APPRAISING THE CHALLENGES OF SKILLS DEVELOPMENT FOR SELF RELIANCE AMONG THE STUDENTS OF TECHNOLOGY EDUCATION IN TERTIARY INSTITUTIONS IN NORTH CENTRAL NIGERIA.

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Abstract
The study examined the challenges of skills development for self reliance among technology education students in tertiary institutions in Northern Central Nigeria. Two research questions guided the study. One hypothesis was formulated and tested at 0.05 level of significance. The entire population of 485, which comprised 109 lecturers and 376 300L students of 2018/2019 academic session from six Colleges of Education from north central states were used for the study. A 40-item questionnaire was used for data collection. The instrument was validated by three experts. Cronbach Alpha reliability method was used to determine the internal consistency of the instrument at a coefficient of 0.87. A total of 485 copies of the questionnaire were administered but only 473 were retrieved (104 lecturers, 369 students). The retrieved copies were analyzed using mean, standard deviation and t-test. The study found that sixteen challenges of skills development were identified by the lecturers, while the students identified seventeen challenges. These include; inadequate number of qualified lecturers and workshop personnel, inappropriate workshops and laboratories, inappropriate tools, machines and equipment, among others.. The study also revealed that sourcing for adequate number of competent lecturers and workshop personnel by providing incentives, provision of appropriate workshops, tools, machines, equipment and consumable materials, among others are the remedies for skills development. Based

on the findings, it is recommended that there should be proper funding of technology education by the government and other stakeholders. It is also recommended that adequate time should be allocated for practical skills development.

Keywords: Challenges, Skills Development, Technology Education, Tertiary Institutions.

Introduction

Technology education is vital for national development. A number of developing countries have embraced and recognized technology as a means of realizing economic independence (Fasehun, 2015). Tremendous employment awaits those with requisite technical and vocational skills in both the industries and governmental organizations. Available statistics shows that in every 100 persons employed, 82.5% are skilled (Alaka, 2005). Skill training or development is thus encouraged to reduce unemployment in the country. Acquisition of relevant job skills for employment is the main focus of technology education. On this basis, United Nations Educational, Scientific and Cultural Organization (2015) explained that technology and vocational education and training(TVET) is understood as comprising education, training and skills development relating to a wide range of occupational fields, production, services and livelihood. Technology education is thus made up of skill development or training in several trades of automobile technology, building technology, metalwork technology, wood work technology, electrical technology among others.

This imply that technology education is one of the main factors that provide countries all over the world with proficient and competent human resources, which facilitate the attainment of self-reliance. It has also provided many countries with their own brand of technology, which in turn make their economy robust and wealthier. Oviawe (2018) stated that technology education is recognized for its role in preparing people for dynamic engagement in occupation of functional value and effective source of skilled force. That is, functional technology education has the potential of developing the requisite skills and knowledge in both men and women who are capable of actively participating in the process of nation building.

In the view of Ogbuanya and Arimonu (2015) technology education is expected to contribute to sustainable youth empowerment by providing a wider range of skill levels ranging from basic entry skills, semi-skills, technical skills to very highly technical skills requiring a high degree of specialization and competencies. Ogbuanya and Arimonu further explained that technology education can empower individual by equipping the youths with versatile skills and competencies needed in the world of work, promoting effective utilization of available technologies for self and

societal development, encouraging the youth to make maximum use of available natural resources for job creation, self-employment and gainful employment for others and empowering individual with essential and versatile technological skills for increased productivity and poverty alleviation. The emphasis in technology is a result of its wide utility in vast spectrum and production and service industries. In this modern era, every advancing technology world requires specialized skills which will enable individuals to fit into the production or service lines of industries.

The realization of these goals of technology education largely depends on the skill development of the recipients in the course of the training programme. Skill development is the process of learning to acquire specific expertise that enable individual to perform well in a given task. Skill development is also defined by the Business Dictionary (2009) as the process of acquiring through deliberate, systematic and sustained effort to smoothly and adaptively carryout complex activities or job functions involving ideas (cognitive skills) things (technical skills) and/ or people (interpersonal skills). Moore (2012) also defined skill development as an intended output of education and training effort and it should be an enabler for growth and self-reliance. Skill development in the context of technology education concerns using one's acquired skills in various trades of automobile/building, electrical/electronics, wood work, metal technology to achieve self employment to ensure economic survival in a depressed economy like ours. This has become imperative especially in the context of globalization, where the demand for skilled and multi skilled workers has increased (ILO,2022). There is therefore a critical need for quality skill development and training in technology education institutions.

In the changing world scenario with regards to industry and job market, there is an overpowering need to equip the students of technology education with saleable skills to make them self reliant upon graduation. Self-reliance is the act of deciding what to do by oneself without depending on the help or advice of other people. Umaru (2013) explained that self-reliance is the ability of members of the society to be more creative in manipulating the environment so that various opportunities are created for the effective utilization of factors of production. Bazubagira and Umumararungu (2022) stated that Self reliance can be attained when an individual accomplishes assigned task in an independent and resourceful self –sufficient manner. At national level, self-reliance is also attained when a nation can rely on her citizen's ingenuity and expertise in terms of their technical skills competencies coupled with purposeful leadership to harness the abundant

human and material resources. Self- reliance can therefore be described as the extent to which an individual or nation creates, sustains and independently project effectively in her thrive to attain greatness.

From the foregoing, it is explicit that technology education is concerned with the development of a productive, competent, flexible and skilled labour necessary for self-reliance and socio-economic development. To achieve these goals of technology education, every emphasis must be given to skill training or development. This means developing oneself with skills set to add value to socio-economic development. It is rather unfortunate that in spite the laudable goals of technology education, as outlined in the national policy of education, the stated goals of technology education are yet to be fully realized, especially in the area of self-reliance of its graduates. The graduates from these institutions are not empowered properly, they lack adequate skills for self-reliance. The majority of these graduates of technology education are still roaming the streets in search of jobs, when they are expected to create job opportunities and become self-reliant. Related studies however, have shown that the teaching of technology education is bedeviled by numerous challenges, among which is more emphasis given to theoretical training at the expense of practical skill development (Ile and Edokpolor, 2022; Abdullahi, 2010; Ikeogu, Chidolue and Obiefuna, 2015).

Consequent upon this is poor mastery of the subject matter and inadequate skills acquisition by the graduates. These failures has constituted menace to the society which is witnessing increase in crime rates, because of high rate of unemployment. With the high rate of unemployment, emphasis should be shifted towards making the graduates of technology education self-reliant through skills acquisition because the number of paid jobs are declining. This study is therefore an attempt to examine the challenges of skill development among the students of technology education in tertiary institutions in North Central Nigeria.

The objective of this study is to find out the challenges of skill development for self reliance among the students of technology education in tertiary institutions in North Central Nigeria Specifically the study sought to:

(1)   Determine the challenges of skill development for self reliance among the students of technology education

(2)   Determine ways of providing remedies to the challenges of skill development for self reliance among the students of technology education.

Research Questions

Two research questions guided the study:

(1)   What are the challenges of skill development for self reliance among the students of technology education?

(2)   How can the challenges of practical skill acquisition for self reliance be remedied among the students of technology education?

Hypothesis

H_o There is no significant difference between the mean response of the lecturers and students of technology education on the remedies to the challenges of skills development for self reliance?

Methodology

The study adopted Survey research design. Nworgu (2015) stated that a survey research design typically employs interview and questionnaire to determine the opinions, preferences, attitudes and perception of people about issues. The study therefore adopted this as it sought the opinion of lecturers and students of technology education on the challenges of skills development for self reliance.

The study was carried out in six Colleges of Education in north central Nigeria. The Niger State College of Education, Minna; College of Education (Technical) Lafiagi Kwara State; College of Education Ankpa, Kogi State; College of Education Oju, Benue State; College of Education Akwanga, Nasarawa State and Federal College of Education Pankshin, Plateau State. These Colleges were chosen because they offer technology education. The population of the study comprised all the 109 Lecturers and 376 students of 300l in 2018/19 academic session. There was no sampling for the study because of the populace.

The instrument used to gather data for the study was a structured questionnaire, which consisted sections A, B and C. The first section contained bio-data of the respondents, while second and third sections contained items on the challenges of skill development and how to remedy the

challenges respectively. The instrument was built on 5 Likert Scale of Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree which were assigned numerical values of 5, 4, 3, 2 and 1 respectively. The draft instrument was subjected to both face and content validation by three experts from Department of Industrial Technology Education, Federal University of Technology Minna, Niger State, Nigeria. The instrument was trial tested on 20 lecturers and students of technology education in Federal College of Education (Technical) Bichi, Kano State. This yielded a reliability co –efficiency of 0.87 using Cronbach Alpha formula.

One hundred and nine (109) copies of the questionnaire were distributed to the lecturers and three hundred and seventy six (376) copies to the students of technology education, out of which hundred and four (104) copies representing 95.54% and three hundred and sixty-nine (369) copies, representing 98.1% were returned by both lecturers and students respectively.

 The data were collected by the researchers and other four research assistants. The data collected were analyzed using mean and standard deviation in answering research questions and t-test to test hypothesis at a probability level of 0.05 level of freedom. Any item with a mean of 3.50 and above was regarded as agreed while any item with the mean below 3.50 was regarded as not agreed When the calculated t-value is greater than the table value, the null hypothesis was rejected.

Results

Table1: Mean Responses of Lecturers and Students on the Challenges of Skill Development for Self Reliance

S/N	Item Description	Lecturers N=369			Students N=104		
		$\overline{X}$	S.D	Decision	$\overline{X}$	S.D	Decision
1.	Number of lecturers available for teaching and learning appropriate technical skills are inadequate	4.21	1.38	Agreed	3.94	1.4	Agreed
2.	Number of occupationally competent lecturers for teaching and learning appropriate technical are inadequate	3.68	1.61	Agreed	4.43	0.93	Agreed
3.	Number of competent workshop personnel						

	available for teaching and learning appropriate technical skills are inadequate	4.76	0.69	Agreed	4.58	1.02	Agreed
4.	Appropriate workshops and laboratory structure for teaching and learning appropriate technical skills are not available	4.05	1.24	Agreed	4.22	1.13	Agreed
5.	Workshops and laboratory structures available for teaching and learning technical skills are inadequate	4.33	1.38	Agreed	3.95	1.32	Agreed
6.	Workshops and laboratory structure available are not used for teaching and learning appropriate technical skills	3.02	0.72	Disagreed	1.34	0.80	Disagreed
7.	Appropriate tools, machines, equipment and consumable are not available for teaching appropriate technical skills	2.13	0.45	Disagreed	1.61	0.8	Disagreed
8.	Appropriate tools, machines, equipment and consumable materials for teaching and learning appropriate skills are inadequate	3.90	1.11	Agreed	3.94	1.61	Agreed
9.	Tools, machines equipment made available are not used for appropriate technical skills training by the lecturers and students	1.95	1.15	Disagreed	1.71	1.20	Disagreed
10.	Maintenance of the tools, machines and equipment used for appropriate technical skills are not adequately carried out	4.53	0.85	Agreed	4.55	0.90	Agreed
11.	Appropriate practical (technical) skills are not adequately taught by the lecturers	2.22	0.45	Disagreed	3.93	1.36	Agreed
12.	Appropriate practical (technical) skills are not adequately learned by the students	4.38	1.05	Agreed	4.56	0.97	Agreed
13.	Period allocated for teaching and learning practical (technical) skills are inadequate	4.21	1.08	Agreed	4.38	1.07	Agreed
14.	Inappropriate placement and supervision of students during industrial, work experience	4.02	1.23	Agreed	3.89	1.62	Agreed
15.	Student's practical (technical) skills assignment are not carried out in the workshop under lecturer's supervision	3.94	1.07	Agreed	4.26	1.32	Agreed
16.	Student's practical projects are not carried out in the workshop under lecturers supervision	4.47	0.74	Agreed	3.98	1.54	Agreed
17.	Workshops are not always provided						

S/N	Item Description	Lecturers			Students		
		$\overline{x}$	SD	Decision	$\overline{x}$	SD	Decision
	with electricity power for teaching and learning practical (technical) skills	4.54	0.93	Agreed	4.11	1.51	Agreed
18.	Appropriate practical (technical) skills are not adequately covered in curriculum of technology education programme	3.81	1.54	Agreed	4.34	1.10	Agreed
19.	Appropriate practical instruction sheets are not available for teaching and learning practical (technical) skills.	4.24	1.31	Agreed	4.21	1.41	Agreed
20.	Practical instructional sheets available are not used for teaching and learning the practical (technical) skills	4.11	1.25	Agreed	4.30	0.95	Agreed

Key: $\overline{x}$ = Mean; SD = standard deviation

In table 1, the mean responses showed that, 16 items by the lecturers had mean values ranged from 3.68-4.76. Each mean was above the criterion mean of 3.50 which indicated agreement on the items as the challenges of skill development. The mean response of the remaining 4 items by the lecturers ranged from 1.95-3.02, which fell below the criterion mean of 3.50. This indicated that the items were disagreed with as the challenges of skills development. On the other hand, the responses of the students showed that 17 items had mean responses ranged from 3.89-4.58. With each mean falling above 3.50 criterion mean, the items were accepted as the challenges of skill development for self reliance. The standard deviation indicated that the responses do not vary widely from the mean.

Table 2: Mean Responses of Lecturers and Students on the Remedies to the Challenges of Skill Development for Self Reliance

S/N	Item Description	Lecturers N=369			Students N=104		
		$\overline{X}$	S.D	Decision	$\overline{X}$	S.D	Decision
1.	Adequate number of lecturers should be made available by providing incentives	4.24	1.39	Agreed	4.57	0.96	Agreed
2.	Adequate numbers of occupationally competent lecturers should be made available by providing incentives	3.89	1.24	Agreed	4.39	0.96	Agreed
3.	Adequate number of competent workshop personnel should be made available by providing incentive	4.14	1.13	Agreed	4.52	0.87	Agreed
4.	Appropriate workshop						

	and laboratory structures should be made available for teaching and learning the appropriate technical skills	4.34	0.86	Agreed	4.63	1.12	Agreed
5.	Workshop and laboratory structure available for teaching and learning the appropriate technical skills should be adequate	4.16	1.36	Agreed	4.71	0.84	Agreed
6.	Workshop and laboratory structures made available should be used for teaching and learning the appropriate technical skills	4.48	1.67	Agreed	4.67	1.11	Agreed
7.	Appropriate tools, machines, equipment and consumable materials for teaching and learning the appropriate technical skills should be made available	4.05	1.02	Agreed	4.46	0.90	Agreed
8.	Appropriate tools, machines, equipment and consumable materials for teaching and learning appropriate technical skills should be adequate	4.07	0.99	Agreed	4.12	1.67	Agreed
9.	Tools, machines, equipment made available for teaching and learning of appropriate technical skills should be used	4.40	1.12	Agreed	4.16	1.31	Agreed
10.	Tools, machines, and equipment made available for teaching and learning of appropriate technical skills should be adequately maintained	4.23	1.37	Agreed	4.30	0.96	Agreed
11.	Appropriate practical (technical) skills should be taught by the lecturers	4.66	0.88	Agreed	4.07	1.65	Agreed
12.	Appropriate practical (technical) skills should be adequately learned by the students	4.78	0.85	Agreed	4.76	0.79	Agreed
13.	Periods allocated for teaching and learning of practical (technical) skills in the workshops should be adequate	4.09	1.58	Agreed	4.44	1.16	Agreed
14.	Students should be appropriately placed and supervised in functional industries for industrial work experience	4.0	1.71	Agreed	4.39	1.36	Agreed
15.	Students should carry out adequate practical (technical) skills assignments under lecturers supervision	4.37	1.18	Agreed	3.88	1.55	Agreed
16.	Students should carry out						

	X	SD	Decision	X	SD	Decision
adequate projects in the workshop under lecturer's supervision	4.30	1.19	Agreed	4.04	1.54	Agreed
17. Workshops should always be provided with regular electricity power for teaching and learning practical (technical) skills	4.53	0.50	Agreed	4.67	0.85	Agreed
18. Appropriate practical (technical) skills area should be adequately covered in the curriculum of technology education	4.12	1.37	Agreed	4.30	1.35	Agreed
19. Appropriate practical instructional sheets should be made available for teaching and learning of practical (technical) skills	4.40	1.11	Agreed	3.92	1.49	Agreed
20. Practical instructional sheets made available should be used for teaching and learning practical technical skills	4.08	1.26	Agreed	4.55	0.89	Agreed

Key: X = Mean, SD = standard Deviation

In table 2, above, the mean responses showed that all the 20 items had a mean values ranged between 3.88-4.78. Each of the mean was above 3.50 criterion which indicated agreement on the items as the remedies to the challenges of skills development for self reliance among the students of technology education. The standard deviation indicated that the responses do not vary widely from the mean.

Hypothesis

Table 3: t-test Analysis of the Responses of the Lecturers and Students on the Remedies to the Challenges of Skills Development for Self Reliance

S/N Respondents	N	X	S.D	df	t-value	t-critical	Prob	Decision
1. Lecturers	369	4.01	1.07	4.71	1.03	1.96	p>0.05	Not significant
2. Students	104	4.12	1.02					

ns   =   Not significant@p>0.05level

Discussion

Table: 1 showed the respondents' decision on some of the challenges of skill development for self reliance among the students of technology education. Out of the 20 perceived challenges of skills development, all the respondents agreed with 16 items as the challenges hindering the acquisition of effectives skills among the students of technology education. These include; inadequate number of competent lecturers, workshop personnel, inappropriate workshop and laboratory structure, inappropriate tools, machines, equipment and consumable materials, insufficient time allocated for practical (technical) skills training, inappropriate placement and supervision of student's industrial work experience, irregular electricity power supply, inappropriate coverage of practical (technical) skills in the curriculum, inappropriate practical instructional sheets for the teaching and learning appropriate practical (technical) skills, among others. These findings provide answer to research question one. These challenges pointed out in this result, confirmed Onwusa (2021), Okwelle (2018) and Greenspring'School's (2019) view, that lack of qualified personnel, inadequate facilities, inappropriate placement of students during industrial work experience, problem of poor funding, etc are the challenges of effective skill development in technology education. The respondents however disagreed with only item 11, where the lecturers disagreed that appropriate practical (technical) skills are not adequately taught. The students on the other hand agreed with the item as one of the challenges of skill development. If this situation continues, in these institutions, the trainees are likely to enter into labour market without reasonable practical skills learning experience which is a key preparation towards the attainment of self reliance.

Table 2 revealed a general agreement on the possible remedies to the challenges of skill development among students. All the 20 items were accepted as the remedies to the challenges of skills development. These includes acquiring adequate number of occupationally competent lecturers and workshop personnel by providing incentives, appropriate workshops and laboratories stocked with well maintained modern tools, machines and equipment made available for teaching and learning of practical skills, proper placement of students during industrial work experience, use of appropriate instructional sheets among others. These findings provide answer to research question two. This finding also corroborates studies conducted by Tiough and Kwaghbo (2018) and Ogbuanya, Njoku, Kemi and Ogunkelu (2018) which stated that the challenges of practical skills acquisition can be remedied through quality training of teachers and provision of incentives, provision of standard workshops and laboratories, regular maintenance of tools and machines, provision of consumable materials, proper placement and supervision of students' industrial work

experience, etc. These measures will enhance skills development among the students' as a preparation for self reliance after graduation. The result of the hypothesis tested, showed that there was no significant difference between the mean responses of the lecturers and the students on the remedies to the challenges of skills development for self reliance.

Conclusion

Based on the findings of the study, 16 challenges of skill development among the students of technology education were identified by all the respondents. The respondents however disagreed with one item. The study also identified 20 remedies to the challenges of skills development as agreed by all the lecturers and students. The remedies to the challenges of skills development by the students of technology education, if adhered to will enhance the teaching and learning of practical (technical) skills among the students as a preparation towards the attainment of self reliance.

Recommendations

From the findings of the study, the following recommendations are made:

- There should be proper funding of technology education by government and other stakeholders.

- There should be adequate incentive packages for competent lecturers and workshop personnel

- Emphasis should be given to staff training and retraining to keep them abreast of modern machines and equipment

- Adequate time should be allocated for practical

- Use of instructional sheets should be emphased during practical (technical) skills training.

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