
INFORMATION TECHNOLOGY (IT) CURRICULUM VIS-À-VIS ENTREPRENEURSHIP SKILLS ACQUISITION IN NIGERIA

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Abstract

This paper focuses on youth empowerment in the area of continuous review of Information Technology (IT) curriculum as a means of generating more reliable entrepreneurs in Nigeria via institution of higher learning. Self employment is among the reasons for government directive of establishment of entrepreneurship centers in every institution of higher learning where students acquire various vocational or technical skills. IT professionals perform many including data management, networking, engineering, database and software design, as well as management and administration of entire systems. The write up also highlights the meaning of Information Technology, curriculum, curriculum reform, entrepreneurship skill acquisition in Nigeria, character traits of prospective IT entrepreneurs, recommendations and conclusion.

Keywords: Information technology, curriculum, curriculum reform, entrepreneurship.

Information technology is the use of computers and software to manage information. In some companies, this is referred to as Management Information Services (or MIS) or simply as Information Services (or IS). The information technology department of a large company would be responsible for storing information, protecting information, processing the information, transmitting the information as necessary, and later retrieving information as necessary. Information technology (IT) is the acquisition, processing, storage and dissemination of vocal, pictorial, textual and numerical information by a microelectronics-based combination of computing and telecommunications. The term in its modern sense first appeared in a 1958 article published in the Harvard Business Review, in which authors Leavitt and Whisler commented that "the new technology does not yet have a single established name. We shall call it information technology (IT)." Some of the modern and emerging fields of Information technology are next generation web technologies, bioinformatics, cloud

computing, global information systems, large scale knowledge, and so on. (Wikipedia, 2011). IT is the area of managing technology and spans wide variety of areas that include but not limited to things such as processes, computer software, information systems, computer hardware, programming languages and data constructs. In short, anything that renders data, information or perceived knowledge in any visual format whatsoever, via any multimedia distribution mechanism, is considered part of the IT domain.

IT professionals perform a variety of functions that range from installing applications to designing complex computer networks and information databases. A few of the duties that IT professionals perform include data management, networking, engineering, database and software design, as well as management and administration of entire systems. Information technology spreads further than the conventional personal computer and network technologies, and more into integrations of other technologies such as the use of cell phones, televisions, automobiles, and more, which is increasing the demand for such jobs. In the recent past, the Accreditation Board for Engineering and Technology and the Association for Computing Machinery have collaborated to form accreditation and curriculum standards for degrees in Information Technology as a distinct field of study as compared to computer science and information systems today.

The Meaning of Curriculum

In all human societies, according to Kieran (2003), children are initiated into particular modes of making sense of their experience and the world about them, and also into a set of norms, knowledge, and skills which the society requires for its continuance. In most societies most of the time, this “curriculum” of initiation is not questioned; frequently it is enshrined in myths, rituals, and immemorial practices, which have absolute authority. One symptom - or perhaps condition - of pluralism is the conflict and argument about what this curriculum of initiation should contain. Today, however, the conflicts and arguments are even more profound and undermine rational discussion of what the curriculum should contain. Much discussion in the professional field of curriculum, at present, focuses on the basic question of what curriculum is, and this suggests severe disorientation.

At a superficial level, confusion about what curriculum is, and thus what people concerned with it should do, involves argument about whether curriculum subsumes instruction - and thus whether a student of curriculum should also be a student of instructional methods - or whether curriculum involves all learning experiences, or refers simply to a blueprint for achieving restricted objectives in a school setting, or includes the statement of objectives as well, or also the evaluation of their achievement, and so on.

The field seems to have no clear logical boundaries. Most accounts that try to make sense of the current state of the professional field of curriculum study describe a

set of more or less distinct activities carried on in its name and then argue for a preference, or suggest a compromise or further alternative. Those who try to make sense of the present confusion by reference to the past, rarely go back beyond the emergence of the curriculum field as a profession in North America in this century.

According to Chidiebere (2010), the word curriculum is not new to education and line. Stenhouse in Chidiebere (2010) defines curriculum as ‘an attempt to communicate the essential principles and features of an educational proposal in such a form that it is open to critical scrutiny and capable of effective translation into practice’. He added that curriculum should be grounded in practice and is ‘the means by which the experience of attempting to put an educational proposal into practice is made publicly available. It involves both content and method, and in its widest application takes account of the problem of implementation in the institutions of the educational systems. As a minimum, stenhouse in Chidiebere (2010) declared that ‘a curriculum should provide a basis for planning a course, studying it empirically and considering the grounds for its justification’. He viewed schools as research and development institutions, conducting research in curriculum and teaching in close collaboration with researchers for the growth of the research tradition in schools.

If curriculum then is not only concerned with what students will do in the learning situation but with what they will learn as a consequence of what they do; is it safe to postulate that curriculum is concerned with results? What is the implication of this statement for the Nigerian curriculum structure and more important on the role of the National Educational Research Development Council (NERDC), which is the statutory body responsible for coordination of all curriculum activities?

The NERDC, according to Chidiebere (2010), performs the following functions:

- to encourage, promote and coordinate educational research programmes in Nigeria to identify such educational problems in Nigeria needing research.
- to encourage research into education problems and, for that purpose, undertake commissioning and financing such research projects as it thinks fit. To maintain a central register for educational research projects and publishes a list of completed educational research project and to complete and publish or sponsor the publication of the result of educational research, particularly in relation to Nigerian problems.

Curriculum Reform

Curriculum reform almost always create great expectations: raising the stakes, getting ‘better’ performance, and the like. Those reforming a curriculum also hope, of course, that a change of goals, contents, and of the ways and means will enhance teaching somehow and in some way. It is no surprise that they want to know whether or not the new curriculum has had the impact ascribe to it, in other words, they want an evaluation of its effects – or do they? (Hopmann, 2003) in (Chidiebere,2010).

Historically this has not been the case, at least in most European and African countries. It is only recently, within the last two decades or so in Europe and North America, that curriculum authorities have started to evaluate systematically what happens after a new curriculum is implemented, or how the old curriculum is doing. Chidiebere (2010). Before this development, newly-developed curricula came and went, without systematic testing and evaluation. At best, the authorities based their development of new curricula on more or less systematically collected hearsay and more or less educated guesses about what the old curriculum did, and what the new one might do. Causation is not something that can be proved through correlation but this continues to be the pattern of curriculum change in Nigeria.

In order to understand curriculum reform, we have to appreciate that curriculum development, at its best, is a comprehensive process that (1) facilitates an analysis of purpose, (2) designs a program or events, (3) implements a series of related activities, and (4) aids the evaluation of this process. At its worst, curriculum development accomplishes none of these four activities. If curriculum development is a deductive process which uses an if-then approach, then it is safe to postulate that curriculum reform should be logical and focus on aligning the four processes mentioned above to needs of the present era, especially with the current education quality concerns in Nigeria. Therefore, for curriculum reform to become successful there must be: clarity of purpose, evidence that serves as foundation for identifying this purpose; clearly aligned performance benchmarks; result oriented, and integrates and evaluation framework at every stage of the process.

Chidiebere (2010) stated below the 8 axioms of curriculum reform process:

1. Change is both inevitable and necessary, for it is through change that life forms grow and develop.
2. A school/department/content/discipline curriculum not only reflects but is a product of its time.
3. Curriculum changes made at an earlier period of time can co-exist concurrently with newer curriculum changes at a later period.
4. Curriculum change results from change in people.
5. Curriculum change is effected as a result of cooperative endeavours on the part of groups.
6. Curriculum development is a comprehensive process.
7. Systematic curriculum development is more effective than trial and error.
8. Curriculum reformers should start from where the curriculum is, just as the teacher should start from where the students are.

Some of the computer programmes taught in Nigerian Institutions include Computer science, Computer education, Computer engineering, Computer studies, Data Communication, Software Development, Website design, Networking e.t.c. The curriculum that guides these programmes consists mainly of the fundamental knowledge of mathematics, natural sciences and technology. There is also the aspect of student

work experience programme, which permits a computer student to spend a minimum of 6 months in the industry before graduation. This fundamental knowledge, which forms the basis for understanding and solving real life problems, are good and very necessary, but we should not stop there. We seem to dwell too much on the fundamentals. There should be space in the curriculum to accommodate some aspects of application that are prevalent in today's environment. Signals received from employers of computer graduates (indicated high rate of retraining) are evidence that the application part is either lacking in the curriculum or inadequate. Since socio-economic and other factors that define an environment change with time, this aspect of the computer science curriculum should also vary to accommodate these changes. Literature cites many examples of developed nations who still modify and continue to study and discover areas of modification in their computer curriculum according to the changes and challenges of time (Shirley, 2009; Committee on Prospering in the Global Economy of the 21st Century, 2009; Committee on Education and Human Resources Task Force on National Workforce Policies for science and Engineering, 2003). For in-stance, when the United States of America had the September 11th, 2001 problem in their country, one of the things they did in response was to adjust the school curriculum to accommodate the study of homeland security. The author is of the opinion that it will do a lot of good for Nigeria to follow this trend of funding professional in building computer curriculum that produce the required graduate in the society. Any fund invested in a study of this nature will definitely yield a good return on investment. This paper argues that the council for the regulation of information technology in Nigeria – Computer Professionals of Nigeria(CPN) and Nigeria Computer Society(NCS) should not only have strong input in the Nigerian computer education curriculum formulation, but should work together with the National Universities Commission (NUC), National Commission for Colleges of Education (NCCE), etc in getting federal government to fund computer curriculum reviews yearly to meet with the global growth in IT industries. (Rasaki, 2010).

IT curriculum reformers should take into cognizance the fact that IT is the fastest growing industry where there is a shift from desktop software development to phone or palm ware software development that required sound knowledge of web based programming language. There is also a transition from physical computing to cloud computing (networked storage space and computer resources such as hardware, software, people, infrastructure and data are being control from the cloud via internet connectivity) (Rasaki, 2014). There is a shift from wired networking process to wireless networking. There is a move away by programmers from the structural and procedural programming languages to object oriented programming languages. In fact, manufacturer of desktop computers are running at lost due to the fact that people now purchase more of laptops, palm tops, ipad, and other smart phones to carry out their day to day transactions. IT curriculum should be tailored toward being a computer manufacturer not an end user in Nigeria. The points stated above and more necessitated the reasons for constant review of IT curriculum to keep the students abreast of the new

technology advancement in the world, thereby producing an entrepreneurial inclined graduates that will employ others.

Entrepreneurship Skills Acquisition in Nigeria

All business organizations require four components or factors of production in order to exist. These are land, labour, capital and entrepreneurship. Each of these factors of production has a peculiar importance depending upon the type and function of the business organization that is formed. Before a person or business can engage in the production of goods and services these factors must be available.

Entrepreneurship is of French origin and means an undertaking. The entrepreneur assumes risk and organizes the enterprise. His function is different from that of the labourer, the landlord, or the capitalist. It is the entrepreneur or enterpriser, who assembles and combines the other factors of production – land, labour, and capital – to produce the goods and services. In a way the concept refers to the managerial skills and talents that are desirable to combine the three other factors to create a business. Functions of the entrepreneur include the following: he takes financial risks, he hires and fires workers, assembles capital and machines, sells goods and services, and receives any profits that result. (Unamka & Ewurum, 1995:44).

An entrepreneur can form the following businesses as (1) sole proprietorships or sole traders, (2) partnerships business, (3) corporations also termed joint stock companies especially companies limited by shares. Today's world is not one that encourages anyone to sit with arms folded. Even with the prevalence of white collar jobs, it is expedient to acquire entrepreneurial skills, which can be used as a means of generating extra income. Records of the world's most successful men and women today do not reveal people who sat in one place from dawn to the dusk, for some monthly wages, but those who took up the challenge to start up worthwhile ventures not fearing risks or the lack of finance. These are the real entrepreneurs. And you can be one of them.

Entrepreneurship is the process of identifying, developing and bringing a vision to life. The vision may be an innovative idea, an opportunity, or simply a better way to do something. An entrepreneur is also viewed as an innovator. He introduces new ideas, new products, new techniques, opens up new markets etc. The entrepreneur thus perceives business opportunities and takes advantages of the scarce resources to use them. It is he alone who bears the non-insurable risk in the enterprise and directs the human and material resources towards his business objective. Skill acquisition on the other hand is getting all the necessary training and experience needed to carry out a trade or business successfully.

That you have no degree or financial support is not an excuse for you to stay idle. You can harness your innate abilities and talents for your own betterment and for

the advancement of your family. You can acquire skills and become the owner of your own business instead of living from hand to mouth or waiting endlessly for that dream job. Listen you can for the love of those you want to be a blessing in their lives someday, rise up, work and save now.

Character Traits of Prospective IT Entrepreneurs

A successful entrepreneur vis-a-vis IT entrepreneur, according to Irtwanger (2010), must be:

1. **Agile:** You must have an agile mind. An entrepreneur thinks fast and reasons intelligently. This enables him to assess business opportunities after identifying a need and then moves quickly to satisfy it.
2. **Business-conscious:** Most successful entrepreneurs are business-conscious people. Their eyes and ears are mostly focused on hearing about or seeing a business opportunity and they easily notice one when it appears.
3. **Courageous:** You also need to exhibit extreme courage to cope with all the risks of operating your own business. Low patronage, harsh economic, risk of losing one's total investment and dwindling fortunes of the business hardly discourage successful entrepreneurs.
4. **Dynamic:** A successful entrepreneur must possess the energy and enthusiasm to turn his business ideas into reality. He works tirelessly to lift his business out of a state of declining profit or margin of distress to a margin of safety. He injects new ideas, creates new business environment, adds new product lines and turns around the fortunes of his business for the better.
5. **Enterprising:** An entrepreneur has the ability to venture into new business areas. He may start from the scratch or buy an existing business and bring creative innovations that are bound to succeed. In the same vein, he may bring new ways of doing things and make them successful.
6. **Focused on Profit:** His eyes are fixed on profit he can make and his goal in any venture is into which he ventures are, what he can gain from it. He is not a kind of person who is doing business for its sake or because it's in vogue. As a result, he evaluates his progress from time to time and takes appropriate steps.
7. **Hardworking:** As a prospective entrepreneur, you must have appetite for hard work. Your aim of owning your own business should not be so that you can open or close the business anytime you wish to do so. Most successful entrepreneurs work long hours and hardly give up. The ability to work hard usually contributes greatly to their success story.

8. **Discerning:** To be successful as an entrepreneur, you must have a good sense of judgment. Doing business involves decision making i.e. choosing between alternatives. Successful entrepreneurs think carefully and make sensible decisions.
9. **Knowledgeable of Markets:** Successful entrepreneurs usually have a good idea of who the customer or target market will be before implementing decisions related to the marketing mix variables (Product, Price, Distribution and Promotion)
10. **Full of Leadership Skills:** Even if you don't consider yourself a born leader, since you have to manage your business, you will need to develop certain leadership skills – attend seminars, read good books etc. This is because you have to establish direction, initiate actions, communicate, inspire and motivate your employees towards achieving organizational goals.
11. **Ready to take risk:** Entrepreneurs have preference for moderate risk. They hardly seek wild risk. An entrepreneur tries as much as possible to reduce risk by removing as many obstacles to the successful launch of his venture. He plans and takes calculated risks based on knowledge of the market, available resources, and a predetermined measure of the potential for success.
12. **Passionate about success:** You need to have in you the drive towards personal success. You must have abundant confidence in your ability to succeed.
13. **Able to Organize:** Successful entrepreneurs have the skills to organize. They allocate resources, assign tasks, and establish procedures for accomplishing goals. By combining people and jobs effectively, entrepreneurs are able to transform their business ideas into reality.

Recommendations

The following points are listed for the way forward in the proper implementation of IT curriculum in schools:

- (i) The three tiers of government, individuals, non governmental organizations and corporate bodies should provide fund for proper implementation of information technology curriculum in schools.
- (ii) Regular accreditation of schools offering information technology is necessary to ensure conformity with the world laid down standard of education.
- (iii) Information technology curriculum should incorporate more of entrepreneurial skill acquisition at tertiary level in youth for national development in the area of information and communication technology development.
- (iv) Employment of capable or competent information technology experts is necessary for proper implementation of information technology curriculum.

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- (v) Students practice hour should be more than the theoretical lecture period. This breeds self-reliant graduates that will later become self employed.
- (vi) An up-to-date information technology laboratory should be established and properly maintained in schools.
- (vii) Information technology grows with the speed of light in developed countries due to constant update of information technology curriculum. Nigeria should not be left behind in adopting information technology advancement.
- (viii) Curriculum Organization of Nigeria and other curriculum development bodies should update school's curriculum to avoid using obsolete course outlines in IT.

Conclusion

We are in a dynamic world of which Nigeria should not be left out in the rapid change in information communication and technology. Information technology curriculum development is a continuous process due to the fast growing speed of computer age based on the fact that what is in vogue last year may be outdated this year. The schools (colleges of education, polytechnics, and universities) curricula should be geared towards production of graduates with entrepreneurship skills acquisition in areas like:

Info-tech Business: Information technology business are Computer repairs, Information and Communications Technology consulting, Sale of Computer accessories, Sale of laptops, Sale of personal computers, Software engineering. They are virtually every day business that a fresh graduate with adequate knowledge can venture into with little initial capital. It creates self-employed entrepreneurs.

Internet-based business: Automobiles net marketing, Award site, Banner design, Business software site, Cyber copywriting, Discussion boards, Download site, Free-for-all link pages, Games site, Internet press releases, Multi-media production site, News site, Search engine positioning, Travel site, Web design, Web production, Website overhaul. Self-reliance graduate can make fortune out of any of the internet-based business venture.

Telecommunication business: There are lots of job opportunity in the telecom industries like MTN, GLO, ETISALAT, MTEL, etc. aside this, one can set up telecommunication business such as GSM unlocking, Handset production, Handset repairs, Handset sales, Prepaid calling operator, Recharge card sales, Ringing tone production, SIM pack sales, Telephone booth operation, VSAT sales and installation.

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