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ICT LITERACY AMONG VOCATIONAL AND TECHNICAL EDUCATION TEACHERS IN KOGI STATE TECHNICAL AND VOCATIONAL COLLEGES: SKILL GAPS

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ABSTRACT: *Information and Communication Technology has the potential to change instructional delivery. Breakthrough recorded in this new innovation in information gathering, teaching and learning repertoire has given teachers new tools to work with hence the revolutionalisation in the field of education. The study investigated information and communication technology literacy among technical and vocational education teachers and skill gaps in Vocational and Technical Colleges in Kogi State. The population for the study consisted of 50 Vocational Education and technical teachers in Kogi State. The instrument for the study was a structured questionnaire with 27 items which was validated by experts in technical subjects and the reliability was ascertained using test re-test method. Reliability coefficient of 0.68 was obtained. Three research questions were raised and answered. Data were analysed using frequency counts and simple percentages. The results showed that teachers were not ICT literate hence there was skill gap. Also it was established that facilities were not adequately available hence its utilization in instructional delivery was hindered. It was therefore recommended that Kogi State government should provide adequate facilities for the colleges and engage the teachers in training to update their knowledge.*

KEYWORDS: ICT literacy, ICT resources, Vocational and technical subject teachers. Skill gaps

INTRODUCTION

Vocational Education also known as Vocational Education and Training (VET) is an education that prepares trainees for jobs or careers at various levels from a trade to a life-long craft. It sometimes referred to as Technical Vocational Education as trainees immediately develop expertise in a particular trade. Vocational Education and job training programme has been an integral part of national development strategy globally which leads to acquisition of practical and scientific knowledge and skills.

The teaching and learning of technical subjects demand engagement of students in practical work especially with array of information and communication technology tools. The National Policy

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on Education (2004), defined Technical Education as a general education which include the study of technology related science and acquisition of practical skills, attitudes understanding and knowledge relating to lifelong occupation. This type of education can be received in organized and unorganized setting. Vocational Education is also designed to prepare students skill performance tasks that can be a gateway to gainful employment after graduation. The impact is to improve individual proficiency, human resource development, productivity and economic growth. According to the constructivists learning occurs when students are actively involved in the learning process in which they construct knowledge. The teacher is expected to support the students to construct knowledge through the teaching process by using problem solving and inquiring method rather than pouring knowledge into passive learners. Nigeria as a developing country is making effort to align with the developed countries in the employment of information and communication technology in schools to enhance conventional method. The National Policy on Education (2004) FGN stresses that no nation can rise above the quality of its teacher so the teachers who are the vehicle through which this feat can be realized need to be well informed in ICT facilities utilization skills. The learning tasks teachers expose to students help scaffold and gradually build up their understanding of new concepts based on prior knowledge through the teachers' supervision.

Observation has shown that Federal Government Policy (2008) stipulated that Technical Colleges should offer among others Engineering courses, Building trades, Wood trades, Textiles, Printing, Manufacturing and repairs as a form of education designed to prepare students to acquire practical skills. '*The objectives of technical and vocational education as stated in the National Policy on Education include among others 'to provide trained manpower in the applied sciences, technology…, provide the technical knowledge and vocational skills necessary for mechanical, commercial, and economic development, giving training and impart the necessary skills to individuals with relevant skills and competencies to individuals who shall be self reliant …'*

This can only be possible through teachers' effective and efficient application of information and communication technology facilities in their instructional delivery and provoke students to interactive collaborative learning in order to acquire skills to be self reliant. Furthermore observation has shown that Nigerian Government has not given Vocational Education the attention it really deserves due to the changes in world economy emphasis which has shifted from training for lifelong profession to training of computers and information technology. The world Bank Report in the Guardian News Paper (2001), scored Nigerian graduates low in technical skills. It reported that Nigerian graduates are deficient and do not possess requisite skills hence unfit for world labour market.

The combination of visual learning and technologies can effectively create multimedia tools to enhance students' understanding and enlarge their horizon. They provide rich learning

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experiences for students to engage in. The problem solving exercises not only engage students in their learning but also stimulate them to want to learn more through cooperative and service learning. The teacher needs to develop such a communication skill which can enhance classroom communicative interactions involving apprenticeship type of learning, preparing learners for jobs at various levels from craft or trade to a professional position in various fields. The style can also increase students' cognitive level which invariably reflects in the knowledge acquisition in vocational subjects. ICT has become an important component of education in Nigeria. Though it is taught in the junior school as a pre-vocational subject and in the senior school it is taught as a vocational subject, Nigeria seems not to give Vocational Education the attention it deserves.

Purpose of the study

The purpose of the study was to examine the extent of availability of ICT facilities and teachers' ICT skills in teaching and learning vocational subjects. The study also aimed at finding out if there is any skill gap in teaching and learning of vocational and technical education.

Statement of the Problem

Nigeria Vision 2020 is aimed at positioning Nigeria as one of the top 20 economies in the world by year 2020. To achieve the success of the programme especially in education and manpower development, the government aims at building modern and vibrant education system which provides the opportunity for maximum potential, adequate and competent skilled manpower to compete in global economy The realization of this vision in the area of skilled manpower is observed to still be a mirage. This is adversely affecting the economy. Many students graduate yearly from technical colleges to join the queue of job seekers. The teachers of technical Colleges ought to study the job requirements in labour market and tailor their teaching towards that direction. Observation has shown that many of the teachers employed annually into technical colleges are untrained and lack subject knowledge in Kogi State. Therefore the study aims at looking into the ICT resources available in technical colleges and the requisite skills possessed by the teachers for instructional delivery in technical subjects hence the following research questions are raised:

1. What ICT resources are available in technical colleges for instructional delivery?

2. Do the teachers employ ICT resources in teaching and learning processes?
3. Do the teachers have the pedagogical skills to use the resources to teach?

LITERATURE REVIEW

Education is a major pillar of a knowledge economy through which access to all inclusive high quality economic growth that is more equitably distributed and enjoyed by all can be achievable.

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This type of education incorporates a vision of technology diffusion of computer mediated or technology enhanced learning which is a paradigm shift in professional development (Shafika, 2006). According to Butler (2001) the paradigm sees teachers' learning and development as social processes in a participatory sense of teachers being co-learners with alongside students jointly constructing knowledge in groups.

Concept of information and communication technology and Vocational Education

Information and communication technology is defined as the collection, storage, processing, dissemination and use of information in a more scientific manner though it is not confined to hard and software usage. It is also the application of microcomputers and telecommunication technology to improve learning process Ofodu (2007) defines information and communication technology as electronic or computerized devices assisted by human and interactive materials that can be used for a wide range of teaching and learning as well as personal use. Olorunsola (2007) in agreement with Ofodu (2007) stresses that, through ICT, educational needs are met. Looking at the role of technical education in nation building, the employment of ICT in teaching and learning becomes imperative. From this definition, it can be deduced that ICT is an instrumental devices which teacher can use to enhance effective instructional strategy in vocational subject. The era of teacher centred learning is gone.

The application of ICT in teaching and learning will ensure students' active and adequate participation in classroom learning. Okebukola (1997) observes that 90% of Nigerian schools have no computer. Observation has also shown that many of the classrooms are devoid of ICT facilities and many have no functional internet facilities. How then can teachers instruct with ICT facilities even if he has the pedagogical skills? The teachers' acquisition of information and communication technology literacy and digital skills is long overdue. The place of teachers' ICT literacy cannot be undermined in ICT facilities utilization and skill acquisition. There is a poor students output in technical colleges in terms of skills, and self reliance because their teachers also lack skills in teaching with array of ICT facilities. In a conventional classroom emphasis is placed on students' passing examinations. Little wonder that none of the educational needs of the students has been achieved by the curriculum especially in the area of digital literacy.

Teachers' ability to employ information and communication technology is believed to enhance students' achievement and skill acquisition to enable the students to be agent of change in the society upon graduating from school. If technical teachers are to effectively and adequately prepare students for digital society and knowledge explosion, they must be ready to alter the present technique (conventional method) employed in instructional delivery. Teachers must draw on a variety of technologies and use them as resources to deepen students' learning and mastery of the subject matter. If the teacher is deficient in the pedagogical skill he will not be able to

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effectively guide the students hence there must be a change of scenario when we get to the threshold of the matter.

The utilization of these tools does not only depend on the teachers' ability and skill but the tools have to be available and accessible to the teachers to use. If the tools are not there, there will be nothing for the teachers to instruct the students or if they are available and are not accessible it will still result in not being able to instruct in ICT tools. Okwudishu (2005) states that unavailability of some ICT components in schools hamper teachers' utilization of the tools.

Some factors are observed to militate against employment of ICT in instructional delivery in Kogi Central Senatorial District which includes inadequate supply of computer and all its peripherals, lack of internet facilities and interconnectivity, teachers' lack of ICT pedagogy, lack of technicians, cost of equipment and epileptic power supply. Little wonder that ICT is still in its emerging phase in technical educational system in Kogi State. The study examines technical college teachers' ICT literacy and utilization in teaching technical subjects and the skills gap.

Information and communication technology facilities utilization has become an integral part of education in many developing countries. ICT is included in the Junior Secondary School as pre-vocational subject and Vocational subject in Senior Secondary School. ICT is appropriately employed by trained teachers can transform traditional teaching method; improve teachers' effectiveness and efficiency in the classroom. Amenyedzi, Lartey and Dzomeku (2011) stress the need for the learners to leave school with a deeper understanding of school subjects and with the skills. The National Policy on Education (2004) FRN is the acquisition of appropriate skills and the development of mental, physical and social abilities and competencies as equipment for the individual to live in and contribute to the development of his society.

Oluwagbohunmi (2013) opines that 'keeping abreast of the changes however demands not only sourcing for information but the ability to manipulate facilities that are necessary for embracing technology in this digital age. This therefore necessitate that teachers who are embodiment of knowledge to be able to boot and use computer to type, save information, retrieve, browse the internet, search for materials using appropriate search engines, download, upload, use e-mail to share information with learners. ICT has the capability to prepare high skilled workforce who will be able to move the nation to the next level. This depends to a large extent on teachers who are ICT compliant and be able to employ it in teaching and learning processes. The teacher must have the required skills**.**

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METHODOLOGY

The descriptive survey design is adopted for the study. The population consisted of all technical colleges teachers in Kogi State. The sample consists of all the 50 technical and vocational Educational teachers teaching technical subjects from the five technical colleges in the five local Government areas in Central Senatorial district in Kogi State. The instrument for the study was questionnaire which comprises of 25 items was divided into three sections A B, and C. the first section consists of demographic data of the respondents while the section B consists takes care of availability while C is on ICT literacy and utilization. The reliability of the instrument was ascertained through test-retest method using Pearson Product Moment Correlation and coefficient of 0.68 was obtained. The questionnaire was personally distributed with permission from the college authority. Descriptive statistics of percentage and frequency counts were used to answer the research questions.

RESULTS AND DISCUSSION

Research Question 1: What ICT facilities are available in technical colleges for instructional delivery?

Table 1: Showing the ICT facilities available in Technical and Vocational colleges in Kogi State.

S/N	**Items**	Very Much Available		Just Available		Not Available	
		Freq	%	Freq	%	Freq	%
1	Projectors	30	60	15	30	5	10
2	Electrical Equipment	30	60	10	20	10	20
3	Computers and its peripherals	04	08	04	08	42	84
4	Computer laboratory	05	10	05	10	40	80
5	Internet Facilities	04	08	04	08	42	84
6	Oscilloscope	34	68	06	12	10	20
7	Auto Cards	30	60	06	12	14	28
8	Educational Software	10	20	25	50	15	30
9	E-mail facilities	10	20	08	16	32	64
10	Modern technical Workshop	25	50	05	10	20	40

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Table 1 shows the ICT facilities available in the vocational and technical colleges in Kogi State. Among the facilities available, Oscilloscope ranked highest 68%, followed by projectors 60%, electrical equipment 60%, Auto cards 60% and modern technical workshop 50%.

Research Question 2: Do the teachers employ ICT facilities in teaching and learning processes?

Table 2: Showing ICT resources teachers employ in teaching and learning of Technical and Vocational subjects in Kogi State.

S/N	**Do you use these Items to teach your students?**	Yes		No	
		Freq	%	Freq	%
1	Projectors	40	80	10	20
2	Simulation	14	28	36	72
3	Computers and its peripherals	14	28	36	72
4	Computer laboratory	08	16	42	84
5	Internet Facilities	24	48	26	52
6	Oscilloscope	38	76	12	24
7	Auto Cards	36	72	14	28
8	Educational Software	18	34	32	56
9	E-mail facilities	20	40	30	60
10	Modern technical Workshop	25	50	25	50

Table 2 shows the ICT facilities used by vocational education and technical colleges teachers. The results from the table show projectors are used 80%, Oscilloscope 76%, Auto cards 72% and modern technical workshop 50%. The results further computers and its peripherals 72%, computer laboratory 84% and e-mail 60%.

Research Question 3: Do the teachers have the pedagogical skills to use the ICT resources to teach Technical and Vocational subjects?

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Table 3: Showing the pedagogical skills of teachers in the teaching and learning of Vocational subjects

S/N	How skillful are you in the use ICT facilities in teaching and learning of technical and vocational subjects?	Very Skillful		Not Skillful	
		Freq	%	Freq	%
1	I teach my students with projectors	32	64	18	36
2	I use modern ICT Equipment in the workshop for practical teaching	18	36	32	64
3	I can operate Computers and its peripherals	14	28	36	72
4	I browse to teach my students	18	36	32	64
5	I use oscilloscope to teach my student measurement	40	80	10	20
6	I auto cards to instruct my students in building technology	38	76	12	24
7	I use simulation to teach my students repairs and maintenance of functional equipment	16	32	34	68

The results on table 3 show the skill of technical and vocational education teachers in using ICT facilities in teaching and learning. These involve the use of oscilloscope (80%), auto cards (76%) and projectors (64%) while the teachers are not quite skillful in the use of computer (72%) and modern ICT equipment (64%).

DISCUSSION

The study revealed that ICT facilities like computers, computer laboratories, internet and e-mail facilities were not adequately available in the colleges which could be as a result of poor funding by the State government. Even if the teachers were willing to employ these facilities in teaching and learning, the unavailability of the facilities would hinder them. The study corroborates the findings of Okwudishu (2005) who stressed that unavailability of some ICT components in schools hamper teachers' utilization of the tools. Okebukola (1997) observes that 90% of Nigerian schools have no computer and many of the classrooms are devoid of ICT facilities and many have no functional internet facilities.

The study further revealed that teachers did not use computers, simulation and computer laboratory in their instructional delivery. Also the teachers were not skillful in the use of ICT facilities in teaching and learning hence they can best be described as ICT illiterates. The implication is that conventional method of teaching is still used in instructional delivery in Kogi State vocational technical colleges. Little wonder that ICT is still in its emerging phase in technical educational system in Kogi State.

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The study supporting Oluwagbohunmi (2013) who submitted that 'keeping abreast of the changes however demands not only sourcing for information but the ability to manipulate facilities that are necessary for embracing technology in this digital age. This is the heart of the matter.

CONCLUSION AND RECOMMENDATION

The findings of this study have shown that vocational and technical colleges in Kogi State lagged behind in ICT resources utilization in instructional delivery. The resources were found not be adequately available and the teachers had no pedagogical skill in the use of the resources hence there is skill gap. It is therefore recommended that the Kogi State government should provide enough funds to equip the colleges with relevant ICT resources. Teachers on the other hand should also be trained on the use of ICT resources to enable keep them abreast of the new innovation in the field of technical education. Also to develop in them the requisite ICT skills which will provide them acquire practical and functional knowledge of ICT resources utilization in anticipation of integrating them in their teaching and learning repertoire.

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