robertson (2000) and Zhang, Duysters, and Cloodt (2013) quoted in Hussain and Norashida (2015) identified entrepreneurial education as one of the major determinant of entrepreneurial intentions. Similarly, literature from Moberg et al. (2014); OECD (2009) and Otuya et al. (2013) suggest that entrepreneurship education among other factors could be a plausible predictor to business start-up intentions. Besides, some researchers, such as Gartner (1988), argues that research should study the actions taken by individuals engaged in entrepreneurship instead of the individuals themselves.

Notwithstanding the recognition that education and prior entrepreneurial experiences influence people's attitudes towards starting their own business, the impact of enterprise education as distinct from general education, on attitudes or perceptions of entrepreneurship (Peteman and Kennedy 2003) has remained relatively untested in developing countries. For instance, most studies have examined the relationships between individual and group characteristics on entrepreneurial intentions. However, these studies did not address the Ghanaian context. Moreover, studies carried out in Ghana (eg. Afriyie and Boohene 2014) did not take into consideration the methodologies adopted in the teaching of entrepreneurship and their influence on entrepreneurial intention (start-up intentions).

This paper therefore, assesses the relationship between the approaches to entrepreneurship education and entrepreneurial intentions among University students in Ghana. This gives the authors the opportunity to test the relationship beyond the exploratory stage using inferential statistics (Peterman and Kennedy 2003) and in a developing country context. Specifically the study aims at examining the:

- a. relationship between education for entrepreneurship and start-up intentions among University students in Ghana.
- b. relationship between education through entrepreneurship and start-up intentions among University students in Ghana.
- c. relationship between education about entrepreneurship and start-up intentions among University students in Ghana.

This paper is divided into five sections. The theoretical review and hypotheses development are discussed in the second section. This is followed by the methodology in the third section. The fourth section looks at the results and discussions whilst the fifth examines the conclusions and recommendations.

2. Theoretical Review and Hypotheses Development

2.1 Entrepreneurial intentions

Social cognitive theory developed by Bandura (1986) forms the basics from which intention theories are derived. The main argument of the theory is that individuals can influence their own actions (Ratten and Ratten 2007). Thus, intentions represent "a person's motivation to make an effort to act upon a conscious plan or decisions" (Conner and Armitage 1998). Social-psychological studies also posit that intention is one of the best predictors of individual behaviour (Bagozzi, Baumgartner and Yi 1989). That is, once the formation of intentions occurs, actual behaviour is expected (Bae, Qian, Miao and Fiet 2014). Thompson (2009) defines entrepreneurial intention as "self-acknowledged conviction by a person that they intend to set up a new business venture and consciously plan to do so at some point in the future".

Thus, entrepreneurial intention is a person's motivation to make a conscious plan to perform the behaviour of setting up a business. Research confirms that intentions are strong predictors of actual behaviour in other applied settings (Gelderen et al. 2008).

Similarly, the Theory of Reasoned Action (TRA), proposed by Ajzen (1985) suggests that an individual is influenced by behavioral intentions which is a function of an individual's attitude toward that behaviour, the subjective norms surrounding the performance of the behaviour and the individual's perception of the ease with which that behaviour can be performed (Ajzen 1991). Thus, the theory assumes that specific actions are preceded by a conscious intention to act in a specific way. The theory consists of three major constructs; Attitude toward behavior, subjective norms and perceived behavioural control (Krueger Jr et al. 2000). These three constructs are used to explain start-up intentions of students in our tertiary institutions. In this study however, entrepreneurial intention is used synonymously with start-up intentions.

2.2 Entrepreneurship education in higher educational institutions

Entrepreneurial education is understood as a common phenomenon within the university setting (Fayolle and Kyrö 2008) with an emphasis towards venture creation (Menzies 2004). Fayolle, Gailly and Lassas-Clerc (2006b, p. 702) quoted in Bai, Qian, Miao and Fiet (2014) defined entrepreneurship education as consisting of "any pedagogical program or process of education for entrepreneurial attitudes and skills". Several different instructional strategies for entrepreneurship education have been used. These range from the use of case studies, business plans to venture creation (Kuratko 2005). In general, business planning is the primary vehicle used by the majority of courses and programs (Honig 2004). Furthermore, entrepreneurship at the University level is seen as one of the best ways of inculcating start-up intentions amongst adult students who may not have had the opportunity for such experience at the lowest levels of education. Various researchers have argued that entrepreneurship education at this level produces more positive results depending on the methodology used. For example, Vij and Ball (2009) indicated that non-business students developed self-confidence, drive, hard work and acceptance of possible failure when they took a module in entrepreneurship. Also Gibb (1992) and Middleton (2010) suggested that students who had the opportunity to go through entrepreneurial training developed entrepreneurial qualities such as proactiveness, risk taking, autonomy, responsibility and problem solving skills when the teaching methodology used covered idea generation, planning, doing and self-awareness.

From the discussions above it can be argued that entrepreneurship education at the tertiary level encourages start-up intentions when the approach used leads to the creation and application of knowledge and skills. As noted by Linäan (2004) there are three main approaches to entrepreneurship education targeted at different types of audiences. These are education ABOUT entrepreneurship, education FOR entrepreneurship and education THROUGH entrepreneurship.

The most common educational approach to entrepreneurship in higher education is education about entrepreneurship. This is an approach to entrepreneurship education, which focuses on transmitting declarative knowledge about what entrepreneurship is and what entrepreneurs do (Mwasalwiba 2010). Education about entrepreneurship can easily be taught to hundreds of students, because it does not rely on action-based teaching methods. If the primary objective is to increase students' awareness and knowledge of entrepreneurship, then this is probably the most effective educational approach (OECD 2009). A study conducted by Moberg et al. (2014) in Copenhagen on assessing the impact of entrepreneurship education among 300 tertiary students indicates that education about entrepreneurship could be used to stimulate start-up intentions. This current study examined the effect of education about entrepreneurship as an approach to the teaching and learning of entrepreneurship and start-up intentions. From the discussions it was hypothesised that;

H1: There is a statistically significant and positive relationship between education about entrepreneurship (EAE) and start-up intentions

Lewis and Massey (2003) define "education for enterprise" in terms of an earlier Organization for Economic Cooperation and Development (OECD) description of enterprise. They referred to it as relating to the development of "a group of qualities and competencies that enable individuals, organizations, communities to be flexible, creative and adaptable in the face of rapid social and economic change". Accordingly, education for entrepreneurship emphasizes on the development of individual or combined entrepreneurial attitudes, personal qualities, knowledge and skills such as creativity, teamwork and risk and uncertainty management (Lorz, et al. 2011; Moberg et al., 2014). In addition, the focus of this type of education is on developing a mindset that enhances entrepreneurial behavior (OECD 2009). Programmes associated with education for entrepreneurship, are usually "hands-on" approaches where students simulate venture creation activities.

A study conducted by Moberg et al. (2014) on the effectiveness of approaches to entrepreneurship education found that education for entrepreneurship is an approach which often has self-employment as an outcome goal, which relies on action oriented teaching methods in order to teach the skills of venture start-ups. Similarly, a study conducted by Kozlinska (2016) on exploring the contemporary approaches towards entrepreneurship education in order to depict frameworks and methods that are acknowledged by renowned experts revealed that education FOR entrepreneurship is an approach aimed at enhancing new venture creation, intrapreneurship and employability. This current study examined the effect of education FOR entrepreneurship as a teaching method and start up motives. Thus, it is hypothesised that;

H2: There is a statistically significant and positive relationship between education for entrepreneurship (EFE) and start-up intentions

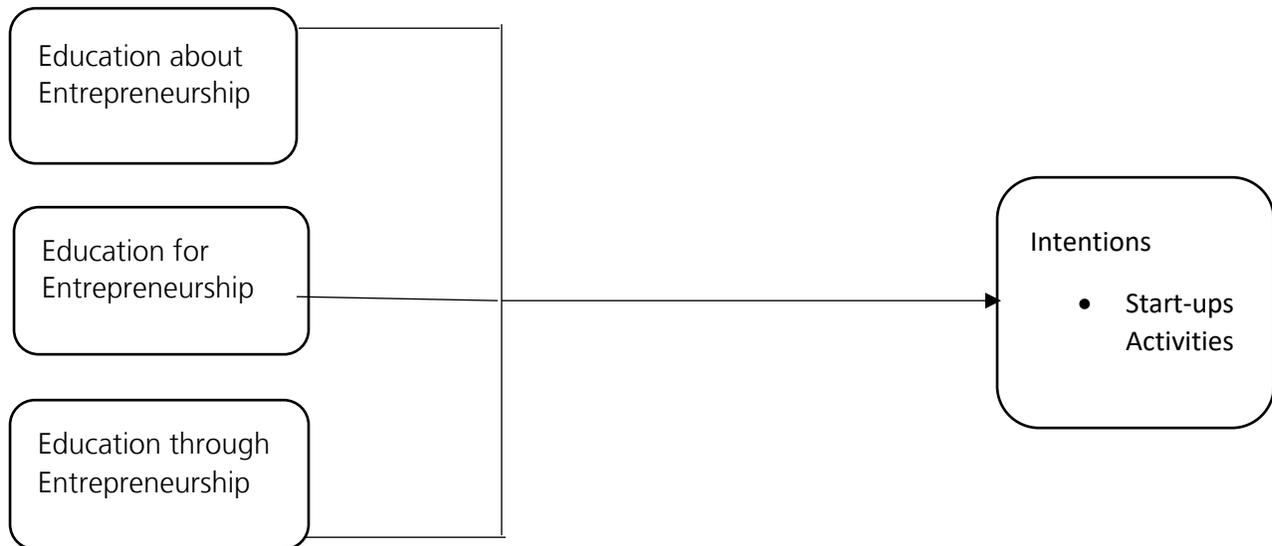
Education through entrepreneurship is an approach that focuses on using entrepreneurship as a teaching method (Surlemont 2007). This approach to entrepreneurship education is closely related to the concept enterprise education, as the goal is much broader compared to education for entrepreneurship (Gibb 1992; Jones and Iredale 2010). The focus of this approach is rather on the pedagogy and the teaching methods (Jones and Iredale 2006). Education through entrepreneurship is not subject specific, which makes it possible to introduce across the curriculum (Iredale 2002). In addition, if, on the other hand, the goal of the teaching and learning entrepreneurship is to foster creative and proactive students who understand how they can use and apply their knowledge in innovative ways, probably education through entrepreneurship is more effective, because it can be embedded in many different topics in a cross-curricular manner. According to Surlemont (2007), this possibility of embedding entrepreneurship education in many different topics rather than introducing it as a specific discipline has made this pedagogy-oriented approach to entrepreneurship popular at the lower levels of the education system. However, it also used in the Universities in Ghana as an approach to teaching entrepreneurship. In this sense, education through entrepreneurship is understood in this study as a pedagogical approach to entrepreneurship. Accordingly;

H3: There is a statistically significant and positive relationship between education through entrepreneurship (ETE) and start-up intentions

2.3 Synthesis of approaches to entrepreneurship education

Educations for and about entrepreneurship are to some degree similar when it comes to content and outcomes, and, as a result, it is possible to compare and evaluate these two approaches on the same basis. Both of these approaches focus on teaching students cognitive entrepreneurial skills (what) and on increasing students' awareness of self-employment as a potential career choice (objective). Whereas education for entrepreneurship focuses on new venture creation, the focus of education through entrepreneurship is on fostering innovative, creative and enterprising individuals (Blenker et al. 2011; Mathieu 2006). The educational content in this approach does not need to focus on entrepreneurship, at least not in its contextual definition as an organisational form characterized by small business and new venture creation (Surlemont 2007). This method approach is similar to education through entrepreneurship, or enterprise education, which is a related concept (Blenker et al. 2011; Jones and Iredale 2010), and which is more focused on the teaching methods than the content, as its objective is to foster creative and enterprising individuals rather than stimulating self-employment. In this sense, it is possible to compare education for entrepreneurship with education through entrepreneurship, as they, to some degree, focus on similar learning outcomes (objective) and use similar action-based teaching methods (how). From the above theoretical and empirical review, a conceptual framework depicted in Figure 1 was developed.

Figure 1: Conceptual model depicting the relationship between the approaches to entrepreneurship education and entrepreneurial intentions



3. Methodology

This paper was guided by a quantitative methodology. Consequently, the positivist research philosophy was employed. Positivists believe in the existence of theories that govern the world that need to be tested and are also concerned with a single concrete reality (Krauss 2005). They also believe in the existence of relationships and the development of knowledge through objective measurement (Creswell 2009). Since hypotheses were developed from the empirical review, a structured questionnaire was used to measure quantifiable variables that enabled statistical analyses to be conducted. In line with the quantitative method, positivist stance and development of hypotheses, deductive research approach was used. The logic of a deductive study approach offered the advantage of researching the literature and proposing relationships between the variables that could then be tested (Lorz et al. 2011).

The cross sectional survey study, gathered data from undergraduates' students in three public Universities in Ghana. That is, University of Ghana, Kwame Nkrumah University of Science and Technology and University of Cape Coast, located in the Greater Accra, Ashanti and Central regions of Ghana respectively. These institutions were chosen because they are among the few academic institutions in Ghana, offering entrepreneurship education either as a compulsory course or as a faculty course in the various departments. The data were gathered through the use of questionnaires, which were self-administered to enhance the response rate and also quality of data collected. The questionnaires were pilot tested among undergraduates' students at the Department of Entrepreneurship and Business Sciences, University of Energy and Natural Resources.

This help in improving the validity, reliability and putting the tool in good shape before the actual data collection started. The unit of analyses was the three selected institutions and the unit of enquiry was the students who had read entrepreneurship either as a compulsory course or as a faculty course. The total number of students offering entrepreneurship education from the three universities was about 3,500. Out of this figure, the sample size (292) was statistically derived using a formula from Kothari (2014), with a precision level of 5% and a confidence level of 95%. Simple random sampling was then used to select the respondents from the three public Universities. Data obtained was analyzed descriptively (central tendencies) and inferentially using canonical correlation with the aid of SPSS version 19, which is statistical software.

Canonical correlation was chosen because it is the appropriate technique for identifying relationships between two sets of variables (Sharma 1996). As Thompson stated “canonical correlation analysis could be as complex as reality in which most causes have multiple effects and most effects are multiply caused” (1984, p.9). Furthermore, canonical correlation is a flexible method which does not require rigid restrictions on the types of the data to use (Hair et. al, 1998). Although canonical analysis is the most general compared with the multivariate techniques such as multiple regression, discriminant function analysis and MANOVA, paradoxically, it is the least used of all the techniques (Tabachnick and Fidell, 1996). Most of the studies on entrepreneurship education have not use canonical correlation to establish their relationships. This current study nevertheless used canonical correlation to establish the relationship between approaches to entrepreneurship education and entrepreneurial intentions in the form of start-up motives. Results were presented using tables.

4. Findings and Discussions

The data were collected from students in three selected public Universities in Ghana. At the time data were being collected, students randomly selected, had read entrepreneurship education either as a compulsory course or as a faculty course. The response rate was 272 (93%) out of 292. The study produced and alpha Cronbach reliability of 0.87. The demographic data included age of respondent, sex of respondent, and programme offered by respondents.

Table 1 Demographics analysis

Demographics	Categories	Frequency	Percent
Sex	Male	162	59.6%
	Female	110	40.4%
Age	20-24	231	84.9%
	25-29	38	14.0%
	30-34	3	1.1%

Programmes	B.A Social Science	34	12.5%
	B.ED Programmes	10	3.7%
	Bsc. Business Administration	92	33.8%
	Bsc. Bio-Chemistry	52	19.1%
	Bsc.Nursing	3	1.1%
	Bsc. Population and Health	6	2.2%
	Bsc. Human Biology	1	0.4%
	BSc. Environmental Science	73	26.9%
	BSc. Information Technology	1	0.4%

The results from Table 1 show that majority of the respondents were males (162, 59.6%) as compared to females (110, 40.4%) and most of them (231, 84.9%) were in the 20-24 age bracket. Respondents cut across several programme lines since the questionnaires were randomly distributed. Majority of the respondents (92, 33.8%) were students undertaking business programmes, followed by students undertaking programmes in environment (73, 26.9%) and then students from sciences (eg. Bio-Chemistry, 52- 19.1%)

Respondents opinions were sought on the following; treatment of entrepreneurship in the Universities, content of entrepreneurship education in the Universities and whether students were motivated to start their own business following the entrepreneurship education they had received.

Table 2 Views of Respondents on Entrepreneurship Education

Items	Responses	Frequency	Percent
Making Entrepreneurship Education compulsory	Yes	261	96.1%
	No	11	4.0%
Content of Entrepreneurship Education	More Practical Based	218	80.1%
	Both theory and practical	16	5.9%
	More of venture creation	38	14.0%
How to improve upon entrepreneurship education	Making it practical	157	57.7%
	Making it compulsory	59	21.7%
	Allocating more time and increasing the number of years for it teaching and learning	27	9.6%

	Others	29	10.7%
Assessing current methodology for teaching entrepreneurship	Yes	253	93%
	No	19	7%
Motivation to start up a business venture after reading EE	Yes	251	92.3%
	No	21	7.7%
Causes of Unemployment in Ghana	Lack of entrepreneurial education and skills	82	30.1
	Limited jobs	62	22.8
	Education system, curriculum and teaching methodology is abstracts ('bookish')	59	21.7%
	No connection between academic institutions and the labour markets	41	15.1%
	Lack of capital for starting up a business venture	13	4.8
	Bad government policies	15	5.5

From Table 2, an overwhelming number of the respondents 261 (96.1%) were of the opinion that entrepreneurship education should be taught as a compulsory course and given the same attention and preference as other University courses. The reason was that such type of education will enable each student acquire entrepreneurship knowledge and skill such as being creative innovative, proactive and initiative and this could be applied in their daily lives (Liikanen 2004).

Respondents' views were sought on ways to improve upon entrepreneurship education in the Universities of Ghana. A greater number (152, 57.7%) of the respondents were of the opinion that making the teaching and learning of entrepreneurship practical could be a way of improving it. In addition, making entrepreneurship compulsory to all University students was also mentioned by 59, 21.7% of the respondents. From Table 2, other views, which represents (29, 10.7%) indicated among others that student could be given incentives such as scholarships, attending entrepreneurship conferences and programmes which could whip up their interest in learning entrepreneurship.

Likewise, 253 (93%) responded in the affirmative that the current methodology for the teaching and learning of entrepreneurship needs improvement with 19 (7.0%) saying no. Those who responded in the affirmative specified that practical sessions, fieldwork, entrepreneurial seminars and fairs as well as project work, must be part of the teaching and learning process.

Other suggestions also included the use of entrepreneurs/experts to teach the entrepreneurship in the Universities, the provision of resources to facilitate the teaching and learning of entrepreneurship and if possible the theoretical aspect of the course being taught in the Universities and the practical sessions outsourced to experts or agency for training students in practical entrepreneurship. This suggests that the current methodology for the teaching and learning of entrepreneurship is not the kind students in the Universities of Ghana want.

Majority of the students (251, 93.2%) mentioned that they are motivated to start-up business venture after learning entrepreneurship course. However the absence of practical sessions may stifle their motivation.

4.1 Testing of Hypotheses

The first step of canonical correlation analysis is to derive one or more canonical functions. As is known, canonical functions can be described as relationship between dependent and independent variables representing the weighted sum of data sets both dependent and independent (Hair et al. 1998). Since, there are five dependent variables measuring start-up intentions, five canonical functions were derived. The statistical significance of each canonical function was examined separately in order to determine the exact number of relations between the two sets of variables.

A glance at Tables 3 and 4 shows the canonical correlation coefficients results for all three approaches of entrepreneurship used in this study. That of EaE produced five canonical dimensions with canonical correlations coefficients of ($R_{c=1} 0.452, R_c^2 = 0.205$), ($R_{c=2} 0.131, R_c^2 = 0.017$), ($R_{c=3} 0.094, R_c^2 = 0.008$), ($R_{c=4} 0.040, R_c^2 = 0.001$) and ($R_{c=5} 0.011, R_c^2 = 0.000$) for each successive dimension. Out of the five dimension, only the first dimension was statistically significant using Wilks's $\lambda = 0.774$ criterion, $F(25.00) = 2.789, p < 0.001$.

Table 3 Measure of overall model fit for canonical correlation analysis (EaE, EfE, EtE)

Education about Entrepreneurship (EaE)

Canonical function	Canonical correlation coefficient (R_c)	Canonical (R_c^2)	F	DF	Sig.
1	0.452	0.205	2.789	25.00	0.000
2	0.131	0.017	0.456	16.00	0.967
3	0.094	0.008	0.304	9.00	0.974
4	0.040	0.001	0.102	4.00	0.982
5	0.011	0.000	0.033	1.00	0.855

Education for Entrepreneurship (EfE)

Canonical function	Canonical correlation coefficient (R_c)	Canonical (R_c^2)	F	DF	Sig.
1	0.477	0.228	2.243	45.00	0.000
2	0.219	0.048	0.951	32.00	0.546
3	0.201	0.040	0.835	21.00	0.678
4	0.139	0.019	0.556	12.00	0.877
5	0.077	0.006	0.309	5.00	0.907

Education through Entrepreneurship (EtE)

Canonical function	Canonical correlation coefficient (R_c)	Canonical (R_c^2)	F	DF	Sig.
1	0.538	0.289	5.550	20.00	0.000
2	0.192	0.037	1.237	12.00	0.000
3	0.113	0.127	0.794	6.00	0.000
4	0.071	0.005	0.677	2.00	0.000

In order to evaluate the significance of canonical roots, a multivariate test of all canonical roots was performed. This action helped in assessing the significance of discriminant functions as seen in Table 4 below.

Table 4 Multivariate Tests of Significance

Statistics	EaE			EfE			EtE		
	Value	F	Sig.	Value	F	Sig.	Value	F	Sig.
Pillais Trace	0.232	2.589	0.000	0.341	2.131	0.000	0.344	5.005	0.000
Hotelling-Lawley Trace	0.285	2.970	0.000	0.413	2.352	0.000	0.463	6.056	0.000
Wilks Lamda	0.774	2.789	0.000	0.688	2.243	0.000	0.672	5.550	0.000

The analysis for EfE also yielded five dimensions with canonical correlations coefficients of ($R_{c=}$ 0.477, $R_c^2 = 0.228$), ($R_{c=}$ 0.219, $R_c^2 = 0.048$), ($R_{c=}$ 0.201, $R_c^2 = 0.040$), ($R_{c=}$ 0.139, $R_c^2 = 0.019$) and ($R_{c=}$ 0.077, $R_c^2 = 0.006$) for each successive dimension. Out of the five dimensions, only the first dimension was statistically significant using Wilks's $\lambda = 0.688$ criterion, $F(45.00) = 2.243$, $p < 0.001$.

That of EtE also yielded four dimensions with canonical correlations coefficients of ($R_{c=}$ 0.538, $R_c^2 = 0.289$), ($R_{c=}$ 0.192, $R_c^2 = 0.037$), ($R_{c=}$ 0.113, $R_c^2 = 0.127$) and ($R_{c=}$ 0.071, $R_c^2 = 0.005$) for each successive function. Out of the four dimensions, only the first dimension was statistically significant using Wilks's $\lambda = 0.672$ criterion, $F(20.00) = 5.550$, $p < 0.001$.

However, it could be said that higher levels of canonical correlation coefficient implies stronger relation between predictor and criterion variables. In this context, when we look at Table 6, it indicates that canonical correlation coefficient for EaE is 45.2%, EfE is 47.7% while it is 53.8% for EtE. Therefore, the degree of relationship shows that there is a positive statistically significant relationship between EaE, EfE, and EtE and start-up intentions, with EtE having the relatively strongest relationship.

The first hypothesis sought to examine whether there was a statistically significant and positive relationship between education about entrepreneurship and start up intentions. The results are depicted in Table 5.

Table 5 Canonical Loadings, Canonical loadings for Dependent and Independent variables (Education about Entrepreneurship- EaE)

EaE		
For the First Canonical Function Which Is Statistically Significant : (Rc=0.452 p=0,00)		
Independent Canonical Variates	Canonical loadings	Canonical Cross loadings
EaE1	0.403	0.689
EaE2	0.099	0.403
EaE3	0.195	0.291
EaE4	0.596	0.254
EaE5	0.361	0.144
Dependent Canonical Variates	Canonical loadings	Can. Cross loadings
SUI1	0.356	
SUI2	0.261	
SUI3	0.429	
SUI4	0.227	
SUI5	0.024	

Since significance of the first canonical functions were provided by canonical correlation coefficients for each approach to entrepreneurship education, the contribution of each variable to canonical relationship, canonical loadings and canonical cross loadings were also reported. Canonical loadings and cross loadings of dependent variables were not interpreted here. This is because canonical cross loadings of dependent canonical variables are lower than canonical cross loadings of independent canonical variables (Basfirinci 2008). The EaE canonical loadings of independent variables, in otherwords, their contribution of each EaE dimension to the EaE canonical variate, are EaE1 (40.3%), EaE2 (9.9%), EaE3 (19.5%), EaE4 (59.6%) and EaE5 (36.1%). Looking at the canonical cross loadings also from Table 5, the contribution of the independent variables to the dependent canonical variate are, EaE1 (68.9%), EaE2 (40.3%), EaE3 (29.1), EaE4 (25.4%) and EaE5 (14.4%).

Literature (Basfirinci, 2008) indicates that any value produced from canonical loadings below 30% shows no meaningful contribution to the canonical variates while values 30% and above indicates a meaningful contribution to the canonical variates. In accordance, EaE3, EaE4 and EaE5, do not produce any meaningful contribution to start-up intentions. Findings from EaE do not satisfy the expectation of this study. In this context, since not all independent variables contribute to independent variate meaningfully and also have a positive significant correlations with dependent canonical variate, hypothesis one, which states that 'there is a statistically significant and positive relationship between education about entrepreneurship (EaE) and start-up intentions' is not accepted. These show that EaE is relatively important for start-up intentions. In addition, the findings of hypothesis one suggest that for instance, EaE1 could explain start-up intentions among University students by 68.9%. However, EaE5 could explain start-up intentions among University students by only 14.4%. Thus, other factors could explain start-up intentions better than EaE5.

In the second hypothesis, predictive abilities of Education for entrepreneurship and start-up intentions were tested. The results are depicted in Table 6.

Table 6 Canonical Loadings, Canonical loadings for Dependent and Independent variables (Education for Entrepreneurship- EfE)

EfE		
For the First Canonical Function Which Is Statistically Significant : (Rc= 0.477 p=0,00)		
Independent Canonical Variates	Canonical loadings	Canonical Cross loadings
EfE1	0.427	0.831
EfE2	0.118	0.737
EfE3	0.094	0.575
EfE4	0.094	0.593
EfE5	0.358	0.809
EfE6	0.096	0.733
EfE7	0.133	0.686
EfE8	0.208	0.783
EfE9	0.169	0.746
Dependent Canonical Variates	Canonical loadings	Canonical Cross loadings
SUI1	0.138	
SUI2	0.378	
SUI3	0.205	
SUI4	0.426	
SUI5	0.138	

The EfE canonical loadings of independent variables, in otherwords, their contribution of each EfE dimension to the EfE canonical variate, are, EfE1 (42.7%), EfE2 (11.8%), EfE3 (9.4%), EfE4 (9.4%), EfE5 (35.8%) EfE6 (9.6%), EfE7 (13.3%), EfE8 (20.8%) and EfE9 (16.9%) Looking at the canonical cross loadings also from Table 9, the contribution of the independent variables to the dependent canonical variate are, EfE1 (83.1%), EfE2 (73.7%), EfE3 (57.5%), EfE4 (59.3%), EfE5 (80.9%), EfE6 (73.3%), EfE7 (68.6%), EfE8 (78.3%) and EfE9 (74.6%). Again from literature as indicated earlier, all the canonical cross loadings for EfE are above 30%.

That is, since all independent variables contribute to independent variate meaningfully and also have a positive significant correlation with dependent canonical variate, hypothesis two, which states that ‘there is a statistically significant and positive relationship between education for entrepreneurship (EfE) and start-up intentions’ is accepted. This result implies that EfE is a very important teaching approach for entrepreneurship education and start-up intentions. In addition, the findings of hypothesis two shows that for instance, EfE5 could explain start-up intentions among University students by 80.9%, while the remaining percentage are explained by other factors.

Hypothesis three predicted a statistically significant and positive relationship between education through entrepreneurship and start-up intentions. Table 7 shows the results.

Table 7 - Canonical Loadings, Canonical loadings for Dependent and Independent variables (Education through Entrepreneurship - EtE)

EtE		
For the First Canonical Function Which Is Statistically Significant : (Rc= 0.538 p=0,00)		
Independent Canonical Variates	Canonical loadings	Canonical Cross loadings
EtE1	0.219	0.636
EtE2	0.545	0.853
EtE3	0.551	0.866
EtE4	0.318	0.621
Dependent Canonical Variates	Canonical loadings	Canonical Cross loadings
SUI1	0.031	
SUI2	0.489	
SUI3	0.185	
SUI4	0.509	
SUI5	0.019	

The EtE canonical loadings of independent variables, in otherwords, their contribution of each EtE dimension to the EtE canonical variate, are, EtE1 (21.9%), EtE2 (54.5%), EtE3 (55.1%) and EtE4 (31.8%). Looking at the canonical cross loadings also from Table 10, the contribution of the independent variables to the dependent canonical variate are, EtE1 (63.6%), EtE2 (85.3%), EtE3 (86.6%) and EtE4 (62.1%). Again from literature as indicated earlier, all the canonical cross loadings for EtE are above 30%.

Therefore, since all independent variables contribute to independent variate meaningfully and also have positive significant correlations with dependent canonical variate, hypothesis three, which states that 'there is a statistically significant and positive relationship between education through entrepreneurship (EtE) and start-up intentions' is accepted. This reveals that EtE is a very important teaching approach for entrepreneurship education and start-up activities. In addition, the findings of hypothesis three shows that for instance, EtE3 could explain start-up intentions among University students by 86.6%.

4.4 Discussion of Findings

This paper used canonical weight and correlation to construct views of relationship between two sets of variables. The aim of this paper was to examine the relationship between approaches to entrepreneurship education and entrepreneurial intentions among University students in Ghana. Three approaches for the teaching and learning of entrepreneurship in the institutions of higher learning particularly the Universities were identified by this study (education about entrepreneurship, education for entrepreneurship and education through entrepreneurship). Entrepreneurial intentions were measured by start-up activities. Out of the three approaches to entrepreneurship education, two (education for entrepreneurship and education through entrepreneurship), were significant with start-up intentions. The findings indicate that education for entrepreneurship as an approach to the teaching and learning of entrepreneurship could contribute significantly to start-up intentions and activities. This finding is consistent with studies, which show that education for entrepreneurship focuses on new venture creation (Moberg, 2014; Kozlinska 2016) and thus students who go through this approach may be encouraged to start their own businesses.

Education through entrepreneurship also demonstrated to contribute significantly to start-up intentions. This finding is also in consonant with Moberg et al. (2014) his study, which revealed that education through entrepreneurship has to do with how to transform ideas into action and how to start-up new activities. Although education about entrepreneurship did not produce a significant relationship with start-up intentions comparatively, it could be used to teach entrepreneurship if the outcome expected is not for developing start-up intentions but just to inform students about entrepreneurship. This finding implies that the outcome expected from the teaching and learning of entrepreneurship should dictate the approach to be used.

4.5 Conclusions and Recommendations

This paper is among the few articles focusing on the approaches to entrepreneurship education and start-up intentions among University students in developing countries particularly Ghana. The main objective of this paper was to determine if an empirical relationship existed between the approaches of entrepreneurship education and entrepreneurial intentions among University students in Ghana. The findings show that there is a relationship between the approach used in teaching entrepreneurship and entrepreneurial intentions.

In most instances, the assumption has been that the approaches used in teaching students in institutions of higher learning particularly the Universities do not really matter. After all they are 'matured' academically and can read things to understand unlike the basic schools where the approach for teaching is very paramount. On the contrary, this paper shows how the approach lecturers use in teaching can affect the learning outcome. Teaching of entrepreneurship in the Universities must be focused based. According to this study, although it is an empirical fact that teaching entrepreneurship education could trigger entrepreneurial intentions in the form of start-ups, the focus or outcome that the University expects to see in its students, determines the approach to be adopted in the teaching and learning of entrepreneurship.

This is significant since previous studies (eg. Afriyie and Boohene 2014) on entrepreneurship education in the Universities in Ghana had not recognised the connection between the outcome of entrepreneurship education and its corresponding approach. The study therefore calls for policies that encourage teaching and learning of entrepreneurship in institutions of higher learning particularly the Universities using the right approach to produce the right effects or outcome. The paper also recommends that whether the approach to entrepreneurship education is "about, for and or through entrepreneurship", an enabling environment both within the school campuses and outside the school to motivate students to enter into entrepreneurial venture including start-ups is equally important. Consideration should be given to the ways in which students with brilliant entrepreneurial intents are handled. This paper also recommends that Universities in Ghana should develop a model similar to that developed by Fayolle and Gailly (2009) to serve as a guide for the teaching and learning of entrepreneurship.

This paper concludes that entrepreneurship education could trigger entrepreneurial intentions in the form of start-ups thereby increasing the evidence to support the assumption that entrepreneurship education can generate better outcomes at various stages of entrepreneurial activity, from start-up through to exit strategies. Although this paper has identified three approaches to the teaching and learning of entrepreneurship, understanding and applying each approach effectively calls for more research. Therefore, more research is needed to gain a deeper understanding on each of the three approaches to entrepreneurship education in Universities in Ghana and particularly along the education system in Ghana. In addition, a better understanding of other factors that impact on entrepreneurial intention and a stronger refinement of the objectives of entrepreneurship education in relation to its participants are also needed.

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Constraints analysis of start-up business

in Burundi

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Abstract

Small and Medium Enterprises (SMEs) are engine of economy both for developed and developing countries. They play a significant role in income generation, job creation, poverty reduction and reducing income inequality. In Burundi, key stakeholders such as policy-makers as well as other international and national actors have made more effort to develop the segment of SMEs. Indeed, many start-ups have been created but are however, exposed to several challenges in their business operations. This paper aimed at investigating main critical barriers to SMEs growth and development in Burundi. The research was based upon a sample survey of small firms in Burundi and 314 small enterprises were surveyed. Rural start-ups' critical barriers identified are mainly poor management, lack of access to market flow, lack of working capital, inadequate qualified workforce and low selling prices. On the other hand, five severe obstacles for urban SMEs identified are insecurity, access to financing, macroeconomic situation, lack of customers and unfair competition. A better understanding of all these barriers that SMEs are facing is useful to set up best strategies susceptible to increase their growth.

1. Introduction

Small and medium enterprises are widely recognized for their role in the social, political and economic development. In many emerging markets, the SME sector is one of the principal driving forces for economic growth and job creation. This is really the case in most of African countries where SMEs and the informal sector represent over 90% of businesses, thus contributing to over 50% of GDP, and account for about 63% of employment in low income countries (UNEP FI, 2008). Despite these opportunities, SMEs in Africa are hampered by many challenges including corrupt governance structures, unfavorable macroeconomic environment, debilitating physical infrastructure, and administrative challenges. However, inadequate access to funding resources remains one of the most trivial impediments to creation, survival, and growth of SMEs in Africa (UNEP FI, 2008).

In Burundi, policy-makers have made much effort to create micro, small and medium enterprises. Evidently, a significant progress has been made as since 2011, Burundi is among the reformers of the world (World Bank, 2016). However, start-ups created are exposed to several challenges in their business operations. This paper aims at identifying main obstacles to SMEs in Burundi. Many scholars have investigated the obstacles that affect the development of SMEs within specific areas. However, very little research has been directed towards Burundi in order to be aware of what is hampering SMEs growth. By dealing with this research, we believe that some specific problems that SMEs face can be revealed and overcome.

This paper is divided into five parts. First, we present a literature review on constraints that impede SMEs. Second, we discuss business environment in Burundi. Third, we discuss our methodology of analysis. Fourth, we present our findings. Finally, comes afterwards a brief conclusion.

2. Literature review

An extensive literature review was the first step to identify and describe key barriers for SMEs improvement. The literature dealing with barriers to growth of SMEs is relatively rich. Levy's (as cited in Wang, 2016) research on the leather industry in Sri Lanka and the construction and furniture industry in Tanzania is one of the interesting examples of papers from the 1990s. Levy has identified three major constraints -access to finance, access to non-financial inputs, and high cost. His results showed that financial constraints were the main obstacles for firms to grow. Moreover, high taxation was also identified as a main obstacle for the smallest firms. Since then, the research has focused on specific sectors to give more detailed and specific information about the difficulties SMEs face in the chosen industries.

The barrier to growth literature has been classified by Barber et al. (as cited in Alrabeei H. and Ramprakash Kasi B., 2014) under three headings: (i) management and motivation, (ii) sources, and (iii) market opportunities and structure. Carole et al., (as cited in Wang, 2016) pointed out that lack of financing became an obstacle to SMEs growth in developing economies due to poorly developed capital markets and where credit was provided according to historical working practice. Chen, Malhotra and others (as cited in Bataa Ganbold, 2008) demonstrate that SMES are usually more credit constrained than other segments of economy because of the

following reasons: (i) financial sector policy distortions; (ii) lack of know-how on the part of banks; (iii) information asymmetries, (iv) high risks inherent in lending to SMEs.

Pissarides, Singer, and Svejnar (2003) in their study in Russia and Bulgaria to detect the biggest obstacles to SMEs growth, chose variables by ranking the highest rated constraints. The top four constraints were defined as: suppliers are not ready to deliver, access to land, finance problems and other production constraints. Their results showed that the constraint on external finance was most serious, while other factors such as licensing did not appear to be as significant problem. More generally, Gree and Thurnik (as cited in Wang, 2016) divided the obstacles into two groups: external and internal. Amongst over the 30 obstacles chosen, finance turned out to be the most important. Other significant factors are management skills, location, technology, corruption, regulations; which are similar to what was listed in the World Bank Enterprise Survey of emerging economies. On the other hand, a Regional Economic Research Institute of Florida Gulf Coast University (2014) developed an internet survey to better understand the factors or conditions that are limiting business growth in the greater Lee County area. The key findings of the biggest barriers to growth for small businesses are :1) finding qualified employees, 2) financial /access to capital, 3) Government regulation/signage, 4) ability to promote/advertise/market, 5) state of the economy, 6) competition, 7) infrastructure/roads, 8) increased health/insurance costs, and 9) taxes.

In addition, according to Dasanayaka et al., and Trianni and Cagno (as cited in Al-Hyari K., 2013), information barriers are related to SMEs' accessibility to the information needed while expanding the business. Lacks of information about market opportunities, changes in technology are viewed as other barriers to innovation (Aminreza et al. as cited in Al-Hyari K., 2013). Information about a firm's external environment, such as market opportunities, changes in technology, and government policy help to make the firm more competitive (Guijarro et al. as cited in Al-Hyari K., 2013).

Some literatures have recognized that SMEs in developing countries have a slower adoption rate of e-business compared to other developed countries, which is caused by environmental, managerial and organizational constraint that made developing countries encounter greater risks than developed countries (Chong & Janita, as cited in Al-Hyari K., 2013). Several studies were also abounding with new barriers on e-commerce adoption in SMEs in developing countries such as absence of legal and regulatory systems, cost too high and e-commerce infrastructure, lack of financial resources, and low bank account and credit card penetration (Zaied, as cited in Al-Hyari K., 2013).

In this section we have examined some of the barriers that can impede the growth of small firms, it can be seen from the evidence that there are a number of barriers that can hinder the growth of businesses. A common finding in most of the studies is that SMEs face a financing problem - a problem of access to funding. But the studies also show that there is a considerable range of barriers depending on conditions of specific markets. Another important finding is that obstacles to growth of SMEs are determined by a variety of factors and, once again, the specific conditions may vary from country to country (Wao Y. 2016). The determinants can be grouped as internal or external.

Baring these barriers in mind, the owner/manager of a start-up business should identify which barriers will affect the growth of his/her firm before undertaking his/her business. The author feels that not all of these barriers will hinder the growth prospects of each individual firm, but given the wide degree of existing barriers, it would be fair to conclude that one or two will most probably affect the firm either at start-up stage or later

during the development of the company. Consequently, policy-makers can identify their role in the development of their economies through the promotion of small and medium enterprises. The section below presents the methodology and data.

3. SMES and Business Environment in Burundi

The section discusses SMEs in Burundi and explores the constraints of doing business in Burundi.

3.1. SMES in Burundi

The term SME covers a wide range of definitions and measures, varying from country to country and between the sources reporting SME statistics. Although there is no universally agreed definition of SME. The SME Department of the World Bank use the following definitions: the microenterprise is defined as having up to 10 employees with a total assets of up to \$10,000 and total annual sales of up to \$100,000; the small enterprise has up to 50 employees, with total assets and total sales of up to \$3 million whereas a medium enterprise has up to 300 employees, total assets and total sales of up to \$15 million (Bataa Ganbold, 2008). The European Union defines a medium –sized enterprise as one with 250 employees, a small enterprise as one with less than 50 and microenterprise as one with a maximum of 10 employees. At the same time to qualify as an SME in the EU, a firm must have an annual turnover of Euro 40 million or less and/or a balance sheet valuation not exceeding Euro 27 million (Bataa Ganbold, 2008). In East African Community, there are no common definitions of SMEs but all five countries do have some sort of working understanding of each component of the sector. The basis of measurements i.e. capital investment, turnover and number of employees, the value of each of these measurements vary from to country (Ernst & Yang, 2009). In Burundi for instance, there is no precise and clear local definition for the SME sector since the country does not have regulations or specific programs exclusive for the development of the SME sector. But, Burundian statistics and economic studies institute is in process of inventorying SMEs and defines a micro enterprise as one with 5 employees, a small enterprise as one with between 6 and 10 employees and a medium enterprise as one with between 10 and 50 employees. Only one criterion is taken into account, the number of employees (ISTEEBU, 2016). In addition, the Burundi Revenue Authority classifies taxpayers according to their annual sales. Therefore, a small taxpayer -which can be considered as a small enterprise- has annual sales of up to 65 000 USD , a medium taxpayer is one having under USD 650 000 of annual sales (ARI, 2013). In this paper the author considers a definition of SME used by ISTEEBU that takes into account a number of employees.

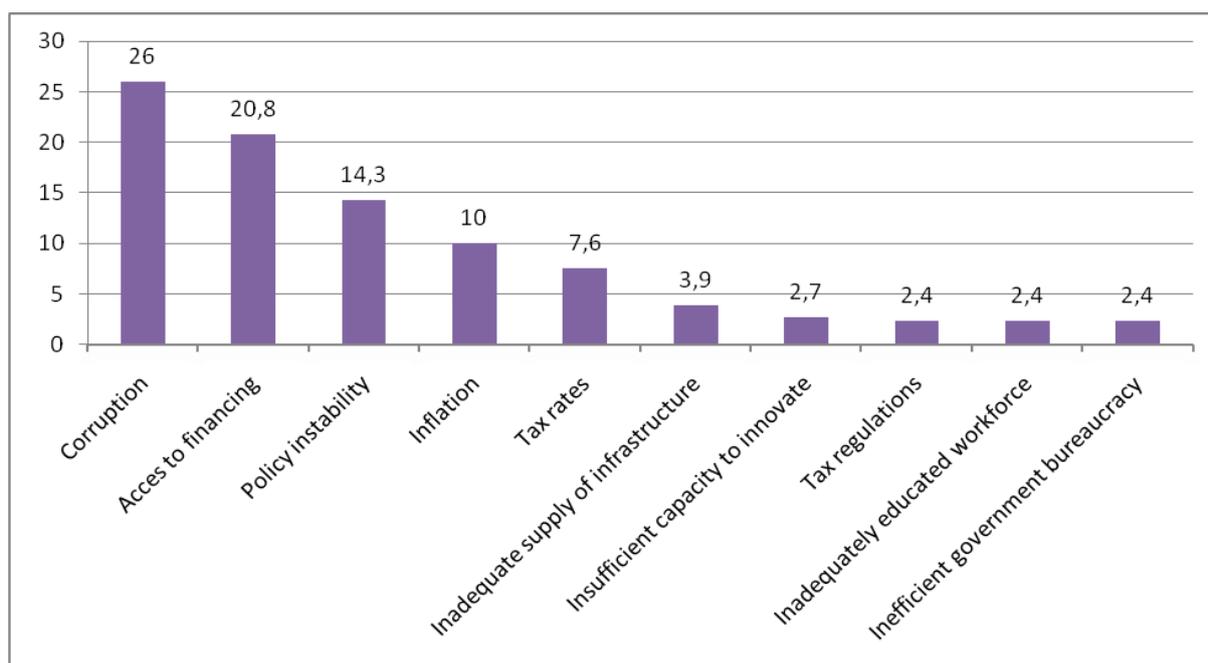
Agriculture plays a prominent role in Burundi's economy and provides 40.6% of the added-value to GDP against 16.9% from industry and 42.5 % from services (World Bank, 2015). According to SMEs inventory of the National Institute of Economic Studies and Statistics (ISTEEBU, 2016), 4,002 formal SMEs exist in 2015 and, the private sector has 98% of all formal SMEs among which 97.8% are located in Bujumbura (ISTEEBU, 2016). Rarely these SMEs have the resources needed to expand and modernize their activities for greater production.

3.2 Constraints of doing business in Burundi

Business environment in Burundi is deteriorating year by year due to the political, economic and social situation. Indeed, Burundi has decreased in the ranking for seven out of 10 indicators of the World Bank (World Bank, 2016). But it has made progress in paying taxes, trading across borders and enforcing contracts, respectively in 2014 and 2015.

The five most problematic factors recurring for doing business in Burundi are- as provided in Figure above - corruption, access to financing, policy instability, inflation, tax rates (World Economic Forum, 2016). However, the degree to which these impede business varies according to the business sector. Corruption by public officials may present a major administrative and financial burden on firms. Corruption creates an unfavorable business environment by undermining the operational efficiency of firms and raising the costs and risks associated with doing business (World Economic Forum, 2016). Corruption features have been heavily highlighted in all recent surveys as barriers to business in Burundi. It is the first most important constraint identified by the Enterprise Surveys (Figure 1 above). The Corruption Perception Index calculated by Transparency International (2015) ranks Burundi as 150th out of 168 countries, with a corruption control percentile rank of just 21%.

Figure 1: Top 10 most problematic factors for doing business in Burundi (2015)



Source: World Economic Forum, 2016

Developed financial markets provide payment services, mobilize deposits, and ease investment financing. Efficient financial markets reduce the reliance on internal funds and on money from informal sources such as family and friends by connecting firms to a broad range of lenders and investors (World Bank, 2015). Further, financing is one of the few characteristics of the business environment that – together with crime and political instability - is robustly linked to firm growth (Ayyagari, Demirgüç-Kunt and Maksimovic, 2006). However, Burundi financial market is underdeveloped. The financial inclusion in Burundi remains weak. With 12.5% of

financial inclusion, Burundi ranged practically the last among nine countries in East and Southern Africa, (BRB, 2012). The cost of finance in Burundi is the highest than other countries of East African Community. The overall average lending rate charged by commercial banks is about 16.71% (BRB, 2015). The lack of access to funding opportunities, especially long-term finance, is a serious problem for the majority of the population. In 2015, only 121,728.6 million BIF (about 73.77 millions us dollars) were available as long term loans for economy (BRB, 2015). Due to poor access to financial services in the rural areas because of the lack of mortgage banking, especially for women, only 2% of the population have bank accounts, and less than 0.5% has access to loans (African Development Bank, 2016). The microfinance market has recorded limited progress, with a penetration rate of 7% for credit and 26% for savings (African Development Bank, 2016). And, the Milkin Capital Access Index (2010), which scores the access to financial capital for entrepreneurs across the world, ranks Burundi 122th out of a possible 122 countries in 2009. Burundi' economy has a score of 0.00 on depth of credit information index (World Bank, 2016).

Another major challenge is over taxation. The level of tax rates needs to be carefully chosen—and needless complexity in tax rules avoided. Firms in economies that rank better on the ease of paying taxes in the Doing Business study tend to perceive both tax rates and tax administration as less of an obstacle to business according to the World Bank Enterprise Survey research. In Burundi, on average, firms make 25.0 tax payments a year, spend 274.0 hours a year filing, preparing and paying taxes and pay total taxes amounting to 45.7% of profit (World Bank, 2015). Globally, Burundi stands at 124 in the ranking of 189 economies on the ease of paying taxes (World Bank, 2015). The rankings for comparative economies analysis and the regional average ranking provide other useful information for assessing the tax compliance burden for businesses in Burundi.

4. Research methodology and data

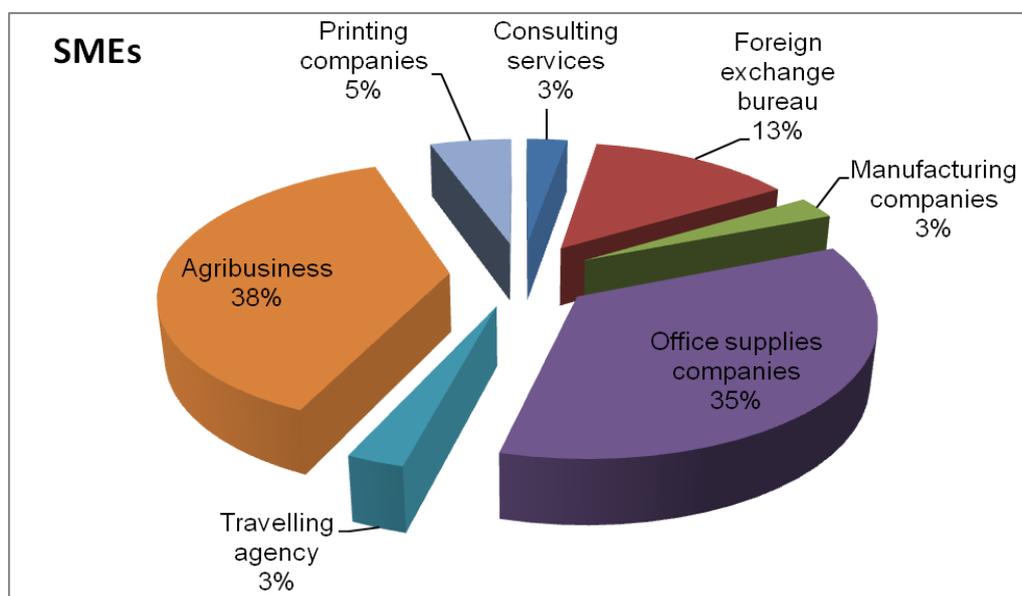
The data for this study was gathered from questionnaire surveyed to a sample of 314 SMEs of the Bujumbura, Ngozi and Bubanza provinces of Burundi. These three provinces have a population of 3,417 SMEs (ISTEEBU, 2016). This sample has 90% accuracy with a confidence interval of $\pm 5\%$. The purpose of this research is descriptive. In this research the author aims at identifying the main barriers that affect SMEs in Burundi. To analyze these barriers SMEs owners are continuously facing, respondents were asked to list all barriers they experience in their operations and rank them according to the severity of each barrier.

On the other hand, the questionnaire was sent to ten banks and two microfinance institutions. Concerning the banks and microfinance institutions surveyed, the goal was threefold. First, the author wanted to know how much resources were available to SMEs during the last five years. Second, he wanted to know whether the banks and microfinance institutions have a specific program for SMEs. Finally, there was a need to check if banks and microfinance institutions have an information system for SMEs.

All SMEs selected were sent a covering letter with a questionnaire stating the purpose of study and ensuring confidentiality. The questionnaires were sent to the owners of the company as they would have the best knowledge of the company. Some companies were unwilling to participate and in these cases a letter was received stating the company could not afford the time to complete the questionnaire, or give any information about the questionnaire. A total of 322 questionnaires were completed and returned from 500 questionnaires sent, 314 of which have been used, representing an overall response rate of 64.4 per cent and practical responses rate of 62.7 per cent. The feedback was received four weeks ago and all SMEs surveyed are in

formal sector. Among 314 respondents, 119 are rural SMEs which operate in agribusiness, 195 are urban SMEs. Among these urban SMEs, 110 are office supplies companies, 42 are foreign exchange offices, 17 are printing companies, nine are travel agencies, nine are manufacturing companies and eight are consulting services. Among the SMEs surveyed, 77 percent are managed by men and 23 percent by women. From 10 banks and two microfinance institutions surveyed, only two banks and one microfinance institution responded to the questionnaire. None of the SMEs employed more than 50 workers.

Graph 1: List of SMEs interviewed



Source: Research results

5. Findings and discussion

When asked about identifying most barriers SMEs face in their operations, rural SMEs enumerated the following barriers-as shown in Table 1: low selling price (they sell at loss), poor management, electricity outages, the difficulties of working with banks, finding customers, insecurity, severe lack of capital, and inadequate qualified workforce. On the other hand, urban SMEs cited: insecurity, access to financing, unfair competition, lack of market, lack of foreign currency, high bank interest rates, macroeconomic situation, lack of qualified workforce, low selling price (fixed by the Government), customs clearance procedures too slow, taxes (rights of Customs too high), lack of market flow.

Tableau 1 : Barriers perceived by Burundian SMEs

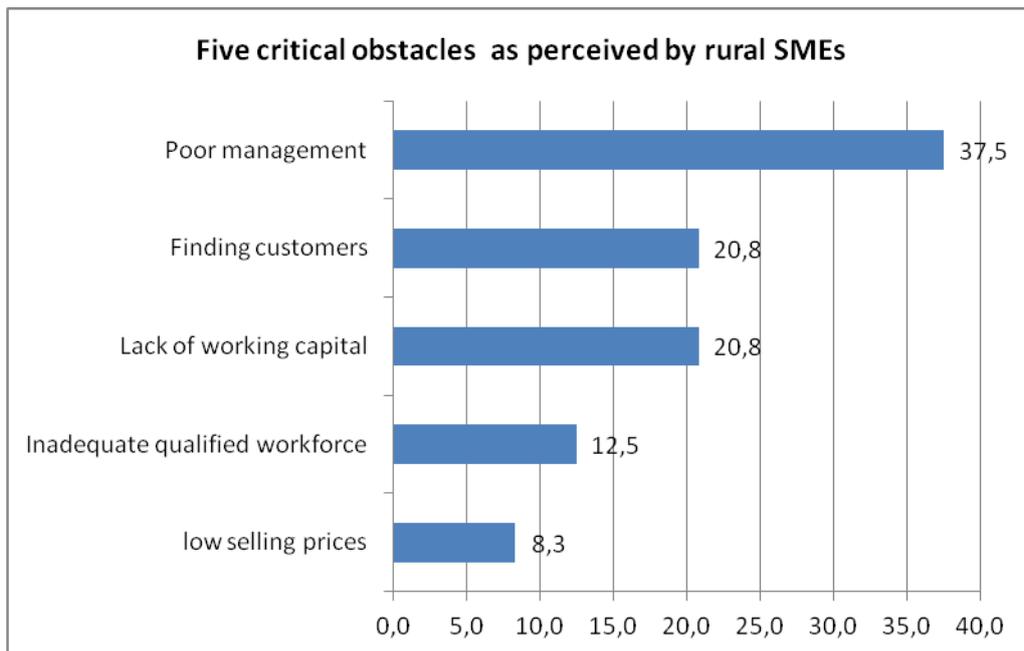
Barriers perceived by Rural SMEs	Barriers perceived by Urban SMES
Low selling price	Insecurity
Poor management	Access to financing,
Electricity outages	Unfair competition
Difficulties of working with banks	Finding customers
Finding customers	Lack of foreign currencies
Insecurity	High cost of finance
Lack of working capital	Macroeconomic situation
Lack of qualified workforce	Lack of qualified workforce
	Low selling price
	Slow clearance procedures
	Taxes
	Lack of market flow

Source: Research results

It was asked SMEs to rank five critical obstacles according to the degree of severity among the barriers listed above. As shown in Figure 2, executives of rural SMEs indicated that five most problematic obstacles they have had to overcome are: (i) poor management, (ii) lack of access to market flow, (iii) lack of working capital, (iv) inadequate qualified workforce and, (v) low selling prices.

Many rural SMEs' members or managers lack managerial training and experience. The typical owners or managers develop their own approach to management, through a process of trial and error. As concluded by Al-Hyari K. (2013), a lack of management training and experience has negative consequences and has led to the collapse of many businesses. Lack of access to market and working capital are perceived as major obstacles for 20.8 per cent of rural SMEs. 72.0 per cent of rural SMES surveyed pointed out that due to lack of market and working capital, they are constrained to close their businesses. These rural SMEs however have a potential fast growth which has the greatest capacity to provide jobs and introduce innovations and new technologies in rural areas (Will Barlett and Vladimir Bukvić, 2001). As a consequence, growth may be below the potential of the economy thus leading to the increase of unemployment than it used to be. In the worst case barriers to growth may block the transition to a competitive market economy altogether (Will Barlett and Vladimir Bukvić, 2001). As concluded by Matej M. & Zuzana P. (2007), the poor management together with the lack of market for the product causes the failure of enterprise. Managers do not have enough experience, knowledge or vision how to run the enterprise.

Figure 2: Main obstacles to growth as perceived by rural SMEs (percentage of total number of responses)

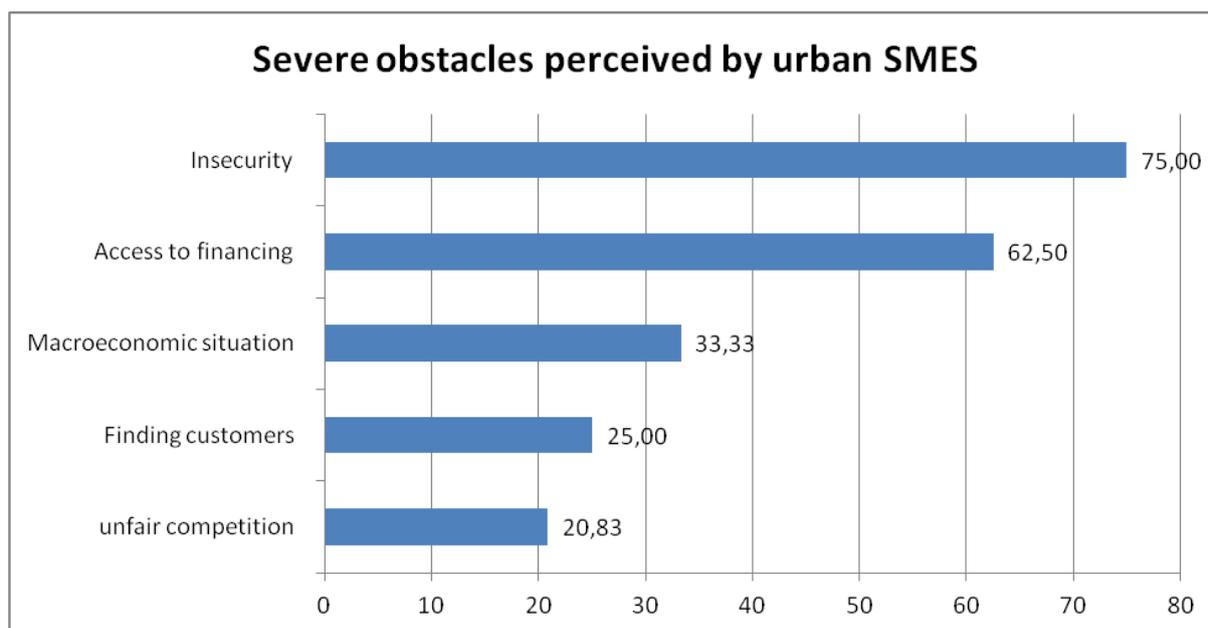


Source: Research results

For urban SME's, the five most pressing obstacles considered as the deepest and severe ones, as shown in the Figure3, are: (i) insecurity, (ii) access to financing, (iii) macroeconomic situation, (iv) finding customers, (v) unfair competition.

Taking into account to the political situation that has prevailed since 2015 particularly in the city of Bujumbura, the prevailing insecurity is perceived as the most serious obstacle by 75% of urban respondents. In addition, 62% of urban SMEs find access to bank loans is most problematic. The interest rates of bank loans and loan guarantees required (over 125% of the credit value) are too high for SMEs surveyed. The macroeconomic situation is another most problematic obstacle for urban SMEs. Indeed, the inflation, the high depreciation rate of the Burundian franc, the shortage of foreign currencies and the slowdown of economic activities lead to lower purchasing power of the customers. SMEs argued that finding customers is the big problem they face. They lack of access to the market in other cities of country. This obstacle is available for both rural and urban SMEs. However, it is just a question of strategy and innovation because demand is available in other provinces.

Figure 3 : Critical obstacles perceived by urban SMES



Source: Research results

Furthermore, the author sought to know whether the owners of SMEs know the conditions required by banks to obtain bank loans. 83 percent of managers of SMEs surveyed do not know the requirements for obtaining bank credit. All rural SMEs surveyed are unaware of the conditions and procedures for obtaining loans. No loans information bureau, nor any formal system of aggregating loan information in Burundi. Nevertheless, all the SMEs surveyed want to know the conditions and procedures for extending loans.

Banks and microfinance institutions do not have any specific definition of an SME and no any criteria are considered, according to the responses. SMEs are considered as any client. The banks surveyed acknowledged that they have no specific program for SMEs but the microfinance institution has one especially for women. Finally, the banks and microfinance institution surveyed don't have any structure sharing and dissemination of credit information for SMEs. Regarding the resources available for SMEs for the last five years, no response was given by banks. However, the microfinance institution surveyed has allocated for SMEs about 809,294 US dollars during the last five years, especially for women entrepreneurs.

6. Conclusion

SMEs are drivers of economic growth and job creation as well as useful tools for poverty alleviation. As a result, the development of SMEs is vital to developing countries, and it is, therefore, paramount to determine the factors hindering their growth. The Burundian Government has made much effort to reduce procedures to legally start and operate a company. However, alleviating the barriers to start business is not enough. Burundian SMEs are affected by a specific set of entry and operational barriers which require specific policy responses. Government responses should target different segments of the SME population with different policy measures.

This paper is an attempt to identify the main obstacles of growth as perceived by SMEs. The five most significant obstacles perceived by rural SMEs managers were identified as poor management, lack of access to market flow, lack of working capital, inadequate qualified workforce and low selling prices. Among those five obstacles, poor management and lack of access to market appear to be the biggest barriers, followed by inadequate qualified workforce. Five most barriers perceived by urban SMEs were insecurity, access to financing, macroeconomic situation, finding customers, unfair competition. Among those five barriers, insecurity and access to finance appear to be the severe barriers, followed by macroeconomic situation. In addition, the paper finds that in Burundi, there is no specific definition of SMEs. This means that there is not specific program neither for SMEs nor for long term resources channeled to SMEs. On the other hand, SMEs need more information about requirements for obtaining bank loans.

In the framework of promoting rural SMEs, the problem of management and credit merit a closer examination. It is necessary that the managerial capabilities of rural SMEs be strengthened through more rigorous management training. Regarding credit, the issue is not lack of credit to finance SMEs. The issue is how much of it is available to rural and urban SMEs. Clearly there is a need to channel more funds to SMEs to alleviate the problem of lack of loans among rural and urban entrepreneurs. To facilitate and achieve improved co-ordination of SME development efforts, Burundian Government should have a single dedicated and well-staffed Government Ministry or department with specific responsibility for all aspects of SME development or at least its co-ordination. Banks and microfinance institutions should also set up an information platform such as a website dedicated to SMEs or an information credit bureau.

According to the obstacles identified, future research could investigate the relationship between survival and entry barriers of new SMEs created. Finally, future research will also try to understand better the role of microfinance institutions for financial access to SMEs in case of Burundi.

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Managing Intercultural Practice Oriented Student's Projects

Evidence from Kenya, Germany, Ghana and United States

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Abstract

Culture is at the core of any social, economic and business interactions and relationships. The way people perceive the culture of others influences their decision to collaborate socially, politically and economically with them. It is therefore, imperative students appreciate the dynamics of cross-cultural interactions and collaborations, since it exposes them to a wider view of the world. In doing this, it is important they (students) are allowed to explore as much as possible with little interference by their teachers. Using the project students went through real-life experience in a self-directed enquiry. In the process, they were taught to solve problems encountered during the learning process. The focus of the intercultural communication project was to understand how people from different cultures speak, interact and perceive others' culture. It was found students innovate if allowed to explore a certain phenomenon on their own. Furthermore, face-to-face meetings can be arranged between people in the different countries can be arranged using these Web 2.0 tools. Based on the experience from the project, it was observed that the success of a collaborative international project depends on the understanding of the cross-cultural dynamics of partners. For such collaborations, it is imperative to establish personal relationships, be flexible and adaptable to situations and change as well as being swift resolving potential conflict situation.

Keywords: Intercultural Communication, Collaboration, Competencies, Project Management, Social Learning

1 Background

Practice Oriented Teaching and Problem-Based Learning (PBL) are part of social constructivism learning theory and have received much attention in higher education pedagogy in recent years. Contrary to other pedagogical methods, social learning theory does not just provide knowledge through lectures and reading material, but empower students to learn by doing. Through social interactions, learners encounter real-life scenarios and experience through interactions with others (Vygotsky 1978). In the process, students work together and solve problems they encounter. It is this process of learning and the learning environment that provides learners the opportunity to experience intellectual development.

The project focused on what key competencies are needed in global business interactions and how students can learn to work and collaborate internationally. The project participants were from four universities, including Kenya, Ghana, Germany and the USA. The motivation was to understand how students from different cultures work on a project by speaking different versions of World English to communicate internationally and how they interact and perceive each other's culture. Specifically, the project sought to expose students to the social attributes, the ability to engage in cross-cultural negotiation and promote digital communication literacy.

2 Project Approach

Using exploratory and purposive sampling techniques, a total of 48 students were selected from Germany, Ghana, Kenya and the United States of America to participate in this online project. Each international students' team worked on a joint survey of a topical global issue and shared their findings at the end of the project. The topic for this project was on perception of students on genetically modified food.

First, the coordinators of the project from the different countries met eight times online and twice physically, as part of the project planning process which took over six months. During these meetings, they developed and discussed the project implementation document. The meetings also accorded them the opportunity to discuss possible implementation challenges and risk.

The next step was the selection of the project participants by the coordinators in the different countries. A fundamental criterion was to look out for students with basic computer skills and familiar with social media tools. This was followed by the grouping of students for the project and the commencement of interactions by each team. In all, there were 10 teams. Each team was made up of between one and two students from each country participating in the project. So a group had up to eight members.

The third step involved orientation of students on the project by their country coordinators on the nature, norms and ethics of the project. Once, all these processes were concluded, the students were left to interact and carry out the project. As part of the problem-based learning strategy, the students were left to carry out their activities with little interference from the coordinators. Except in cases where the challenges that arose could negatively affect the expected project outcome.

The project implementation starts with initial students' interaction. Students posted short videos introducing themselves and giving room for the others to comment on their cultural background. They posted pictures of their city/village and explained regional differences. This sets the stage for further interaction and working relationship. In all, students completed seven tasks ten weeks. The mode of communication as suggested in the project guidelines were Facebook, Skype and Wiki. The Facebook was to be used for the initial interactions; Skype for the face-to-face virtual meetings and Wiki for uploading project reports and for working on their surveys.

As discussed earlier, the teams were to create surveys, write minutes for each meeting and upload them on the wiki. Finally, each student completed an online evaluation and highly recommended the project.

3 Project Results and Implications

It was observed that inter-cultural exchanges, including the sharing of political, cultural, social, religious and academic information through the use of Web 2.0 tools is possible between students from different countries. This implies face-to-face meetings can be arranged between people in the different countries can be arranged using these tools. It was also found that the interactions between these students exposed them to cultural identity and probable business opportunities available in the different countries.

The outcome of the project suggests it is possible to connect to other continents/countries and undertake a project using free online Web 2.0 media. Collaborative online tools, including Wiki, Facebook, Google docs, Skype as well as WhatsApp were used by the students in this project. This given the opportunity; the students can be very innovative.

Results of the project demonstrate that online based collaboration provides knowledge and skills for developing and strengthening relationships across continents. Such relationship can be extended to the corporate bodies and government.

The students scheduled their own meetings, drafted an agenda for such meetings; wrote minutes, made short videos and uploaded them online, prepared questionnaires and administered them and analysed data with no assistance from the coordinators. This implies that given the chance, the students could acquire more skills, if they are made to practice the stuff, they are to learn. Not only did the students experience learning by doing, but the lecturers (i.e. coordinators) also experienced the cultural and institutional differences as they worked closely together on the project.

4 Recommendations

The outcome of the project suggests it is possible to connect to other continents/countries and undertake a project and meetings using free online Web 2.0 media. It was, however, recommended that such meetings must often be arranged early in the morning or late evening, since the Internet connectivity is normally suitable during these times.

Furthermore, it is suggested partners in international business get to understand the values, norms, language, perception as well as the identity of each other prior to start of the project. In addition, voice pitch, use of local

jargon and inappropriate pronunciations must be carefully watched as these issues could affect the meaning of messages communicated to each other.

It was recommended that teachers employ student centred approach such as competency-based methodology to training as it can develop the skills and competencies of students better than the teacher-centred approach.

Based on the experience from the project it was observed that the success of a collaborative international project depends on the understanding of the cross-cultural dynamics of partners. For such collaborations, it is imperative to establish personal relationships, be flexible and adaptable to situations and change as well as being swift resolving potential conflict situation.

5 The Impact of The Project

Among the benefits students gained from the project were that they had the opportunity to practice international communication and project management. Students learnt by doing, scheduling their own meeting times and conducting surveys on topical issues. Moreover, they had an opportunity to interact with people, gaining experiences they would never have had in the classroom. The study has wider implication for Ghanaian (African), German (European) and American socio-economic and cultural relations in the immediate and long term. The outcome of the project indicated that it is possible to connect to Africa from other continents.

So far, our project has connected more than 140 students since its inception in the year 2013. The first project connected about 40 students from the two countries. This second project has connected 70 students through social media. The current project connected 40 students from four countries from three continents.

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Entrepreneurial Education, youth employability and economic development in Kenya

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Abstract

This study sought to determine the relationship between entrepreneurial education and youth employability and economic development in Kenya. A descriptive cross sectional design was used to collect data, with the main data collection instrument being a semi structured questionnaire. The population of the study comprised the micro, small and medium scale enterprises in Nairobi, Kenya. Out of the 100 questionnaires issued, 93 were completed and returned giving a response rate of 93%. Descriptive analysis (means and standard deviations) and inferential analysis was used to analyze the data. Regression and correlation analysis was done to test the hypotheses. It was found that several indicators of entrepreneurial education had a significantly positive influence on youth employability. For example, entrepreneurial education enhances opportunity recognition as an indicator of entrepreneurial education was statistically significantly correlated with the statement that entrepreneurship endeavor is an employment alternative as an indicator of youth employability ($r = 0.331^{**}$, $P = 0.01$). Similarly, the statement that entrepreneurial education sharpens competitiveness had a significantly positive influence on the statement that entrepreneurship endeavour is an employment alternative ($r = 0.313^{**}$, $P = 0.01$). The overall model for entrepreneurial education and youth employability had an R Square value of 0.151, and an F value of 3.086, ($p = 0.013 < 0.05$), indicating that the influence is significant at the 0.05 level. The study found that most indicators of youth employability had a significantly positive correlation with indicators of economic development. It was found that there was a significant positive correlation between entrepreneurial education enhances new product and service development and entrepreneurial education reduces youth unemployment ($r = 0.304^{**}$, $P = 0.01$), while

entrepreneurial education enhances new product and service development also has a positive correlation with entrepreneurial education reduces youth unemployment (.304** , P = 0.01). The overall model for youth employability and economic development had an R square value of .087 and F value of 2.103, $p = 0.87 > 0.05$, indication that although youth employability is responsible for 8.7% of economic development, the effect is not statistically significant. The implication for this is that entrepreneurial education should be encouraged as a way of enhancing entrepreneurial thinking among the youth, so that they can use this to venture into self employment. However, this study did not find a significant direct link between youth employability and economic development, and this can only be implied. We suggest increased government support for entrepreneurship training and for closer industry university collaboration and partnerships in order to accelerate economic development

Key words: Entrepreneurial Education, Youth Employability, Innovativeness, Economic Development

1 Introduction

Unemployment in Kenya is a major issue and job creation is a key concern for every Kenyan. The number of youth leaving universities is on the increase and there is fear that this number far outweighs the number of new jobs. Entrepreneurial education is about equipping people with skills and knowledge required to manage an enterprise. It involves teaching those skills that have to do with setting up a business, considerations that one must make, planning the business, and making sound management decisions. Entrepreneurs usually start small with the hope of expanding and that entrepreneurial education has been the subject of discussion for quite some time now, with proponents believing that it is necessary for success of enterprises.

Kenya continues to experience high unemployment levels with many young people who graduate from school and other colleges not able to get jobs. Unemployment is obviously related to economic development, in almost a reciprocal relationship. High levels of unemployment slows down economic development, while low unemployment level implies high levels of employment and high level of economic development. Today, Kenya has about 67 public and private universities, with a student population of over 500,000 students. These students are taking various courses in the universities with the hope that they will be able to secure jobs after school. But the number students leaving universities every year is much higher than the available job vacancies. There is therefore need to get alternative sources of employment. This can only come about through entrepreneurship, which leads makes one come up with new sources of jobs

This study sought to determine the relationship between entrepreneurial education, unemployment and economic development. In order to carry out the study, two hypotheses were

H₁: There is a relationship between entrepreneurial education and youth employability in Kenya

H₂: There is a relationship between youth employability and economic development

2 Literature Review

Entrepreneurship remains the phenomenon which is most emphasized yet least understood by scholars (Shane & Venkataraman, 2000). The entrepreneur is viewed as one of the most intriguing and one of the most elusive in the cast of characters that constitutes the subject of economic analysis (Montana, 2006). Entrepreneurship has been defined as the confluence of business decision making and ownership, and they attribute the law of diminishing returns to the fixity of entrepreneurial capital within the firm (Krueger, 2008). Entrepreneurship scholars describe entrepreneurship as a factor of production, linking it to risk taking and innovation and tying entrepreneurial compensation to uncertainty and profits (Shane & Venkataraman, 2000). Entrepreneurship is seen as a decision making process in which an individual decides to take certain risks in investing funds in an enterprise, with the hope of making financial returns. It is often associated with a high level of risk (Baumol, 1993).

The economic literature on entrepreneurship defines the entrepreneur descriptively. The term entrepreneur originally denoted anyone who undertook a project, and it subsequently grew to mean a merchant, employer, or manager (Baumol, 1993). It has become synonymous in its loosest usage with self-employment and occasionally with self-unemployment. Several social science disciplines, including economics, sociology, psychology, history, and political science, have produced descriptive definitions for entrepreneurship and entrepreneur (Rauch & Frese, 2007). Folson, (2003) noted that an entrepreneur is at once a product and an agent of the historical process, at once the representative and the creator of social forces which change the shape of the world and the thoughts of man. He further argued that an entrepreneur is an innovator: someone who changes the factors of production to create something new.

Following Folson's logic, the entrepreneur is viewed as a mildly heroic figure, despite having been reviled from classical antiquity until fairly recent times. The entrepreneurs serve the consumer's interest by looking at things as they are and seeing profitable ways to change them for the better (Montana, 2006). They are acknowledged as the individuals who create society's wealth and foster economic growth (Schumpeter 1934; Baumol 1993). For all of this effort, they usually are assumed to be compensated out of the economic value that his efforts create.

In line with fore going arguments, this paper conceptualizes entrepreneurship as the process by which individuals acquire ownership in economic rents of their creation. The creation and capture of economic rent in all its sundry forms are the entrepreneurial individual's sole objectives not only in business enterprise, but in all aspects of life. The performance of entrepreneurial functions is the means to self-interested ends. Accordingly, actions that either generates no economic rent or that produce rent in which the individual acquires no ownership interest fail the test of entrepreneurship. Individuals who earn only normal returns on their human capital are not entrepreneurs. Clearly, an entrepreneurship requires specialized skills. The skills so required can be learned in educational institutions.

2.1 Entrepreneurship Education

Entrepreneurship education means many things to many different people but in overall, it seeks to provide students with the knowledge, skills and motivation to encourage entrepreneurial success in a variety of settings; variations of entrepreneurship education are offered at all levels of schooling through graduate university programme (EUC, 2003). Bechard and Gregoire, (2005) view entrepreneurship education as entailing teaching students, learners and would-be entrepreneurs, the essential skills required to build viable enterprises, equipping the trainees with skills needed for taking responsibility and developing initiatives of opportunity recognition. Entrepreneurship education involve a dynamic process of creating wealth through the process of creating something new and in the process assumes both attendant risks and rewards (Bae et al., 2014). Rae et al., (2012) also acknowledges that entrepreneurship education prepares youths to be responsible and entering individuals who become entrepreneurs or entrepreneurial thinkers by exposing them in real life learning experiences where they will be required to think, take risks, manage circumstances and incidentally learn from the outcome.

Entrepreneurship education is an aspect of educations which equips an individual and creates in the person the mindset to undertake the risk of venturing into something new by applying the knowledge and skills acquired in school (Bechard and Gregoire, (2005). Entrepreneurship education creates the willingness and ability in a person to seek out investment opportunities in the society and be able to establish and run an enterprise successfully based on the identified opportunities. Hence, the overall purpose of entrepreneurship education is to develop expertise as an entrepreneur (Bae et al., 2014).

Interest in entrepreneurship education and the development of entrepreneurs has remained high both in and out of academia. Viewed as a process that equips students with the additional knowledge attributes and capabilities required in the context of setting up, managing and growing a new venture or business, entrepreneurship education has gained unprecedented attention in recent times (Kuratko, 2005). Entrepreneurship scholars contend that education is the engine fuelling innovation, employment generation and economic growth (Smith, 2008). (Rae et al., 2012) contend that education has the power in developing the skills that generate an entrepreneurial mindset and in preparing future leaders for solving more complex, interlinked and fast changing problems, it is clear that enterprise education is important. He further argued that entrepreneurship education as a form of learning, which enables learners acquire specific knowledge in a learning environment.

Entrepreneurship learning behaviours are conceived as a key element in the development of valuable knowledge. Extant research has distinguished between double-loop learning and single-loop learning (Rae, et al., 2012). While single-loop learning is learning directed at solving an identified problem, double-loop learning is a higher order learning that reflects the search for more optimal solutions, which may result in finding and adopting a better strategy. Extending this argument, Kuratko (2005) contends that learning can be described as reflective or unreflective. Reflective learning entails an active, persistent and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and the further conclusions to which it tends includes a conscious and voluntary effort to establish belief upon a firm basis of evidence and rationality. This is why more

reflective learning may lead to the realization that the beliefs about control have changed and contribute to a change of world view. Subsequently, Rae et al, 2012 posits that reflective learning can lead to double loop learning while unreflective behavioural learning leads to improvement in performance without necessarily also carrying a realization that the skills have changed and that there may be better strategies to achieve the goal. Entrepreneurship education can accommodate either form of learning.

Entrepreneurial education is experiential in nature (Bechard & Gregoire, 2005), but the experience can either be direct or vicarious. It involves cognitive as well as interpretative processes (Fretschner & Weber, 2013). This means that learning begins with experiential acquisition of new information, but to be successful it also requires a sense-making process to take place. This is in order to interpret the meaning of the new information. Bae et al., (2014) contend that entrepreneurs with previous entrepreneurial education spend less time searching for information when starting a subsequent new venture and that they impose less costs to the starting up process. Such behaviour can be a reflection of developed understanding of what certain processes involve, and what they mean in terms of likely outcomes and implications. These examples imply the behavioural nature of learning and education outcomes; however learning may also encompass a change in knowledge structures (Rae et al., 2012) More specifically, Rae et al., (2012) argues that the development of the ability 'to understand, control, and reflect upon one's learning' is important, especially for decision making, and reflects changes in how information and knowledge are organized and how the different pieces of information are connected among themselves. Thus, the beginning of behaviour change is anchored in education learning process.

In support of Rae's postulations, Fretschner and Weber, (2013) contend that triggers for learning are located both within the individual and outside in the environment. Human capital is related to deeply held beliefs that can influence the level of willingness for acquisition of knowledge and skills. Entrepreneurship scholars have suggested that there is need to integrate the acquisition of entrepreneurial competencies and 'soft skills' such as creativity, initiative and persuasion in the curriculum across all ages and subjects. This implies a shift from the traditional emphasis on evaluating the ideas of others to generating and implementing one's own ideas (Smith, 2008). Bae et al., (2014) further argues that whatever the definition of entrepreneurship, it is closely associated with change, creativity, knowledge, innovation and flexibility, which are important sources of competitiveness in an increasingly globalized world economy. Entrepreneurship education has the potential to elicit creativity and innovation among the young people. The number of people working in small firms or who are self-employed has grown sharply; while jobs in the public sector and large firms are cut back reflecting the acute need for entrepreneurship education (Smith, 2008). Young people seeking jobs need to be more flexible and entrepreneurial. Even in larger firms, public and voluntary sectors, entrepreneurial skills are more highly valued than they were in the past ((Rae et al., 2012). Thus, the education systems are likely to an important role in developing people for the changing world of work and employability.

2.2 Entrepreneurship and Economic Development

The concepts entrepreneurship and economic development are inseparable (Sarasvathy & Venkataraman, 2011). Economic development depends on the level entrepreneurial activities in any given economy. The economic impact of entrepreneurship is not just on business establishment level but also in its growth (Birch, 1979). Since the 1970s small-medium size enterprises (SMF) as an extension of entrepreneurship ventures have been playing an important role in the economic growth. Their role is quite clear in terms of new jobs created (Nelson, 1997). Their contributions to economic growth go far beyond job creation, considering their peculiar capability to introduce innovation in new industry and in niche markets inside mature industry. More generally speaking entrepreneurship is playing a key role in a broad range of economic activities that have been defined as knowledge-based (Williamson et al., 2013). In this kind of economic activities, where creativity, autonomy and sense of freedom of human capital are at the heart of firms' success, small organizations and especially new small ventures may have clear advantages compared to old bureaucratic firms (Sarasvathy & Venkataraman, 2011).

Furthermore, entrepreneurship has been adopted world over, as a strategy to facilitate economic growth (Birch, 1979). In the same spirit, the European Commission (2003) argued that academics, practitioners and policy makers worldwide have heightened their commitment towards promoting an entrepreneurial mindset in the society in recognition of the critical role entrepreneurship is playing in economic development. In 1994, Nelson Mandela articulated that youth are a valued possession of the nation. Without them, such initiatives as the reconstruction and development programme would be meaningless (EUC, 2003). Kuratko (2009) acknowledges the crucial role which youth entrepreneurs can play in improving not only their wellbeing, but also that of their country's economy. In Kenya youth entrepreneurship has received a considerable focus after the establishment of MSE Act in 2012 and the subsequently the youth fund in 2013. The objective of the two functionalities was to stimulate an entrepreneurial mindset among young people, and assist them with business funding and market access (MSE Act, 2012). This has had tremendous impact on the entrepreneurship growth and development.

2.3 Youth unemployment and entrepreneurship

In a job-scarce environment, where unemployment is rife the need for fostering entrepreneurship especially among youth is a prime concern (EUC, 2003). This is arguably the case in developing countries, where despite a number of government-pioneered interventions, the level of youth entrepreneurship, particularly in urban centres remain wanting. Unemployment is a major economic virus militating against the economy and well being of many countries in recent times, has resulted in increasing agitation from citizens, therefore, increasing insecurity in such countries (Beeka & Rimmington, 2011).

The European Union Commission (2003) report further contends that unemployment is a major problem facing third world nations. The report states the unavailability of job opportunities among youth, especially graduates has been identified as one of the major factors responsible for youth restiveness and other social vices including prostitution, arm robbery, destitution and political crime. Armed robbery and stealing are some of the most glaring manifestations of unemployment and poverty in Kenya and other developing and underdeveloped nations today. The armed groups and conflict in Kenya described robbery as being Kenya's fastest growing scourge. This negative phenomenon is mostly experienced in most country's commercial cities cutting across the Africa sub-region and beyond.

Unemployment, particularly among the youth, is a critical problem in developing countries. Self-employment in small enterprises has been identified as a partial solution (Nelson & Johnson, 1997). Entrepreneurship education can play a major role in changing attitudes of young people and providing them with skills that will enable them to start and manage small enterprises at some point in their lives (Krueger, 2009).

3 Methodology

The study employed descriptive cross sectional survey targeting entrepreneurs in Nairobi City county. The population of the study comprised entrepreneurs carrying on various businesses within the city of Nairobi, with the sample size being 100 entrepreneurs, randomly selected. A questionnaire was used to collect primary data. The questionnaire was administered using trained data collection assistants, using the drop and pick later approach, although in most cases the questionnaire was filled by the respondent in the presence of the researcher. Descriptive as well as inferential statistics was used to analyze the data.

4 Results

Out of the 100 questionnaires issued, 93 were completed and returned giving a response rate of 93%. Of these, 53.8 %) were female, while 46.2% were male. These indicates that there were more female than men involved in entrepreneurial activity. The distribution of the businesses according to various categories is shown in table 1 below

Table 1: distribution of the businesses

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Hair salon and cosmetics	28	30.1	30.1	30.1
Mobile phone/Mpesa and electronics	13	14.0	14.0	44.1
Supermarket and hardware	15	16.1	16.1	60.2
Chemist	6	6.5	6.5	66.7
Restaurant	2	2.2	2.2	68.8
Boutique	8	8.6	8.6	77.4
General shop, grocery / butchery	10	10.8	10.8	88.2
Advertising, hospital	6	6.5	6.5	94.6
School	5	5.4	5.4	100.0
Total	93	100.0	100.0	

As shown in the table majority (30%) of the entrepreneurs were in the Hair salon and cosmetics business, followed by Supermarket and hardware (16) and Mobile phone/Mpesa and electronics (14%).

The age bracket of the entrepreneurs is shown in table 2

Table 2: Demographic characteristics of the respondents and the businesses

	Frequency	Percent	Valid Percent	Cumulative Percent
Age bracket				
Less than 20 years	21	22.6	22.6	22.6
21 - 25 years	35	37.6	37.6	60.2
26 - 30 years	21	22.6	22.6	82.8
31 - 35 years	14	15.1	15.1	97.8
Over 36 years	2	2.2	2.2	100.0
Total	93	100.0	100.0	
Age of Business				
Less than 20 years	72	77.4	77.4	77.4
21 - 25 years	14	15.1	15.1	92.5
26 - 30 years	5	5.4	5.4	97.8
31 - 35 years	2	2.2	2.2	100.0
Total	93	100.0	100.0	
Highest level of education				
Primary	5	5.4	5.4	5.4
Secondary	31	33.3	33.3	38.7
College	31	33.3	33.3	72.0
University	26	28.0	28.0	100.0
Total	93	100.0	100.0	

As shown in table 2, 60.2% of the respondents are aged below 25 years, while only 2.2% are above 36 years. In fact, 82.8% of the respondents are aged less than 30 years. This demonstrates that majority of entrepreneurs are young, possibly just completed school. It further demonstrates the entrepreneurial nature of the youth. In terms of education only 5.4% had primary school level of education, while 38.7% had upto secondary school level of education. The remaining 61.3 % had either college or University level of education. This demonstrates the importance attached to education by the entrepreneurs. In deed, 28% of the entrepreneurs had university level of education as . This is a clear demonstration that entrepreneurship is a major source of employment for the youth.

In terms of the age of the entrepreneurs, some 77.4% of the businesses were found to be less than 20 years old, while only 2.2% were more than 25 years old. A cross tabulation of the businesses against the level of education is shown in table 3

Table 3: Cross tabulation : **Category of your business * Highest level of education Cross tabulation**

Category of your business	Highest level of education				Total
	Primary	Secondary	College	University	
Hair salon and cosmetics	3	11	10	4	28
Mobile phone/Mpesa and electronics	1	2	5	5	13
Supermarket and hardware	1	8	2	4	15
Chemist	0	1	3	2	6
Restaurant	0	2	0	0	2
Boutique	0	3	2	3	8
General shop, grocery / butchery	0	3	4	3	10
Advertising, hospital	0	1	3	2	6
School	0	0	2	3	5
Total	5	31	31	26	93

As shown in table 3, advertising and hospital related business attract 5 of 6 or 83% of people with college or University education. Similarly, 10 out of 13 (76%) of the entrepreneurs in the mobile/electronics business had college or University education, as compared to 50 percent of those in the hair salons, and 40% of those running supermarkets. This shows that some businesses attract higher levels of education than others. For instance, 50 % of those running salons had either primary or secondary level of education, while 60% of the people running supermarkets had primary or secondary level of education.

Descriptive statistics to show the mean scores for the various factors were done for each of the main variables. The results for entrepreneurial education are shown in table 4

Table 4: Descriptive statistics for indicators of entrepreneurial education

Descriptive Statistics

	N	Min	Max	Mean	Std. Dev	Skewness	
	Statistic						
Do you agree that entrepreneurship education stimulates entrepreneurial spirit	93	1.00	5.00	3.3011	1.26650	-.327	.250
Do you agree that entrepreneurial education is necessary for success of my business	93	1.00	5.00	3.0860	1.37252	-.003	.250
Do you agree that entrepreneurial education enhances opportunity recognition	93	1.00	5.00	3.2688	1.25230	-.357	.250
Do you agree that entrepreneurial education helps in knowing my customers better	93	1.00	5.00	3.2903	1.32354	-.209	.250
Do you agree that entrepreneurial education provides a foundation in understanding the market	93	1.00	5.00	3.5914	1.19088	-.577	.250
Do you agree that entrepreneurial education sharpens competitiveness	93	1.00	5.00	3.3871	1.30244	-.335	.250
Do you agree that entrepreneurial education enables faster business growth	93	1.00	5.00	3.3011	1.39709	-.361	.250
Do you agree that entrepreneurial education enhances networking ability	93	1.00	5.00	3.3548	1.14820	-.031	.250
Do you agree that entrepreneurial education stirs up innovativeness	93	1.00	5.00	3.4409	1.16528	-.170	.250
Do you agree that entrepreneurial education enhances risk taking ability	93	1.00	5.00	3.1183	1.46591	-.167	.250
Valid N (listwise)	93						

The descriptive statistics for the various factors for entrepreneurial education as shown in table 4 shows that the factor with the highest mean score was that entrepreneurial education provides a foundation in understanding the market (mean 3.5914, SD: 1.19088), followed by the statement that entrepreneurship education stimulates entrepreneurial spirit (Mean: 3.3011 SD 1.26650). These factors clearly indicate that entrepreneurial education is the foundation toward better understanding of the market. It further demonstrates that entrepreneurial education

stimulates ones thinking about entrepreneurship. The other statement rated highly was that entrepreneurial education sharpens competitiveness (mean: 3.3871, SD: 1.30244), and that entrepreneurial education stirs up innovativeness (Mean: 3.4409 SD: 1.16528). These two statement are equally important in entrepreneurship because they demonstrate the strategic role of entrepreneurship in enhancing the competitiveness of an enterprise and making one more innovative. Innovativeness in itself is responsible for new ideas and ways of doing things in an organization. Table 5 shows the Descriptive statistics for indicators of youth employability.

Table 5: Descriptive statistics for indicators of youth employability.

	N	Min	Max	Mean	Std. Dev	Skewness	
	Statistic						
Do you agree that entrepreneurial education reduces youth unemployment	93	1.00	5.00	3.0538	1.49176	-.094	.250
Do you agree that youth unemployment continues to prevail regardless of education levels	93	1.00	5.00	3.4516	1.45599	-.485	.250
Do you agree that being entrepreneurs entail great satisfaction	93	1.00	5.00	3.6989	1.29199	-.653	.250
Do you agree that entrepreneurial venture is more fulfilling than formal employment	93	1.00	5.00	3.7742	1.16217	-.607	.250
Do you agree that entrepreneurship endeavour is an employment alternative	93	1.00	5.00	3.7097	1.21208	-.692	.250
Do you agree that a careers as an entrepreneur is very attractive	93	1.00	5.00	3.9462	1.06695	-.769	.250
Do you agree that self employment is better than formal employment	93	1.00	5.00	4.0753	1.03458	-1.056	.250
Do you agree that individuals venture into business due to lack of job opportunities	93	1.00	5.00	3.0215	1.53211	.019	.250
Do you agree that entrepreneurship education encourage business start-ups	93	1.00	5.00	3.9140	1.19470	-.925	.250
Do you agree that being an entrepreneur implies more advantages than disadvantages	93	1.00	5.00	3.8172	1.31005	-.750	.250
Valid N (listwise)	93						

As shown in table 5, most of the respondents agreed that self employment is better than formal employment (mean: 4.0753, SD 1.03458), while the statement that a careers as an entrepreneur is very attractive (mean: 3.9462 SD1.06695). The respondents also supported the statement that entrepreneurship education encourage business start-ups (mean 3.9140, SD 1.19470). There was also a strong support of the statement that that being an entrepreneur implies more advantages than disadvantages (mean: 3.8172 SD1.31005). Finally, the respondents supported the statement that entrepreneurial venture is more fulfilling than formal employment (mean: 3.7742 SD1.16217).

Table 6 shows the mean scores of statements regarding entrepreneurial education and economic development

Table 6: Descriptive statistics for indicators regarding entrepreneurial education and economic development

	N	Min	Max	Mean	Std. Dev	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Do you agree that entrepreneurial education is necessary for economic development	93	1.00	5.00	3.9355	1.08153	-.818	.250
Do you agree that entrepreneurial education enhances economic development	93	1.00	5.00	3.7097	.99543	-.601	.250
Do you agree that a country would perform poorly economically without entrepreneurial education	93	1.00	5.00	3.7097	1.17566	-.642	.250
Do you agree that entrepreneurial education reduces youth unemployment	93	1.00	5.00	3.3226	1.38440	-.376	.250
Do you agree that entrepreneurial education enhances new product and service development	93	1.00	5.00	4.0000	1.08347	-.786	.250
Do you agree that entrepreneurial education has no relationship on the living standards of the youth	93	1.00	5.00	2.7419	1.57358	.285	.250
Do you agree that youth enterprise development is influenced by entrepreneurial education	89+93	1.00	5.00	3.5806	1.19166	-.195	.250
Do you agree that economic development is related to entrepreneurial education	93	2.00	5.00	3.6774	1.00175	-.105	.250
Do you agree that youth employment and economic development are related	93	2.00	5.00	4.0323	.86542	-.680	.250
Do you agree that youth employment will enhance economic development	93	1.00	5.00	4.4516	1.01635	-1.961	.250
Valid N (listwise)	93						

As shown in table 6, the statement that entrepreneurial education enhances new product and service development had the highest mean score (mean: 4.0000 SD 1.08347), followed by the statement that entrepreneurial education is necessary for economic development (mean: 3.9355 SD 1.08153), and that entrepreneurial education enhances economic development (mean: 3.7097 SD 1.08347, SD .99543).

Hypothesis testing

The first hypothesis was that H_1 : There is a relationship between entrepreneurial education and youth employability in Kenya. In order to test this, regression analysis and correlation analysis were done for the various factors of entrepreneurial education and youth employability and the results are shown in Table 7

Table 7: Regression results of the entrepreneurial education factors and the factor that entrepreneurship endeavour is an employment alternative

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.388 ^a	.151	.102	1.14871		
ANOVA ^b		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	20.363	5	4.073	3.086	.013 ^a
	Residual	114.799	87	1.320		
	Total	135.161	92			

a. Predictors: (Constant), Do you agree that entrepreneurial education enhances opportunity recognition, Do you agree that entrepreneurial education stirs up innovativeness, Do you agree that entrepreneurial education sharpens competitiveness, Do you agree that entrepreneurial education helps in knowing my customers better, Do you agree that entrepreneurial education enables faster business growth

b. Dependent Variable: Do you agree that entrepreneurship endeavour is an employment alternative

The results show that the model has an R Square value of 0.151, and an F value of 3.086, ($p = 0.013 < 0.05$), indicating that the influence is significant at the 0.05 level. This implies that entrepreneurship education can be used to explain the choice of entrepreneurship as an alternative form of employment. The regression model shows positive beta coefficients, with an exception of two. Regression analysis between indicators of entrepreneurship education and youth employability is shown in Table 8

Table 8: Regression between indicators of entrepreneurship education and youth employability

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.369	.425		5.571	.000
	entrepreneurial education helps in knowing my customers better	-.142	.133	-.155	-1.067	.289
	entrepreneurial education sharpens competitiveness	.254	.136	.273	1.865	.066
	entrepreneurial education enables faster business growth	-.018	.129	-.021	-.139	.890
	entrepreneurial education stirs up innovativeness	.031	.136	.030	.232	.817
	entrepreneurial education enhances opportunity recognition	.275	.126	.284	2.183	.032

a. Dependent Variable: Do you agree that entrepreneurship endeavour is an employment alternative

Correlation analysis was done for the factors, and the results are shown in table 8

Table 8: Correlation for entrepreneurial education and youth employability

		youth unemployment continues to prevail regardless of education levels		entrepreneurship endeavour is an employment alternative	individuals venture into business due to lack of job opportunities	a career as an entrepreneur is very attractive
entrepreneurial education enhances opportunity recognition	Pearson Correlation Sig. (2-tailed) N	.231* .026 93	.331** .001 93	.144 .168 93	.198 .057 93	
entrepreneurial education helps in knowing my customers better	Pearson Correlation Sig. (2-tailed) N	.298** .004 93	.195 .061 93	.099 .346 93	.119 .256 93	
entrepreneurial education sharpens competitiveness	Pearson Correlation Sig. (2-tailed) N	.125 .234 93	.313** .002 93	.018 .867 93	.093 .373 93	
entrepreneurial education stirs up innovativeness	Pearson Correlation Sig. (2-tailed) N	.234* .024 93	.207* .046 93	.336** .001 93	.159 .128 93	
entrepreneurial education enables faster business growth	Pearson Correlation Sig. (2-tailed) N	.189 .070 93	.232* .025 93	.149 .153 93	.135 .197 93	

** . Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

From the correlations in table 8, we find significant correlations between entrepreneurial education and several factors of youth employability. It was found that entrepreneurial education enhances opportunity recognition as an indicator of entrepreneurial education is statistically significantly correlated with entrepreneurship endeavor is an employment alternative as an indicator of youth employability ($r = .331^{**}$, $P = 0.01$). This indicator is also statistically positively correlated with the indicator that youth unemployment continues to prevail regardless of education levels ($.231^*$, $P = 0.05$). We also find that entrepreneurial education helps in knowing my customers better has a positive correlation with youth unemployment continues to prevail regardless of education levels ($.298^{**}$, $P = 0.01$), while entrepreneurial education sharpens competitiveness also has a significantly positive influence on

entrepreneurship endeavour is an employment alternative (.313** P = 0.01). Finally, entrepreneurial education stirs up innovativeness has a positively significant influence on all indicators of youth employability. These results demonstrate that entrepreneurial education has a significant influence on youth employability. We therefore fail to reject the hypothesis that there is a relationship between entrepreneurial education and youth employability in Kenya and conclude that entrepreneurial education has a significant influence on youth employability

The 2nd hypothesis stated that there is a relationship between entrepreneurial education and economic development in Kenya

Regression analysis were done for the various indicators of entrepreneurial education and economic development, and the results are shown in Table 9

Table 9: Regression results of youth employability and economic Development

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.295 ^a	.087	.046	1.05839		
ANOVA ^b		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9.423	4	2.356	2.103	.087 ^a
	Residual	98.577	88	1.120		
	Total	108.000	92			

a. Predictors: (Constant), Do you agree that being entrepreneurs entail great satisfaction, Do you agree that individuals venture into business due to lack of job opportunities, Do you agree that entrepreneurship endeavour is an employment alternative, Do you agree that a careers as an entrepreneur is very attractive

b. Dependent Variable: Do you agree that entrepreneurial education enhances new product and service development

This relationship has an R square value of .087 and F value of 2.103, p =0.87 > 0.05, indication that although youth employability is responsible for 8.7% of economic development, the effect is not statistically significant. The regression coefficients are given in table 10

Table 10: Regression between indicators of entrepreneurship education and economic Development

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.063	.496		6.170	.000
	individuals venture into business due to lack of job opportunities	-.021	.073	-.030	-.291	.771
	a careers as an entrepreneur is very attractive	-.036	.126	-.035	-.286	.776
	entrepreneurship endeavour is an employment alternative	.262	.105	.293	2.506	.014
	entrepreneurs entail great satisfaction	.046	.098	.055	.476	.635

a. Dependent Variable: Do you agree that entrepreneurial education enhances new product and service development

The regression model shows that youth employability has an influence on economic development. Some of the indicators show a negative response, while others show a positive relationship. Table 11 provides the correlation between indicators of entrepreneurship education and youth employability

Table 10: Correlation between indicators of entrepreneurship education and youth employability

		entrepreneurial education reduces youth unemployment	entrepreneurship endeavour is an employment alternative	being entrepreneurs entail great satisfaction
youth employment will enhance economic development	Pearson Correlation Sig. (2-tailed) N	.058 .584 93	.046 .663 93	.022 .835 93
economic development is related to entrepreneurial education	Pearson Correlation Sig. (2-tailed) N	.287** .005 93	.137 .191 93	.059 .577 93
entrepreneurial education enhances new product and service development	Pearson Correlation Sig. (2-tailed) N	.304** .003 93	.290** .005 93	.132 .207 93

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

The correlation shows a significant positive correlation between entrepreneurial education enhances new product and service development and entrepreneurial education reduces youth unemployment ($r = 0.304$, $P = 0.01$), which is significant at 0.01. entrepreneurial education enhances new product and service development also has a positive correlation with entrepreneurial education reduces youth unemployment ($.304^{**}$, $P = 0.01$) and also with entrepreneurship endeavour is an employment alternative (0.290 , $P = 0.01$) both of which are significant at 0.01. There is also a significant correlation between economic development is related to entrepreneurial education and entrepreneurial education reduces youth unemployment (0.287 , significant at 0.01)

We therefore fail to reject the hypothesis that there is a relationship between youth employability and economic development in Kenya and conclude that youth employability does influence economic development in Kenya

5 Discussion

The findings of this study indicate that entrepreneurial education has a significant relationship with post-graduate venture creation ability. More importantly, beneficiaries of entrepreneurial education instantly will create ventures. This is to say, that the main concentration and acquisition of entrepreneurial skills will result in new venture creation.

The finding corroborate Bae et al., (2014) who reported that entrepreneurial education has a bearing in new venture creation. The introduction of entrepreneurial studies in the curriculum of Kenyan universities and other learning institutions is far more likely to create jobs and spur economic development. The finding of the study is also in consonance with Krueger (2009) who confirmed that the position of entrepreneurial education is capable of creating entrepreneurs. The entrepreneur has the ability to seek and find business opportunities in his environment. Arguably, youths endowed with entrepreneurial skills through entrepreneurial education, acquires and utilizes strategy skills, planning, market skills, communication skills and moreso the negotiation skills for employability, job creators and agents of economic progress.

The paper reaffirms that effective youth entrepreneurship education prepares and exposes them to the intricacies of entrepreneurial venture creation and management. Enterprising individuals, through entrepreneurship education will in turn become entrepreneurs or entrepreneurial thinkers contributing to economic development and sustainable community development. Towards, this end, entrepreneurship education is a source of job creation, employment and economic dynamism in a globalizing world like Kenya, this is because of its inclination towards inculcating values that allow acquisition of necessary competencies for reliance, independence, youth employment and of course poverty reduction.

6 Implication for Research

The findings of this study have educational policy implications for the government, researchers, unemployed youth, and education programs. The results of entrepreneurship education in tertiary institution on entrepreneurial skills and competencies needed by graduate students of educational administration shows that skills and competencies are needed for successful management of small scale businesses. This implies full knowledge of entrepreneurial skills and competencies are relevant before starting any meaningful business. With such competencies; skills entrepreneurs will be in position to create employment opportunities, reduce high level of unemployment and criminal activities among the Kenyan youths.

The identified entrepreneurial skills and competencies are capable of injecting opportunities of creating job opportunities by entrepreneurs through innovation, and as well run their small scale business for his well-being and economic growth of the nation. Finally, the era of white cola job is gradually becoming over, these who wants to

escape the scourge of unemployment in Kenya should make all efforts to acquire entrepreneurial skills necessary for job-creation that will guarantee self-employment.

7 Recommendations

The burden of economic development of any country lies on the shoulders of how productive and creative the youths are. The government and society have the obligations to ensure that youth are empowered to discharge their obligations to the society and to better their life. In the light of the fore discussions above, the paper presents the following recommendations;

- Entrepreneurship education should be inculcated into the school's curriculum to promote human empowerment and development through entrepreneurial skill acquisition. It is a means of reducing unemployment since it is skilled oriented and employment motivated. All school programmes should be geared toward providing entrepreneurial skills.
- Funding of entrepreneurship education should be taken seriously by the central government, private partners and Non-Governmental Organizations. This can be achieved through increase in the national budgetary allocation to educational sector and intense involvement of the private sector.
- The youth should aggressively get involved in entrepreneurial activities; shun joblessness and criminality through the cultivation of entrepreneurial spirit and acquisition of relevant skills that will launch them into enterprise greatness and economic independence.

8 Suggestions for further research

This study focused on the entrepreneurs and how they perceive entrepreneurial education and its role in youth employability. It is recommended that another study involving all stakeholders including out of school youth, universities and the relevant ministries be done to get an overall view regarding the role that entrepreneurial education can play towards youth employability and economic development. Given that this study was confined in Nairobi city, results may not give a proper indication of the role entrepreneurial education plays in all counties. A broader study covering a cross section of all counties could shed more light in terms of understanding the role entrepreneurial education plays towards youth employability in the counties.

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German-African University Partnership Platform for the Development of Entrepreneurs and SMEs

Overview

The labour markets in Africa provide graduates who have sufficient theoretical skills but exhibit a lack of practical experience. The project attempts to increase the capacities of African universities for practice-oriented teaching and research. The project also intends to raise awareness of the potential of African markets among German SMEs and offers them to get involved by using the advantages of a university partnership platform.



Corporate partners play a crucial role in the project as they provide universities with knowledge, requirements and needs to help them to improve the academic practice-oriented teaching and research, and increase the employability of their graduates. At this juncture, the project conceptualizes “win-win” cooperation models which result in direct benefits for companies and universities.

The activities encompass the set-up of a “Section for Applied Market and Personnel Services” in Ghana and Kenya aimed at consulting German and African SMEs and start-ups, the establishment of practice-oriented courses and research, the development of business incubators in Africa and a yearly business plan competition. Furthermore, the exchange of students and staff, and annual conferences aim at building and disseminating know-how on connecting academia with the corporate world.

The project has started in 2015 in the framework of the “University-Business-Partnership programme” funded by the German Ministry of Economic Cooperation and Development (BMZ) and the German Academic Exchange Service (DAAD). The project is carried out by the Bonn-Rhein-Sieg University of Applied Sciences in Germany (HBRS), the University of Cape Coast in Ghana (UCC) and the University of Nairobi (UoN). Various corporate partners contribute to the project. The duration of this project is 4 years.

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