

Harnessing Digital Skills with Technical and Vocational Education and Training for Instructional Delivery in Colleges of Education in South-West, Nigeria

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Abstract

The significance of digital skills in the current digital era cannot be underemphasized. As such, harnessing digital skills with Technical and Vocational Education and Training (TVET) is paramount. This study therefore, explored the digital skills required to be harnessed with TVET for instructional delivery in Colleges of Education in South west Nigeria. The study adopted a descriptive survey research design. The purposeful sampling technique was adopted for the study. The study's participants were 293 including seven (7) Head of Departments (HODs), twenty-six (26) TVET Lecturers and two hundred and sixty (260) TVET students in their third year. The participants were drawn from Federal College of Education (Technical) Akoka, Lagos State, Adeniran Ogunsanya College of Education, Otto- janikin, Lagos, Federal College of Education, Osiele Abeokuta, and Osun State College of Education, Ilesha. Reliability of the instrument was determined using Cronbach Alpha method which yielded 0.88. Findings of the study depict that skills in creating videos without software and Skills in creating presentation in Colleges of Education should be blended with TVET. It was recommended that skills in creating videos without software and skills in creating presentation in Colleges of Education should be blended with TVET.

Keywords: digitalization; digital learning; digital skills; digital technology; TVET

Introduction

The world is undergoing a digital revolution, which will have far-reaching consequences for worldwide economy and way of life. Digital technologies are transforming economies and civilizations, including waves of technological innovation like the development of the internal combustion engine and electrification. Digitalization is democratizing and distributing information, education, and entertainment to the entire world's population at a previously an unprecedented rate. Advances in artificial intelligence and digital imaging are helping doctors identify and treat diseases, claim Dahlman, Mealy, and Wermelinger (2016). The creation of a networked Internet of Things (IoT) has the potential to improve household life as well as make workplaces and transportation networks safer. In addition to completely new business models and markets, broadband networks and the apps they support are changing how people interact, socialize, purchase goods, travel, and work (Ferrando, Orden, and Ramfrez, 2021; Levy, & Wong, 2014).

In the meantime, through the production of material for digital platforms, involvement in P2P networks, and the sharing economy digitalization has transformed many consumers into "prosumers." According to Orji, Ali, and Okanazu (2015), TVET refers to education and training given to students so they can develop the information, abilities, and attitudes needed in the workplace. TVET refers to the components of the educational process that include, in addition to general education, the study of technologies and related sciences, as well as the acquisition of practical skills, attitudes, understanding, and knowledge relating to occupations in various sectors of economic and social life, according to UNESCO (2001) and the Federal Republic of Nigeria (FRN) in her National Policy on Education (2013). TVET, a division of education, is frequently cited as the engine of Nigeria's advancement in business, industry, and technology.

TVET is essential for the development of human resources, raising industrial productivity, and enhancing quality of life (Okwelle & Ayon mike, 2014; Muhammad & Jaafar, 2015). Educational system that provides learners with TVET related knowledge are termed TVET institutions. Nhavoto (2011) professed that TVET institutions are established with the responsibility of providing TVET training and learner certification. In Nigeria, well known TVET institutions include universities, polytechnics, colleges of education (technical), mono-technics, and technical colleges. Through TVET institutions, TVET teachers, according to Omar, Zahar, and Rashid (2020), provides learners the knowledge, abilities, and attitudes required for the job. TVET teachers have a special responsibility because, in addition to being subject matter specialists with a firm grasp of its pedagogy, they must also possess current, practical vocational knowledge that is applicable to the workplace (UNESCO-UNEVOC, 2014).

As a result, TVET would serve as a tool for enhancing national development if TVET teachers are not only skilled in manipulating tools and machines, demonstrating concepts and directing students' learning, but are also effectively digitally transformed to satisfy the quickly evolving technical requirements of TVET students in the workplace. The fundamental understanding of how to interact with a computer, how to interact with applications on that computer, and how to make it do what you want in real time is referred to as digital skill (Ferrari 2012; Van Deursen, & Van Dijk, 2014). Digital ability is the capacity to discover, arrange, analyze, and synthesize information using digital technology (Orji, Ali, & Okanazu, 2015). Online courses, blended learning, hybrid learning, and digital information and resources are only a few examples of the numerous facets, tools, and applications that Usoro and Calab (2014) define as digital learning. Digital literacy is the capacity to comprehend and use digital technology efficiently for routine work (Tang, Chaw, & 2021). It is employed in many facets of education, particularly TVET, as well as in citizenship, business, and e-safety.

Digital technology plays a vital role for TVET instructional delivery in the Colleges of Educations (COEs) and alike institutions.

Therefore, it is vital to give TVET students the tools, knowledge, and practice in using digital technologies today to guarantee they are not left out of the trend towards technology-based literacy that is likely, if not extremely likely. It is pertinent for TVET lectures to acquire skills in creating videos without software and skills in creating presentation. The digital skills include ability to: Create videos, Create Presentation, Edit Pictures, take note using Evernote, Penultimate, Study blue and Microsoft among others. This is essential as it will help the lectures to teach the learners which tools are useful and how to use them responsibly.

Since the world is becoming more digital, TVET teachers must acquire the necessary digital skills to meet the demands of instructional delivery and assessment in TVET. For better understanding, some TVET concepts can only be delivered to students digitally (Jafar, Saud Hamid, Suhairom, Hisham, & Zaid, 2020). This can only be accomplished if TVET teachers keep up with current technological advancement trends, which are reflected in changing patterns of TVET curriculum. Policymakers, researchers, educators, and organizations are all recognizing that closing the digital skill gap is critical to preparing the nation's educational sector, particularly TVET, for success in the future. It is therefore necessary to find out the digital skills required by TVET lecturers for enhancing classroom instructional delivery in Colleges of Education which is the thrust of this study.

The primary aim of this study is to identify the digital skills needed by TVET lecturers to improve the quality of classroom instruction at colleges of education. The study specifically attempted to acquire knowledge

1. Digital skills required by lecturers in creating videos without software
2. Digital skills required by lecturers in creating presentation

Research questions

The following research question guided the study:

1. What are the digital skills required by lecturers in creating videos without software in Colleges of Educations (COEs)?
2. What are the digital skills required by lecturer in creating presentation in Colleges of Education?

Hypotheses

The following hypotheses were postulated for the study:

- Ho₁. There is no significant difference in the mean scores of lecturers, HODs and students on the digital skills required by lecturers in creating videos without software in COEs
- Ho₂. There is no significant difference in the mean scores of lecturers, HODs and students on the digital skills required by lecturer in creating presentation in COEs

Methodology

A descriptive survey research design was employed in this study. The study employed the purposeful sampling technique. There were 293 participants in the study, including seven HODs, 26 TVET lecturers, and 260 third-year TVET students. The participants were drawn from FCE (Technical) Akoka, Lagos State, Adeniran Ogunsanya College of Education Otto-ljanikin, FCE Osiele Abeokuta and Osun State College of Education, Ilesa. To protect the participants' confidentiality, codes were assigned when they completed the questionnaire. The structured questionnaire items were completed with the help of a set of questions derived from a review of the literature and previous studies. Participants were given a consent form that included the purpose of the study as well as the Ethics Committee's approval prior to data collection. The research assistants helped with data distribution and collection in the various colleges after gaining authorization. Mean and standard deviation were used to answer the research questions, while ANOVA was used to answer the hypotheses. The hypothesis of no significant difference will be rejected if the significant value is less than 0.05 equal to 0.05 and will be accepted if the significant value is more than .05. A structured questionnaire on digital skills required by TVET lecturers (DSTL) for enhancing classroom instructional delivery in Colleges of Education was developed and utilized for collection of data for the study. The instrument had two sections based on the specific purposes of the study. Each item in the questionnaire was assigned a four response options of Very High Required (VHR = 4), High Required (HR = 3), moderately required (MR = 2) and Not Required (NR = 1). The instrument was faced validated by three experts, one from College of Education (Technical), Akoka, and two from Industrial Technical Education, University of Nigeria Nsukka). The experts evaluated the instrument for clarity and the suitability of the questionnaire items, and their recommendations were used to restructure it. The instrument's reliability was assessed using the Cronbach alpha method, which produced a result of 0.88. The Statistical Package for Social Science (v25.0) was used for the analysis. Items with mean values equal to or greater than 3.50 were regarded as very highly required; ranging from 2.50 - 3.49 as highly required; 1.50 - 2.49 as moderately required; and equal to or less than 1.49 as not required. Hence, the benchmark of 2.50 was used as the level of requirement of the digital skills.

Findings

The findings of the study is presented in Tables as follows:

Table 1: Summary of mean and standard deviation of responses on digital skills required by lecturers in creating videos without software for instructional delivery in COEs

S/N	Skills in Creating videos without software: Ability to use	\bar{x}	SD	RM
1	WeVideo for collaborative and storing additional videos	2.95	.71	HR
2	Google Story Builder to create min-movies or video stories	3.20	.42	HR
3	Pixorial to shoot, edit and share videos	3.23	.43	HR
4	Powtoon to create engaging and captivating content.	3.28	.56	HR
5	Intervue to gather short video responses online from anyone with a webcam for teaching	3.36	.70	HR
6	Web of Stories to record direct to their computer with a webcam.	3.47	.50	HR
7	Web of Stories to upload a video filmed on handycam or phone	3.53	.63	VHR
8	Flixtime to mix photos, videos and music to create mind interesting videos	3.22	.81	HR
9	Videos an online animation platform to create edit and share videos for free	3.29	.80	HR
	Cluster mean	3.28		HR

Note: Total number of respondents (N) = 293, = mean, SD =Standard Deviation, VHR = Very highly Required, HR= Highly Required.

Table 1, presents the mean rating of respondents on what should constitute the digital skills required by TVET lecturers in creating videos without software for instructional delivery. Data presented shows that items 7 had a mean rating of 3.53 which falls within the response category of Very Highly Required. This indicates that the item is a very highly required skills in creating videos without software that can enhance the delivery of classroom instruction. Also, the other items in the table had their mean scores within the range of 2.50 - 3.49. This indicates that the items are highly required. Most of the specified digital abilities were, nevertheless, strongly desired by TVET lecturers for improving the quality of instruction delivered in the classroom, as evidenced by the cluster mean of 3.28 that was found for research question 1. The responses given by the respondents individually were likely to be very similar to one another and within a reasonable range of the mean, as indicated by the standard deviation of each conceivable digital skills being less than 1.00. Thus, the mean values gained some significance as a result of this.

Table 2: ANOVA summary of responses on digital skills required by lecturers in creating videos without software for instructional delivery in COEs

	Sum of squares	df	Mean Square	F	Sig.
Between Groups	.069	2	.034	.437	.647
Within Groups	22.909	290	.079		
Total	22.978	292			

The data in Table 2 presented Sig. values of .647 > .05. This was a statistical evidence that there is no significant difference between the mean scores of Lecturers, HODs and students in the digital skills required in creating videos without software for instructional delivery in COEs. By implication, there was no variation among the opinions of the respondents. The hypothesis of no significant difference was therefore upheld.

Table 3: Summary of mean and standard deviation of responses on digital skills required by lecturers in creating presentation for instructional delivery in COEs

S/N	Skills in creating presentation in COEs: Ability to use	\bar{x}	SD	RM
1	Google Presentation to customize the size of our slides and insert themes	3.28	.67	HR
2	Google Presentation to add videos	3.43	.68	HR
3	Google Presentation to integrate text and images	3.49	.50	HR
4	Prezi to create and deliver presentation.	3.11	.69	HR
5	Zoho-Presentation to apply new ideas, review, edit, share presentation	3.02	.71	HR
6	Google Presentation to import/export slides	3.26	.54	HR
7	Zoho-Presentation to create and deliver presentation	3.31	.46	HR
8	Haiku Deck to present using mobile devices.	3.32	.47	HR
	Cluster mean	3.27		HR

Note: Total number of respondents (N) = 293, = mean, SD =Standard Deviation, VHR = Very highly Required, HR= Highly Required

Table 3, present the mean rating of respondents on what should constitute the digital skills required by TVET lecturers in creating presentation for instructional delivery in COEs. The whole items in table 3 had their mean scores within the range 2.50 – 3.49. This indicates that the items are highly required. However, a cluster mean of 3.27 was attained for Research Question I, indicating that TVET lecturers strongly valued the majority of the stated digital abilities for enhancing classroom instructional delivery. The responses provided by the respondents were similar to one another and within a reasonable range of the mean, as indicated by the standard deviation of each feasible digital talent being less than 1.00. This therefore, added some validity to the mean values.

Table 4: ANOVA summary of responses on digital skills required by lecturers in creating presentation for instructional delivery in COEs

	Sum of squares	df	Mean Square	F	Sig.
Between Groups	.056	2	.028	.516	.597
Within Groups	15.854	290	.055		
Total	15.911	292			

The data in Table 4 presented Sig. values of .597 > .05. This was a proof that there is no significant difference between the mean scores of Lecturers, HODs and students in the digital skill required in creating presentation for instructional delivery in COEs. The views of the respondents did not vary. The hypothesis of no significant difference was therefore accepted.

Discussion of findings

From a cluster mean of 3.28 obtained for research question 1 as presented in Table I, it depicts that the outlined digital skills were highly required by TVET lecturers in creating videos without software for instructional of TVET in Colleges of Education. Dahlman, Mealy, and Wermelinger, (2016) have earlier substantiated that the world is undergoing a digital revolution with significant implications for global economies and livelihoods. The need for digital skills in creating videos without software for TVET Lecturers cannot therefore be over emphasized in this Context. In agreement with the findings of the current study, Orji, Ali, & Okanazu, (2015) identified most of the skills in Table I as digital skills required in creating videos without software for instructional delivery of TVET content in the Universities. According to Usoro and Calab (2014), digital learning includes a variety of facets, tools, and applications that support and empower teachers and students, such as online courses, blended or hybrid

learning, and digital content and resources. Teachers of Civil Technology agreed that all employable skills were important to meet the demands of the 4IR age in a related study. The results of this relevant literature have supported the current study's findings. Since TVET is taught in colleges of education, the digital skills identified in this study are crucial. For the delivery of TVET training, these abilities need to be combined and fully utilized.

Findings of hypothesis 1 as reported in Table 2 provided that there is no significant difference between the mean scores of Lecturers, HODs and students on the digital skills required in creating videos without software for instructional delivery in COEs. By implication, there was no variation among the opinions of the respondents. In order to produce human resources who are environmentally conscious, Mustapha (2015), McGrath, and Powell (2016) agreed that those sustainability or green skills should be included in the curricula of schools, colleges, universities, and skills training centers. The International Centre for Technical and Vocational Education and Training (UNEVOC) outlined the elements of green education in 2012, which included education that improved problem-solving skills in daily life (skills manage life), education in sustainable development in life, and education in entrepreneurship. The arguments presented earlier supported the necessity for TVET students to be prepared for the challenges of the digital workplace by integrating digital skills into their curriculum.

The results of this study, as shown in Table 3, are consistent with petronziomey's (2013) assertion that every college graduate should possess a small list of core abilities. This is guaranteed to increase overall digital know-how from simply branding yourself online to learning basic coding such as the ability to set up a Wi-Fi network, the ability to back up to the cloud, Basic photo editing, Basic video editing, Google docs and Microsoft Office, HTML and basic coding. The findings were in line with Ishiyaku (2012) who found out that vocational education graduated require spreadsheet skills such as interpreting data from an existing spreadsheet, formatting data in a cell, understanding cell addressing, understanding active cell etc.

The findings of this study on digital skills for classroom delivery is in consonance with that of Chukwuemeka and Anaele (2015) who identified that TVET lecturers require computer graphics and internet skills such as inserting graphics from various sources as in clip art, digital image, using digital camera to create a graphic file, using scanner to convert pictures into graphic file, creating a web page, teleconferencing, accessing, copying, and pasting information from internet to a different application among others. The results of this research on the digital skills needed by TVET lecturers to improve the quality of classroom instruction in South-West Nigeria were supported by the findings and the authors' opinions mentioned above.

According to results of hypothesis 2 in Table 4, there is no statistically significant difference between the mean scores of Lecturers, HODs, and students in the digital skills necessary to create presentations for the delivery of instruction in COEs. The opinions of the respondents were consistent with the findings of the study by Mtshali and Ramaligela (2020), which offered insightful information about the modern employability skills that teachers of civil technology should teach in order to be responsive to the 4IR. This gives the researcher ample justification to claim that TVET and digital skills must be combined to deliver education in COEs.

Conclusion

Digitalization is the process of democratizing and transmitting information, education, and entertainment to everyone on the planet. Additionally, the world is quickly moving from analog to digital, and it appears that the educational system is most affected in terms of its pedagogical competition. To remain relevant in teaching and learning, particularly in TVET, teachers and students must keep up with this trend. The results of this study show how important it is to use TVET and digital skills to give teaching in the COEs. The respondents' comments showed that there was no difference in their views on the digital abilities needed for TVET.

Recommendations

Based on the findings of this study, it is therefore recommended that;

1. Digital skills be harnessed with TVET curriculum for instructional delivery
2. Skills in creating videos without software should be blended with TVET
3. Skills in creating presentation in COEs should be blended with TVET
4. Curriculum planners should endeavor to explicitly produce a functional curriculum that would include all but not limited to the digital skills identified in Table 1 and 3 of this study.

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