UP-SKILLING AND RE-SKILLING INDUSTRIAL WORKFORCE VIA SCHOOL-INDUSTRY RELATIONS FOR EFFECTIVE WORK PREPARATION OF STUDENTS IN TECHNICAL INSTITUTIONS IN RIVERS STATE

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Abstract

The study determined up-skilling and re-skilling industrial workforce via school-industry relations for effective work preparation of Students in Technical Institutions in Rivers State. Four purposes, research questions and hypotheses guided the study. This study adopted a descriptive survey research design. The population of the study was 570 respondents, comprising 70 TVET Lecturers and 500 level 3 and 4 students in the three Tertiary Institutions in Rivers State. The instrument for data collection was a structured questionnaire titled "Up-skilling and Re-skilling Industrial Workforce via School-Industry Relations Questionnaire" (URIWSIRQ). The instrument was structured on five-point Likert type rating scale. The instrument was subjected to face-validation by three experts. The internal consistency of the instrument was established using trial testing method with the aid of Statistical Package for Social Science (SPSS); this gave a reliability coefficient of 0.77. Data collected from the respondents were analyzed using Mean and Standard deviation to answer the research questions and t-test statistics were used to test the five null hypotheses at 0.05 level of significance. The decision for hypothesis was; if the calculated value of t (t-cal) is less than or equal to the critical value of (t-critical), accept the null hypothesis, otherwise reject null hypothesis. The computation of the mean, standard deviation and t-test was carried out with SPSS. The findings of the study showed that the respondents agreed to a high extent up-skilling and re-skilling industrial workforce be achieved Via 60+40 training system, school-industry administrative links and Industry-based activities for effective work preparation of Students in Technical Institutions in Rivers State. Recommendations were made: Industry-base-job skill should be included in the curriculum of technical colleges for skill acquisition. Technical teachers/instructors should visit industrial enterprises to familiarize themselves with the current technologies, sharing of facilities between technical institutions should be encouraged.

Keywords: Up-skilling, Re-skilling, Industrial Workforce, School-Industry Relations and Technical Institutions

Introduction

Technical education stimulates technological and industrial development by producing competent workers who are capable of developing and utilizing technologies for industrial and economic development. This form of education therefore, occupies a unique position in the nation's scheme of development. Most often than not, the term "technical education" is used in Nigeria more widely than vocational education and it is sometimes used incorrectly to refer to secondary vocational education and pre-vocational education programmes. Consequently, the

Federal Republic of Nigeria (FRN, 2013) states that technical and vocational education is used as a comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and acquisition of practical skills, attitudes, understanding and knowledge relating to occupation in various sectors of economic and social life. This type of education is considered to be of post-high-school level and is intended to produce a classification of workers referred to as technicians for industrial workforce in the industries.

Industries are groups of enterprises that supply or produce goods and services, such as the agricultural industry, the manufacturing industry and the service industry (Jagannathan & Geronimo, 2013). When referring to industrial occupations, however, or industry work, most of the time people mean manufacturing, so that industry work has become synonymous with manufacturing work. In this definition, industrial workplaces are typically factories, such as motor vehicle manufacturing and assembly plants, where industrial workers stand at a station and perform repetitive tasks that they are trained for and can do well. Rather than train each worker to assemble an entire vehicle, an assembly line where each worker is focused on one activity was found to be more efficient. At the same time, the finished products contained fewer errors because workers were so familiar with their tasks that they became experts at them.

Industrial workforce refers to someone working in industries such as factory work. The term made more sense in the Industrial Age when manufacturing plants were a new way of generating products more efficiently than by hand. Therefore, to adequately supply this workforce, there is a need to integrate or apply school-industrial relationship in TVET institutions (Agbo & Nnajiofor, 2023). School-industry relationship refers to a mutually accepted training partnership in which in school learning experiences (knowledge and practical skills) are complemented through on-the-job training in industrial establishment (Maclean et al, 2013; Agbo & Nnajiofor, 2023). It is an instructional method whereby practical skills and knowledge acquired in the classrooms, school laboratories and workshops are updated, beefed up and strengthened through experience on real industrial tools, machines and equipment. It is a deliberate and systematic effort to keep Technical and Vocational Education constantly in tune with the quality and quantity of the personnel needed in different sectors of the economy. The purpose of school-industry relationship therefore emerged in the school curriculum as an instructional strategy for solving the problems of inadequate, facilities, personnel, infrastructure and other constraints, which impose severe limitations on the capacity of schools (Technical and Vocational Institutions) to achieve their mandate in up-skilling TVET graduates.

Up-skilling is the process of acquiring new and relevant competencies needed in this present time and in the near future (Mourshed, Farrell & Barton, 2012). Common examples of up-skilling efforts include digital skills, analytics skills, and organizational transformation skills. Up-skilling is a workplace trend that facilitates continuous learning-by-providing training programmes and development opportunities that expand an employee's abilities and minimize skill gaps. Up-skilling focuses on improving current employees' skill sets, usually through training, so they can advance in their jobs and find different roles and opportunities within the company.

As technology creates new opportunities of job positions within the workplace, it becomes increasingly important for companies to fill these new roles with candidates who possess the relevant and specialized skill sets. Up-skilling allows organizations to close the digital talent gap and fill these open positions while maintaining their current workforce and creating employee strengthen and learning opportunities in re-skilling (Wang, 2012). Re-skilling is the process of learning new skills by employees to move onto a new role within their current industry. This could be achieved through 60+40 training system.

The school-based theoretical education is limited in developing more specific and practical job-related competences. Especially, considering one of major concerns the industry care about, the availability of skilled workforces, factory learning (in-training system) is crucial. Specifically, a '60+40 training system', which indicates the combination of 60% time spent at training institutions for theoretical education (pre-employment training) and 40% at industrial field for practical training, is an applicable alternative to increase the adaptability to industrial work of trainees after finishing their training and education (Afeti, 2019). The 60+40 training system is an alternative means to reorganize TVET systems and a win-win strategy to both TVET institutions and the industry. The 60+40 system may be established in the form of formal agreements or contracts between TVET institutions and the industry in response to training needs. Contracts-based partnerships will encourage both sides (TVET institution and industry) to make commitment to cultivate skilled workforces by establishing clear-cut lines of responsibility. The 60+40 system is a kind of extended version of industry-based training system.

Industry-based or work-based learning is a planned work experience, work place mentoring and instructions in industries. Industries in collaboration or partnership with the schools should provide work-based learning activities such as internship, on-the-job training, mentoring and cooperation education (industrial attachment) to expose students to new technologies. Bennell and Segerstrom (2019) enumerates the function of industries to include: assessment of training resources of institution to find out if the institutions are capable of giving the students adequate training and background on those occupations required in the industries. Furthermore, industries examine the curriculum of the TVET programmes to ensure that their occupational interests are captured and provide funds to assist institutions. Industries are also expected to make special provision of occupational placement for TVET graduates.

However, UNESCO (2012), in its study conducted on school-industry relation and discovered that some countries have found an effective way of training their man-power in new technologies through cooperation between industries and TVET institutions. Billett (2011) pointed out that industries and technical institutions have different roles to play in and production of technical man-power in Nigeria. They explained that the school-based learning activities should involve provision of qualified teachers and suitable classroom facilities and instructional materials for school instruction. School-to-work transition provides each student with worksite orientation to build a direct relationship between the student and the employers. School-to-work transition referred to as on-the-job training apprenticeship, cooperative education agreement or other programs designed to prepare students to enter the job market (Chen, 2016).

With the systemization of lifelong process in TVET, the need in searching for (highly) skilled workforce may be less felt on the part of the industry. Retraining their workforce continuously can be economical profitable and wade off risk of inappropriate employment. For instance, the skills of newly-hired-highly skilled workforces might be somewhat unproductive because of

some reasons such as difficulty with adjusting themselves to new business, industrial, or organizational culture. Retraining existing workers through lifelong in TVET might be economically efficient.

Statement of the Problem

Skills are needed by TVET graduates to function well, since global technology are carried out in various homes, offices, industries, institutions as well as many aspects of human endeavours. Individuals who are trained in TVET institutions are expected to acquire skills for manufacturing, servicing in industries, power generation and utilization. But it appears that the skills acquired by TVET graduates are inadequate, and below expectation. This may be due to low level of exposure of students' practical skills training in the school workshops and laboratories, students over population in the class, lecturers' incompetence, unfavourable learning environment, inadequate equipped workshops and laboratories for training experience, inadequate tools and training materials, and classroom facilities. This makes the realization of the goal for TVET in Rivers State to be far below expectation. Therefore, to bridge such gap between theory and practice, school-industry collaboration is necessary to assist the learner develop functional skills for the world of work. Most countries have been using an effective way to train their technical man-power in new technologies through cooperation/collaboration between industries and TVET institutions (Agbo & Nnajiofor, 2023). On the contrary in Nigeria inadequacy in collaboration between industries and technical institutions has resulted in dearth of skilled and technical man-power. Even though Students' Industrial Works Experience Scheme (SIWES) which is intended to back up training of students with relevant job experience to expose them to latest technological advances in industries is not well implemented at the Tertiary level. The students who attend SIWES in places not relevant to their course of study and sometimes without any supervision attached to it lose that opportunity to have become more experienced in their field of study. The concerns are would school-industry relation up-skill and re-skill their industrial workforce? Would it prepare TVET graduates for industrial works? Answers to these questions gave birth to this present study to examine to up-skilling and re-skilling industrial workforce via school-industry relations for effective work preparation of Students in TVET Institutions in Rivers State.

Purpose of the Study

The purpose of the study is to determine the level of up-skilling and re-skilling industrial workforce for effective work preparation of Students in Technical Education Programme Institutions in Rivers State. Specifically, the study explored:

1. The level of up-skilling and re-skilling industrial workforce via school-industry training system for effective work preparation of students;
2. The levels of up-skilling and re-skilling industrial workforce via school-industry administrative links for effective work preparation of students;
3. The levels of up-skilling and re-skilling industrial workforce via industry-based activities for effective work preparation of students;
4. The levels of up-skilling and re-skilling industrial workforce via school-based activities for effective work preparation of students.

Research Questions

The following research questions guided the study.

1. What are the levels of up-skilling and re-skilling industrial workforce via school-industry training system for effective work prepares students?
2. What are the levels of up-skilling and re-skilling industrial workforce via school-industry administrative links for effective work prepares students?
3. What are the levels of up-skilling and re-skilling industrial workforce via Industry-based activities for effective work prepares students?
4. What are the levels of up-skilling and re-skilling industrial workforce via school-based activities for effective work prepares of students?

Hypotheses

Four hypotheses were formulated and tested at .05 level of significance.

H_{O1} There was no significant difference between TVET lecturers and industrial supervisors on the levels of up-skilling and re-skilling industrial workforce via school-industry training system for effective work prepares students.

H_{O2} Significant difference did not exist between TVET lecturers and industrial supervisors on the levels of up-skilling and re-skilling industrial workforce via school-industry administrative links for effective work prepares of students.

H_{O3} TVET lecturers and industrial supervisors did not differ on the levels of up-skilling and re-skilling industrial workforce via industry-based activities for effective work prepares students.

H_{O4} There was no significant difference between TVET lecturers and industrial supervisors on the levels of up-skilling and re-skilling industrial workforce via school-based activities for effective work prepares students.

Methods

This study adopted a descriptive survey research design. The population of the study was 570 respondents, comprising 70 TVET lecturers and 500 levels 3 and 4 students in the three Tertiary Institutions in Rivers State (Field Survey, 2021). The study employed a census sampling method as the entire population was studied. This is in agreement with Maduabum (2007) who stated that, a survey in which the entire population is studied is referred to as census. The choice of census sampling method was due to the relatively small size of the population.

The instrument for data collection was a structured questionnaire titled "Up-skilling and Re-skilling Industrial Workforce via School-Industry Relations Questionnaire" (URIWSIRQ). The instrument was structured on five-point Likert type rating scale of Very High Extent (VHE), High Extent (HE), Moderate Extent (ME), Low Extent (LE) and Very Low Extent (VLE). A corresponding numerical value of 5, 4, 3, 2 and 1 was assigned respectively to the response scale for each item as represented below with real limits.

The instrument was subjected to face-validation by three experts in Technical Education. The internal consistency of the instrument was established using trial testing method with the aid of Statistical Package for Social Science (SPSS), which yielded a reliability coefficient of 0.77. Data collected from the respondents were analyzed using Mean and Standard Deviation statistics

to answer the research questions and t-test statistic were used to test the four null hypotheses at a 0.05 level of significance. The decision for hypothesis was; if the calculated value of t (t-cal) is less than or equal to the critical value of (t-crit), accept the null hypothesis, otherwise reject null hypothesis. The computation of the Mean, Standard deviation and t-test was performed with the use of a Statistical Package for Social Sciences (SPSS).

Results

Research Question 1: What levels would up-skilling and re-skilling industrial workforce via school-industry training system for effective work prepare students?

Table 1
Mean and Standard Deviation on up-skilling and re-skilling industrial workforce via school-industry training system

		TVET Lecturers			Industrial Supervisors		
S/N	Items	$\bar{X}^1$	SD^1	Remarks	$\bar{X}^2$	SD^2	Remark
1	Computer Maintenance and Operation Work	3.57	.692	SA	3.81	1.039	A
2	Electrical Installation and Maintenance work	3.56	.732	SA	4.11	.859	A
3	Furniture Making	4.28	.750	A	4.35	.719	A
4	Carpentry and Joinery	4.93	1.004	A	3.95	.932	A
5	Bricklaying and Concrete work (Mason work)	4.16	.941	A	4.42	.844	A
6	Wood Machining Operation	4.95	.875	A	4.09	.860	A
7	Radio, Television and Appliances Repairs	4.25	.931	A	4.32	.736	A
8	Plumbing and Pipe fitting	4.99	1.088	A	4.31	.790	A
9	Automotive Trades	4.05	.990	A	4.42	.625	A
	Grand Mean	4.31	0.88	A	4.19	0.83	A

Data in Table 1 revealed that TVET Lecturers had a mean range of 3.56-4.99 and standard deviation range of 0.69-1.08. While the Industrial Supervisors had a mean range of 3.81-4.42 and standard deviation range of 0.71-1.04. The standard deviation shows the homogeneity of the respondents. The mean shows that the respondents agreed to a high extent on how up-skilling and re-skilling industrial workforce would be achieved Via 60+40 training system for effective work preparation of Students in Technical Institutions in Rivers State.

Research Question 2: What levels would up-skilling and re-skilling industrial workforce via school-industry administrative links for effective work prepares students?

Table 2
Mean and Standard Deviation on up-skilling and re-skilling industrial workforce via school-industry administrative links

		TVET Lecturers			Industrial Supervisors		
S/N	Item	$\bar{X}$	SD	Remark	$\bar{X}$	SD	Remark
1	Setting of Industrial Advisory Committee,	4.23	.834		4.07	.838	

	members of which should comprise representatives of industries,			A			A
2	Setting of Industrial Advisory Committee, members of which should comprise representatives of labour and productivity and trade and commerce	4.40	.821	A	4.09	.808	A
3	Setting of Industrial Advisory Committee, members of which should comprise representatives of National Board for technical education	4.09	.722	A	4.04	.947	A
4	Improve the Administrative practices of Industrial Liaison Offices in technical institutions to include public relations, curriculum development and industrial services and training	4.18	.658	A	4.19	.766	A
5	Setting up of industrial coordinating board by Government to enhance cooperation between technical institutions and industries.	4.05	.924	A	4.12	.982	A
6	Formulation of law by the Federal Government to compel cooperation	4.19	.953	A	4.39	.774	A
7	Setting of Industrial Advisory Committee, members of which should comprise representatives of technical TVET Lecturers, labour and productivity and trade and commerce	3.99	.881	A	4.19	.860	A
8	Setting of Industrial Advisory Committee, members of which should comprise representatives of National Board for technical education, Ministry of education, labour and productivity and trade and commerce	3.95	.990	A	4.26	.856	A
	Grand Mean	4.13	0.89	A	4.19	0.83	A

Data in Table 2 revealed that TVET Lecturers had a mean range of 3.98-4.40and standard deviation range of 0.65 - 0.99; meanwhile the Industrial Supervisors had a mean range of 4.04-4.39 and standard deviation range of 0.76 - 0.98. The standard deviation shows the homogeneity of the respondents. The means show that the respondents agreed to a high extent up-skilling and re-skilling industrial workforce would be achieved via school-industry administrative links for effective work preparation of Students in Technical Institutions in Rivers State.

Research Question 3: What levels would up-skilling and re-skilling industrial workforce Via Industry-based activities do, for effective work preparation of Students in Technical Institutions in Rivers State?

Table 3: *Mean and Standard Deviation on up-skilling and re-skilling industrial workforce Via Industry-based activities*

S/NO	Up-skilling and re-skilling industrial workforce Via Industry-based activities	TVET Lecturers			Industrial Supervisors		
		X	SD	Remark	X	SD	Remark
1	Jointly organising seminar, workshop and conferences by industries and technical institutions.	4.23	.881	A	4.34	.797	A
2	Organising cross training pattern, which utilizes a combination of industry and technical institution personnel and curriculum.	4.44	.926	A	4.16	.902	A
3	Organising cooperative work study programme for students in the technical institutions	4.11	.858	A	3.70	1.059	A
4	Organising in-service training pattern where technical institutions deliver training needed by industry employees	4.26	.897	A	3.86	1.025	A
5	Entering into agreement of joint sharing of training facilities between industry and technical institution	4.09	.989	A	4.17	.891	A
6	Encouraging professional from industry to engage in part-time teaching in technical institutions.	4.18	.889	A	4.25	.830	A
7	Organising joint cooperative programme of research between technical institution and industry	3.97	.954	A	4.26	.809	A
8	Appointing technical TVET Lecturers to deliver training for industry employees.	4.04	1.017	A	4.32	.827	A
9	Requesting industry to offer financial assistance to technical institutions.	3.88	.880	A	4.02	.979	A
10	Requesting industry to donate equipment to technical institutions	3.61	0.99	A	4.02	1.06	A
	Grand Mean	**4.08**	**0.93**	**A**	**4.11**	**0.92**	**A**

Data in Table 3 revealed that TVET Lecturers had a mean range of 3.61 - 4.44 and standard deviation range of 0.85 - 1.02. While the Industrial Supervisors had a mean range of 3.70 - 4.34 and standard deviation range of 0.79 - 1.06. The standard deviation showed the homogeneity of the respondents. The mean showed that the respondents agreed to high extent up-skilling and re-skilling industrial workforce would be achieved via Industry-based activities for effective work preparation of Students in Technical Institutions in Rivers State.

Research Question 4: What levels of up-skilling and re-skilling industrial workforce via school-based activities do, for effective work preparation of Students in Technical Institutions in Rivers State?

Table 4: *Mean and Standard Deviation on up-skilling and re-skilling industrial workforce via school-based activities*

		TVET Lecturers			**Industrial Supervisors**		
S/NO	Up-skilling and re-skilling industrial workforce via school-based activities	**X**	**SD**	**Remark**	**X**	**SD**	**Remark**
1	Jointly organizing seminars, workshops by technical institutions and industries	4.22	.856	A	4.03	.929	A
2	Industries and Technical institutions sharing of facilities	3.58	.706	SA	4.02	.876	A
3	Involvement of industries in evaluating students relevant learning experiences acquired in the institutions	4.09	.785	A	4.22	.932	A
4	Organizing cross-training between industries and technical institutions personnel	3.98	.719	A	4.39	.840	A
5	Involving industries in setting and marking of practical examinations in technical colleges	4.17	.921	A	4.03	.982	A
6	Industrial training attachment for students in industries	4.11	.994	A	3.98	.744	A
7	Organizing part-time courses for industrial personnel to acquire theoretical knowledge by technical institutions or institutions	4.27	.877	A	3.88	.982	A
8	Introducing SIWES programme with enough time in TVET institutions	3.93	.863	A	4.07	.923	A
9	Keeping comprehensive data of industries that are equipped with modern equipment/facilities	4.34	0.86	A	3.63	0.59	A
10	Placement of students by technical institutions in industries that are compatible with their courses of study	3.55	0.67	A	3.86	0.49	A
	Grand Mean	4.02	0.83	A	4.01	0.83	A

Data in Table 4.4 revealed that TVET Lecturers had a mean range of 3.55 - 4.34 and standard deviation range of 0.67 - 0.99. While the Industrial Supervisors had a mean range of 3.63 - 4.39 and standard deviation range of 0.49 - 0.98. The standard deviation showed the homogeneity of the respondents. The mean showed that the respondents agreed to a high extent up-skilling and

re-skilling industrial workforce would be achieved via school-based activities for effective work preparation of Students in Technical Institutions in Rivers State.

Hypotheses

H_{O1} There is no significant difference between TVET Lecturers and industrial supervisors on the level of up-skilling and re-skilling industrial workforce via School-industry training system for effective work preparation of Students in Technical Institutions in Rivers State.

Table 5: *t-test analysis on up-skilling and re-skilling industrial workforce via 60+40 training system*

Source of Variance	N	$\bar{X}$	SD	α	df	t-Cal	t-Crit	Remark
TVET Lecturers	70	4.31	0.88					
				0.05	368	1.22	1.96	No Sig
Industrial Supervisors	300	4.19	0.83					

Result in Table 5 revealed that t-cal (1.22) is less than t-crit (1.96) which indicates that the hypothesis stated was accepted. Therefore, there is no significant difference between TVET Lecturers and industrial supervisors on the extent in which up-skilling and re-skilling industrial workforce via 60+40 training system will do for effective work preparation of Students in Technical Institutions in Rivers State.

H_{O2} There is no significant difference between TVET Lecturers and industrial supervisors on the extent in which up-skilling and re-skilling industrial workforce via school-industry administrative links will do for effective work preparation of students in technical institutions in Rivers State.

Table 6*: t-test analysis on up-skilling and re-skilling industrial workforce via school-industry administrative links*

Source of Variance	N	$\bar{X}$	SD	α	df	t-Cal	t-Crit	Remark
TVET Lecturers	70	4.12	0.85					
				0.05	368	1.23	1.69	No Sig
Industrial Supervisors	500	4.19	0.83					

Result in Table 6 revealed that t-cal (1.32) is less than t-crit (1.69) which indicates that the hypothesis stated was accepted. Therefore, there is no significant difference between TVET Lecturers and industrial supervisors' response on the extent in which up-skilling and re-skilling industrial workforce via school-industry administrative links will do for effective work preparation of students in technical institutions in Rivers State.

H_{O4} There is no significant difference between TVET Lecturers and industrial supervisors on the extent in which up-skilling and re-skilling industrial workforce via industry-based activities will do for effective work preparation of Students in Technical Institutions in Rivers State.

Table 7: *t-test analysis on up-skilling and re-skilling industrial workforce via industry-based activities*

Source of Variance	N	$\overline{X}$	SD	*α*	df	t-Cal	t-Crit	Remark
TVET Lecturers	70	4.08	0.93					
				0.05	368	1.21	1.96	No Sig
Industrial Supervisors	500	4.11	0.92					

Result in Table 7 revealed that t-cal (1.21) is less than t-crit (1.96) which indicates that the hypothesis stated was accepted. Therefore, there is no significant difference between TVET Lecturers and industrial supervisors on the extent in which up-skilling and re-skilling industrial workforce via industry-based activities will do for effective work preparation of Students in Technical Institutions in Rivers State.

H_{O4} There is no significant difference between TVET Lecturers and industrial supervisors on the extent in which up-skilling and re-skilling industrial workforce via school-based activities for effective work preparation of Students in Technical Institutions in Rivers State.

Table 8: *t-test analysis on up-skilling and re-skilling industrial workforce via school-based activities.*

Source of Variance	N	$\overline{X}$	SD	*α*	Df	t-cal	t-tab	Remark
TVET Lecturers	70	4.02	0.82					
				0.05	368	1.46	1.96	No Sig
Industrial Supervisors	500	4.01	0.82					

Result in Table 8 revealed that t-cal (1.46) is less than t-crit (1.69) which indicates that the null hypothesis stated was accepted. Therefore, there is no significant difference between TVET Lecturers and industrial supervisors on the extent in which up-skilling and re-skilling industrial workforce via school-based activities will do for effective work preparation of Students in Technical Institutions in Rivers State.

Discussion

The findings of the study showed that the respondents agreed to a high extent up-skilling and re-skilling industrial workforce would be achieved Via 60+40 training system for effective work preparation of Students in Technical Institutions in Rivers State. The findings of the study is in line with Gabadeen and Raimi (2012) who explained that 60+40 training system is beneficial and potentially profitable to the industry in reducing skills shortages and skills gaps. Skills shortages refer to the lack of supply of skills industry demands, while skills gaps are indicative of the margins between new skills required as a result of new technologies or job practices and workers skillful in the new skills. In general, skills shortage and skills gaps result from the fact that the existing TVET system has been incapable of appropriately taking up the challenges which are posed by new economic and labor environment and of meeting rapidly changing training requirements of the industry. Skill shortages and skill gaps are problematic in that they put some restrains on increasing outputs (productivity) and achieving innovation. Furthermore, “the

interval between reports of shortages and an increase in skills supply can easily be as much as two years, by which time the economy has moved on and the nature of any skills shortages is likely to have changed".

The findings of the study showed that the respondents agreed to a high extent up-skilling and reskilling industrial workforce would be achieved via school-industry administrative links for effective work preparation of Students in Technical Institutions in Rivers State. The findings of the study is in agreement with Guo and Lamb (2010) who noted that to establish effective relations between technical institutions and industries in Africa, the individual training institutions in African countries must strengthen and expand the activities of their industrial liaison offices to include public relations, curriculum development and industrial services and training. These offices, according to them, should be at the forefront of partnership. According to Idris, Rajuddin, Bin, Latib, Udin, Bin, Sukri, Buntat and Bin (2012) industrial liaison offices in the technical institutions should be well established. These units could be utilized in fostering closer links between institutions of higher learning and industries; they should be developed and utilized to collect information on the problem facing industries with a view to referring these to relevant departments. Through the activities of these units, real-life case study should be readily available to lectures and students as well. The coordinating units should be able to carry out surveys of skills needed by industries around their institutions and be able to advise the appropriate arms of the institutions of learning on areas where updating skills courses should be ran. With these activities of industrial liaison offices, improved school-industry relations will be developed.

The findings of the study showed that the respondents agreed to high a extent would up-skilling and reskilling industrial workforce be achieved Via Industry-based activities for effective work preparation of Students in Technical Institutions in Rivers State. The findings of the study is in accordance with (Inyiagu, 2014). He pointed out that a collaborative programme that utilizes a combination of industry and educational institution personnel, facilities and curriculum can provide a "Win-Win" scenario, permitting both educational institution and industry to pool their resources together. Organising joint programme of research as pointed out by the findings of this study is an important activity to both the industries and the schools. There is no doubt that the industries in this changing world of work need extensive research to improve on their activities and services to maximize profit. Johanson (2019) suggested that activities such as organizing research and consultant service by the institution for industries for payment of service and an increased offering of further training for industries employees will be of immense benefit to the schools and industries and thus, the school-industry relations will be improved.

The findings of the study showed that the respondents agreed to a high extent would upskilling and reskilling industrial workforce be achieved Via school-based activities for effective work preparation of Students in Technical Institutions in Rivers State. The findings of the study is in agreement with Johansson, Adams and Sara (2013) that industries and technical institutions have different roles to play in technical man power production in Nigeria. He explained that school-based activities should involve provision of qualified teachers, classroom facilities, and instructional materials for instruction. Also the findings were in agreement with the opinion of Kenneth and Robert (2010) that the responsibilities of the school include:- provision of necessary manpower, allocation of training timetable and length of training, selection of adequate and innovative learning content and activities for training, planning in cooperative with industry where training should be carried out, evaluation of students to find out the extent to which they

have acquired skills they are supposed to acquire and supervision of students during training. Also, to Kingombe (2012) noted that the development of useful skills can be reinforced by the appropriate selection and use of learning facilities and resources. These facilities comprise of workshop structures, working materials, teaching materials, workshop tools and equipment.

Conclusion

Based on the findings of the study, the following conclusions were drawn: students of technical education can only acquire skills for employment and to be self-join employed after graduation when there is relationship between industries and technical institution. Because these industries possessed the necessary technological skills, tools, equipment and machineries, that these students can be expose to during their course of training. Therefore the rate of unemployment could be reduced when these students are expose to modern technologies in industries through the administrative strategies, school based activities and industry-based activities to be able to serve the industries, the society and to be self-employed after graduation.

Recommendations

Based on the findings of the study, the following recommendation were made:

1. Industry base job skill should endeavour to be included in the curriculum of technical institutions for skill acquisition.
2. Technical teachers/instructors should endeavour to visit industrial enterprises to familiarize themselves with the current technologies, sharing of facilities between technical institutions should be encouraged.
3. Curriculum and syllabus of technical institutions endeavour to be discussed with many employers as possible on the formation of curriculum objective, selection of curriculum content, organization of the content, selection of learning experience and the organization.
4. Training equipment, machines, laboratories workshops, ICT library and classrooms should endeavour to be provided to technical institutions by government and philanthropies in the society for effective training.

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