
Technopreneurship Education, Occupational Counselling, and Sustainable Development in Nigeria

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ABSTRACT: *Innovation and creativity are basic necessities for any functional education like entrepreneurship education which is skill-based. The method of instructional delivery should be technologically inclined where the scientific knowledge will be inculcated in it. Technopreneurship is a process of acquiring knowledge, skills, and competencies for venture creation through technological knowhow. Technology is what makes life easier to live. It is the scientific knowledge used in practical ways to meet and satisfy human needs. Occupational counselling is the guidance and information necessary for all individuals in the world of works for better understanding of self, personality type and acquisition of relevant qualification in relation to entrepreneurship skills, job productivity, satisfaction and overall wellbeing on the work performance. This paper, therefore, focuses on how technology entrepreneurship and occupational counselling can bring sustainable development to entrepreneurs in their business operations in the global market. The paper looked at the concept of entrepreneurship, entrepreneurs, technopreneurship, development of entrepreneurship, acquisition of occupational information relevant for building entrepreneurship skills in Nigeria, significance of technology in the operations of modern entrepreneur, roles of technology-based entrepreneurship in economic development, teaching entrepreneurship education using project-based learning method and development of all related psychological characteristics the individual needs for sustainable development. The paper concluded that technopreneur, in order to succeed, needs to be taught technology-based entrepreneurship that encourages creativity and Innovation, the importance of understanding self in relation to job satisfaction and productivity that bring about commercialization and industrialization towards global marketing. The paper recommended, among others, that technology-based entrepreneurship education and occupational counselling should be entrenched into the curriculum right from Basic Schools to Tertiary institutions. It further stated that supports should be given to Tertiary institutions for curriculum overhauling and development of lecturers in form of training and retraining for sustainability.*

KEYWORDS: technopreneurship education, occupational counselling, sustainable development

INTRODUCTION

Necessity is the mother of invention, so says an old adage. Whenever there is a need, people try their best to find a way of meeting that need. This agrees with Scherमारhorn (2013) that sees Entrepreneurship as a strategic thinking and risk-taking behaviour which results in the creation of new opportunities for economic growth. It is the process of discovering new ways of combining resources and capabilities together to create values as a major engine of national development through the creation of new business ventures all over the country. In fact, entrepreneurship exploits business opportunities that bring about job creation and eventually generate wealth for sustainability through technological innovations.

Technopreneurship, which is coined from technology entrepreneurship, is a combination of technological advancements and Entrepreneurial skills. The use of social media devices such as Facebook, Google, Skype, Snapchat, Instagram and so on has helped technopreneurs to concentrate on new ways of creating values in doing business and also create new industries entirely. Technopreneurship, a process that has impacted people's lives by creating huge investments and lots of positive business endeavours. Succinctly, technopreneurship is the ability to identify real problems, set a vision to transform the identified problems into business opportunities by intelligently use technology to refine business acumen. This is what technopreneurs like Nikola Tesla, Marie Curie, Bill Gates, Mark Zuckerberg, Steeve Jobs, Dangote, Jeff Bezos, Elon Musk and others are doing today with the aid of internet and computer-based devices. The focus of these technopreneurs is on Information and Communication Technologies with internet and automation, using technology to deliver normal business activities.

This is what Sankat (2010) suspected when he said science, technology, innovation and entrepreneurship have been proven not only to be the impetus for growth and economic prosperity but also serve as the foundation for the transformation of the economy in developed world which is what today is called technopreneurship. However, technopreneurship must be entrenched into the curriculum of education from Basic Schools to Tertiary institutions in order to remove the limitation in acceleration of industrial development that would enable Nigeria to compete in frontiers of global rapid technological development (Bubou, Siyanbola, Ekperiware and Gumus, 2014). There is therefore, the need for curriculum review in Nigerian schools (). Policy makers need to develop, apply and emphasize the important role of engineering, technology and business ventures development in human welfare improvement and sustainable development because technopreneurship growth is the key to creation of wealth and career oriented jobs in Nigeria. Innovation, Creativity and Capital (IC2 Institute (2007) stated that technology-based entrepreneurship education should be entrenched into curriculum of the undergraduates in all tertiary institutions in Nigeria. In agreement with this submission this

paper, therefore, is an attempt to extend an understanding of the role of technopreneurship education on the intention of beneficiaries of the programme from Basic Schools to all tertiary institutions across disciplines. Technopreneurship education plays a critical role in orientating and developing future entrepreneurs, that is, graduates of entrepreneurship education by providing them with skills, knowledge and capabilities to employ ICT, internet and other computer-based devices in launching and managing their business ventures of any kind. The paper further focuses on the understanding of the beneficiaries in order to benefit from technopreneurship education with a deep understanding and application of Occupational Counselling implements.

Entrepreneurship Education in Nigeria

The scarcity of paid jobs in Nigeria triggers up the ingenuity in man to create something new, take risks, constantly fine tune his products to meet the demands of consumers and maximize profits to become independent (Ayeni, Olufemi and Adesola, 2018). The unemployment of youths in Nigeria brought about the inclusion of Entrepreneurship Education into the curriculum of tertiary institutions all over the country. It was in 2004 that the Federal Government instructed the National University Commission (NUC) to compulsorily include entrepreneurship education into the curriculum of tertiary institutions across disciplines.

In some tertiary institutions, Entrepreneurship education is taken as vocational skills training only such as catering, making of liquid soaps, tie and dye batik, hat making, bead making, bag making, fashion designing and so on. The trading of skills like computer repairs, phone repairs, electrical installation and so on were not fully integrated. In the past, some tertiary institutions did not have entrepreneurship center and where they have, the relevant skills were not in place. This could be because most technologies were foreign and imported. The continuous improvement and innovation from the source countries of the imported technologies render them obsolete in no time (Siyanbola et al, 2011).

Importance of Technopreneurship education

The developed world talks more of technological developments in order to enhance economic development. It is only through technology entrepreneurship education that the objective of economic development can be achieved. Nigeria must not be left behind and the citizens must be encouraged to work in this direction through technopreneurship education.

Entrepreneurship Education is known to be a type of education that inculcate in the beneficiaries that knowledge, skills, competencies in creative and innovative ability that brings into existence what was not previously available or an improvement in an existing products or services. It is the training that embraces conception, actualization, financing, data collection, career formulation, policy promulgation, staff recruitment and orientation (Gek, 2014).

The impact of technology on daily lives has grown tremendously over the years. Whether it is laptop or cell phone, technology helps to connect the world around and acts as a portal to greater amount of knowledge (Akanmode, 2016). Hence, technopreneurship is the creation of new ventures in order to exploit technological innovations and discovery for commercialization and industrialization towards global marketing. Observation skills is paramount for effective entrepreneurship education which is an act of being sensitive to ones environment by making use of the five senses of sight, hearing, smell, taste and touch.

Technopreneurship education provides students with diverse learning experiences in tools and skills to identify and exploit opportunities, formulate problems, think creatively and work collaboratively. In this way, students' passion for technology can be transformed into the ability to deliver inspired innovation.

The Roles of Technology in Entrepreneurship Education

Technopreneurship is the process by which entrepreneurs use resources and technical systems through collaborative exploration to pursue opportunities while technology while technopreneurship education is the training given an individual to empower him/her with the knowledge to use resources and technical systems through collaborative exploration to pursue opportunities for profit. This ability helps the beneficiaries to establish and manage sustainable new ventures and commercialization of Technologies developed in the laboratories of tertiary institutions.

In the process of teaching, the trainers ensure the trainees have enough entrepreneurial skills to evaluate opportunities, develop new products and recognize potential market applications. The beneficiaries, whatever their disciplines, need to exploit opportunities that rely on scientific and internet-based knowledge to create and capture values. It is evident that technopreneurship education increases the intention to start a business and stimulate it in a group setting and a network context because of increasing global competition based on agility, creativity and Innovation.

Technopreneurship education is technologically entrenched and inculcates in its recipients competencies, skills and creative innovation that are geared towards focussing their minds for self-reliance and self-sufficiency by identifying viable business opportunities, portraying a desire to venture into business, demonstrating managerial skills for running successful enterprises, encouraging new startups and other technopreneurial ventures (Njoroge and Gathungu in Ayeni, Olufemi and Adesola, 2018).

Technopreneurship, as a vital factor in economic development and social change, makes for continuous innovation and commercialization of innovative technology. The performer of this process is called technopreneur. Hence the need for technopreneurship education to proactively

train his/her mind in the right direction. The technopreneurs are the change agents and catalysts for transforming resources into new products and services with greater utility and value (Daren, 2021).

Teaching Technopreneurship education in Nigeria using Project-based Learning Method

The Project-based method is considered appropriate in this paper. PBL creates and develops technopreneurship characters in learners and brings innovation into their projects. This method encourages classroom activities that focus on long-term interdisciplinary, student-centered learning activities. It differs from traditional methods in which lecturers play a central role in the learning process. PBL, according to George Lucas Foundation (2005 cited in Oscarius, 2017) has the following features:

1. Curriculum-fuelled and standard -based
2. Asks questions relevant to the study
3. Allows students to investigate issues and topics addressing real world problems.
4. A method that fosters on abstract, intellectual tasks to explore complex issues
5. Formulates targets
6. Designs a project planning and schedule
7. Monitors and action assessment
8. Summative evaluation

Characteristics of PBL approach

1. Students make decisions about a framework
2. Students solve challenges or problems
3. Students design processes to solve problems
4. Students collaborate to solve problems
5. Learning activities are qualitatively evaluated
6. Learning situations are very tolerant to errors and changes.

PBL method encourages students to collaborate in order to solve problems and finally make a presentation. Factors influencing the success of PBL are motivation, relevance, challenging, interdisciplinary, authentic and fun-filled. Through PBL method, some goals can be achieved such as:

1. Problem-solving skill
2. Ability to find and use resources appropriately
3. Leadership
4. Pro-activeness and critical thinking
5. Synergy
6. Motivation

Source: Endahgf, 2007

An insight into PBL method shows that it consists of the following:

1. Teaches enterprise and entrepreneurship
2. Promotes the growth of new business by supporting start-ups, including spin-out companies based on innovative ideas developed by students and faculty.
3. Extension of mission beyond teaching and researching to forge links with local industry and communities and
4. Encourage the transfer of science, technology and automation learned from tertiary institutions to business sectors.

Occupational counselling for technopreneurs

Occupational counselling is the guidance and information necessary for all individuals that are leading in the world of works for better understanding of self, personality type, individual differences and acquisition of relevant qualification in relation to entrepreneurship skills, job productivity, adjustment, management of occupational hazards, satisfaction and overall wellbeing on the work performance. (Dabalén, Oni & Adekola, 2000; Ogah, 2000; Killian 2022). Any individual may decide to be an entrepreneur, however, not every person is going to have the equal measure of success. Occupational counselling provides information on entrepreneurship preparation to acquire relevant experience, muster-up high determination and acquisition necessary training. Although there are no basics for becoming an entrepreneur, occupational counselling encourages every entrepreneur to become successful in all their undertakings by inculcating a positive mental attitude in their endeavours. (Akinade, 2005; Killian 2022). Positive mental attitude helps the technopreneur to believe that his/her ideas, goals and, and that the venture in itself would succeed. This positive believe about the efficacy that the goal of the venture would be achieved is what drives the creativity and innovative mindset of the technopreneur. (Dabalén, Oni & Adekola, 2000; Ogah, 2000; Killian 2022). One of the focal points in occupational counselling is the ability of the technopreneurs to assess their personal values, growth, strength, motivation and the energy to be resolute even at the teething period, because, of course, every good venture will be subjected to the rigour of examination of standard at every stage and the ability to survive even in the face of challenges is what counselling helps to equip the technopreneur as a projective adversity quotient skills for survival in the global industry.

Acquisition of occupational information relevant for building entrepreneurship skills in Nigeria, helps the technopreneur to acquire accurate knowledge about the industry, have a safe financing plan to develop vibrant communication strategies and platforms to reach the target consumers of the product, and how to stay focus on selling or sales strategies, as well as manage the flexibility of coping with stress or stressor at every angle and the ventures develops.

Occupational counselling also helps to educate entrepreneurs to cope and adapt with the limitations of their environment such as the personal or communal economy. Occupational counselling helps the entrepreneurs to be aware of possible factors that are significant to entrepreneurial success such as creativity, tolerance for risk, responsiveness to opportunities, leadership and the ability to take advantage of the rights afforded and available for the development that the individual needs for sustainable development. (Akinade, 2005; Killian 2022).

Occupational counselling process also encourage the importance of understanding self in relation to job satisfaction and productivity that bring to light, successful achievement in the entrepreneurship venture. Entrepreneur's awareness of his/her psychological traits and behavioural characteristics such as: leadership, personality type, vision, discipline, curiosity, creativity, adaptability, and the ability to take measured risks, help him/her become successful when launching into the industry. (Dabalén, Oni & Adekola, 2000; Ogah, 2000; Killian 2022).

Technopreneurship, Occupational counselling and Sustainable Development in Nigeria

Sustainable Development is meeting the needs of the present without compromising the ability of the future generations to meet their own needs (United Nations, 2020). The objective is to produce a set of universal goals that meet the urgent environmental, political and economic challenges facing our world by 2030. The sustainable development goals (SDGs are 17). This paper is focusing on goals 1, 4 and 5. Goal 1 is ending poverty; Goal 2 is quality education and Goal 5 is gender equality and women empowerment. If these goals will be effective, technopreneurship education must be given a proper place of implementation. Technology entrepreneurship (Technopreneurship) refers to processes by which entrepreneurs use technology resources and technical systems through collaborative exploration to pursue opportunities while technopreneurship education is the training given to recipients to empower them with knowledge to use resources and technical systems through collaborative exploration to pursue opportunities for profitability and sustainability (Ayeni, Olufemi and Adesola, 2018).

There is symbiotic relationship between occupational counselling, technopreneurship and national development. Any nation that allows technopreneurs to survive performance will surely prosper because the youths who benefits from technopreneurship education will be adventurous, vibrant, creative and innovative acumen (Dabalén, Oni & Adekola, 2000; Ogah, 2000; Killian 2022). This is because wealth will be created through ingenuity and motivations to solve human problems. Technopreneurship education exposes the learners to information, knowledge and understanding of technology that is entrenched in computer-based devices and internet facilities. Building a strong Small and Medium Scale Enterprises (SMEs) sector generates from the infusion of technopreneurship education beneficiaries who are ready to exploit and create business ventures that have long-term duration capacity (Tywuah and Chen, 2019). In most

developed countries like Malaysia and Japan, for example, SMEs account for greater percentage of their Gross Domestic Product and employment. The SDG 4 emphasizes on quality education which technopreneurship education is one and will lead to SDG 1, if properly integrated into the curriculum and well implemented. Occupational counselling is fundamental to vocational orientation and guidance given to enhance the young learners mind and to empower the youths for self-reliance and national development. (Akinade, 2005; Killian 2022). This intention should start from Basic Schools to Tertiary Institutions. When technopreneurs who successfully graduate from school makes use of ICT, internet and relevant computer-based devices with entrepreneurial characteristics and qualities to enhance his/her daily performance at workplace in collaboration with customers' satisfaction by using software management tools for excellent leadership guarantees sustainable development in Nigeria.

CONCLUSION

Technopreneurship education, as has been discussed in this paper, is the type of education that encourages creativity, innovation, commercialization and industrialization towards global marketing. If the nation must move forward and meet developed world, technopreneurship education is the answer and for sustainability, the curriculum needs inclusion of leadership, communication, creativity, innovation, negotiation, responsibility, discipline, financial literacy, risk management and other soft skills that are automation relevant. Occupational information is herein considered as accurate, usable information about jobs and occupations. It includes facts about occupational trends, the supply and demand of labor, and training facilities.

Occupational information and counselling is articulated on the basis of discourse that must put technopreneur informational needs into consideration such as being relevant, understanding the self and the occupational identity, roles and expectations on the entrepreneurial venture, the job satisfaction and productivity that bring about commercialization and industrialization towards global marketing.

Recommendations

Since Nigeria is moving towards technology and digital driven economy, this paper recommends the followings for the right implementation:

1. For technopreneurship education to be fully integrated into the curriculum of our tertiary institutions, lecturers who have technological and digital knowledge and capabilities should be recruited and community linkage be done intermittently.
2. Role models who are well seasoned in their various chose fields should be invited into the schools to occasionally interact with the students as a form of motivation towards venture creation.

3. There should be monitoring of implementation of technopreneurship curriculum from Basic Schools to tertiary institutions. The political will power of the government towards implementation should therefore be thorough.
4. There should be a support from the Nigerian government to Basic Schools and Tertiary Institutions for research and development in technopreneurship in a multidisciplinary dimension.
5. Occupational counselling for development of technopreneurship knowledge about self, identity, roles and projective expectations should be inbuilt in to the curriculum.
6. Occupational counselling for development of creativity and knowledge for self-reliance should be introduced into functional education at the basic schools and tertiary institution.
7. Occupational counselling should be practiced by experts as a basis for vocational orientation, this process would further cushion the knowledge acquisition at elementary schools and higher institutions of learnin

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