Enhancing School-To-Work Transition of Technology Education Graduates for Infrastructural Development in Tertiary Institutions in Niger State

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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. Two research questions were developed and two null hypotheses were formulated and tested at the probability of 0.05 level of significance. Twenty Four items structured questionnaire were developed and used for the study while 3 experts were engaged to face-validate the instrument. 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 as 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 department in tertiary institutions by involving students in workplace experience through workshop, conferences and field trip for infrastructural development in Niger State.

Keywords: School-to-Work, 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 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 nowadays as long and perilous, unlike the short and direct routes

transition of Technology Education graduates?

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

1.3 Hypotheses

The null hypotheses formulated in order to carry out the study include:

H_{01}: There is no significant difference between the mean responses of Technology Education Lecturers and Industrial supervisors on the school-based learning activities that will enhance school-to-work transition.

H_{02}: There is no significant difference between the mean responses of Technology Education Lecturers and industrial supervisors on the work-based learning activities that will enhance school-to-work transition.

2. Methodology

The descriptive survey research design was used for the study. The study was carried out in Niger State. It covered the tertiary institutions offering Technology Education programme in Niger State. The population for the study comprised all the 68 Technology Education lecturers and 54 Industrial Supervisors in Niger State. The entire population for the study was 122. Since the population is 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. The researchers administered the questionnaire personally to all the 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 and t-test for testing the hypotheses at 0.05 level of significance. The decision point is between the upper limit of 4 and lower limit of 3 being 2.49 and 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. The null hypotheses were accepted where the value of t-calculated were less than t-critical table value and were rejected where the value of t-calculated is greater than t-critical (which is 1.96 in this case).

3. Results and Discussion

3.1 Hypothesis 1

H_{01}: There is no significant difference between the mean responses of Technology Education Lecturers and Industrial Supervisors on the school-based learning activities that will enhance school-to-work transition.

Table 1: The t-test Analysis of Mean Responses of Technology Education Lecturers and Industrial Supervisors 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	t-cal.
1	Involving students in workplace experience through attendance of professional conferences or workshops	3.04	0.89	2.81	1.20	1.18
2	Promoting student's as potential employees through informal linkages between the school and the industry.	3.37	0.88	3.06	1.12	1.64
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	1.18
4	Allotting more time for practical classes than for theory ones.	2.97	1.15	2.89	1.22	0.37
5	Ensuring that students embark on practical projects weekly to enhance their practical skills.	3.09	1.10	2.83	1.40	1.12
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	-1.01
7	Helping students to understand the workplace by embarking on field trips/excursions.	2.99	1.19	2.72	1.30	1.17
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	0.83
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	1.32
10	Involving workplace representatives in curriculum process and development in vocational and technical education.	2.85	1.24	2.72	1.37	0.56
11	Involving students in workplace experiences through organized tours to relevant industries	2.84	1.13	2.65	1.31	0.86
12	Allowing students to interact with industrial supervisors through brainstorming and advisory committees	2.91	1.22	2.72	1.28	0.83

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

SD_1 = Standard Deviation of Technology Education Lecturers,

SD_2 = Standard Deviation of Industrial Supervisors

t-cal = t-test calculated value.

Data presented in table 1 revealed that both respondents agreed with suggested school-based learning activities with mean scores ranging between 2.50 and 3.37. Standard deviations of respondents also ranged between 0.81 and 1.40. All the items had a calculated t-value less than the t-table value of 1.96 at 0.05 levels of significance and 120 degree of freedom. This indicated that significant difference does not exist between the mean responses of Technology Education Lecturers of tertiary institutions and Industrial Supervisors on the school-based learning activities that will enhance school-to-work transition of Technology Education Graduates of tertiary institutions. Therefore, the null hypothesis (H_o) was upheld at 0.05 level of significance.

3.2 Hypothesis 2

H_{02} There is no significant difference between the mean responses of Technology Education Lecturers and industrial supervisors on the work-based learning activities that will enhance school-to-work transition.

Table 2: The t-test Analysis of Mean Responses of Technology Education Lecturers and Industrial Supervisors on Work-based Learning Activities that will Enhance School to-work Transition of Technology Education Graduate

S/No	ITEMS	M_1	SD_1	M_2	SD_2	t-cal.
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	1.34
14	Attaching student to an expert in Technology Education to acquire practical skills in relevant fields.	2.75	1.16	2.59	1.30	0.71
15	Providing student with the opportunity to gain practical knowledge in safety practices.	3.56	0.70	3.56	0.60	0.03
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	1.06
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	1.78
18	Involving full fledge working experience that will enable students solve technical problems.	2.66	1.29	2.52	1.42	0.58
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	0.67
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	0.05
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	1.26
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	0.69
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	0.92
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	1.76

Data presented in table 2 revealed that respondents agreed with all the items as relevant work-based learning activities with mean scores ranging from 2.52 - 3.56. Likewise standard deviation shows a minimal deviation ranging from 0.60 - 1.42. All the items in work-based learning activities had a calculated t-value less than the t-table value of 1.96 at 0.05 levels of significance and 120 degree of freedom. This indicated that significant difference does not exist between the mean responses of Technology Education Lecturers and Industrial Supervisors on the work-based learning activities that will enhance school-to-work transition of Technology Education Graduates of tertiary institutions. The null hypothesis (H_{02}) was therefore upheld at 0.05 level of significance.

4 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 work of Okogba (1991) who pointed out that involving student to professional conferences and workshops will enhance their learning ability toward skills acquisition. 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 creates 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 help student to understand the workplace, embarking on field trips/excursion to industries by the students and allotting more time for practical classes than for theory ones will enhance school-to-work transition of Graduates. These findings are in agreement with recommendation made by Beck (1994) who posits that, integration of theory and practices 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 engage in reading literatures and 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 agreed 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 workplace and school-based curriculum should incorporate workplace skills.

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 that will enable them gain employment in to industry or become self-employed.

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. 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.

5. 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 infrastructures at tertiary institutions 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 identified will enhance school-to-work transition of Technology Education graduates and serve as impetus for the development of infrastructure in Tertiary Institutions 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.
4. Students should be engaged in Student 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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