BENCHMARKING ICT IN TEACHING AND LEARNING WORD PROCESSING FOR ENTREPRENEURIAL AND ECONOMIC SUSTAINABILITY

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ABSTRACT
The focal point of this paper is to bench mark ICTs in teaching and learning word processing. The paper is aimed at determining the ICT skills possessed by word processing teachers and students relevant to entrepreneurial and economic sustainability, the emerging strategies to enhance students-teachers participation in ICT and thus, bridge the gap between word processing learning and economic sustainability. To achieve the objective of the study, primary data were collected by means of questionnaire administered to students and teachers in the various schools in Birnin Kebbi. The study explores the linkages among four constructs; ICT skills were measured on the basis of level of individual hardware access, teaching facilities and curriculums, informational literacy and creativity and innovation. Descriptive (mean and standard deviation) and inferential statistics (regression analysis) were used to analyze the data collected. The emerging initiatives determined were agreed upon as enhancement initiatives as well as benefits accruable to students – teachers that embrace ICT. It was recommended that State governors and stakeholders should establish ICT skill groups to sensitize learners on the benefits of entrepreneurial and economic sustainability prowess.
Keywords: ICT, Teaching and Learning, Word Processing, Entrepreneurial and Economic Sustainability

1. INTRODUCTION

Technology is no longer just a tool, it is an environment (Cofino, 2019). ICT are ubiquitous in Western higher education and all students and teachers are expected to have mastered the basic ICT that support both coursework and the learning and content management systems students use daily for academic and administrative purposes. Yet there is no uniform ICT instruction in the area of entrepreneurial education. Entrepreneurship education is a competitive and profitable global service-sector driven by supply and demand and the ICT market brings unique challenges. ICT production skills were made available to haves businesses and academics circa 1980, and were quickly

adopted, repurposed and adapted. Historically, ICT became a component of conventional entrepreneurial education learning in the 1900s and 2000s, and it introduced a radical change in the teaching practices and theories. The shift to skills teaching changed the role of technology in the field (Maryam, Ahmad, Elham & Nasrin, 2013). As a result; both entrepreneurial education and ICT have become essential skills based for learners to ensure their full participation in the information society (Jung, 2018).

It is not easy to determine at what point an institution achieves ICT integration as it is not an exact science with a static goal. Early educators used the term 'transparent integration' as the academic ICT Gap, there was a need to document the procedures and outcomes of the processes. Fluck (2013) argued that integration relates to the way in which ICT is incorporated into *teaching facilities and curriculums* and can, interestingly, be treated separately from its consequences. This view is validated where "integration" is achieved to the extent where it is not visible. Philosophically, full ICT integration could not be measured as 100% cannot also be 0. To integrate is to seamlessly combine components, parts or elements into a complex but harmonious whole, achieving these is still very much confusing.

Second, the value of *informational literacy* has grown and now influences both pedagogy and methodologies at all ICT-learning levels. Chauhan, Ying and Zhenfang (2013) opined that *informational literacy* is important to the mastery of the ICT skills. They believed that if a student is capable of ICT skills, it is easier to learn entrepreneurial skills on a self-regulatory basis as it pertains to their individual field of study and individual hardware access. This assertion does not validate the wide range of authentic materials that address student needs. The ramifications of this spatio-temporal convergence are profound and not well understood because no previous studies have embraced and allowed for as many communication services as the Internet (Hargittai, 2019).

Final, little or no study has been carried out in the study area of creativity and innovation. Nigerian government initiatives indicated that teachers must creative and move swiftly to more internets and web-based works in schools. Today, Technology has entered the classroom in a big way to become part of the teaching and learning process. However, entrepreneurship as a skill based oriented course or discipline is known for its abstract nature. Sometimes the entrepreneurship teachers do not have adequate knowledge, but have to fall on ideas, which lead to contradictions with what the theory says or meant. It is against this background that this study investigates the impact. It is on this note that the study focused on the ICT most used in support of or associated with word processing, spreadsheet, data base development, multimedia presentations, the ability to conduct research and the use of relevant hardware. The intrinsic importance of these ICT to entrepreneur and learning dictates the variety of the ICT skills a student must master (Jaschik & Lederman, 2013). From the foregoing, the following research questions are formulated for the study: i. Does teaching facilities and curriculums, influence learners ICT decisions? ii. Does information literacy swayed by entrepreneurial and economic sustainability?

2. CONCEPTUAL FRAMEWORK

2.1 INFORMATION AND COMMUNICATION TECHNOLOGY

The abbreviation ICT stands for information and communication technology or, alternatively, information and communications technology. The differing number of the word communication is significant in that the singular form is concerned with human interaction while the plural is generally taken to refer to the whole field of data

communications infrastructure. At its simplest, the former or singular form is the process or outcome while the latter or plural is about the technology itself (Lloyd, 2015). Three terms are used in reference to ICT tasks: an item indicates the ability to perform a task, for example to cut and paste a text selection; a group of items is a skillset or, in analysis, a component, for example word processing is a skillset; and ICT skill(s) refer to the general grouping of items, skillsets and components.

Information and communications technology (ICT) as defined for this research The term ICT must be seen as an evolution from the antecedent and more narrowly defined term IT (information technology) which maintains its usage in government, commerce and industry and in relation to tertiary and other academic courses dealing with such areas as programming, database design and expert systems (Lloyd, 2015). ICT have two functional components: hardware and software. The hardware is tangible and is instructed how to act/react by software called applications or programs. The first software programs provided creative and efficient options for performing office-related tasks: focusing on word processing, data management and visual manipulation tasks. These software programs were installed on individual personal computers (PC) and function and performance were limited to that single PC unit. Larger companies began testing Intranet systems, private networks that could link these individual PC units and create multiple PC user groups. Developers responded and adapted programs to fit these networked environments. It was the availability of a free webserver, in the late 1990's, that would provide the next revolution in the commercial and academic computer markets. Web applications were designed to work in tandem with traditional ICT. For example, an Internet e-commerce business might use a word processing desktop application to create sales copy then use a web application, such as an online shopping cart, to interface with customers and clients. Web applications are usually made on client-server architecture and use a web-browser as the client interface (Smith, 2019). This combination of ICT continued to drive commercial profitability and performance for the ICT industry. In an entrepreneurial context, the importance of traditional ICT skills would continue for a time but would gradually be replaced by web applications that introduced on line selling options that introduced entertaining options for multimedia and multimodal marketing. However, the significance of the traditional ICT skills for entrepreneurial research and economic sustainability could not be the traditional marketing ICT Gap replaced and the business to business ICT Gap increased.

2.2 LITERACY AND THE LEARNING PROCESS

The Literacy and the Learning Process are underpinned by levels of basic literacy in reading and writing and the functional literacy of being able to put these skills to daily use (Selwyn, 2010). Computer education was being developed with an awareness of cognitive learning. Bloom's Taxonomy divides cognitive learning into three levels. Functioning at Level 1 requires the ability to remember and understand learned materials; Level 2 requires the ability to apply acquired learning in a relevant context; and, Level 3 encompasses the higher cognitive functions of analysis, synthesis and evaluation of the generated results. Effective use of these ICT requires Level 1 and Level 2 cognitive learning skills (Robyler et al., 2016). When moving from Level 1 through Level 2, the ICT learning process is classic: the user is introduced to an ICT item and its function is reinforced by repeatedly applying it correctly. The learning process is complete when the user comprehends the item's primary and ancillary purposes, achieves a satisfactory item response and can apply that item response in a productive or motivational manner. This is the first step in mastering the ICT items referenced in this study. These Level 1 and Level 2 ICT items provide productive or motivational reward because they enable the user to effectively communicate their acquired critical knowledge in an appropriate academic or

entrepreneurial context. The development of Level 1 and Level 2 ICT items are necessary if the user intends to effectively communicate their Level 3 cognitive learning. If the learning process is interrupted before Level 3, the user will have acquired acceptable Level 1/2 production skills. However, these production skills are intended to support the Level 3 cognitive skills. The repurposing of Level 1/2 skills is often used to transition students to Level 3 work. The Level 3 ICT-facilitated learning process supports the analysis, synthesis and evaluation processes by offering the user a range of preferential options, or learning styles, allowing them to perform a single task in an intuitive manner. For example: if the user wishes to print a document The Academic ICT Gap 9 they may choose the function from the Menu Bar; they may use the CTRL-P key command; they may choose the printer icon from the header bar or have pre-set command choices. Each of these actions achieves the same result.

2.3 THE GENESIS OF ICT GAP RESEARCH VS ENTREPRENEURIAL AND ECONOMIC SUSTAINABILITY

The existing symbiosis between global entrepreneurial and economic sustainability and the computer developed from a natural partnership forged over 15 years ago. The era of globalization has been characterized by the democratization of technology, democratization of finance, and democratization of information (Friedman, 2009). In 1985, the full impact of the challenges of rapid corporate globalization is felt and the first position was Advertising Director for a desktop publisher of 18 bimonthly consumer magazines. With a deadline every 3 days, it was reported that they sell, designed and positioned display and classified ads using the new (1986) Apple Macintosh Plus computer, featured a 9” monochrome monitor and 1MB RAM (random access memory). Applications and data were saved, stored and transported on 3.5” floppy disks. These were pre-Internet years but there was intranet within the publishing house. The staff in the company were given 6-weeks to self-teach digital office production and support skills on their new Mac+. In less time than that, they learned to organize, size type, sort copy and design small line-art advertising; to create digital databases and keep detailed records of client contacts, purchasing history, demographic information, calendar dates and to develop billing and collections systems. In the course of two years, they have mastered a wide range of desktop publishing and corporate administrative tasks, some quite complicated, and each in the manner of their specific needs. The learning curves were steep but the profitability was high and motivation to learn the new ICT was well rewarded. Two considerations must merge and be balanced in order to create capable, trained graduates.

i. The institutional aspects of internationalization, perceived to enhance quality, offer an economic benefit or elevate perceptions of the institutions and its reputation.
ii. The benefits for students of an internationalized education which includes student support, inclusive pedagogy and questions of curriculum at home or overseas (Jones, 2013).

To develop business-relevant courses, educators must design curriculum with an increased emphasis on the students’ ability to link the content with the real world. A lack of educators with private-sector business experience is often cited as a primary reason that classroom curriculum falls short of real world application. The instructor is primarily responsible for how ICT is used to support their curriculum and as such they have the power to raise or lower the level of instruction. Educators are acutely aware \that development, planning and integration of ICT into all areas of their curriculum strains their time and their patience (Bertram & Waldrip, 2013).

2.4 ICT USE IN ENTREPRENUERSHIP BREAKING DOWN BARRIERS TO ECONOMIC SUSTAINABILITY

ICT use has brought about a fundamental transformation at all levels of the economy, and the entrepreneurial function has been one of the main beneficiaries. Most of the authors agree that ICT use in the development of entrepreneurial activities can be a true source of competitive advantage for any company improving innovation processes and the outcome of the work of Bond and Houston (2003) shows an important part of the benefits arise from the use of ICT as a source of acquisition and generation of market information. ICT are one of the most appropriate media for getting close to the environment and acquiring or creating knowledge about the different agents that are part of it. Thus, the company gains access to a vast quantity of relevant and up-to-date information quickly, easily and cheaply. However, the availability of information does not guarantee knowledge creation. Knowledge is the end-result of a complex process of acquisition, interpretation (analysis and evaluation) and integration of that information (Li & Calantone, 2008). Nonaka (2011) suggests that for the organisation to acquire knowledge, it has to undergo a complex learning process to transform the information into knowledge. In NPD process, ICT are a key element, as they encourage the generation of market knowledge by putting at the company's disposal the necessary tools for the treatment, management, analysis and storing of information. So, information derived from the analysis of data obtained from primary and secondary sources is stored and treated, provoking the development of the learning process and the subsequent creation of knowledge (Nonaka, 2011). He also opined that ICT facilitate and encourage the process of transmission and diffusion of knowledge throughout the entire organisation, and its later use in the decision-making process.

2.5 SYNOPSIS OF PREVIOUS RESEARCH ON ICT USE IN EDUCATION AND POSSIBLE DIRECTIONS FOR FUTURE RESEARCH ICT

Integration in ICT and entrepreneurial education has its merits. Its use not only changes the traditional ways of teaching, but also requires teachers to be more creative in adapting and customizing their own teaching materials and strategies (Abbott & Faris, 2008). The strategies are affected by external and internal factors, the most common are access to computers and software, insufficient time for course planning, and inadequate technical and administrative support (Al-Ruz & Khasawneh, 2011). Among the internal factors, teachers' attitude, confidence, and belief in ICT use are commonly cited in the existing literature (Al-Ruz & Khasawneh, 2011). The research appears to have identified all possible external and internal factors influencing ICT use, however, there has been meager research into the possible relationships between external and internal variables, and how these relationships differ according to the variables involved in ICT integration. Examining these relationships could not only help teachers, students, and administrators understand the challenges of ICT use better, it could also assist them in uncovering other solutions to overcome the existing barriers based on the relationships among different variables. More specifically, Chen (2008) has shown that there is no resonance between teachers' beliefs and their actual practice while integrating technology in the classroom. While most of the previous studies focused more on the influence of teachers' attitudes and beliefs on actual practice (Chai, Koh & Tsai 2010; Palak & Walls 2009; Sang et al., 2010), it has been rare for any study to investigate the reciprocal relationship between teachers' attitudes and beliefs and their practice. Another area to explore could be whether the relationship differs between pre-service teachers and in-service teachers. What are their views about their beliefs and their actual practice of ICT integration? Comparative studies would be particularly applicable in examining this perspective.

3. METHODOLOGY

The descriptive survey design was adopted for this study. The study was directed at the population of lecturers in polytechnics, universities and colleges of education in Kebbi state. One hundred and seventy (170) lecturers in polytechnics, universities and colleges of education were randomly selected across four emirate council in the State using stratified random sampling technique. Data were collected using a self-constructed instrument namely "Information and Communication Technology benchmarking ICT Impact on Teaching and learning" (ICTBITL). The first instrument was a structured questionnaire that featured sections A and B. Section A was used to collect information on respondents' bio-data (gender, age, class and subject taught, local educational emirate and name of school, length of service and academic qualification. Section B contained ' items statement developed on a four (4) point Likert scale. The researcher personally administered the questionnaire in all the schools across the four educational emirate council randomly selected for the study. Stemming from the premise that benchmarking ICT teaching is a function of the magnitude and direction of the gap between entrepreneurial and economic sustainability, the model specification are as follows:

$$EES = \propto_0 + \propto_1 TFC + \propto_2 IL + \propto_3 IHA + \propto_4 CL + \in$$

Where

EES = entrepreneurial and economic sustainability (IV)
Benchmarking ICT teaching is operationalized as viz;
TFC = teaching facilities and curriculums
IL = informational literacy
IHA =individual hardware access and
CI = creativity and innovation
$\in$ = Error Term

A Priori Sign/Expectation

$$\propto_0 > 0, \propto_1 > 0, \propto_2 > 0, \propto_3 > 0, \propto_4 >$$

Pearson product moment correlation coefficient statistic was used to analyse the data.

4. DATA ANALYSIS

Regression (Variables Entered/Removed[a])

Model	Variables Entered	Variables Removed	Method
1	***ENTREPRENEURIAL AND ECONOMIC SUSTAINABILITY:*** *TEACHING FACILITIES AND CURRICULUMS, INFORMATIONAL LITERACY, INDIVIDUAL HARDWARE ACCESS AND CREATIVITY AND INNOVATION* [b]	.	Enter

a. Dependent Variable: Entrepreneurial And Economic Sustainability
b. Tolerance = .000 limits reached.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				Durbin-Watson
					R Square Change	F Change	df1	Sig. F Change	
1	.482[a]	.232	.164	.341	.232	3.396	4	.016	1.653

A. Predictors: (Constant), *Teaching Facilities And Curriculums, Informational Literacy, Individual Hardware Access And Creativity And Innovation*

B. Dependent Variable: Entrepreneurial And Economic Sustainability

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.582	4	.395	3.396	.016[b]
	Residual	5.238	45	.116		
	Total	6.820	49			

a. Dependent Variable: ***ENTREPRENEURIAL AND ECONOMIC SUSTAINABILITY***

b. Predictors: (Constant), *Teaching Facilities And Curriculums, Informational Literacy, Individual Hardware Access And Creativity And Innovation*

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	99.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta		Lower Bound	Upper Bound	Tolerance	VIF
1	Entreprenuerial and economic sustainability	2.639	.254		10.375	1.955	3.323		

Teaching facilities and curriculum	.062	.068	.127	.903	-.122	.245	.858	1.165
Information literacy	-.139	.081	-.237	-1.720	-.357	.078	.900	1.111
Individual hardware access	-.095	.087	-.161	-1.097	-.329	.139	.788	1.269
Creativity and innovation	-.148	.073	-.291	-2.017	-.345	.049	.818	1.222

a. Dependent Variable: Entreprenuerial And Economic Sustainability

Excluded Variables[a]

Model		Beta In	T	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	Teaching facilities and curriculum	.[b]	.	.	.	.000	.	.000

a. Dependent Variable: ENTREPRENUERIAL AND ECONOMIC SUSTAINABILITY

b. Predictors in the Model: (Constant), *TEACHING FACILITIES AND CURRICULUMS, INFORMATIONAL LITERACY, INDIVIDUAL HARDWARE ACCESS AND CREATIVITY AND INNOVATION*

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions				
				(Constant)	TFC	IL	IHA	CI
1	1	4.761	1.000	.00	.00	.00	.00	.00

2	.097	7.022	.00	.36	.00	.01	.63
3	.069	8.304	.05	.31	.39	.00	.30
4	.048	9.956	.02	.32	.19	.67	.05
5	.026	13.636	.92	.01	.41	.32	.01

Residuals Statistics [a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.55	2.30	1.94	.180	50
Residual	-.859	1.036	.000	.327	50
Std. Predicted Value	-2.150	2.018	.000	1.000	50
Std. Residual	-2.516	3.037	.000	.958	50

a. Dependent Variable: Entreprenuerial And Economic Sustainability

5. DISCUSSION OF FINDINGS

Results of the multiple linear regression model indicate that:

$$EES = \propto_0 + 1.152TFC + -.345IL + \propto_3 - .013IHA + \propto_4 1.411CI + \in$$

The calculated t statistics were $1.152, -.345, -.013$, and 1.411 for constant, X_1, X_2, X_3, and X_4 respectively. The outcome shows that there is very strong positive relationship between teaching facilities and curriculums, informational literacy, individual hardware access and creativity and innovation as it relates to entrepreneurial and economic sustainability at the ninety-ninth percent (99%) confidence level, hence t value of 10.375 at P = 0.000 is highly significant. It further indicates that all our variables are significant predictors of EES as shown in Table 1 and 2. The relationship is significant with a correlation coefficient (r) of 1.276 of 78.6% at 95% level of significant ($p < .95$). Since the correlation between *teaching facilities and curriculums* and entrepreneurial and economic sustainability ($r = 78.6\%$) is significant at $p < 0.05$, the null hypothesis is rejected and alternative hypothesis is accepted. This affirms that the two variables are positively related in the population. This implies that ICT adoption create enabling room for entrepreneurial and economic sustainability. Coefficient of Determination (R2), the correlation between *information literacy* and entrepreneurial and economic sustainability (r) is 0.786; then, the coefficient of determination (R^2) is $(0.786)^2 = 0.617798$. The outcome indicates that 61.78% of the variance of entrepreneurial and economic sustainability can be explained by adoption of ICT. Thus, there is a very strong

correlation between information literacy and entrepreneurial and economic sustainability. The study, therefore, concludes that there is a positive relationship between *teaching facilities and curriculums* (TFC), information literacy and entrepreneurial and economic sustainability. This is consistent with the findings on previous studies on ICT in Nigeria, which affirm that ICT usage considerately improved operations and performance of businesses in Nigeria (Osabuohien, 2008; Obasan, 2011). This implies that a marginal change in the level of the investment and adoption of ICT in the Nigeria education industry will result to a proportionate increase in the entrepreneurial and economic sustainability.

The ANOVA table indicated a calculated F statistic of 3.396 with a significant probability of 0.016, thus indicating that the overall significance of the regression model is good (model fit positive). The value of R square (coefficient of determination) is 0.232 while the adjusted R-square was 0.164, thus indicating that approximately sixty four percent (64%) of the variation toward entrepreneurial and economic sustainability is accounted for or explained by variations in level of teaching facilities and curriculums, informational literacy, individual hardware access and creativity and innovation, while the remaining 36% is explained by the error term.

The multicollinearity diagnostics indicate that the contribution of X_1 (teaching facilities and curriculum) to the variations in constant X_1, X_2, X_3, and X_4 are 0.92, 0.01, 0.41, 0.32, 0.00 and 0.00 respectively. The contribution of X_2 (information literacy) to the variations in constant X_1, X_2, X_3 and X_4 are 0.00, 0.39, 0.19 and 0.41, The contribution of X_3 (individual hardware access) to constant X_1, X_2, X_3, and X_4 are 0.01, 0.00, 0.67 and 0.32. The contribution X_4 (creativity and innovation) to constant X_1, X_2, X_3 and X_4 are 0.63, 0.30, 0.05 and 0.01 respectively Consequently, X_1 (teaching facilities and curriculum) is the most important contribution to the variance of the predictors and X_2 (information literacy), X_3 (individual hardware access) followed by X_4 (creativity and innovation), while the least contributor to the proportion of total variance of the predictors is X_3 (individual hardware access).

The variance inflation factor (VIF) is less than 10 for all the independent variables TFC (1.165), IL (1.111), IHA (1.269), and CI (1.222). They further confirmed the absence of multicollinearity. The results of the regression test indicate that there is a positive relationship between the dependent variable (entrepreneurial and economic sustainability) and four of the independent variables which were significant. However, the regression between entrepreneurial and economic sustainability and all the independent variables (X_1, X_2, X_3 and X_4) was significant at the one percent (1%) level. The regression test further revealed that there is no negative relationship between entrepreneurial and economic sustainability and all the independent variables (X_1, X_2, X_3 and X_4). This confirmed that ICT and word processing characteristics are only partially related to the acceptance of ICT (Verbeke, 2019). This is in agreement with UNESCO (2015) studies which opined that present-day knowledge society is based on the increase in data creation and information dissemination that results from the innovation of information technologies.

6. CONCLUSION

ICT is part of daily life that is inevitable; therefore it is imperative that the stakeholders identifies the nature and significance of ICT on teaching and learning word processing as well as recognizing levels or types of ICT. This paper examined impact of benchmarking ICT as a tool for increasing entrepreneurial and economic sustainability. ICT has been viewed as evil, but constructive ICT management is a high point for any organization.

Hence, ICT management is the means of attaining entrepreneurial and economic sustainability which has become a phenomenon while increasing the functional aspect of it. The purpose of ICT in teaching and learning word processing is to create a very good conducive workplace atmosphere free of resentment, incivility, violence etc., which could lead to physical, psychological or financial damages to both teachers and learners.

7 RECOMMENDATION

Several strategies can be used in benchmarking ICT in teaching and learning word processing; from extant literature reviewed, we recommend that ICT equipments and facilities should be made available to all tertiary schools in Kebbi in other to re-educate their students on word processing for entrepreneurship and economic sustainability. Stakeholders should adopt strategy or strategies based on the nature and type of ICT. They should also bear in mind that irrespective of the challenges ICT may pose on teaching and learning, the focus should always be on proper management that will lead to functional outcome for entrepreneur and economic sustainability.

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