

ADVOCATING ASSISTIVE TECHNOLOGIES FOR CLOTHING AND TEXTILES WORK-BASED LEARNING AMONG PERSONS WITH SPECIAL NEEDS IN NIGERIA

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Abstract

Studies have shown that Persons with Special Needs (PSN) are given poor attention and faced with marginalization in developing countries like Nigeria. Through assistive and adaptive technologies, PSN can move about, drive, sew clothes, knit, and weave, like other able-bodied. Most institutions engage in Work-Based Learning (WBL) in clothing and textiles vocation. They need assistive technology to make them excel in their chosen carrier. The study examined work-based learning tools in clothing and textiles, assessed the monitoring strategies employed in WBL and advocated for the inclusion of assistive technology for PSN. The study was carried out in three Special higher educational institutions in Nigeria. A mixed-method approach was adopted in the study. Purposive sampling was used to select students with special needs (81), WBL facilitators (16) and institution management staff (7). Primary Data was collected using questionnaires and interview schedules and analyzed using frequency and percentage. The results showed that the sewing equipment needed for clothing construction was available and functional in the WBL centres, however, Computer-Aided Designs ($\bar{x}=0.5$) and assistive technology ($\bar{x}=0.25$) were not available. Internet facilities and electronic learning were not functional. Finance was a major factor that affected the participation of PSN in the training centres. The high cost of learning materials ($\bar{x}=2.32$), and transportation fees ($\bar{x}=2.03$) to training centres influenced their learning. The study advocated for assistive technology in the WBL centres to make learning inclusive for PSN. Financial support for internet facilities and electronic learning is also recommended.

Key Words: Persons with Special Needs, Assistive technology, Work-based Learning, clothing and textiles, vocation, advocacy

Introduction

The impact of the Covid-19 pandemic has intensified the need to augment teaching and learning facilities in higher educational institutions (HEIs), create sustainable educational infrastructure and increase the adoption of inclusive education for the less privileged. The practice of Open Distant Learning in Nigeria needs better advocacy for innovation to bridge the gap of unequal access to technology to improve the right to quality education for the disadvantaged.

Teaching and learning in Nigeria employ Work-based Learning (WBL) to make trainees get practical experience in vocational-technical education (VTE), thereby developing their skills. The Nigerian National Policy on Education made provision for WBL programmes as an important component of the effort to enhance graduate training and employability (OECD, 2017). It incorporates 3-6 months of face-to-face industrial training to consolidate virtual training. WBL centres are therefore expected to be well equipped, and inclusive, with facilities for less privileged trainees.

The 2030 Sustainable Development Goals (SDGs) support Vocational Technical Education (VTE), giving it an unprecedented profile on the international stage. Among the VTE, clothing and textiles (fashion design, weaving, knitting, tie-dye, furnishing, leatherwork among others) has been reported as a sustainable, income-generating venture, that can assist PSN to earn a living after graduation (Diyaolu *et al.*, 2012; ILO, 2017). Clothing and textiles are valuable for occupational rehabilitation, suitable for the hearing, speech and limb impaired due to the sedentary nature of the vocation.

In Nigeria, out of the 195 million people, about 29 million were living with a disability (World Bank, 2020). Persons with Special Needs (PSN) need assistive technologies (AT) to put them in the mainstream of learning. AT aims to provide individuals with tools that can support the management of their health and social needs. The provision and

utilization of AT have resulted in increased student achievement levels, improved health outcomes and quality of life and reduced symptoms of depression (Brackenreed, 2008; Toro *et al.*, 2016; Dawes *et al.*, 2015).

Visagie *et al.*, (2017) opined that the provision of assistive products is inadequate with poorly structured systems in place to aid service delivery. Currently, in Nigeria, there is a significant shortfall between the need for and provision of AT, and regional, national and sub-national assistive technology policies are urgently required to achieve the Sustainable Development Goals (MacLachlan, *et al.*, 2018).

Thus, the study aimed at providing answers to the following questions?

- i. Are WBL centres in the study area well equipped?
- ii. What are the monitoring strategies employed during WBL?
- iii. What are the challenges faced by PSN during WBL?

The objectives of the study are to:

- i. examine work-based learning tools in Clothing and Textiles
- ii. assess the monitoring strategies employed in WBL
- iii. advocate for the inclusion of AT for PSN

Inclusive education theory (IET) that establishes the placement of students with special educational needs in mainstream settings, along with other students without disabilities forms the basis of this study. Inclusive education has been adopted to ensure the quality of and right to education for all learners and is now a contemporary educational approach recognized globally Al-Shammari *et al.*, (2019).

Methodology

The study was carried out in three higher educational institutions involved in special education in Nigeria and WBL centres in Oyo, Osun and Ogun States. The study population consisted of students with special needs, studying clothing and textiles; management staff and WBL facilitators in the three institutions. A convergent mixed methods design was used in the study involving both qualitative and quantitative (Creswell, 2014). The studies on WBL by Nwajiuba *et al.*, (2020) was adopted.

- i. Persons with Special Needs: These were students in the three selected higher institutions studying clothing and textiles in the Department of Home Economics and Fine and Applied Arts. A total of 81 students were purposively selected including those in their final year with WBL experience.
- ii. Work-Based Learning facilitators: These were trainers, managers and supervisors in various organisations where students were posted for Industrial Training. A total of 16 WBL centres were selected using a snowballing technique.
- iii. Institution managements: A total of 7 key informants and personnel including industrial training coordinators, Heads of Departments and Heads of clothing and textiles units were purposively selected.

Data collected were analysed using Statistical Package for Social Sciences, (IBM) version 23. Frequencies, percentages, means and standard deviations were used for descriptive purposes.

The Covid-19 pandemic and restriction of movement, coupled with the Academic Staff Union of Universities (ASUU) strike in Nigeria posed a challenge to the study. Respondents' unwillingness to open up on some personal information constituted part of the limitations. The sample size was limited, and the analysis was more descriptive due to the nature of the study.

Results and Discussions

Table 1: Available and Functional Tools in the WBL Centres

Sewing equipment	Available and functional		Available but not functional		Not available		Mean	Remark
	F	%	F	%	F	%		
	Sewing machines	15	93.8	1	6.3	-		
Pressing tools	15	93.8	1	6.3	-	-	1.94	Available and functional
Cutting tools	14	87.5	2	12.5	-	-	1.87	Available and functional
Marking tools	14	87.5	2	12.5	-	-	1.87	Available and functional
Measuring tools	14	87.5	2	12.5			1.87	Available and functional
Internet facilities	10	62.5	3	18.8	3	18.8	1.44	Available but not functional
Mannequins	10	62.5	1	6.3	5	31.3	1.31	Available but not functional
Whipping machines	8	50	4	25	4	25	1.25	Available but not functional
Electronic learning	8	50	2	12.5	6	37.5	1.13	Available but not functional
Industrial machines	8	50	2	12.5	6	37.5	1.13	Available but not functional
Embroidery machines	7	43.8	2	12.5	7	43.8	1	Available but not functional
Computer-Aided Design	3	18.8	2	12.5	11	68.8	0.5	Not available
Assistive technology	1	6.3	2	12.5	13	81.3	0.25	Not available

Table 1 showed the frequency, percentages and mean scores of available and functional tools in the WBL centres. The equipment available and functional in the WBL centres were sewing machines ($\bar{x}=1.94$), pressing tools ($\bar{x}=1.94$), marking tools ($\bar{x}=1.87$) and measuring tools ($\bar{x}=1.87$). Internet facilities ($\bar{x}=1.44$), and electronic learning ($\bar{x}=1.13$) were available but not functional. However, Computer-Aided Designs ($\bar{x}=0.5$) and assistive technology ($\bar{x}=0.25$) to aid PSN were not available at all.

Textile production in Nigeria lags in the use of CAD for designs (Diyaolu *et al.*, 2018). The cost of purchase of CAD might have been a challenge since money available, expertise, and space often affect the availability of these tools in clothing and textiles (Forster, 2014).

Besides, most of the centres made little or no provision to assist special students to gain maximally from the training as there was no interpretation or technology to assist. Assistive technologies are not being utilised adequately in Nigeria (Yusuf *et al.*, 2012; Patrick & Darlinton, 2019). They include display enhancement tools, audio tools, screen readers, word prediction software, and visual search engines among others. Persons with special needs, especially the hearing impaired, often associate themselves with able colleagues to put them through after the training. Tools available will provide learners with the opportunity to develop specific skills (Department for Education, 2010; Atkinson, 2016).

WBL should produce skilled trainees who will be able to promote expertise in the nearest future (European Training Foundation, 2014). There is a need to advocate for the provision of machines that were not available as well as those that were not functional. Work-based clothing vocation is perceived as an efficient and effective way of training and combining an individual's skills development with the work in the enterprise (Cedefop, 2015).

Table 2: Factors influencing participation of PSN during WBL

Factors	Never		Rarely		Sometimes		Always		Mean	Remark
	Freq	%	Freq	%	Freq	%	Freq	%		
High cost of materials for training	3	4.10	7	9.50	27	36.50	37	45.70	2.32	Sometimes
High tuition fees	2	2.70	5	6.80	35	47.30	32	43.20	2.31	Sometimes
Cost of transportation to WBL centres	9	12.30	6	8.20	32	43.80	26	35.60	2.03	Sometimes
Lack of assistive technology	9	12.20	10	13.50	28	37.80	27	36.50	1.99	Sometimes
Insecurity/fear of getting a job	10	13.70	16	21.90	24	32.90	23	31.50	1.82	Sometimes
The training is too demanding	10	13.90	16	22.20	25	34.70	21	29.20	1.79	Sometimes
Unconducive training environment	17	23.00	9	12.20	24	32.40	24	29.60	1.74	Sometimes
Diverted attention due to health	17	23.00	11	14.90	26	35.10	20	24.70	1.66	Sometimes
Lack of facilities for practical work	11	15.30	19	26.40	27	37.50	15	20.80	1.64	Sometimes
Teachers' Incompetence	19	26.40	11	15.30	20	27.80	22	30.60	1.63	Sometimes
Inadequate practical	20	27.40	22	30.10	16	21.90	15	20.50	1.36	Rarely
Low retentive memory	20	28.20	16	22.50	26	36.60	9	11.10	1.34	Rarely

Table 2 shows the mean of the factors influencing participation of PSN during WBL. High cost of materials ($\bar{x}=2.32$), high cost of tuition fees ($\bar{x}=2.31$) and lack of assistive technology to learn better ($\bar{x}=1.99$) affected trainees' participation. Finance is an issue that affects the capacity building of trainees. This again reiterates the impact that this factor has on the participation of PSN. According to Adebowale & Oyelaran-Oyeyinka (2016), robust mechanisms for the financing of WBL are still missing in developing countries. This includes compensating the facilitators, validating the training manuals and training environment. Besides, the size of organizations, infrastructure, and human capability all tend to influence the types and intensity of innovation in VTE. Also noteworthy are the factors that rarely affected capacity building. The training environment should be made conducive. This will help them concentrate and avoid distractions.

Table 3: Monitoring of WBL activities

Monitoring Activities	Never		Rarely		Sometimes		Always		Mean	Remarks
	F	%	F	%	F	%	F	%		
Regular visits to supervise trainers	-	-	-	-	-	-	5	100	3.00	Always
Regular inspection of trainees	-	-	-	-	1	20	4	80	2.80	Always
Engaging all students in WBL	-	-	-	-	1	20	4	80	2.80	Always
Students are properly placed	-	-	-	-	1	20	4	80	2.80	Always
Enterprises are competent	-	-	-	-	2	40	3	60	2.60	Always
Trainees are examined after WBL	-	-	-	-	1	20	4	80	2.60	Always
Skill sets are provided for enterprises	-	-	-	-	3	60	2	40	2.40	Sometimes

The result in Table 3 reflects that institutions always visit the enterprises to supervise trainers ($\bar{x}=3.00$). There was a regular inspection of trainees' working conditions ($\bar{x}=2.80$). All students in the institution involved in practical related courses were required to engage in WBL ($\bar{x}=2.80$) and the placement of the students was in line with their career ($\bar{x}=2.80$). Also, Enterprise trainers were required to have formal qualification experience before admitting trainees for WBL ($\bar{x}=2.60$). Trainees were always examined after their work placement ($\bar{x}=2.60$). The institutions, however, sometimes provided skill sets showing enterprises what they needed to teach ($\bar{x}=2.40$).

The aspect of monitoring trainees during WBL is important to make sure trainees are effectively involved in all the activities at the WBL centres. When students are not monitored, they tend to misbehave and spend their training periods on irrelevant and unproductive activities. This will eventually result in incompetency and delay their

employability. ETF (2017) stated that a well-developed institution arrangement and business-institution partnership is mandatory to sustain effective knowledge acquisition during WBL.

Enterprise trainers have formal qualifications and experience in the centres and this will impact greatly on the expertise of the trainees. The establishment and the institutions, therefore, need to consolidate efforts to maintain this quality. There is a need to engage business and industry in the program evaluation process to help ensure that work-based learning programs are authentic and meaningful.

Industrial training offices confirmed that bursaries were disbursed to students' accounts late, at times when the students have finished their training or even at graduation. Bursaries for student WBL should be made available in time as this can serve as motivation and ease their financial burdens. Policy makers regard WBL as an appropriate method for acquiring workplace competency and employment-focused education (Elder & Koné, 2014).

Other challenges of WBL in Nigeria

- i. Students were asked to pay a token amount to facilitate their supervision due to insufficient funding.
- ii. There is limited number of staff to carry out supervision. There is a current restriction on staff recruitment in the university. Those on the ground are not sufficient to monitor the students.
- iii. No vehicles to move around. Staff have to use private cars to travel for supervision and bear the mileage cost.
- iv. The challenge of mobility affects the extent to which students can go for their training. Thus, long-distance establishment is not encouraged except students will bear the cost.
- v. Inadequate finance limits the activities of the staff to effectively monitor students' Industrial Work Experience.
- vi. Security challenges in the nation pose serious threats. Kidnapping in the South-South and *Boko Haram* insurgence in the North East are serious issues in the country. Most students are limited to the South-West even when their best choice may be in the threatened areas. Students who insist on going to these places were not insured.
- vii. Students on six months of WBL were to be supervised thrice while those on three months are to be supervised twice. Most of the time, the supervision is once or never, due to logistics.
- viii. Limited industries are willing to absorb PSN in their establishments. Some of the industries limited the number of students they could take, leaving others with nowhere to engage in skill acquisition.
- ix. Some of the industries that used to absorb students for training are already folding up due to economic challenges in Nigeria.



Plate 1: A typical sewing room with sewing machines.
Most of the WBL centres are small scale with small apartments, providing apprenticeship services to students.
Source: Author, 2021 Survey



Plate 2: A WBL/Rehabilitation Centre with clothing and textiles vocation combined with shoe making at Moniya, Ibadan.
Source: Author, 2021 Survey

Conclusion and Recommendations

The study concluded that internet facilities and e-learning were available and non-functional in the WBL centres. CAD and AT were lacking, indicating a lack of inclusion of PSN in such establishments. Also, the high cost of practical materials, tuition fees and transportation were challenges hampering their training. Finance is a critical issue in WBL. There is a need to advocate for the inclusion of PN and the provision of AT in WBL centres so as to enhance the skills of trainees. From this study, the following recommendations are made:

- i. The Nigerian education system should have a policy guiding assistive technology adoption in higher educational institutions, including WBL centres.
- ii. Training facilities should also be adequately provided in the WBL centres.
- iii. Adequate financing will engender a positive attitude towards WBL and increase trainees' access to the labour market.
- iv. Incentives should be given to trainees. Bursaries for students should be made available to them in time as this can serve as motivation and ease their financial burdens.
- v. Assistive technology and other educational tools should be incorporated into the training centres. In the 21st century, where technology deployment is on the increase, the WBL centres should be equipped with internet facilities so that learners can gain better applications of what they are learning. Adoption of e-learning would be an alternative and greatly improve students learning especially with the advent of the Covid-19 pandemic.

Acknowledgement: The study received financial support from DAAD through the African Center for Career Enhancement and Skills Support (ACCESS-17250729) 2020 Project.

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