



**DISRUPTIVE KNOWLEDGE ON ENTREPRENEURSHIP DEVELOPMENT IN
SUB-SAHARAN AFRICA: THE NEED FOR SUSTAINABLE SOCIAL CAPITAL**

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Abstract

The study reviewed disruptive knowledge on entrepreneurship development in sub-Saharan Africa: The need for sustainable social capital. Identifying indigenous knowledge of apprenticeship and social capital as the cardinal regional power of entrepreneurship development before the disruption of technological knowledge of automated knowledge work. The paper adopted descriptive design and exploratory analysis as research methodology. The study revealed that for proper entrepreneurship development and sustainable social capital to be achieved in the sub-Saharan Africa, indigenous knowledge must promote Igbo Trade Apprenticeship System (ITAS) and social capital. Also, the know-how knowledge (learning by doing “apprenticeship”) and know-who knowledge (social capital) must not be disrupted by technological knowledge on entrepreneurship development. The study recommended that indigenous knowledge of entrepreneurship development – apprenticeship and social capital should be enshrined in the management science curriculum of tertiary institutions in the region to inculcate the experiential learning, etc. further research can be carried out by fusing together apprenticeship and social capital as Igbo Trade Apprenticeship System (ITAS) with empirical analysis.

Keywords: *Disruptive Knowledge, Indigenous Knowledge, Apprenticeship, Social Capital, Entrepreneurship Development*

INTRODUCTION

From the middle French to Latin in the 16th century, education has evolved from childrearing, schooling, training and instructional (for work) to present day technological e-learning. But one continuing purpose since the ancient time, has been to bring people to as a full realization as possible of what it is to be a human being (Achilike, 2015). This accomplishment is most appropriate if indigenous or local knowledge is used to inculcate them. This system encouraged the spirit of public enterprise and mentorship. It is therefore, not surprising that the Igbo of South-East Nigeria, business enterprise developed along the same spirit. This system is known as Igbo Trade Apprenticeship System (ITAS).

According to Ezeonu (2019), ndi Igbo had over years developed a successful proprietary business mentoring system that has reportedly worked for over five decades. It is a system where a young boy does business or skill apprenticeship under a master for between 4 – 7 years. After the period of service the mentee gets seed funding (sometimes inform of social capital) to start his own business. This system, he said, is so successful that it has minted many millionaire entrepreneurs. It teaches the values of discipline, hardwork and delayed gratification. Trade knowledge and contacts are also passed on under this mentoring system. This is traditional knowledge of entrepreneurship development. It facilitates the provision of venture capital without any loan. The ITAS which locally generate venture capital (cash) and credit goodwill is reputed to be the largest business incubator platform in the world, which accounts for tremendous capital outlay and entrepreneurship growth. Consequently, it is only in this part of the sub-Saharan Africa (Igboland) that you will see great entrepreneurs who did not need to borrow money from a bank or a finance house to start their business, as settlement from the master or his social capital can also be a source of capital for the entrepreneur. Thus, the beginning of the Igbo business learning culture is the ITAS, and the modern apprenticeship in sub-Saharan Africa can be traced to Igbo Trade Apprenticeship System. As Maduka (2019) simply puts it, this apprenticeship system is the essence at the centre of Igbo

business culture. Regrettably, this ITAS has been discarded and discouraged by technological disruptive knowledge – automated knowledge work.

However, ITAS is a kind of informal and unstructured training programme, scheduled for an agreed period of time, which a person undergoes in order to acquire a desirable aspect of entrepreneurial skill. It is a vibrant part of the Igbo entrepreneurship attributes that has for long been shaping their mental and intelligent quotient about entrepreneurship success and with the capability of teaching the world trade education through disruptive knowledge – automation of this ITAS (Orugun & Nafiu, 2014).

This Igbo resilience has become a global practice. In the United States today, apprenticeship programmes prepare people to work in some 1,000 different occupations, from chef and child development specialists to carpenters and electricians. In other countries with advanced economies, including Great Britain, Germany and Australia, apprenticeship is more commonly used to train healthcare workers. While the public perception of apprenticeship in the United States commonly invokes images of construction workers and factory labourers, the reality is quite different (Mauldin, 2011). Compared to countries like Germany and Denmark, apprenticeship in the United Kingdom is less standardized and less widespread (Dieckhoff, 2008). Apprenticeship is overseen by the UK Industry Training Boards, and their goals are to ensure the supply training across employers. After some years of decline, UK revitalized the apprenticeship system in 1994. Each apprenticeship is structured to include a knowledge-based elements, a competence-based element, key skills, and employment rights and responsibilities. Length of time for the apprenticeship is left to the entrepreneur's discretion. The amount of time spent in on-the-job training, off-the-job training and time working varies by sector and framework.

Germany is well known globally for its highly standardized and institutionalized “dual system” of vocational training, designed to ensure that training meets the needs of the company hosting the apprentice, and that apprentices will acquire valuable and portable skills (Dieckhoff,

2008). While the early years of apprenticeship were managed by and more focused on industry in Australia, today they have greater emphasis on training and education (Ray, 2001). After 1996, apprenticeships and traineeships were combined as part of what was then called the “New Apprenticeship” initiative, which introduced new national training agreements, qualifications and training packages. The Australian Apprenticeship Incentives Programme provides financial support both to employers who take on apprentices and to workers who undertake an apprenticeship. In sub-Saharan Africa and other emerging nations, the extraordinary richness of the apprenticeship as a learning resource is underappreciated. Both informal and modern apprenticeship systems make full use of this resource and can unlock capacities in young entrepreneurs that had not been appreciated or exploited in the region. However, safeguards for this young people from exploitation when in apprenticeship are as necessary today as in the past.

In Nigeria, and indeed, other sub-Saharan Africa, this apprenticeship has been but not fully exploited as many graduates from higher institutions roam the streets, because the disruptive knowledge can no longer fetch or guarantee them daily bread. Possibly, they are not able to access the performance of this important training programme. It is not surprising that new technologies make certain forms of human labour unnecessary or economically uncompetitive and create demand for old and new skills. But the extent to which today’s disruptive knowledge could affect the nature of entrepreneurship is striking. That is the crux of the research.

RESEARCH PROBLEM

For well over a century now, the well known indigenous knowledge – apprenticeship is one of the oldest social institutions; but “modern” apprenticeship – has ambitious aims to enhance general education and to develop technical knowledge and skill to internationally competitive standards. Its implementation in complex modern labour markets requires high levels of trust and cooperative behavior between public authorities and entrepreneurs. Because technological disruptive knowledge is so

embedded in the digital economy, the relationship between the supply of apprentice and demand from entrepreneur is highly sensitive to economic and technological change and to global competitive pressures. In the digital world, and particularly in the recent decades, the pressures of globalization, and the growth of the knowledge economy or automated knowledge work have threatened the stability equilibrium between indigenous knowledge and disruptive knowledge that makes apprenticeship work.

Apprenticeship is a widespread phenomenon, including in both G20 and developing countries, which involves to pass on skills from one generation to the next, sub-Saharan Africa have developed indigenous knowledge as modern apprenticeship system that are purely on the workplace-based. What John Dewey described as learning by doing. Nations in medieval Europe developed strong apprenticeship systems regulated, and extensive training system in countries with large entrepreneurship economies all over the globe, including in South Asia (ILO, 2012). Variations in terms of practices are wide, yet the basic feature remains the same: the training agreement that is aimed at transfer of indigenous knowledge and skills to the learner/entrepreneur. Due to its global acceptance, in May 2012, the G20 Labour Employment Ministers concluded in Mexico that countries should: "... promote, and where necessary, strengthen quality apprenticeship systems...." With a view to fostering "... sharing of experience in the design and implementation of apprenticeships programmes and exploring ways to identify common principles across the G20 nations by facilitating a dialogue among our social partners who have presented us a shared sense of the importance of apprenticeship." The G20 leaders' summit in Los Cabos, Mexico, in June 2012 endorsed these orientations. Their Task Force Recommendations at the summit also called for scaling up "... the number, quality and image of apprenticeships for young people..." in June 2012 tripartite constituents at the International Labour Conference's Committee on 'The Youth Employment Crisis: Time for Action,' called on the International Labour Organization (ILO) to engage in the promotion of quality apprenticeships, including sub-Saharan Africa.

This paper, commissioned by the ILO, examined both informal and regulated apprenticeship and their advantages for the employment prospects of young people, with drawings on examples from a number of G20 countries (ILO, 2012).

While advanced countries of the world has embraced the system, this indigenous knowledge ITAS meant to grow future entrepreneurs has been disrupted by automated knowledge work. But in the opinion of Ezeonu (2019), we must strive as researchers and teachers to develop the African knowledge system. We are too fixated on the colonial curriculum that we have refused to develop our knowledge systems and to become the gatekeepers of our indigenous knowledge. He bemoaned that though, what this entrepreneurship system lacks is the formula for sustaining the business beyond the founder, it is surprising that our management sciences curriculum in our tertiary institutions has not leveraged on this mentorship programme and scale it up to develop and domesticate it into a science. It's a complete system and beats all other venture capital models in the world, which have produced great enterprises and entrepreneurs growing around us like the rainforest, all minted by the same ITAS. In attempt to appraise this recent technological disruption of knowledge, a lot of scholars attribute it to westernization and modernization.

It is against this background that this study wants to probe into the effect of technological disruptive knowledge on this indigenous knowledge, the paper will focus on apprenticeship and social capital as indigenous knowledge on entrepreneurship development and automated knowledge work as disruptive knowledge. The suggestion will be on how to enhance this traditional knowledge system to promote entrepreneurship development in sub-Saharan Africa. The significant of this study is to provide governments, researchers, entrepreneurs, academia, and other users with appropriate information and knowledge about this topic and contribute to the existing literature on indigenous knowledge.

REVIEW OF RELATED LITERATURE

CONCEPTUAL CLARIFICATION

Understanding apprenticeship and social capital as sub-Saharan African identity should start with the meaning of indigenous knowledge. Mugabe

(1998), defines indigenous knowledge as “the knowledge that is held and made use of by people who regard themselves as indigenous to a particular place. This is based on a combination of cultural uniqueness and prior territorial occupancy relative to a more recently arrived population with its own distinct and subsequently dominant culture ... traditional (indigenous) knowledge encompasses both tacit and explicit knowledge and practices.” For Udensi and Offia (2015) indigenous knowledge is experiential knowledge based on a worldview and culture that is basically relational. The spirit of African worldview includes wholeness, community and harmony which are deeply embedded in cultural values – apprenticeship and social capital. The practices of indigenous knowledge is defined as “a cumulative body of knowledge, know-how, practices and representations maintained and developed by peoples with extended histories of interaction with the natural environment. These sophisticated sets of understandings, interpretations and meanings are part and parcel of a cultural complex that encompasses language, naming and classification systems, resource use practices, ritual spirituality and worldview (Gbarabe, Okah & Etukudoh, 2015).

Sub-Saharan Africa has its method of knowledge acquisition which is a practical, collective and social or interpersonal slant. This in entrepreneurship development is a combination of apprenticeship and social capital. But this noble idea has been distorted and disrupted by automated knowledge work. In the words of Udensi and Offia (2015) African scholars have all thrown aboard the nucleus of their existence in their haste to be counted and accepted in the ‘formal’ academic caucus and as a result, indigenous knowledge and cultural methods are disregarded or abandoned outrightly. If entrepreneurship is studied within the context of apprenticeship and social capital idea and culture, based on ‘sub-Saharan African entrepreneurship’, it will make more sense and set the region on the right pathway to inclusive sustainability.

On the other hand, disrupted knowledge is a western and technological knowledge acquired from the use of internet or other technological information system, which enable individual to learn entrepreneurship

development without the use of native or local knowledge. The major offshoot of this kind of knowledge is automation of knowledge work. According to Manyika, Chui, Bughin, Dobbs, Bisson and Marrs (2013) confluences in computational speed, machine learning, and natural user interfaces has brought computing to an important milestone; computers are now becoming capable of doing jobs that it was assumed only humans could perform. Knowledge work has become complex, in large part due to information technology, creating demand for workers with new skills who can perform new kinds of tasks. They specifically defined knowledge work automation as the use of computers to perform tasks that rely on complex analyses, subtle judgements, and creative problem solving. These capabilities not only extend computing into new realms (like the ability to learn and make basic judgements), but also create new relationships between knowledge workers and machines. It is increasingly possible to interact with a machine learning techniques such as deep learning and neural networks, are key enablers of knowledge work automation.

Anyway, before the disruption of indigenous knowledge, sub-Saharan Africa education succumbed to the words of John Dewey (1934), who said that “The purpose of education has always been to everyone, in essence, the same – to give the young the things they need in order to develop in an orderly, sequential way into members of society.... Any education is, in its forms and methods, an outgrowth of the needs of the society in which it exists” (12). For sub-Saharan Africa, apprenticeship and social capital are the foundation for their entrepreneurship development. Apprenticeship can be extremely effective training model that meets entrepreneur’s need for entrepreneurial skills and the need for self-reliance with good startups and clear career advancement.

Generally, the ILO in its Apprenticeship Recommendation (R60, 1939) defined apprenticeship as follows: “... the expression apprenticeship means any system by which an employer undertakes by contract to employ a young person and to train him/her or have him/her trained systematically for a trade for a period, the duration of which has been fixed in advance and in the course of which the apprentice is bound to work in

the employer's service." In 1962, when the ILO reformulated its definition, in Vocational Training Recommendation (R17, 1962 Para X.46), several new characteristics of apprenticeship were identified. The new definition was "systematic long term training for a recognized occupation taking place substantially within an undertaking or under an independent craftsman should be governed by a written contract of apprenticeship and be subject to established standards." The 1962 ILO definition makes no reference to young people, in contrast to the 1939 definition.

A more recent definition in a paper authored by German, Swiss and British academics again adds more attributes to the definition. "Apprenticeship is taken to denote training programmes that combine vocational education with work-based learning for an intermediate occupational skill (i.e., more than routinized job training), and that are subject to externally imposed training standards, particularly for their workplace competent." This definition incorporates some of the key robust features of apprenticeship: based in the workplace supervised by an entrepreneur; intended for young people; fundamental aim is learning, trade/acquiring a skill; training is 'systematic' i.e. follows a predefined plan; governed by a contract between apprentice and entrepreneur; training to established standards for a recognized occupation; long term training (duration of 4 – 6 years); off-the-job education and training; and external regulation of training standards both in and outside the workplace (ILO, 2012). Therefore, ITAS provide an increasingly important element in the entrepreneurship development landscape of sub-Saharan Africa. By enabling people to learn while they are working – and work while they are learning – they provide an excellent structure to help individuals develop the entrepreneurial skills and the knowledge they need to establish enterprises. The evidence and lessons drawn from their experience provide both motivation and practical recommendations for making ITAS a more attractive and a more efficient pathway to productive and sustainable entrepreneurship.

Again, our social value systems are the bedrock upon which we build entrepreneurship. In the opinion of Ichoku (2019) social capital comprises the shared values and understanding in society that helps individuals,

groups and entrepreneurs to trust each other and work together. It includes trust that acts as the glue that binds society and which facilitates business transactions, cooperation, exchange, and innovation for society and entrepreneurs. Fukuyama (1997) defines social capital as the ability of the people to work together for common purposes in groups and organization. Social capital as a working definition here, is a social web of developing and maintaining relationship system of formal, informal rules, norms and conventions that govern social networks that are willing to help each other by trust and influences individual behavior in a society to enhance economic growth. Included by Ichoku (2019) are information, ideas, business opportunities, power, influence, emotional support, goodwill, sympathy, fellowship, trust, cooperation and other values in a society to support the effective functioning of entrepreneurs in a society. In entrepreneurship development, social capital depends on the size, diversity and quality of social network, personnel and business contacts and the level of reliability of those contacts.

Entrepreneur is one who chooses or assumes risks, identifies business opportunity, gathers resources, initiates action and establishes an organization or enterprise to meet such demand of market opportunity (Obiah, Nwaneri & Nwachukwu, 2016). Entrepreneurship can be said to be a process of combining creative and innovative ideas and coupling these with management and organizational skills in order to bring together man, material, money, machine and method to meet an identified need thereby maximize wealth and profit (Onuegbu & Obiah; Nwaneri, Obiah & Nwachukwu, 2016). Related to this, development can be conceptualized as a process by which any group of people or society harness, mobilize and utilize all resources available at their disposal human and material, for the purpose of transforming economic wellbeing of the nation's citizens for the ultimate improvement of the quality of life of Nigerians (Obiah, Duru, Akalonu, Okonya-Chukwu & Onyenagoro, 2016; Obiah, Egbeh & Enwereonye, 2017). Therefore, entrepreneurship development involves the process of identification of new business opportunity and the mobilization of economic resources to initiate, establish a new enterprise,

or revitalize an existing one, under the conditions of risks and uncertainties, run the enterprise for the purpose of maximizing wealth and profit (Onuegbu & Obiah, 2016). Sustainability is a long time positive continuous growth to ensure high standard of living of the citizens (Obiah, 2009; Obiah, Duru, Akalonu, Okonya-Chukwu & Onyenagoro, 2016).

THEORETICAL FOUNDATION

Theory is used as basis of explanation with regard to how/why certain phenomenon happens the way they do. Theory is not a law – it is sometimes wrong, it is useful in explaining, evaluating and predicting the phenomena associated with a given field of thought.

Experiential Learning Theory (ELT) created to provide an intellectual foundation for the practice of experiential learning responding to John Dewey's call for a theory of experience to guide educational innovation. ELT is a synthesis of the works of those great scholars who gave experience a central role in their theories of human learning and development. We have come to call them the foundational scholars of experiential learning: William James (Radical Empiricism and Dual Knowledge Theory); Kurt Lewin (Action Research and T-Group); Carl Rogers (Self-Actualization through the Process of Experiencing); Carl Jung (Development from Specialization to Integration); John Dewey (Experiential Education); Jean Piaget (Constructivism); Lev Vygotsky (Proximal Zone of Development); Paulo Freire (Naming Experience in Dialogue); and Mary Parker Follett (Learning in Relationship and Creative Experience). Their contributions to experiential learning span over 100years, beginning at the end of the 19th century with William James, John Dewey and Mary Parker Follett and ending at the end of the 20th century with the deaths of Carl Rogers and Paulo Freire.

This inaugural issue of *Experiential Learning & Teaching in entrepreneurship development and social capital* marks a milestone in the growing awareness and use of experiential learning as a learning platform in education. Since the early 1970's, the principles and practices of experiential learning have been widely adopted to create curricula and

conduct educational courses and programmes. Many of the non-traditional educational innovations that have flowered during this period, such as competency-based undergraduate education, professional education, college programmes for adult learners, and prior learning assessment have used experiential learning as educational platform. As experiential, learner-centered education has gained widespread acceptance in the 21st century, more and more educators are experimenting with experiential learning practices such as service learning, problem based learning, action learning, adventure education, and simulation and gaming. The researchers therefore, adopts David Kolb's Experiential Learning Theory and John Dewey's Education Theory.

DAVID A. KOLB EXPERIENTIAL LEARNING

Experiential Learning Theory (ELT) has its roots in the experiential works of Dewey, Lewin, and Piaget. Unlike cognitive learning theories, which tend to emphasize cognition over affect, and behavioral learning theories, which do not allow any role for consciousness and subjective experience in the learning process, experience plays a central role in ELT's process. ELT is intended to be a holistic adaptive process on learning that merges experience, perception, cognition, and behaviour. Previous research has shown that learning styles are influenced by personality type, educational specialization, career choice, current job role and tasks, and cultural influences (Kolb, 1984, Kolb & Kolb, 2005; Ord, 2012; McCarthy, 2016).

Professor David Allen Kolb born December 12, 1939 in Moline, Illinois an American Educational Theorist whose interest and publications focused on experiential learning, the individual and social change, career development, and executive and professional education. He is the founder and chairman of Experience Base Learning Behaviour in the Weatherhead School of Management, Case Western Reserve University, Cleveland Ohio. Experiential learning theory, which involves learning from experience and a knowledge that results from the combination of grasping and transforming experience, was proposed by psychologist David A. Kolb who was influenced by the work of other theorists including John Dewey, Kurt

Lewin and Jean Piaget. The experiential theory proposed by Kolb takes a more holistic approach and emphasizes how experience, including cognition, environmental factors, and a motions, influence the learning process.

From his overview of research from work of psychologists, Kolb stated that common sense can only be understood if one looks at it from the perspective of refined knowledge while refined knowledge can only be based on common sense because of the limitations of highly refined knowledge and learning process range from social to personal knowledge. Knowledge is an outcome of both objective and subjective experience which defines learning as a continuous process. Kolb, referring to Piaget's work in 1965, explained how knowledge is acquired, increased, organized or reorganized (p.651).

The model proposed by Kolb provides an appropriate theoretical framework for this educational practice. Learning by doing (or experiential learning) is based on three assumptions, that: people learn best when they are personally involved in the learning experience; knowledge has to be discovered by the individual if it is to have any significant meaning to them or make a difference in their behaviour; and a person's commitment to learning is highest when they are free to set their own learning objectives and are able to actively pursue them within a given framework (Smith, 1980).

David Kolb published his learning styles model in 1984 from which he developed his learning style inventory. Kolb's experiential learning theory works on two levels: a four-stage cycle of learning and four separate learning styles, which are four stage cyclical process of learning experiences. For effective learning to transpire, the learner must go through the entire cycle. The four stage learning model depicts two polar opposite dimensions of grasping experience – concrete experience (CE) and abstract conceptualization (AC), and two polar opposite dimensions of transforming experience – reflective observation (RO) and active experimentation (AE). Experiential learning is a process of constructing knowledge that involves a creative tension among the four learning

abilities. Experiential learning, or active learning, interactive learning, or “learning by doing” has resulted in positive outcomes. In the South Eastern part of Nigeria alone, apprenticeship and social capital has produced the likes of Dr. Cosmas Maduka (Coscharis); Chief Innocent Chukwuma (Innoson Motors and Plastics); Chief Chika Emenike (Kotec Group); Ekene Dili Chukwu Motors; among others. The Learning Style Inventory (LSI), which is the most prominent theory and instrument used to assess the individual learning styles, identifies four types of learners based on their approach to obtain knowledge– Diverger, Assimilator, Converger, and Accommodator. In 1971 David Kolb developed the Learning Style Inventory (LSI) to assess individual learning styles. “ELT has been widely accepted as a useful framework for learning-centered educational innovation, including instructional design, curriculum development, and life-long learning” (Kolb & Kolb, 2005, p.8). Experiential learning, or active, involved learning, learning by doing, or interactive learning requires that students do not passively acquire knowledge rather the student is actively involved in the learning process, which is the bedrock of ITAS. Much of Kolb’s theory is concerned with the learner’s internal cognitive processes. He states that learning involves the acquisition of abstract concepts that can be applied flexibly in a range of situations. In Kolb’s theory, the impetus for the development of new concepts is provided by new experiences. This continuity of learning through life’s experiences is also described from works of Dewey by Kolb. Knowledge as according to Kolb “is a transformation process being continuously created and recreated, not an independent entity to be acquired or recreated”. Learning introduced three terms which is related to learning. They are conscious, conscience and consciousness. Learning can be defined as that which is known through the senses (conscious), without the context of time and place (consciousness) and one’s personal discriminatory faculties which includes critical reflection (conscience) (Parahakaran, 2017). Baba (2000), the Vice Chancellor of the Institute of Higher Learning, India added that there are four kinds of knowledge. They are: bookish knowledge; general knowledge; discriminatory knowledge and fundamental knowledge. These

different kinds of knowledge thus organized are the outcomes of different kinds of learning.

Smith (1988) as well as Jeffs and Smith (2005) and Young (2006) all refer more explicitly to the common depiction of experiential learning, which is most often referred to as Kolb's four stage model. Although Kolb himself refers to this model as Lewin's experiential learning model *in entrepreneurship development, learning is seen as a dynamic process, which leads to action. In other words, to be meaningful, learning needs to be tested in reality. This process is reflected in Kolb's experiential learning cycle.* In their account, Jeffs and Smith (2005) do make some reference to a depth and breadth of understanding of experiential learning beyond the simplistic cycle. For example, they utilize Dewey's suggestion that the 'business of education might be defined as an emancipation and enlargement of experience' (Dewey, 1910). They suggest that enlarging experience is as much about the deepening of an understanding of our experiences as it is about building them up, arguing that we 'work with people so that they may have a greater understanding or appreciation of their experiences' (Jeffs and Smith, 2005: 59). In so doing, learning by experience is liberating: 'We interpret what is going on and this allows us to be "set free".'

Furthermore, to appreciate the holistic and dynamic nature of the learning cycle, it is useful to examine its philosophical foundations in the radical empiricism of William James. James (1904) proposed radical empiricism as a new philosophy of reality and mind which resolved the conflicts between 19th-century rationalism and empiricism as expressed in the philosophies of idealism and materialism. For James, everything begins and ends in the continuous flux and flow of experience. Morris T. Keeton and Pamela J. Tate (1978) offered this definition of experiential learning: "Learning in which the learner is directly in touch with the realities being studied. It is contrasted with the learner who only reads about, hears about, talks about, or writes about these realities but never comes into contact with them as part of the learning process". ELT posits that learning style is

not a fixed psychological trait but a dynamic state resulting from synergistic transactions between the person and the environment.

JOHN DEWEY EDUCATIONAL THEORY

The philosophy of experiential learning focuses on experience as the most important tool for learning. The premise of experiential learning is that individuals create knowledge through the transformation of their lived experiences into existing cognitive frameworks, thus causing individuals to change the way they think and behave (Kolb, 1984).

American educational philosopher, John Dewey was the most famous proponent of hands-on learning, and one of the first to formally define and advocate experiential education. In his classic book, *Experience and Education*, first published in 1938, he regards experience as an essential component of the educational process. Dewey notes, "I assume that amid all uncertainties there is one permanent frame of reference: namely the organic connection between education and personal experience" (p. 225). Dewey's model of experiential learning consists of a logical sequence which involves perceiving a problem, followed by its articulation, the formation of a hypothesis for finding a solution, experimentation to test the hypothesis, and finally giving reflective consideration to the consequences for society. Dewey believed that the meaning of a given experience is the result of the interaction between what the learner brings to the given situation and what happens there. For Dewey, continuity and interaction are the two fundamental criteria for determining the quality of experience and its implications for education. The learner should be able to connect aspects of the new experience to what he/she already knows, in addition to actively interact with his/her environment, testing out lessons developed in that environment (Rizk, 2011). In is in view of this fact that the theory of environmental determinism presupposes that the culture of any society is largely dictated by its environment thereby giving the room for a conspicuous sociological interplay among the concepts of culture, nurture and nature (Wahab et al, 2012 in Anewe & Ogbu, 2017).

The inner dimension of Kolb's structure of experiential learning is a direct descendant of Dewey's theory (1916; 1938). Dewey was undeniably a man of his time, writing at the turn of the previous century in liberal America. Perhaps his philosophy does encapsulate America's opportunist spirit believing anything to be possible for an individual. Whilst it is arguably the case that Dewey was in part a product of 'white, middle-class, male America', in many ways he was also ahead of his time. It should be noted in this context that Dewey was a founder member of the 'National Association for the Advancement of Coloured People' (NAACP) in February 12, 1909. For Dewey experience is always a dynamic two-way process. He referred to this process as a 'transaction': 'An experience is always what it is because of a transaction taking place between the individual and, what at the time, constitutes the environment' (Dewey, 1938: 43). Dewey elaborates on this two-way process, suggesting that experience involves both 'trying' and 'undergoing' (Dewey, 1916). Thus, as Dewey suggests: When we experience something we act upon it, we do something; then we suffer or undergo the consequences. We do something to the thing and then it does something to us in return: such is the peculiar combination. The connection of these two phases of experience measures the fruitfulness of experience. At the beginning of the 20th century John Dewey sharply criticized the traditional "old school", with a large number of passive students and with uniform curriculum and teaching methods, which center of gravity is in the teacher, in the textbook, anywhere and everywhere except in the immediate instincts and activities of the child himself (Dewey, 1915). Based on these observations, he created an authentic comprehensive and coherent educational theory that marked the 20th century and dramatically shaped the educational reform process at elementary schools in the United States, but also in Europe and Asia. It promotes a child-centered approach in education, which is founded on several key principles (Dewey, 1915, 1966):

- Education is a necessity of life, social process of continuing change and reconstruction of the individual experience; being interpreted

within the concept of development, education is a process of living and not a preparation for future living (entrepreneurship).

- School is an embryonic form of community life and an instrument for social change and progress. That means that the school life grows out of all the aspects of the social life and that the child's experience develops in transaction with the community he lives in (social capital).
- Activity is the fundamental characteristic of the child's nature, which is expressed through his instincts, experience, interests and individuality, (entrepreneurship development).

They represent a huge educational potential and starting point of the process of learning, but are not an end in itself: they need to be controlled and guided toward realization of predetermined goals.

At the beginning of the 20th century this American philosopher and educator John Dewey introduced to the world his educational theory that sparked a movement of international dimension. It was founded on the seven-year adventure of his Laboratory school at the University of Chicago, which was motivated to discover in administration, selection of subject matter, methods of learning, teaching and discipline, how a school could become a cooperative community while developing in individuals their own capacities and identifying their own needs (Miovska-Spaseva, 2016). In the following years his educational thought was developed and presented in his major works, *How we think* (Dewey, 1910) and *Democracy and education* (Dewey, 1966) and dramatically shaped the educational reform process in a variety of educational contexts. Dewey's ideas could not be infused into the traditional model of school organization and teaching process, which was characterized by frontal work, the transfer of ready-made knowledge and its memorization, the authoritarianism of the teacher, and the receptiveness and passivity of the students, but have a nexus in indigenous knowledge. The reform changes were founded on the modern processes of democracy, decentralization, autonomy, pluralism, multiculturalism and globalization, as well as on the

international documents of education and educational standards of knowledge and skills, established on the principles of lifelong learning. His philosophy of pragmatism, which is inclined towards particularity (i.e. the facts and the actions - doing) corresponds to the present time of changes, pluralism and democracy, which requires initiative, openness, enterprise, as well as developing capabilities for flexibility, adaptability and problem solving. That is to say, Dewey's approach to education has become acceptable because it primarily gives emphasis to the reality we live in and the active role of the individual in it. The fundamental means for the realization of these goals is student-centered teaching and the active dimension of student's learning.

There is no doubt that Dewey has been for a lifetime engaged in elaborating a constructivist theory of knowledge and considered to be the philosophical founder of this approach. However, his ideas have been integrated and reworked into new educational theories which emerged during the 20th century, thus forming a broad approach of constructivism in education. By the 1980s the research of Dewey and Vygotsky (1969) had blended with Piaget's work in developmental psychology (Piaget, 1955), and by the end of the century Bruner (1965) developed the model of discovery learning, acknowledging his debt to Dewey and building it on Vygotsky's social constructivism. Since many authors planted their ideas on a common ground and largely overlapped in their theories, it is hard to clearly distinguish the Deweyan elements in the theoretical foundations of the three programs. The child-centered approach, which is shared by the three educational models, put in front individualization as a basic principle in the organization of teaching and school life. The continuous sharing of ideas and experiences by teachers was one of the key factors of the successful work of the Dewey school in Chicago. In indigenous knowledge of ITAS, continuous sharing of ideas and experiences takes about 4 - 7 years and another 1-2years incubation period.

The American scholars John Dewey and Howard Gardner, although living and working in different epochs, have built theories that initiated educational reforms in the school system in the United States and beyond.

Eight decades after Dewey had announced his educational theory, Gardner (1983) introduced the theory of multiple intelligences (MI), challenging the traditional concept of general intelligence as a single entity. In fact, Dewey and Gardner shared the same need for educational reform claiming that the established teaching methods at their times are neither correct nor beneficial for students. Curriculum represents central issue in Dewey's school and key concept in his educational theory. "Without apology, I confirm that I am a defender of the disciplines" but delivery of the traditional school subjects should be done in non-traditional ways, through project-centred instruction and extension of students' understanding of the topic by activities in the local community. In comparison to Gardner, Dewey develops a positive and constructive concept of discipline which is not related to the role of the teacher, but to the student's learning and experience: "Discipline is a product, an outcome, an achievement, not something applied from without. All genuine education terminates in discipline, but it proceeds by engaging the mind in activities worthwhile for their own sake". The educational theory of the American philosopher and educator John Dewey and the theory of multiple intelligences of the American psychologist Howard Gardner are well known world-wide theories, and they are relevant to this study (Leshkovska & Spaseva, 2016; McLeod, 2017).

Mere activity does not constitute experience. Whether this be described in Dewey's (1916; 1938) terms of 'trying' and 'undergoing' or in Kolb's (1984) terms of 'assimilation' and 'accommodation', learning by experience is a two-way process of engaging with the world. To this end, apprenticeship and social capital are systematic form of continuing reconstruction of experience, this mode of learning comes in the first and last modes of concrete experience and active experimental, which is work experience and practical training.

EMPIRICAL REVIEW

Inadequate literature on disruptive knowledge on entrepreneurship development in sub-Saharan Africa: The need for sustainable social capital

particularly empirical is as a result of path breaking on this part of the variables. Most researchers has centered on entrepreneurship development or education, but combining social capital and apprenticeship is still lacking. A lot has been reviewed in terms of financing activities focusing on banks willingness to extend to entrepreneurs, microfinancing, etc, without touching social capital.

Abiola, Iyoha and Joseph (2011) investigated the impact of microfinance on entrepreneurial development of SMEs in Nigeria. They used questionnaire as instrument of primary data collection, while tables and simple percentages were used in presenting the data. The study revealed that there is a significant effect of microfinance institutions activities in predicting entrepreneurial productivity. Also, Afolabi (2013) investigated the growth effect of SMEs financing in Nigeria, the study employed ordinary least square (OSL) method to estimate the multiple regression model. The result revealed that SMEs output proxy wholesale and retail trade output as a component of GDP, commercial banks credit to SMEs and exchange rate of naira vis-à-vis US dollar exert positive influence on economic development proxy real GDP while lending rate is found to exert negative effects on economic growth. Alalade, Amusa and Adekunle (2013) examined the relationship and causality between microfinance bank operations and entrepreneurship development in Ogun State, Nigeria. The study adopted the survey research design and questionnaires to collect the data. The study revealed that there is no significant impact of microfinance bank operations on entrepreneurial development in the state. They therefore, recommended that government should find an avenue for creation of awareness on how entrepreneurs can benefit from bank loans. In his study of student careers after college, Jeffrey J. Selingo (2016) argues that co-curricular experiential learning experiences are what distinguish successful careers from drifters. Selingo found that 79% of the most successful college graduates had at least one college internship as well as other out of the classroom projects. Many educational institutions offer these co-curricular experiential education programs to add a direct experience component to their traditional academic studies. In this essay

we will examine these applications of experiential learning in higher education through the lens of Experiential Learning Theory (ELT) (Kolb 2015) by examining exemplary applications of experiential learning concepts in several of the many disciplines of higher education.

METHOD OF DATA COLLECTION AND ANALYSIS

As a qualitative paper, the researchers adopted descriptive research design of data collection and exploratory analysis. Qualitative research method was used because data collection consisted of documented pinions, and experiences of the respondents as opposed to numbers and other quantitative measurements (Chima & Obiah, 2018). The paper, therefore, relied heavily on secondary sources for the analysis. Such secondary sources are: conference proceedings and papers, academic journals, textbooks, website/online articles, etc. This method was used because it enhanced access to information especially in areas and aspects that the researchers may not have been able to have direct contact with respondents on various issues relating to disruptive knowledge on entrepreneurship development and the need for sustainable social capital.

FINDINGS/DISCUSSION

Disruptive knowledge is the bane of entrepreneurship development and sustainable social capital in the sub-Saharan Africa. This is because it is easy to pass through apprenticeship and acquire social capital than automated knowledge work, which required literacy on the part of the learner. With little or no finance, one can progress entrepreneurially through these indigenous knowledge called ITAS. Ichoku (2019) enumerating the dimensions of social capital, which include: bonds – this links people based on a sense of common identity and shared values; bridges – these are links that stretch beyond shared identity; and linkages – these link people or groups further up or lower down social ladder, stated that social capital has played enormous role in the emergence of great entrepreneurs across the world. He regretted the systematic erosion and reduction in this rich tradition of community action that galvanize social

action, helped to enrich the fabric of our cultural and social lives. It was these social capitals of trust, integrity, honesty, hardwork, group social control that held the sub-Saharan African societies together that have been systematically destroyed. It is the disappearance of these social values that have undermined the growth of entrepreneurs and economic progress of this region.

If we diagnose these indigenous knowledge further, and probably relate it to Vonortas (2012) characteristics of four kinds of knowledge relative to spatial proximity; one find out that know-how is the best form of knowledge, which can literally be described as apprenticeship. These knowledge types are sometimes simplified as “know-what”, “know-why”, “know-how”, “know-who”. “Know-what” refers to an up to date understanding of the state of the field both in technology and changing conditions. Scientific knowledge makes up “know-why”, which can be thought of as explanation of the works of nature. Both “know-what” and “know-why” are codified, i.e., they refer to knowledge amenable to being written down, codified and transmitted. “Know-how” is a tacit knowledge, also referred to as “learning through doing”, (Dewey, 1936) is not easily transferred over long distances. Many entrepreneurial processes involve a great deal of tacit knowledge. Finally, “know-who” refers to who knows how to do what, i.e., information linking individuals and organizations to particular pieces of knowledge (social capital). Put differently, networking is the intimate knowledge of which individuals are truly important as innovators and institutional gatekeepers. Tacit knowledge or know-how and networking or know-who are forms of apprenticeship and social capital. If the goal of apprenticeship knowledge business incubator is to spawn numerous entrepreneurs to stimulate growth, this must be explicit. Entrepreneurship development should be to establish the institutional, organizational, and regulatory conditions necessary for a healthy “enterprise culture.”

Whereby rapid improvements in apprenticeship and social capital has diminish over time, technological knowledge has disrupted the level of entrepreneurship development in sub-Saharan Africa. As entrepreneurial

activities have emerged as vital aspects of innovation and economic growth globally, we need to stimulate competitiveness in this aspect of indigenous knowledge to reap the rewards of a prosperous entrepreneurship society. Knowledge-intensive apprentice begin with an entrepreneur with an idea that he/she believes brings something new and original to the marketplace, as high-risk social capital bridges the gap between an individual with a great idea and a viable business with a new product on the market. Social capital, particularly trust is crucial to the growth and sustainability of any entrepreneurship and is fundamental to the spirit of capitalism.

From the foregoing, indigenous knowledge is experiential knowledge based on a global view and culture that is basically relational, thus, sub-Saharan African schools and educational system should be remodeled to chart a new African entrepreneurship development and social capital method of democratic capitalism. The inability of the region to sustain the earliest civilization is a glaring indication of knowledge disruption. In agreement with this, Udensi and Offia (2015) opined that, the real impediments to African growth and development include the complete adoption of the western mode of inquiry in African matters and issues without restraint; the mad rush for 'education' in the western sense; the total neglect of the age long accumulated indigenous knowledge from where African entrepreneurship ought to sprung; among others (Ezeonu, 2019; Maduka, 2019; Ichoku, 2019; Orugun and Nafiu, 2014; Onuegbu & Obiah, 2016). They proffered that African scholars should find a creative ways of using our rich cultural heritage and multilayered knowledge system to understand our own reality and to empower our people; to pioneer and churn out African centered research that empowers, liberates and reduces all shades of poverty (Udensi & Offia, 2015).

However, as computers transform knowledge work in the coming decade, debates about the role of thinking machines in society will undoubtedly intensify. Within this century, it could very well be possible to create machines with processing powers that far exceed those of the human brain. In as much as technologies has to empower individuals because only

through the individual can they empower knowledge, it cannot take away our indigenous knowledge. The administrative model of management, for instance, further aggravates the division of task and labour, further specializes knowledge, separates management from workers, and concentrates information and knowledge in centres. As knowledge surpasses capital, labour and raw materials as the dominant economic resource, technologies are also starting to reflect this shift. Technologies are rapidly shifting from centralized hierarchies to distributed networks. Nowadays knowledge does not reside in a super-mind, super-book, or database, but in a complex relational pattern of networks brought forth to coordinate human action.

The negative attitudes of educated persons towards generation to generation transmission of knowledge has make the elders to pass away without transferring their knowledge. The neglect of ITAS and government's linguistic acculturation and assimilation policies have led to the disappearance of various indigenous cultures that have had a crucial function in developing, creating, encoding, sustaining and transmitting indigenous knowledge and patterns of behavior in sub-Saharan Africa (Udensi & Offia, 2015; Ezeonu, 2019; Maduka, 2019).

CONCLUSION AND RECOMMENDATIONS

The study examined disruptive knowledge on the entrepreneurship development in the sub-Saharan Africa: The need for sustainable social capital. The paper focused on the technological disruption of indigenous knowledge by automated knowledge work. It identified the two pillars of the indigenous knowledge on entrepreneurship development – these broad pillars are apprenticeship and social capital, which collectively centered on Igbo Trade Apprenticeship System (ITAS). The apprenticeship serve as tacit knowledge – they are process of learning by doing and settlement by trust. To ensure entrepreneurship development and sustainable social capital, the paper challenged the regional scholars to school their children in the values of hardwork, resilience, honesty, trust

and other cultural and social values upon which they themselves built their spirit of entrepreneurship.

Apprenticeship and social capital are fundamental glue that underlies every form of entrepreneurship development through indigenous knowledge. It will be up to our entrepreneurs and decision makers to maximize the opportunities of indigenous knowledge while dealing with the challenges of disruptive knowledge. Rapid advances in underlying technologies of disruptive knowledge are reducing costs and boosting performance, making knowledge automation more attractive. The following policy measures are necessary to recommend in this study:

- Efforts should be made to strengthen the capacity of local people to develop apprenticeship and social capital culture and knowledge base, and to develop methodologies to promote activities at the interface of technological knowledge disruptive and indigenous knowledge.
- Indigenous knowledge can provide a powerful basis from which alternative ways of managing resources can be developed, hence, as a matter of local content, management science curriculum in our tertiary institutions has to leverage and scale up to develop and domesticate this programmes. We must strive to develop African knowledge system, particularly ITAS for entrepreneurship development and sustainable social capital. We must change our little foreign thinking and embrace this management science of entrepreneurship
- While the early years of apprenticeship were managed by and more focused on trade, today they should have a greater emphasis on entrepreneurship training and education that pertain to various cultural norms, social roles, or physical conditions. Indigenous knowledge of know-how and know-who have an advantages over disruptive knowledge in that they rely on locally available management skills and financing and as a result of traditional thinking.

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