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Research Article

Enhancing School-to-Work Transition of Technology Education Graduates for Industrial Development in Niger State, Nigeria

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Abstract

This study was designed to determine the school-to-work transition of Technology Education Graduates of tertiary institutions in Niger State. Specifically the study sought to determine the school-based learning activities that will enhance school-to-work transition of technology education graduates and the work-based learning activities that will enhance school-to-work transition of technology education graduates. Twenty four items structured questionnaire was developed and used for the study. The instrument was pilot tested on 12 respondents who are not part of the population for the study and the reliability coefficient of the entire instrument was 0.81. A survey design was adopted and the respondents for the study were 122 made up of 68 Technology Education Lecturers and 54 industrial supervisors. The major findings of the study include among others that, involving students in workplace experience: creating informal linkages between the school and the industry; involving students in the organized on-the-job experiences and embarking of students on field trips are the school-based and work-based learning activities that will enhance school-to-work transition. It was recommended that school-based learning and work-based learning should be encouraged in the technology education departments of tertiary institutions by involving students in workplace experience through workshop, conferences and field trip for industrial development in Niger State.

Keywords

School-to-work transition, School based learning, work based learning, industrial supervisor

1. Introduction

Tertiary institutions offering technical education programmes in Nigeria include universities, polytechnics, monotechnics and colleges of education. These tertiary institutions among other things are charged with the responsibility of producing technologists for the nation's industrial development (Otubelu, 1990). In recognition of the importance of technical education in

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the world of work, many tertiary institutions in Nigeria have made some concerted efforts towards inclusion of technical education to their programmes.

Orikpe (1993) pointed out that, industries and tertiary institutions have different roles to play in technical manpower production in Nigeria. He further explained that, the school-based learning activities should involve suitable classroom facilities and instructional material for school instructions. In addition to the involvement of suitable classroom facilities and instructional material for school instruction, in case of Technology Education department, school-based learning activities should also involve qualified Technology Education lecturers. Technology Education lecturers in the context of this study are the professionals on Technology Education that teaches Technology Education as a course in the tertiary institution.

School-to-work transition according to Leuking and Fabian (2000) refers to on-the-job training apprenticeship, cooperative education agreement or other programmes designed to prepare students to enter the job market. The concept of the school-to-work transition according to Ryan (2001) is a recent development associated with change, waiting, and uncertainty. The route from schooling to employment is often depicted now-a-days as long and perilous, unlike the short and direct routes presumed available to previous generations. Halperin (1994) and Harmon (1997) cited in Egbita (2006) enumerated the components of school-to-work transition as: work-based learning, school-based learning activities, community-based learning activities and government-based learning activities.

Harmon (1997) demonstrated that school-based learning focuses on career exploration and counseling, student's selection of career major, a programme of study based on high academic and skill standards, a programme of instructions that integrate academic and vocational learning, scheduled evaluation of students' academic strengths and weakness, and procedures that facilitate student's participation in additional training or higher education. Work-based learning is a planned programme of job training or experience, paid work experience, workplace mentoring and instructing in general workplace competencies and all aspects of industries.

For students to be successful in the workplace, continuity between school, work, and day-to-day activities is needed for today's ever-changing society. Workers must be prepared for continuous on-the-job growth and improvement. As students enter the working population, they must be able to transfer knowledge from one situation to another. According to World Bank (2007) low relevance of education contributes to unemployment of graduates and low productivity. Further, it leads to higher dropout and failure rates among students. The increased competition for jobs, which has lengthened the school-to-work transition time of youth, necessitates that high school students be prepared to meet employer demands if they hope to become employed (Lankard, 1994).

UNESCO (2002) opined that Nigeria is involved in student transition from school-to-work through the introduction of students' Industrial Work Experience Scheme (SIWES). SIWES is a skilled training programme

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designed to expose and prepare students of tertiary institutions for work situation as they exist in the world of work. UNESCO further emphasized that there is a need for government of Nigeria to improve on the funding of tertiary institutions and monitor the activities of the existing industries.

Technology Education students can acquire technical skills relating to the work-based learning activities. If the programme is properly coordinated, there will be an improvement in graduate transition from school - to - workplace. Unfortunately, research evidences indicated that Technology Education graduates in Niger State lack adequate practical skills to work in the industry or become self-employed but rather they prefer to gain office work where no practical skill is required, meaning that this school-to-work transition has not been achieved in these states. Hence, there is a need to enhance school-to-work transition for effective work preparation of Technology Education graduates and for industrial development in Niger State of Nigeria.

Purpose of the Study

This study determined:

1. The school-based learning activities that will enhance school-to-work transition of Technology Education graduates.
2. The work-based learning activities that will enhance school-to-work transition of Technology Education graduates.

Research Questions

The following research questions guided the study:

1. What are the school-based learning activities that will enhance school-to-work transition of Technology Education graduates?
2. What are the work-based learning activities that will enhance school-to-work transition of Technology Education graduates?

2. Methodology

Descriptive survey research design was used for the study. The study was carried out in Niger State. It covered Federal University of Technology, Minna; Niger state College of Education, Minna and Niger state Polytechnic, Zungeru that are offering Technology Education programme. The population for the study comprised all the 68 Technology Education Lecturers and 54 Industrial Supervisors located in four major industries in Niger State. The entire population for the study was 122. Since the population was manageable, no sampling was carried out.

The instrument for data collection was a structured questionnaire, consisting of 24 items rated on 4-point scale of Strongly Agree (4), Agree (3), Disagree (2) and Strongly Disagree (1). They were subjected to face validation by three experts in Technology Education. The reliability of the instrument was determined using Cronbach Alpha after pilot testing on 12 respondents comprising of Technology Education lecturers and industrial supervisors. These respondents were not used in the main study. The reliability coefficient was 0.81 and the instrument was, therefore, adopted for the study.

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The researchers administered the questionnaire personally to all one hundred and twenty two respondents that were used for the study. The data collected was analyzed using mean and standard deviation for answering the research questions. The criterion mean for decision was 2.50. This implies that items with mean values of 2.50 and above were considered as agreed, while items with mean values of 2.49 and below were considered as disagreed.

3. Results and Discussion

Research Question 1

What are the school-based learning activities that will enhance school-to-work transition of Technology Education graduates?

Table 1

Mean and Standard Deviation of Respondents on School-based Learning Activities that will Enhance School-to-Work Transition of Technology Education Graduates

S/No	ITEMS	M_1	SD_1	M_2	SD_2	M_t	SD_t
1	Involving students in workplace experience through attendance of professional conferences or workshops	3.04	0.89	2.81	1.20	2.93	1.05
2	Promoting student's as potential employees through informal linkages between the school and the industry.	3.37	0.88	3.06	1.12	3.22	1.00
3	Using student Association conferences as a chance to meet and learn from Technology Education students of other institutions.	3.18	1.02	2.93	1.26	3.06	1.14
4	Allotting more time for practical classes than for theory ones.	2.97	1.15	2.89	1.22	2.93	1.19
5	Ensuring that students embark on practical projects weekly to enhance their practical skills.	3.09	1.10	2.83	1.40	2.96	1.25
6	Reading literatures and journals by students to become relevant in learning the latest technological development in technology education.	3.03	0.96	3.20	0.90	3.12	0.93
7	Helping students to understand the workplace by embarking on field trips/excursions.	2.99	1.19	2.72	1.30	2.86	1.25

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8	Obtaining materials, tools and equipment that are not available in the school workshop from industries for classroom use.	2.69	1.23	2.50	1.31	2.60	1.27
9	Providing students with workplace experiences through school activities such as completing design projects for local industries.	3.22	0.81	2.98	1.19	3.10	1.00
10	Involving workplace representatives in curriculum process and development in vocational and technical education.	2.85	1.24	2.72	1.37	2.79	1.31
11	Involving students in workplace experiences through organized tours to relevant industries	2.84	1.13	2.65	1.31	2.75	1.22
12	Allowing students to interact with industrial supervisors through brainstorming and advisory committees	2.91	1.22	2.72	1.28	2.82	1.25

Key :

M_1 = Mean of Technology Education Lecturers, M_2 = Mean of Industrial Supervisors

M_t = Average mean of Technology Education Lecturers and Industrial Supervisors

SD_1= Standard Deviation of Technology Education Lecturers,

SD_2 = Standard Deviation of Industrial Supervisors,

SD_t = Average Standard Deviation of Lecturers and Industrial Supervisors

Data presented in table 1 reveals that both respondents agreed with suggested school-based learning activities with mean scores ranging between 2.60 and 3.22. Standard deviations of respondents also ranged between 0.93 and 1.31 for the two categories of respondents indicating they were not too far from the mean and each other.

Research Question 2

What are the work-based learning activities that will enhance school-to-work transition of Technology Education graduates?

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Table 2

Mean and Standard Deviation of Respondents on Work-based Learning Activities that will Enhance School to-work Transition of Technology Education Graduates

S/No	ITEMS	M_1	SD_1	M_2	SD_2	M_t	SD_t
13	Involving students in the organized on-the-job experiences by attaching them to an expert to gain practical knowledge.	2.96	1.18	2.65	1.33	2.81	1.26
14	Attaching student to an expert in Technology Education to acquire practical skills in relevant fields.	2.75	1.16	2.59	1.30	2.69	1.23
15	Providing student with the opportunity to gain practical knowledge in safety practices.	3.56	0.70	3.56	0.60	3.56	0.65
16	Allowing students to follow experts in Technology Education who will teach them how to operate relevant machine tools.	2.76	1.09	2.54	1.27	2.65	1.18
17	Matching students with an expert in Technology Education to acquire practical skills on how to install various machine tools.	3.12	1.27	2.78	1.09	2.95	1.18
18	Involving full fledge working experience that will enable students solve technical problems.	2.66	1.29	2.52	1.42	2.59	1.36
19	Attaching students to experienced Craftsmen/Technicians to provide opportunity to gain practical skills in specific trade.	2.91	1.23	2.76	1.26	2.84	1.25
20	Engaging students in industrial Work Experience Scheme (SIWES) to gain practical skills on various fields of technology education.	3.40	0.88	3.39	0.83	3.40	0.86

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21	Engaging students in part time work in the industries to learn about the workplace in relevant technology education fields.	3.16	1.06	2.91	1.17	3.04	1.12
22	Attaching students to computer experts to acquire practical skill on how to use computer to solve technology education problem.	3.54	0.76	3.44	0.84	3.49	0.80
23	Matching students with expert to gain practical experience in the use and maintenance of machines, tools, equipment and instruments.	2.82	1.18	2.61	1.35	2.72	1.27
24	Student internship designed to provide student the opportunity to acquire practical skills on repairs and maintenance in technology education fields.	3.00	1.07	2.63	1.26	2.82	1.17

Data presented in table 2 reveals that respondents agreed with all the items as relevant work-based learning activities with mean scores ranging from 2.59 - 3.56 likewise standard deviation shows a minimal deviation ranging from 0.65 - 1.36 for the respondents, this also showed that there was less dispersion from the mean and from one another in their responses.

Discussion

The study found out that involving students in workplace experiences by taking them to professional conferences and workshops on Technology Education will enhance school-to-work transition of Technology Education graduates. This finding is in line with the recommendation made by Audu, *et al.* (2014) who pointed out that the technical colleges and local automobile industries should collaborate to organize seminars and workshops where they will share information on the changing trends in the automobile industries with respect to practical and changes that can be incorporated into the curriculum of the schools. Recommendation made by Egbita (2006) is also in consonance with this finding where he stated that involving students in workplace experiences through workshop and conferences create an avenue for students from other school to meet and learn from each other.

The study also revealed that creating informal linkages between the school and industries, not only help students to understand the workplace, embarking on field trips/excursion to industries, and devoting more time for practical classes than for theory, but also help in smooth school-to-work transition of graduates. These

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findings are in agreement with recommendation made by Beck (1994) who posits that integration of theory and practice will bring about experiences that are required to narrow existing gap between the theories and practical skills in a bit to gaining self-employment.

The respondents also agreed that school should ensure that students embark on practical projects weekly to enhance their practical skills, obtaining materials, tools and equipment that are not available in the school workshop from industries for classroom use and students should also engage in reading journals to enable them to learn about the latest technological advances in Technology Education. These findings agrees with remarks made by Arnold and Schell (1999) that educators agree that an integrated instructions prepares student for work and has advantage of putting theoretical knowledge into real world situation. The findings are also in consonance with the recommendations of Rauner (1999) that in most qualitative studies, students discussed their career interest and testify how the programme they offered at their school improve their career skills and attitude towards skills acquisition.

The study also found out that institution should provide students with workplace experience through school activities, such as completing design projects for local industries and involving students in workplace experience through organized tours to relevant industries. These outcomes are in accordance with the recommendations made by Beck (1994) who posited that students learn by watching what others do. The obvious implications of the findings are that activities that will enhance school-based learning activities are those that will work to the benefit of technical institutions and the workplace and school-based curriculum should incorporate workplace skills. This will be made possible according to Audu, et al (2013) if Government provides adequate facilities to Technical and Vocational Education (TVE) institutions to ensure effective teaching and learning that will lead to the acquisition of relevant skills, and knowledge and experience relevant to the growth of the country. Study conducted in India by World Bank (2008) indicates that increased educational attainment of a firm's workforce of one year is associated with higher levels of firm-level productivity of about 6 percent, as well as increased wages of 7 percent.

The data presented in table 2 provided answer to research question two. The findings revealed that involving students in the organized on-the-job experience, such as mentorship, apprenticeship and internship and attaching student to experts in Technology Education to acquire practical skills in relevant fields will enhance school-to-work transition of graduates. Leuking and Fabian (2000) revealed that school-to-work transition refers to on-the-job training, apprenticeship corporate education agreement or other programme designed to prepare students to enter the job market. These outcomes are in line with the recommendations made by Hoener (1995) that students mentorship, job-shadowing, apprenticeship, internship and corporate education from the beginning of schooling that maintain a theme of focus that students work to acquire skills will enable them to gain employment in industry or become self-employed.

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The study also revealed that involving full-fledge working experience that will enable student's solve technical problems, attaching students to experienced craftsmen/ technicians and engaging students in industrial work experience scheme to gain practical skills are work-based learning activities that will enhance school-to-work transition of Technology Education graduates. These findings are in cognizance with recommendations made by Egbita (2006) that apprenticeship and students involvement in a supervised work help students to learn, think, solve problem and develop their work-skills which in turn facilitates their transition from work to a relatively working position.

The study also revealed that, matching students with expert to gain practical experience in the use and maintenance of machines, tools, equipment and instruments will enhance school-to-work transition of technology education graduates. This finding is in harmony with the suggestion made by Rauner (1999) that, learning which is situated to practical, work-related context is both faster and more effective than learning which is purely classroom-based and unrelated to the context which is to be applied. Students gain access to a relatively working position by acquiring skills that are relevant to their possible careers. In a study of basic skills training projects in UK workplaces by Finlay, Hodgson and Steer (2007), it was revealed that the availability of on-site learning opportunities was viewed as an important factor in increasing workers' engagement in learning.

4. Conclusions

School-to-work transition of Technology Education graduates if applied by the tertiary institutions, industries, community and government in Niger States shall bring great success to the students offering Technology Education in the tertiary institutions in the State. This will also encourage the developing of industries in Niger state.

It is necessary that the Lecturers of Technology Education in tertiary institutions and industrial supervisors acquaint themselves with school-to-work transition in all their day-to-day activities for efficient imparting of skills, results and quality product. It can be concluded that school-based learning and work-based learning will enhance school-to-work transition of Technology Education graduates and serve as impetus for the development of industries in Niger State.

5. Recommendations

1. School-based learning should be encouraged in the Technology Education departments in tertiary institutions by involving students in workplace experience through workshops, conferences and field trips.

2. Institutions through the Department of Technology Education should obtain materials; tools and equipment that are not available in the school workshop from industries for classroom use to enable the students acquire practical skills.

3. To improve work-based learning for Technology Education students, students should be attached to experts in industries who will demonstrate to them how to practically perform some operations in the industry.

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4. Students should be engaged in Student Industrial Work Experience Scheme (SIWES) to gain practical skills on various fields of technology education.

5. Tertiary institutions offering Technology Education and industries should jointly give students supervised practical application on how to perform basic skills in Technology and industry.

6. Parents, communities, and larger society should assist in enhancing school-to-work transition of Technology Education students by allowing the students to demonstrate what they have learnt in the classroom into real world situation.

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