

**INTEGRATING INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN
DATA PROCESSING INSTRUCTION FOR ENHANCED BUSINESS ENTERPRISE
DEVELOPMENT IN SECONDARY EDUCATION.**

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Abstract

The aim of the study is to determine the effect of Integrating Information and Communication Technology (ICT) in Data Processing Instruction for Enhanced Business Enterprise Development in Secondary Education. Two research questions guided the study. The study adopted a descriptive survey research design. The population for the study was 32 teachers from public secondary schools in Nsukka Local Government of Enugu State. A total sampling technique was used for the study and a structured questionnaire titled ICT Tools Questionnaire for Teaching and Learning (ICTTQTL) was also used to collect the quantitative data. Cronbach alpha reliability method was used to determine the internal consistency of the instrument. The questionnaire was validated by three experts, two from the department of computer and Robotics Education and one from the department of business education both from faculty of vocational and technical education. The collected data was analyzed using mean and standard deviation, T-test statistics was employed to test the hypotheses at 0.05 level of significance. Findings revealed that ICT facility was moderately available on data processing instructional delivery for enhanced business enterprise development in secondary schools in Nsukka Local Government Area of Enugu State, The study also found that ICT facility was moderately utilized in data processing instructional delivery for enhanced business enterprise development in Nsukka Local Government Area of Enugu State and The study also found out that all the items listed constrain teachers to a very high extent from utilizing ICT facility in data processing instructions for enhanced business enterprise development in Nsukka Local Government Area of Enugu State.

Keywords: *Information and Communication Technology, Data Processing, Business Enterprise Development and Gender.*

Introduction

Young secondary school graduates typically face a number of difficulties related to their inability to process data, develop business ideas, and find stable employment after graduation. This can result in their inability to fully engage in the labor force or in their status as non-employees, educators, or trainers (NEETs). As a result, the government loses out on tax revenue and must pay for social safety nets, insurance and unemployment benefits, and low productivity (Palacios & Robalino, 2020). A generation of recent secondary school graduates lacking entrepreneurial potential is emerging now. This partially demonstrates that these young secondary school graduates lack the business enterprise development knowledge, skills, and attributes that are expected of them upon graduation in order to guarantee that they are ready for their first role in the business world and are competent enough to work autonomously using the skills and expertise that they learned while in school. Data processing abilities are one of the key competencies needed for these students to be able to operate on their own after graduation.

Acquiring data processing skills through ICT access in a skill-based economy is expanding because of its many advantages, including exposing students to a wide range of 21st century skills, encouraging creativity and flexibility in the classroom, creating real-world applications for business concepts, enhancing comprehension of opportunities outside of the classroom, and increasing involvement with chosen business interests (Morefield – Lang 2015). Data processing has had a significant impact on assisting young secondary school graduates from diverse backgrounds in

pursuing particular entrepreneurial interests. These people can now impart knowledge on how to gather, document, organize, store, modify, and turn raw business data into useful information for actual business initiatives (Gorgolewski et.al, 2016). A critical element of data processing is that it is built with the end in mind, guided by specified outcomes Harden, Crosby and Davis, (1999) for which process lies in clearly articulating competencies - observable abilities of young secondary school leavers integrating knowledge, skills, and attitudes (Frank, Snell, Ten Cate et.al., 2010, Englander Cameron, Ballard et.al., 2021).

Young secondary school leavers are those who have recently completed elementary school and are between the ages of 10 and 18. The creative minds of these young graduates can often demonstrate and enhance their data processing talents and ideas by integrating ICT into data processing training in secondary schools. These young secondary school graduates can access information about business prospects and receive training in a variety of skills, including data organization and recording, thanks to data processing skills (Emezie and Igwe 2016). In general, young secondary school graduates working in data processing will have all the equipment required to make basic business items. As everyone is aware, data processing abilities are becoming more and more in demand globally, which is quite advantageous for all types of enterprises. For instance, Nigeria is a part of over 200 million businesses worldwide, but despite numerous ICT interventions from various international bodies during their education to empower secondary schools in Nigeria, the Nigerian secondary school graduates who work for the majority of these businesses lack data processing skills (source). The authors claim that the poor rate of learning data processing skills for business enterprise development in secondary schools via ICT access is caused

by the high cost of ICT instructional tool purchases, inadequate staffing of ICT instructors, and inadequate possession of necessary skills. This study is similar to those of Moorefield-Lang (2015a), who claimed that, depending on the focus of ICT instruction, purchases of certain ICT resources, equipment, and technology may prove costly. This might result in the non-availability of necessary equipment, which could impede learning. Due to the difficulty of obtaining most data processing trainings, many young people who graduated from secondary school, graduate without the necessary data processing abilities to find employment or launch their own business.

Lack of expertise in data processing has frequently led to an increase in unemployment, joblessness, and a lack of business enterprise development abilities, all of which have a negative impact on Nigeria's economic growth. For instance, any kind of unemployment has a negative impact on society and the economy (Brewer 2004, O'Sullivan et al. 2014). Businesses run the danger of losing a generation of customers as a result of its undermining of investment, consumption, and productivity (ILO 2015). Inequality and social unrest are exacerbated by it (Mroz and Savage 2001; Bell and Blanchflower 2011; Morsy 2012). There is a greater cost associated with young secondary school graduates being unemployed and idle, as well as not utilizing their resources and business dreams while still in school. The substantial additional social and economic costs to these recent secondary school graduates, as well as to national and global prosperity, security, crime, and national fragility, are demonstrated by this experience and mounting evidence (Goldin et al. 2014). For example, Boko Haram in Nigeria, the Arab Spring, and the subsequent uprisings led by young people in Venezuela, Turkey, Brazil, Hong Kong, and other places, along with the rise of economic insurgency and

youth extremism, demand that we analyze these connections via a viewpoint centered on instructing these young secondary school graduates data processing skills using ICT for enhanced business enterprise development to be engaged upon graduation.

Statement of the Problem

Information and communication technology is an indispensable tool of the contemporary world. ICT in educational system is meant to transform the teaching and learning process from the traditional teacher centered to a learner centered approach with active participation of the learner. Thus, ICT involvement has not only brought innovation to academic centers, but also speed up the transfer of information, increase student interest and allow processes to be automated, among other aspect to be into account. Most secondary schools in the developed world access ICT for teaching and learning whereas secondary schools in Nigeria especially in Nsukka local government area has significant limited access to ICT facilities and equipment utilization. The quality of knowledge received by the secondary school learners in Nigeria are constrained by the limited exposure to global trends in ICT usage.

The traditional function of secondary schools is to produce high level manpower in the right proportion to meet some specialized service and operation in the country in order to bridge the gap between Nigeria and developed countries of the world. Unfortunately, in the past two decades, literature has it that secondary school leavers in Nigeria were found to be grossly deficient in practical and professional skill needed by employer of labour in public and private enterprises. This has led to non-employability of secondary school leavers. The reason adduced for this is as a result of inadequate utilization of ICT equipment such as computer, projector, internet-based resources among others during their

instruction process. The rapid growth in the access of ICT in the past two decades had an impact on the educational system around the world. Knowledge and skill involved in ICT have become progressively more important as instructional material in teaching and learning in secondary schools.

This rapid change demands that there should be adequate provision and utilization of ICT facilities in secondary schools in Nigeria. Many secondary schools are yet to pay attention to providing enough ICT gages or material for instructional delivery, meanwhile some of these schools that have these facilities do not allow their students to make access of them. All these have created a problem and a gap in the availability and utilization of ICT in teaching and learning of data processing in Nsukka local government area of Enugu state.

Purpose of the Study

The purpose of the study was to investigate the Integration of Information and Communication Technology (ICT) in Data Processing Instruction for Enhanced Business Enterprise Development in secondary schools in Nsukka Local Government Area of Enugu State. The study specifically determined:

1. the available ICT facilities in data processing instructions for enhanced business enterprise development
2. the ICT facilities accessed in data Processing instructions for enhanced business enterprise development
3. the constraints to effective utilization of ICT facilities in data processing instructions for enhanced business enterprise development

Research Questions

In order to achieve the purpose of the study, the following research questions were formulated to guide the study:

1. What are the available ICT facilities in Data Processing instructions for enhanced business enterprise development?
2. Are the ICT facilities accessed in data Processing instructions for enhanced business enterprise development?
3. What are the constraints to the effective utilization of ICT facilities in data processing instructions for enhanced business enterprise development?

Methodology

This study made use of a descriptive survey design. Umar in Edozie, (2021), describe survey design as an extensive cross-sectional approach, where a number of cases are considered at a particular time and the data are gathered to study opinion, behavior, attitude, habits, desire, and values and believe. The survey research design is therefore considered suitable for this study because it sought the opinion of respondents on the utilization of ICT in teaching and learning of data processing in senior secondary school for enhance enterprise development in Nsukka local government area. The study was carried out in Secondary Schools in Nsukka Local Government Area of Enugu State. Secondary Schools in Nsukka Local Government Area were chosen because data processing is one of the subjects that are offered in the secondary schools' curriculum. The population for the study consisted of all the 32 public senior secondary school data processing teachers in Nsukka local government area of Enugu State. This is made up of 14 males and 18 females according to data obtained from Planning, Research and Statistics unit of P.P.S.M.B (Post primary school management board) Nsukka Zone as at 2022/2023 academic session. Total population sampling techniques was used to sample the opinion of the respondents due to the manageable size of the population. The instrument for data

collection in this study is a structured questionnaire developed by the researcher, which is known as ICT Tools Questionnaire for Teaching and Learning (ICTTQTL). The instrument developed was in line with the research questions and where organized in two parts: Part one seek information on the personal data of the respondent while part two is made up of forty (40) questionnaire items divided into four (3) clusters A to C.

Cluster A was made to obtain the required information on the availability of ICT facility in data processing instructions for enhanced business enterprise development in Nsukka Local Government Area of Enugu State, Cluster B was made to dwell on the utilization of ICT facility in data processing instructions for enhanced business enterprise development in Nsukka Local Government Area of Enugu State in Nsukka Local Government Area of Enugu State while cluster C was made to gather the required information on the constraints to the effective access and utilization of ICT facility in data processing instructions for enhanced business enterprise development in Nsukka Local Government Area of Enugu State. The questionnaire was structured into 5-point response scale of ‘Very Highly Accessed (VHA), Highly Accessed (HA), Moderately Accessed (MA), Fairly Accessed (FA), Poorly Accessed (PA) for clusters A to C while cluster D was Very Highly extent’ (VHE), ‘Highly extent’ (HE), ‘Moderate extent (ME), Fair extent (FE), ‘Poor extent’ (PE) with their corresponding values of 5, 4, 3, 2 and 1 respectively. The instrument was validated by three lecturers, two from the Department of Computer and Robotics Education in Faculty of Vocational and

Technical Education and one lecturer from Computer Science Department in Faculty of Physical Science, University of Nigeria, Nsukka. Each of the experts was given a copy of the instrument to correct and offer suggestions for improving the instrument towards meeting the objectives of the study. The experts’ suggestions and inputs was taken into consideration in the final draft of the questionnaire items. The reliability of the instrument was determined through trial-testing using Cronbach alpha with a random sample of eight public senior secondary schools’ data processing teachers in Igbo-Eze South local government area. This was not within the geographical area. Each of the respondents was given the instrument to respond in the office. After which the researcher collects the copies of the questionnaire for analyzing. The overall reliability was 0.79 which indicated the coefficient of the instrument. The questionnaire was administered to the respondents personally by the researcher and research assistant. The respondents were given two days to study the questionnaire and respond, while repeat visit was made within the week to retrieve the completed copies of the instrument in order to ensure high return rate. The data collected from the respondents was analyzed using the mean and standard deviation for answering the research questions while t-test statistics was employed for testing the null hypotheses at 0.05 level of significance. A nominal value was assigned to different option for each item, and the mean of each of the items were interpreted in relation to the real limits of the values assigned as follows:

Results

Table 1: Mean and Standard Deviation of Respondents on the availability of ICT facility in data processing instructions for enhanced business enterprise development in Nsukka Local Government Area of Enugu State.

S/N	Items Statement	\bar{x}	N	SD	Dec
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1.	I access additional techniques discovered from the internet to prepare my lesson plan.	3.3	32	1.26	MA
2.	I access the internet to prepare peer review for my lesson contents.	2.4	32	1.01	FA
3.	I access activity package when preparing for my lesson contents.	2.8	32	1.14	MA
4.	The access of internet exposes me to the mystery question when preparing for my lesson content.	2.5	32	.95	MA
5.	I access the internet to prepare chain notes for my lesson contents.	2.7	32	1.14	MA
6.	I access the video conference when preparing for my lesson contents.	2.0	32	.84	FA
7.	I access the voice recorder in preparing for my lesson contents.	4.0	32	.87	HA
8.	I access the video recorder when preparing for my class lesson contents.	3.4	32	.61	MA
9.	I access grading rubrics in preparing my lesson content.	2.7	32	1.14	MA
10.	I access textbooks when Preparing lesson contents for my class	4.7	32	.44	VHA
Cluster Mean		3.05		0.946	MA

Note: \bar{X} = Mean, SD= Standard Deviation, N =Number of Respondents

The data presented in table 1 shows the respondent's access regarding the availability of ICT facility in lesson preparation. The results indicated that items 1, 3,4,5,8 and 9 where moderately accessed during lesson preparation by having a mean scores of 3.3, 2.8, 2.5, 2.7, 3.4 and 2.9 respectively which fell within the real limit of no 2.50-3.49 and items 2 and 6 where fairly accessed with mean scores of 2.4 and 2.0

falling within the real limit no of 1.50-2.49 the result also shows that item 10 having a mean score of 4.7 was very highly accessed, as it fall within the real limit no of 4.50-5.00 but generally having a cluster mean score of 3.05 with standard deviation of 0.946. Based on this result, it implies that ICT were moderately accessed in lesson preparation in Nsukka local government area of Enugu State.

Table 2: Mean and Standard Deviation of Respondents on the utilization of ICT facility in data processing instructions for enhanced business enterprise development in Nsukka Local Government Area of Enugu State.

S/N	ITEMS	N	X	SD	Dec
1.	I use PowerPoint presentation package to improve my lesson delivery in the class.	32	2.59	1.10	MU
2.	I make access of smart board/an interactive whiteboard during lesson delivery in my class.	32	1.00	0.00	PU
3.	I use the video projector for lesson delivery in my class.	32	2.59	1.10	MU
4.	I use spreadsheet to prepare and capture data for lesson delivery in my class.	32	1.63	0.49	FU

5.	I use digital camera to support my instructional delivery in the class.	32	3.41	0.50	MU
6.	I use sound and visual recorder during instructional delivery in the class.	32	4.28	0.63	HU
7.	I make access of internet connected system for my instructional delivery in the class	32	3.50	1.27	HU
8.	I make access of flash drive or CD Rom for my instructional delivery in the class.	32	4.13	0.71	HU
Cluster Mean			2.89	0.72	MU

Note: \bar{X} = Mean, SD= Standard Deviation, N =Number of Respondents

The result presented in Table 2 above showed the Mean and Standard Deviation of Respondents on the utilization of ICT in lesson delivery. The result revealed that items 1, 3 and 5 had mean scores ranging from 2.50-3.49, this indicates that data processing teachers moderately used these (3) items in teaching data processing. On the other hand, item 6,7and8, where highly used, this was proved in their mean scores ranging from

3.50-4.49, meanwhile item 4 ranged from 1.50-2.49, this shows that item 4 was fairly used during lesson delivery. While item 2 ranged from 0.50-1.49, this indicates that the item was poorly used during instruction delivery process, however having the cluster mean ranging from 2.50-3.49 and 0.72 for standard deviation indicates that ICT was moderately used during lesson delivery in Nsukka Local Government of Enugu State.

Table 3: Mean and Standard Deviation of Respondents on the Constrains to the utilization of ICT facility in data processing instructions for enhanced business enterprise development in Nsukka Local Government Area of Enugu State.

S/N	ITEMS	Mean	N	SD	DEC
1.	Inadequate facilities material facilities for ICT.	4.32	32	.66	HE
2.	Erratic power supply.	4.71	32	.44	VHE
3.	High cost of maintaining ICT facilities.	4.50	32	.50	VHE
4.	Lack of ICT skills.	4.53	32	.50	VHE
5.	Poor internet services	4.52	32	.61	VHE
6.	Lack of fund for maintenance and purchase of ancillary facilities.	4.90	32	.24	VHE
7.	ICT phobia	3.52	32	.50	HE
8.	Budgetary allocation for the application of ICT in teaching and learning	3.51	32	.71	HE
9.	Budgetary allocation for the procurement of the necessary ICT technology devices for teaching and learning	3.81	32	.82	HE
10.	Level of training capacity for the data processing teachers in the schools	4.52	32	.50	VHE
11.	Awareness level of the data processing teachers on the access of ICT	4.01	32	.86	HE
12.	Access to internet facilities in teaching and learning with ICT	4.53	32	.50	VHE
13.	Infrastructure facilities for ICT tools	4.52	32	.49	VHE
Cluster Mean		4.28		0.56	HE

Note: \bar{X} = Mean, SD= Standard Deviation, N =Number of Respondents

The result presented in Table 4 above showed the Mean and Standard Deviation of Respondents on the Constrains to the utilization of ICT in teaching and learning of data processing in Nsukka Local Government Area of Enugu State. The result revealed that items 2,3,4,5,6,10,12, and13 had mean score ranging from 4.50-5.00,this indicates that those item where to a very highly extent constrains the utilization of ICT while items1,7,8,9and 11 having the score ranging from 3.50-4.49 indicates that those items to a highly extent constrains the utilization of ICT . this was also reflected in the cluster mean by having score range of 3.50-4.49 with standard deviation of 0.56, this implies that all the items to a highly extent constrains teachers from utilizing ICT in teaching and learning of data processing in Nsukka Local Government of Enugu State.

Findings

Based on the data collected and analyzed, the following major findings of the study on the availability of ICT facility in data processing instructions for enhanced business enterprise development in Nsukka Local Government Area of Enugu State. Specifically, the study found that:

1. ICT facility was moderately available on data processing instructional delivery for enhanced business enterprise development in secondary schools in Nsukka Local Government Area of Enugu State.
2. The study also found that ICT facility was moderately utilized in data processing instructional delivery for enhanced business enterprise development in Nsukka Local Government Area of Enugu State.
3. The study also found out that all the items listed constrain teachers to a very high extent from utilizing ICT facility in data processing instructions

for enhanced business enterprise development in Nsukka Local Government Area of Enugu State.

Conclusion

Based on the findings of the study, it can be concluded that ICT facilities are not available in data processing instructions for enhanced business enterprise development in Nsukka Local Government Area of Enugu State, especially in the areas of lesson preparation and planning, instruction delivery, assessment and evaluation of performance. However, the study found that the low utilization of ICT facilities can be attributed to certain challenges which includes non-provision of ICT material, facilities, epileptic power supply, lack of access to computers, poor internet services, lack of fund for maintenance and purchase of ancillary facilities, ICT phobia among others.

References

- Abraham-Ibe, I. G. (2021). Information and Communication Technology (ICT) and improved method of Office Management/Administration. *Afr. Sch. J. Mgt. Sci. Entrep*, 23, 199-214.
- Adebayo, E. L. and Adesope, O. M. (2007). Awareness, Access and Usage of Information and Communication Technologies in Secondary Education. *International journal of education and development using information*.
- Adelakan, A. (2005). Personnel Management in Education: Nature Scope Journal of all Nigeria Conference of Principals of Secondary Schools (ANCOPSS).

- Aduwa-Ogiegean, S.E and Iyamu, E.S. O. (2009). Using Information and Communication Technology in Secondary Schools in Nigeria: Problems and Prospect. Retrieved from 3rd March 2009 from – A IRRODL Faculty opinions towards introducing at the University of Bhrain.htm L.
- Agbakoba-Osajie, A. and Adedoyin, A. (2002). “E-Learning”. The IT Newspaper. Y2K Publishing Company Limited 2(5)
- Agun, I. (2003), Incorporating Communication Technology into Teacher education programme in Nigeria. In Abolade A. O. (ed). Forty years of educational Technology in Nigeria: Ilorin-Nigeria: NAEMT
- Akudolu, L. (2004). Computer Assisted Teaching and Learning. Enugu: John Jacobs Class Publishing (Nig).
- Anann, A. (2012). The relationship between teacher trainee’s attitudes towards computers and their cognitive styles. *The Turkish Online Journal of Educational Technology*, 2(1), Article 9.
- Ballard-Rosa, C., Malik, M. A., Rickard, S. J., & Scheve, K. (2021). The economic origins of authoritarian values: Evidence from local trade shocks in the United Kingdom. *Comparative political studies*, 54(13), 2321-2353.
- Brown, J. L., (2015) situated cognition and the culture of learning. *Educational Researcher*, 18(1), 32-42.
- Bulent, C., Pinar, C., Bahar, K and Tarik, K., (2009) A study on science Teachers’ Attitudes Toward information and Communication Technologies in Education *Turkish online Journal of Education Technology*. 8(2).
- Chen, M., Miao, Y., Hao, Y., & Hwang, K. (2017). Narrow band internet of things. *IEEE access*, 5, 20557-20577.
- Danner, R.B and Pessu, C.O.A, (2013). A Survey of ICT Competencies Among Students in Teacher Preparation Programmes at the University of Benin. 12 33-49.
- Duffys, T. M., & Jonassen, D. H. (2013). Constructivism: New implications for instructional technology. In *Constructivism and the technology of instruction* (pp. 1-16). Routledge.
- Ezeji S.C.O.A (2005). Teachers’ behaviours that affects students’ learning. *Journal of Technical Teachers Education*, 35 (108-127, 112-118).
- Fanuwopo, C.J. and Osuamah, K. (2003). Collaborative Partnerships and the Transformation of Secondary Education through ICTs in South Africa; *Education Media International*, 44(2).
- Federal Government of Nigeria (FGN) (2005), Technical and Vocational Education Development in Nigeria in the 21st Century with blue-print for the Decade 2001-2010. Abuja: Federal Ministry of Education.

- Federal Ministry of Education, (2010) National Policy on Information and Communication Technology (ICT) in Education, Abuja, MFE.
- Federal Republic of Nigeria (2004). National Policy on Education 4th Ed.
- Gorgolewski, K. J., Auer, T., Calhoun, V. D., Craddock, R. C., Das, S., Duff, E. P., & Poldrack, R. A. (2016). The brain imaging data structure, a format for organizing and describing outputs of neuroimaging experiments. *Scientific data*, 3(1), 1-9.
- Hodapp, D., Hillebrand, H., and Striedel, M (2019) Unifying the Concept of Resource Use Efficiency in Ecology. Retrived from <http://frontiersin.org/articles/fevo.2019.00233/full>.
- Hypes, S.D. and Weaver, T (2016). Learning Technological Concepts and Developing Intellectual Skills. *International Journal of Technology Design Education. Family Issues*, 35(8), 1048-1065.
- Ijeoma, A. A., Joseph, E.O. and Franca, A. I. (2010). ICT competence among Academic Staff in University in cross Rivers State, Nigeria Canadian Center of science and Education. www.ccsenet.org.cis.
- Johnson, D., Bartholomew, K., & Miller, D. (2006). Improving computer literacy of business management majors: A case study. *Journal of Information Technology Education*, 5, 77-94. Retrieved March 26, 2018 from <http://jite.org/documents/Vol5/v5p077-094Johnson100.pdf>.
- Kujore, I.G. (2010). The Information and communication Technology for Teaching in Nigeria Higher Education, MERLOT Journal of online Learning and Teaching 3(4). European Journal of Business and Management www.iiste.org ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online) Vol.7, No.18, 2015 22.
- Moorefield-Lang, H. (2015). Change in the making: Makerspaces and the ever-changing landscape of libraries. *TechTrends*, 59, 107-112.
- Palacios, R. J., & Robalino, D. A. (2020). Integrating social insurance and social assistance programs for the future world of labor.