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Exploring Green Entrepreneurial Skills of Technical Education Graduates for Economic Sustainability

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ABSTRACT
It appears that greening the economy is a worldwide concern due to economic stagnations across the globe. In line with this, this article presents the outcomes of an exploratory study carried out in North-western Nigeria using technical education lecturers and administrators as participants (experts). The data for this research was gathered qualitatively and the experts were requested to answer the interview questions vis-à-vis their view on green entrepreneurial skills of technical education graduates for economic sustainability. 13 participants were selected via purposive sampling based on their qualifications, area of study and working experience. The data collected were further transcribed and analysed inductively using an exploratory content analysis technique with the aid of the Nvivo statistical tool. The findings include, among other things, that finance and profit skills, entrepreneurial plan, and knowledgeable in business were explored by the experts to attain economic stability in Nigeria. It was recommended that for the effective implementation of the findings of this study it is recommended to be used technical education units for students to acquire aspects of green entrepreneurial skills which its impact may contribute in realizing economic sustainability.

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INTRODUCTION

Enterprise is an organized business activity aimed specifically at growth and profit that involved a group of individuals with entrepreneurial skills working together to achieve one objective (Agada, 2014). In the same vein, entrepreneurship skills are specific skills required for creating and running new business ventures such as risk assessment, ability to think strategically, self-possession, personal networking, inspiring others to accomplish a common goal line, and the ability to deal with other challenges and what is needed by entrepreneurs (OECD/Martinez-Fernandez *et al.*, 2010). For Agada (2014) Entrepreneurial skill is the ability to choose an appropriate business to uplift the economic status and enhance business success.

Similarly, entrepreneurial skills remain the focus in many countries for its significance in giving the individual a proper way to earn a living. With this, the European Centre for the Development of Vocational Training CEDEFOP (2012) stated that some generic skills, such as entrepreneurial skills are becoming critically imperative for many careers.

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Seemingly, entrepreneurial skills need to be incorporated in the sector of the economy. In line with this UNESCO (2013) stressed that empowering individuals with entrepreneurial skills through the production, use, and commercialization people will be able to establish cottage industries to generate income independently. In essence, entrepreneurial skills grab the chances of sustainable technical know-how and are increasingly being considered essential in alleviating youth unemployment (UNESCO, 2015b). This significance of entrepreneurial skills indicated the need for the acquisition of the skills by individuals to give them (individual) room of becoming self-reliant.

Given the above and considering school settings students which are exposed to entrepreneurship programs gain insights beyond the technical skills of their discipline. In addition to knowing the engineering basics, they gain insights into the management process, ethical decisions, leadership, effective communication, and open-ended problem-solving (Oswald Beiler, 2014). More so, due to the above reason study conducted by Chiekezie (2016) suggests that development of entrepreneurial skills as a significant way to progress in creating sufficient jobs for young people with abundant natural resources and talents. This will absorb the culture of dignity at work for the youths. Furthermore, Entrepreneurial skills are related with different undertakings, but not limited to the following: invention, resourcefulness, risk-taking, creativity, idea, concentration, the strength of mind, fiscal control, self-assurance, adaptability, knowledge, active thinking, optimal flexibility in making a decision, targeted needs, income orientation, persistence and perseverance, energy for hard work, adaptation to challenges and future appearance Efe (2014).

Similarly, Entrepreneurial skills according to Cooney (2012) should include managerial Skills (for the day-to-day management of the company); and Personal Maturity Skills (self-awareness; emotional skills; and creative skills). Looking at entrepreneurial skills acquisition in economic perception, Gujrati (2013) found that economic growth generated by entrepreneurial skill is the core engine of a worthy cycle that improves an economy and that of fruitful entrepreneurs, through their advance technologies and fast-rising business, generate new wealth that can make even better economic growth. But Maina (2014) suggested that the addition of entrepreneurial courses across disciplines assist in resolving the problem of joblessness and underemployment. And this signifies that acquisition of entrepreneurial skill is an important driver in inspiring business start-up abilities among graduates.

GREEN ENTREPRENEURIAL SKILLS IN TECHNICAL EDUCATION

It is a clear fact that there may be some personality traits linked with corporate behaviour, in principle, it is possible to classify a set of "entrepreneurial skills" that can be learned, exercised and developed while improving the survival and growth of business prospects. In essence, this importance is what differentiates it from the rest of traditional business management competencies. Additionally, Hayton (2015) viewed entrepreneurship skills as skills used to "recognize consumer needs, technical or market opportunities and seek opportunities, and also, are part of a wider set of leadership skills required in industries". One of the vital skill acquisition sector in any organization is school as observed by many researchers. This observation is inconsistent with that of Great Britain [Department for Business Innovation & Skills] (2015).

Moreover, Chiekezie (2016) recommended that; youth should be encouraged to be self-reliant; entrepreneurial skill acquisition should be made more of the practical programme in

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schools than theory to equip the youths with the basic skills required for optimal performance; through improved school curriculum; and the government should encourage entrepreneurial skill development through the creation of enabling environment that will support entrepreneurial skill acquisition. It is in the above notes, Great Britain [Department for Business Innovation & Skills] (2015) pointed out that entrepreneurship skills are associated with competence in the process of opportunity identification (and/or creation), the ability to capitalize on identified opportunities and a range of skills connected with evolving and implementing business plans to allow such opportunities to be realized. These skills are very important in the uplifting the economic status of any country because it is useful in accomplishing one's task of being a useful and positive contributing citizen. Inconsistency to the foregoing, Chell and Athayde (2011) revealed that concept which describes the vital role of the entrepreneur as being an individual that determines new opportunities exist already and then develops the dominant opportunity recognition.

In harmonizing the view of different researchers on the importance of entrepreneurial skills, Chell (2013) developed a simple framework for comprehending entrepreneurship skills. According to him, the framework is based on several broad elements of behaviour/skills Table 2.5.

Table 1: Categories of Entrepreneurship Skills

Idea identification/creation	Capitalizing on Ideas
Idea generation / envisioning • Opportunity recognition and means-end analysis • Ability to acquire information about a potential opportunity, domain knowledge, and associated skills • Recognition of the social / market need	• Awareness of environment and factors favourable to opportunity manipulation • Ability to gather the essential material resources • Ability to convince others of the value of an opportunity • Networking and social embedding
Traits/Behaviours	**Managerial/leadership skills**
• Self-belief, self-awareness, trust in own judgment etc. • Ability to manage risk and shoulder responsibility • Ability to endure and cope with difficulties. Energy, motivation, persistence etc.	• Ability to manage others • Ability to overcome institutional and other constraints • Ability to develop an idea as a commercial opportunity • Decision-making capability

Adapted from (Chell, 2013)

Moreover, for Cooney (2012) argue that entrepreneurial skills should involve recognizing economic opportunities and acting effectively on them; personal Maturity Skills - which include self-awareness, accountability, emotional skills, and creative skills. Concerning this, Dougherty (2014) focuses on teaching skills needed by all entrepreneurs including builders to become valuable contributors to the success of their companies. These skills include the ability to; exercise curiosity about the surrounding world; define problems, opportunities, and solutions in terms of value creation; assess and manage risk; persist through and learn from failure; demonstrate resourcefulness; anticipate technical developments by interpreting surrounding societal and economic trends; apply creative thinking to ambiguous problems; examine technical feasibility, economic drivers, societal and individual needs.

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AIMS AND SCOPE OF THE STUDY

This study is aimed at exploring green entrepreneurial skills of technical education graduates for economic prosperity in Nigeria.

METHODOLOGY

This research was carried out using a qualitative research approach and the data were collected using semi-structured interviews developed by the researchers as it allows the interviewees to present their views concerning the topic under study. According to (Abdul Nifa, 2013) semi-structured interviews are used across disciplines because respondents are allowed to spell out their perspective on the current research issues. The data were gathered by the researchers from 8 purposely selected technical education lecturers and 5 administrators From the NCE Technical awarding institution in North-Western Nigeria based on their area of the study, educational qualification and working experience. In the course of this sampling, only lecturers and administrators having technical education qualification, working technology-related workplace and 10 years post qualification working experience were selected for the study.

The interviews were guided by the research objectives and consist of two parts: Part A look for information on the participant's demographic peculiarities and part B was the interview protocol of on green entrepreneurial skills of technical education graduates for economic sustainability in Nigeria. Finally, the results of the data collected from the interviews were transcribed and analysed inductively (Maykut and Morehouse, 1994) using a content analysis technique (Merriam, 2009) with the aid of Nvivo software. This technique was employed for the study as it is one of many qualitative methods used to analyse textual data (Forman and Damschroder, 2008) and the data collected for this study is contextual. In qualitative content analysis, the data generated were categorised inductively (Creswell, 2003).

FINDINGS

Typical Responses by the Respondents

The identification of typical responses in this research was based on exploring green entrepreneurial skills of technical education graduates for economic sustainability. The experts' opinions were recorded during the interview sessions to achieve the objective of this study. Generally, the respondents have a similar characteristic of being educated and their responses appear to be related, but with some differences. To this end, the main findings of this study were summarised as below:

For answering the research question in this study that dealt with exploring green entrepreneurial skills, the RQ was further sub-divided into two questions followed by three probing questions. Based on these two questions, opinions were collected on elements of green entrepreneurial skills. Thematic analysis was used in analyzing the interview and the result was transcribed, coded, and categorized into four subthemes. The participants were asked about their experience, ideas, perspectives or views on elements of green entrepreneurial skills of technical education graduates for reliance in Nigeria. Based on the qualitative data collected, 96% interviewees clearly stated that acquiring "the entrepreneurial skills play important role in the attainment of *economic sustainability* which is profit-oriented referred to the ability of an economy to support a defined level of economic production indefinitely. Similarly, for elements of entrepreneurial skills, data analysis of the in-depth interview outcomes generated four themes: (*finance and profit, entrepreneurial plan, knowledgeable in business, and visionary skills*) as presented in Table 2.

Table 2 also presents the result of the qualitative data analysis on elements

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of entrepreneurial skills to be acquired by technical education graduates for economic sustainability in Nigeria. Based on the four themes enlisted above. GES1-GES15 represents participants' classification, while theme 1–4 emerged from the analysis of the in-depth interview after transcription, coding and theme identification. In theme 1 (**finance and profit**), 95% of the participants admitted that *decent understanding of finances and profit* should be included for economic sustainability; 86% stressed on a *decent understanding of margins, cash flow and funding* to be included; 89% the participants felt that the ability to *understand the sheer amount of experimentation* should be acquired for economic sustainability; 72% viewed *understanding hard work needed to find a business model* as the element to be included; 78% focused on raising and managing money, and 69% participants see the ability to *examine the technical feasibility* as the element of entrepreneurial skills of technical education graduates for economic sustainability. These aspects of finance and profit were considered by the respondents (Table 2) Therefore, these findings showed that finance and profit skills should be one of the green entrepreneurial skills of technical education graduates for economic sustainability in Nigeria.

Table 2 Summary of Elements of Entrepreneurial Skills

Respondents (GES)	Theme 1	Theme 2	Theme 3	Theme 4
	Finance and Profit	Entrepreneurial plan	Knowledgeable in Business	Clear Visionary skills
95%	*A decent understanding of finances and profit*	*Make entrepreneur friends*	*Understand the specifics of a new and existing business*	*Set a long-term vision,*
86%	*A decent understanding of margins, cash flow, and funding*	*Be productive*	*Define solutions in terms of value creation.*	*Be resourceful enough*
89%	*Understand the sheer amount of experimentation*	*Stay up to date on new systems*	*systems thinking to complex problems in business*	*Knowing how to "laser focus" on the very next step.*
72%	*Understanding hard work needed to find a business model*	*Stay up-to-date on technology, and industry trends.*	*Define problems in terms of value creation.*	*Create a plan to take advantage*
78%	*Raise and manage money.*	*Exercise curiosity*	*Examine economically*	*Anticipate technical developments*
69%	*Examine the technical feasibility*	*Examine drivers and societal and*	*Define opportunities in terms of value creation*	*Apply creative to ambiguous/complex problems.*

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		individual needs.		

In theme 2 (**Entrepreneurial Plan**), 95% of the participants admitted that ability to *make entrepreneur friends* should be included for economic sustainability; 86% stressed on *being productive* to be included; 89% participants felt that ability to *stay up to date on new systems* should be included; 72% of the experts viewed *stay up-to-date on technology, and industry trends* as the element to be included; 78% focused on the *exercise curiosity*, and 69% of the participants see the ability to *examine drivers and societal and individual needs.* as the element of entrepreneurial skills of technical education graduates. These aspects of the entrepreneurial plan were considered by the participants (Table 2). Therefore, these findings indicated that an *entrepreneurial plan should be one of the* green entrepreneurial skills of technical education graduates for economic sustainability in Nigeria.

In theme 3 (**Knowledgeable in Business**), 95% of the participants admitted that ability to *understand the specifics of a new and existing business* should be included for economic sustainability; 86% stressed on *defining solutions in terms of value creation* to be included; 89% participants felt that *systems thinking to complex problems in business* should be included; 72% of the participants viewed *defining problems in terms of value creation as* the element to be included; 78% focusses on *examining economy, and* 69% sees the ability to *define opportunities in terms of value creation* as the element of entrepreneurial skills that should be included for economic sustainability. These aspects of knowledgeable in business were considered by the participants (Table 2). Therefore, these findings indicated that knowledgeable in business skills should be one of the green entrepreneurial skills of technical education graduates for economic sustainability in Nigeria.

In theme 4 **(Clear Visionary Skills),** 95% of the participants felt that ability to *set a long-term vision* should be included for economic sustainability; 86% stressed on the ability to *be resourceful enough* to be included; 89% participants felt that the ability to *know how to "laser focus" on the very next step* should be included; 72% viewed to *create a plan to take advantage* as the element to be included; 78% focusses on *anticipating technical developments*, and 69% sees the ability to *apply creativity to ambiguous/complex problems* as the element of entrepreneurial skills that should be included for economic sustainability. These aspects of clear visionary skills were considered by the experts (Table 2). Therefore, these findings indicated that clear visionary skills should be one of the green entrepreneurial skills of technical education graduates for economic sustainability in Nigeria.

Building on the above, key Elements of Green Entrepreneurial Skills of Technical Education graduates includes finance and profit skills, entrepreneurial plan, knowledgeable in business, visionary skills.

DISCUSSION

In identifying the important elements of green entrepreneurial skills of technical education graduates for economic sustainability in Nigeria, experts were in the opinion that finance and profit skills which involved the ability to be resourceful enough to depend on oneself need to be integrated. Recommendation of Abolore (2012) is consistent with this finding that green technology practices are of immense benefit to humans, environment, and in high rate increases financial profit and long-term competitiveness. Ability to compute profit and loss in the construction firm will in not a small measure help in the attainment of economic sustainability in Nigeria.

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Additionally, entrepreneurial skill according to Efe (2014) is associated with various activities, but not limited to resourcefulness, financial control and profit-oriented. It is also in line that of Illankoon *et al.* (2016) found that economic sustainability should, in principle, include all resources including those associated with social and environmental values; but in practice, most analyses include only the financial costs and benefits. For Agada (2014) financial skills involve where to find capital, how to secure it, how to plan cash flow, how to keep effective financial and how to foresee future financial needs. More so, Gunhan (2012b) maintained that green technology practice is, indeed, a highly profitable exercise and refurbishing the existing technology stock while adopting green approach is a panacea for tackling the looming economic crisis.

The findings also include the incorporating of entrepreneurial plan and knowledge in business (which involved the ability to stay up to date on new systems, technology, and industry trends) of technical education graduates for economic sustainability in Nigeria. These findings correspond with the recommendation of OECD/Martinez-Fernandez*, et al.* (2010) that both the market and regulatory-driven changes in firms and businesses linked to by climate change will lead to the creation of significant skills gaps in labour markets. It is also consistent with Manufacturing Skills Australia (2016) that economic sustainability activities focus on business growth, efficiency, productivity and profit; and its activities focus on business efficiency, productivity, and profit. Also, Gujrati (2013) found that economic growth generated by entrepreneurial skill is the core engine of a virtuous cycle that develops an economy and that successful entrepreneur, through their breakthrough technologies and rapidly growing business. For, Maina (2014), he recommended that the inclusion of entrepreneurial courses in all disciplines will to a greater extent, assist in solving this problem of high unemployment and underemployment. These corresponding findings and recommendations signify that entrepreneurial skill acquisition by technical education students of Nigeria technical colleges is a key driver in encouraging business start-up potentials.

The finding of this research also revealed that experts were in consensus that visionary skills which include the ability to anticipate technical developments by interpreting the surrounding, societal and economic trends. This finding is in line with that of Efe (2014) that entrepreneurial skill is associated with various activities, but not limited to the visionary, adjustment to challenges and future-looking. Furthermore, UNESCO (2013) remarked that education plays a role in increasing ‘‘the capacities of people to transform their visions of society into operational realities. The finding also is in concise with the Azis *et al.* (2012) that the vision of sustainable construction must change in the adoption of this dynamic relationship. Finally, this finding is consistent with the recommendation made by Cotis *et al.* (2010) that knowledge externalities may also stand in the way of moving towards economies based on greener technologies; thereby requiring the emergence of the necessary awareness, skills, and vision to mobilize the private sector, governments, and the society as a whole (UNESCO, 2010). These series of recommendations collectively agreed with all the findings under entrepreneurial skills which signifies that all the identified important elements could be acquired by the technical education graduates for economic sustainability in Nigeria.

CONCLUSION

As this study a qualitative study, it only explores green entrepreneurial skills of technical education graduates for economic sustainability in Nigeria. Looking at the nature of the educational background of the participants it is

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pertinent to note that the findings of this research are worth generalisation. Furthermore, these findings pave the way for the conduct of an elaborative study about green skills in Nigeria.

RECOMMENDATION

Environmental, economic and social problems become a global issue as they resulted in making sustainable development unachievable in many developing countries like Nigeria. This study explores green entrepreneurial skills of technical education graduates for economic sustainability. For the effective implementation of the findings of this study, it is recommended to be used technical education units for students to acquire aspects of green entrepreneurial skills which its impact may contribute to realizing economic sustainability.

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