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PROFESSIONAL IMPROVEMENT NEEDS OF INDUSTRIAL TECHNICAL EDUCATION TRAINERS FOR QUALITY INSTRUCTIONAL DELIVERY IN THE UNIVERSITIES IN ENUGU STATE.

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Abstract

The study focused on professional improvement needs of Industrial Technical Education trainers for quality instructional delivery in the universities in Enugu State. The study was carried out in the University of Nigeria, Nsukka (UNN) and Enugu State University of Science and Technology (ESUT) being the only institutions offering Industrial Technical Education programme at university level. Two research questions guide the study, while one null hypothesis was formulated and tested at 0.05 level of significance. The population for the study was 57 comprising of 28 lecturers and 29 technical personnel (instructors and technologists) from the Departments of Industrial Technical Education, University of Nigeria, Nsukka and Enugu State University of Science and Technology respectively. No sampling was carried out since the population was small and manageable. Descriptive survey research design was adopted for the study; while 5 point Likert scale instrument made up of three sections A, B, and C was used for data collection. The instrument contained 24 items with internal consistency determined using Cronbach Alpha method which yielded a reliability coefficient of 0.79. Mean was used to answer the research questions where as Standard Deviation was used to compare the responses. T-test for independent sample was used to test the null hypotheses at 0.05 level of significance. The study found that Industrial Technical Education trainers need professional development in the use of Information and Communication Technology for instructional delivery, as well as practical experiences in the related industries on the use of emerging technologies for effective training purposes. It was recommended among others that administrators of tertiary institutions offering Industrial Technical Education programmes should organize professional development programmes for trainers within their institutions to encourage better participation of trainers without excessive financial involvement, and that incentives should be made available for Industrial Technical Education trainers who are willing to travel outside their local institutions to be part of professional development programmes.

Keywords: *Professional; Improvement; Needs; Industrial; Technical; Education; Trainers; Instructional Delivery and Universities.*

Introduction

The acquisition of relevant knowledge, skills, and attitude remains a life line for any country's emancipation from technological dependence, poor economic status and chronic unemployment of youths and adults alike. As such, there is the need to ensure that Technical Vocational Education and Training (TVET) is given the priority and support it deserves to make it relevant through the alignment of skills

with the needs of the related industries and the society at large.

TVET as a concept can be seen as education that emphasizes in addition to general education, the acquisition of practical skills, competencies, and attitudes related to various occupations. Federal Republic of Nigeria (2013) defined TVET 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 the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. TVET takes place in different forms and at various levels of Nigerian education system ranging from lower basic to tertiary level. But this paper focuses on TVET at the Nigerian tertiary education system, with Universities offering Industrial Technical Education in Enugu State, South-Eastern Nigeria as the main focus. Those universities include University of Nigeria, Nsukka and Enugu State University of Science and Technology (ESUT).TVET programmes offered at Federal Universities of Technologies are Electrical and Electronics, Automobile and Mechanical Productions, Agriculture and Business Education, Building and Woodwork (Ismail &Mohammed, 2015). However, at the University of Nigeria, Nsukka and Enugu State University of Science and Technology (ESUT), Electrical and

Electronics, Automobile and Metalwork, and Woodwork are grouped under a common classification of Industrial Technical Education.

Industrial Technical Education focuses on the impartation of skills related to industrial applications in the area of building and woodwork, electrical and electronics, and automobile and metal work.

Industrial Technical Education according to Abassah (2011), offers training that borders on acquisition of knowledge and skills in woodwork, metalwork, electrical/electronics, welding and fabrication, building, auto-mechanics etc including workshop organization and management. Uzoagulu (2016) stated that Industrial Technical Education is made up of three major areas of emphasis including Building and Woodwork Technology, Electrical/Electronic Technology, and Mechanical and Metal Works Technology. Uzoagulu noted that Industrial Technical Education offered answers to questions regarding who should work in industries; and what criteria should be used to determine them; this it does by providing and equipping individuals with skills and competences needed in related industries. The basic industrial skills areas emphasized in Industrial Technical Education include equipment/ tool maintenance, electrical/electronic technology, machine building and design, quality control, building/woodwork technology, mechanical production and metalwork technology, management and industrial staff development, management of material resources and maintenance of tools/equipment (Uzoagulu, 2016). However, skills acquisition by the students in specific occupational trades is squarely dependent on the availability of professionally trained academics (lecturers) and technical personnel (instructors and technologists) who themselves have perfected in pedagogical and technical skills respectively.

Professional trainers in TVET institutions are of different forms depending on the role they play in a training programme. Those who impart knowledge of principles and theories in the universities are the lecturers, while those who impart technical information as well as practical skills in the workshops are technical personnel (technologists and instructors). Hence, Grollmann (2008) acknowledged different profiles of TVET training personnel to include ,but not limited to teachers or lecturers working in formal school or college settings and providing instruction in vocational courses; instructors and laboratory assistants working in school or college settings in vocational laboratories who teach with a high degree of autonomy or sometimes act as assistants to other vocational teachers; and then trainers, tutors and others in enterprises who integrate training and education functions into their jobs to varying degrees (for example, from incidental to full-time teaching of trainees and apprentices). In dual systems of vocational education, for instance, this function is often separated from human resource development functions within some companies, while in others this distinction is not strongly maintained, Grollmann observed. This is in line with the opinion of Serafini (2018) who remarked that trainers, teachers and their professional development are essential to sustain and further develop the attractiveness, the quality and the labour market relevance.

Teachers are those professionally trained to impart knowledge and skills to the learner. Serafini (2018) defined a teacher as one who‘s primary or major activity in the school is student‘s instruction, involving the delivery of lessons to students. In the context of this study, a teacher refers to the professionally trained personnel who is primarily responsible for the training of students on principles and skills in Industrial Technical Education. These include lecturers, technologists, instructors who possess either University degree or its equivalent as basic professional qualification that enabled them to execute their training roles. However, Teachers throughout the world are experiencing an unprecedented transition in their role and status, and demands on them are becoming increasingly multifaceted. Many teachers do not have the training or experience to cope with this changing role (European Commission, 2000). As such, there is the need for their professional development.

Professional development is important for the improvement of teacher practice. Avalos (2010) remarked that teacher professional development is about teachers learning, learning how to learn, and transforming their knowledge into practice for the benefit of their students‘ growth. Professional development avails teachers the opportunity to develop and demonstrate their profound competence against set standards; such an opportunity will be original, creative and thought provoking. Professional development is absolutely essential for the strength, vibrancy and future of the teacher‘s profession (Abassah, 2011). Professional developments activities are targeted towards the improvement of competencies that will enable trainers perform their jobs more effectively. European Commission in Mgijima (2016) opined that teaching competences are thus complex combinations of knowledge, skills, understanding, values, and attitudes leading to effective action in classroom situation. Continuous professional improvement needs of the lecturers, instructors and technologists in Industrial Technical Education for the enhancement of instructional delivery to students is therefore the main focus of this

paper, and not formative professional development for certification. Hence, the study aimed at ascertaining the professional developmental needs of trainers so as to be sure of the angles where developmental efforts will be channeled. This is in line with the opinions of OECD, Wilcox, Institute for Learning, Institute for Continuing Professional Development (CPD), in Mgijima (2014) that basing CPD programmes on assessed needs ensures upgrading and updating the right knowledge and skills to maintain the quality and relevance of professional services, so that it has a positive impact on practice and learner experience. Mgijima therefore explained that a training needs assessment (TNA) is often the first step in the training cycle, wherein its results form the basis for the planning of professional development programmes. Training needs assessment is —an on-going process of gathering data to determine what training needs exist so that training can be developed to help the organization accomplish its objectives Brown (as cited in Mgijima, 2014). Citing Fisher and Tees, Mgijima clarified that TNA can follow either a problem-analysis or a competency-based method. In competency-based method the emphasis is on proactively locating and describing competences critical to successful performance. Hence, this study will endeavour to determine those competencies that Industrial Technical Education trainers need to improve for better instructional delivery, and also look at the main constraints that hamper their profession development. Hence, Professional development needs of Industrial Technical Education trainers in the University of Nigeria Nsukka and Enugu State University of Science and Technology (ESUT) will therefore be determined through the help of Training Needs Assessment Questionnaire that will elicit responses from the lectures, technologists and instructors on specific areas of professional competencies where further development is needed for improved performance. The study therefore focused on, technical and technology integration skills needs, and barriers to effective professional development.

Statement of the Problem

The society continues to evolve, and so are the social, economic and technological aspects of the society. Consequently, the technological skills that are taught in schools, and TVET institutions in particular becomes obsolete shortly after a while, with the attendant need for updating and integration of emerging skills in the field of technology. Hence, to ensure that the skills imparted on TVET trainees are in line with the skills need of the society and industry, there is need for occasional up-skilling of trainers to equip them with adequate knowledge and skills in order to inculcate into students industry-specific skills so as to enhance their relevance and employability upon graduation.

Significance of the Study

This study is relevant since the outcome could serve as a guide for the planning of a training programme for the professional development of industrial technical education trainers. Researchers who carry out related studies will also use the report as guides to enable them execute similar research study. Also the employability of Industrial technical education graduates in related industries will be greatly enhanced along with the relevance of their acquired skills to the wider society when taught by trainers whose competencies have been upgraded in line with the findings of this study.

Literature Review

Professional development can be viewed from different perspectives For instance, Bell and Gilbert, Day and Sachs, Stoll, Harris, and Handscomb in Girvan, Conneely and Tangney(2016) remarked that for teachers, professional development is both an intellectual and personal endeavour which requires not only engagement with new and differing ideas about education, trying out new activities and developing classroom practice, but also an emotional response as personal beliefs are challenged. WhileMgijima noted that Continuing professional development (CPD) is often associated with on-going training activities that take place after the completion of initial training. Also OECD in Mgijima presented a

broader view of CPD as encompasses systematic activities to prepare lecturers for their job, including initial training, induction courses, participation at conferences, seminars or workshops and in-service training. Hence, professional development should be seen as training exposures that lecturers engage in which include intellectual, emotional and personal dimensions in addition to their initial trainings in other to carry out their classroom functions effectively. Professional developments activities are targeted towards the improvement of competencies that will enable trainers perform their jobs more effectively.

European Commission in Mgijima (2016) opined that —teaching competences are thus complex combinations of knowledge, skills, understanding, values, and attitudes leading to effective action in situation. While Evans in Mgijima (ibid) looked at competences as —professional standards which specify the attributes, skills and knowledge and understanding that a qualified teacher is expected to reach and maintain‖. Some of the specified competencies include, Content knowledge (of subject), Policy and legislative context ,Student background, Language, Manage teaching and learning environment effectively, Assessment , ICT, Demands on students, Positive ethics, Reflection; others are Pedagogical competences in teaching my subject field, Knowledge of the curriculum, Student behaviour and classroom management ,Approaches to individualized learning, Approaches to individualized learning, Teaching students with special needs, Approaches to developing crossoccupational competencies for future work, New technologies in the workplace, Student career guidance and counseling (Durgun, 2015; Government

Gazette 36554 cited in Mgijima, 2016; Serafini, 2018)

Success of professional development efforts suffer from some setbacks ranging from personal to organizational and other factors. Some of the perceived barriers include lack of pre-requisites, cost (i.e. it was too expensive unaffordable), lack of employer support, conflicts with work schedule, family responsibilities, lack relevant offers, absence of incentives for participating (Serafini, 2018).

Related Empirical Studies

Works related to the present study have been carried out by some researchers in other places. However, no study in the best knowledge of the authors of the present work has been executed to determine professional improvement needs of industrial technical education trainers in the Universities in Enugu state of Nigeria, and also challenges faced by trainers regarding their professional development. In terms of related works,

Mgijima (2014) carried a study captioned —Needs-based Professional Development of Lecturers in Further Education and Training Colleges: A Strategic Imperative‖ in South Africa. The study endeavored to determine the competencies needed by lecturers for effective classroom delivery, and also the level of participation of lecturers in professional development programmes among others. Survey was adopted in the study. The study is related to the present study since both looked at professional development of lecturers, though the present study extended the search to other trainers, namely the technical staff (technologists and instructors). The present study also looked at the challenges that militate against trainers' participation in professional development programmes which was not part of the other study. Another related study was carried out by European Training Foundation (ETF) (2016) in Kosovo captioned —continued professional development for vocational teachers and trainers.‖ Survey study approach was adopted in the study. Like the present study it looked at the professional development need of Teachers, but did not determine the challenges that militate against teachers' involvement in professional development programmes, which the present study covered.

Research Questions

The following research questions guided the study:

1. What are the professional development competencies needed by Industrial Technical Education trainers?
2. What are the challenges to the professional development of Industrial Technical Education trainers?

Hypothesis

The following null hypothesis will be tested at 0.05 level of significance

$H0_1$: There is no significant difference in the mean responses of lectures and technical personnel on the professional development competences needed by Industrial Technical Education trainers for effective instructional delivery.

Methodology

The study adopted a descriptive survey research design. The design was adopted because it was aimed at describing events the way they are (Nworgu, 2006). The area of the study was Enugu State. The study area was considered suitable since two institutions offering Industrial Technical Education are located within study area; also, the availability of vocational trainers of all cadres who would respond objectively to the study questionnaire by virtue of their background and experience. The population for the study is 57 consisting of 28 lecturers and 29 technical personnel from the Department of Industrial Technical Education, University of Nigeria, Nsukka and Department of Vocational and Technical Education, Enugu State University of Science and Technology. A five -point Likert scale structured questionnaire titled ‗Industrial Technical Education Trainers Professional Improvement Needs Questionnaire (ITETPINQ)' was used to illicit information on research questions 1 and 2. The instrument was made up of three sections namely A, B and C; and contained 27 response items. The response categories for Research question 1 were Highly Needed (HN), Needed (N), Undecided (UD), Not Needed (NN), Highly Not Needed (HNN). Whereas the response categories for Research question 2 were Strongly Agree (SA), Agree (A), Undecided (UD) Disagree (D) Strongly Disagree (SD) respectively, and rated as 5,4,3,2 and 1 in

both cases. The instrument was face validated by three experts. Two from the Department of Industrial Technical Education, University of Nigeria, Nsukka (UNN) and one from the Department of Vocational and Technical Education, Enugu State University of Science and Technology (ESUT). The reliability of the instrument was determined using Cronbach Alpha technique which yielded 0.79. Copies of the checklist and questionnaire were personally administered on the respondents by the researchers and completely retrieved on the spot. The data collected were analyzed using Statistical Package for Social Sciences (SPSS), version 18. Mean score and Standard Deviation were used to answer the research questions, while the null hypothesis was verified using t-test statistics. The decision rule was based on Real Limit of Numbers for item analysis: Highly Needed/Strongly Agree (4.50 - 5.00); Needed/Agree (3.50 - 4.49); Undecided (2.50 - 3.49); Not Needed / Disagree (1.50 - 2.49) and Highly Not Needed / Strongly Disagree (1.00 - 1.49).

Table 1: Mean and Standard Deviation of Responses of Respondents on the professional Competencies Needed by Industrial Technical Education Trainers (N=57)

S/N	Item Statement	Mean	SD	Decision
1	Content knowledge (of subject)	3.96	0.19	Needed
2	Knowledge of Policy and legislative context of TVET	3.39	0.49	Needed
3	Effective communication in the language of teaching and learning	3.89	0.31	Needed
4	Manage teaching and learning environment effectively	3.77	0.42	Needed
5	Assessment and its use to improve learning	3.75	0.43	Needed
6	Effective integration of ICT in instructional delivery	3.75	0.43	Needed
7	Knowledge of work place demands so as to equip learners with those demands.	3.77	0.42	Needed
8	Positive ethics and values that befits the profession	3.65	0.48	Needed
9	Ability to reflect critically with colleagues for improvement of practice.	3.33	0.58	Needed
10	Knowledge of the curriculum	3.39	0.49	Needed
11	Student behaviour and classroom management	3.61	0.49	Needed
12	Approaches to individualized learning	3.25	0.54	Needed
13	Teaching students with special needs	3.46	0.57	Needed
14	Approaches to developing cross-occupational competencies for future work	3.47	0.66	Needed
15	New technologies in the workplace	3.72	0.45	Needed
16	Student career guidance and counseling	3.54	0.66	Needed
17	Students background	3.84	0.45	Needed
18	Updating professional knowledge and skills in relation to current practices in the workplace	2.22	0.82	Not Needed

Results

Research Question 1: What are the professional development competencies needed by Industrial Technical Education trainers?

Table 1 presents the mean ratings of opinion of respondents on the professional Competencies Needed by Industrial Technical Education Trainers.

Seventeen items recorded mean ratings ranging from

3.25 to 3.96 which indicated that those competencies were needed. One item recorded mean rating of 2.22 which indicated not needed. The standard deviation values of the 18 recorded mean ratings of 3.14 to 3.51 which indicated agree. Three items recorded mean ratings of2.54 to 2.89 which indicated disagree. The Standard Deviation values of the 7 items ranged between 0.72 to 1.00 which showed that the opinions of the respondents did not deviate much from the mean, and hence they were unanimous in their views about those listed challenges

$H0_1$: There is no significant difference in the clustered around the mean. Hence, there was a consensus in the opinions of the respondents regarding the need for improvement it their education trainers? professional competencies listed in Table 1.

Research Question 2: What are the challenges to professional development by industrial technical education trainers? professional competencies listed in Table 1.

Table 2: Mean and Standard Deviation of Responses of Respondents on the Challenges to Professional Development of Industrial Technical Education Trainers? (N=57)

S/N	Item Statement	Mean	SD	Decision
19	Lack of pre-requisites	2.89	0.86	Disagree
20	Cost (i.e. it was too expensive—unaffordable)	3.19	0.72	Agree
21	Lack of employer support	2.54	1.00	Disagree
22	Conflicts with work schedule and assigned duties	3.25	0.98	Agree
23	Family responsibilities	3.14	0.85	Agree
24	Lack relevant offers	2.72	0.75	Disagree
25	Absence of incentives for participating	3.51	0.80	Agree

items ranged between 0.19 to 0.82 which showed that the responses of the respondents were not too far from the mean, but are rather Table 2 presents the mean ratings of the opinion of respondents on the challenges to professional development of Industrial Technical Education trainers. Four items mean responses of lecturers and technical personnel on the professional development competences needed by Industrial Technical Education trainers for effective instructional delivery.

Table 3: T-test analysis for comparing data obtained from Lecturers and technical personnel on the professional development competences needed by Industrial Technical Education trainers for effective instructional delivery.

S/NO	ITEMS	X_1	SD_1	X_2	SD_2	df	t-cal	Sig.	Decision
1	Content knowledge (of subject)	4.00	.00	3.93	.00	55	1.41	.003	S
2	Knowledge of Policy and legislative context of TVET	3.43	.50	3.34	.48	55	.640	.231	NS
3	Effective communication in the language of teaching and learning	3.93	.26	3.86	.35	55	.808	.104	NS

4	Manage teaching and learning environment effectively	3.68	.48	3.86	.35	55	-1.66	.001	S
5	Assessment and its use to improve learning	3.64	.49	3.86	.35	55	-1.95	.000	S
6	Effective integration of ICT in instructional delivery	3.82	.39	3.69	.47	55	1.15	.023	NS
7	Knowledge of work place demands so as to equip learners with those demands.	3.86	.36	3.69	.47	55	1.51	.003	S
8	Positive ethics and values that befits the profession	3.75	.44	3.55	.51	55	1.56	.006	S
9	Ability to reflect critically with colleagues for improvement of practice.	3.25	.65	3.41	.50	55	-1.07	.447	NS
10	Knowledge of the curriculum	3.36	.49	3.41	.50	55	-.432	.400	NS
11	Student behaviour and classroom management	3.64	.49	3.59	.50	55	.432	.400	NS
12	Approaches to individualized learning	3.07	.54	3.41	.50	55	-2.48	.060	NS
13	Teaching students with special needs	3.21	.57	3.69	.47	55	-3.44	.770	NS
14	Approaches to developing cross-occupational competencies for future work	3.07	.66	3.86	.35	55	-5.66	.026	S
15	New technologies in the workplace	3.60	.49	3.83	.38	55	-1.88	.000	S
16	Student career guidance and counseling	3.71	.46	3.37	.78	55	1.98	.000	S
17	Students background	3.85	.52	3.83	.38	55	.243	.835	NS
18	Update of professional knowledge and skills in relation to current practices in the workplace	3.71	.46	3.37	.77	55	-1.87	.000	S

Key: $X_{1=}$ Mean of lecturers $X_{2=}$ Mean of technical personnel; $SD_{1=}$ Standard Deviation of lecturers; $SD_{2=}$ Standard Deviation of technical personnel; Df= degree of freedom; Sig= significance level (2 tailled); t t-cal= calculated values of t-test SPSS; S= significant; NS= Not Significant

The data in Table 3 showed the summary of t-test analysis on the responses of lecturers and technical personnel (instructors/technologists) on the professional development competences needed by Industrial Technical Education trainers for effective instructional delivery. The data revealed that nine items had their p-values ranging from .000 to .026 which is less than 0.05 level of significance. This implies that there is a significant difference in the mean responses of lecturers and technical personnel (instructors/technologists) on the professional development competences needed by Industrial

Technical Education trainers for effective instructional delivery. On the other hand, nine items had their pvalues ranging from .060 to .835, which are higher than 0.05 level of significant. This indicated that the null hypotheses of no significant difference in the mean responses of lecturers and technical personnel on the professional development competences needed by Industrial Technical Education trainers for effective instructional delivery is accepted.

Discussion of Findings

The results obtained from research question one showed that Industrial Technical Education trainers agreed that they needed professional development in seventeen out of the eighteen competencies listed. Some of those competencies included competency in effective integration of Information and

Communication Technology in instructional delivery, classroom management, new technologies in the workplace among others. But the result showed that trainers were of the opinion that they had no need for updating professional knowledge and skills in relation to current practices in the workplace. The findings were in agreement with the opinion of Durgun (2015); Mgijima (2014) and Serafini (2018) who asserted that skills trainers needed competency improvement in policy and legislative context, student background, language, effective management of teaching and learning environment, assessment, ICT, demands on students, positive ethics, reflection pedagogical competences in teaching their subject field, knowledge of the curriculum among others. The trainers indeed needed to improve their competency in other to discharge their training responsibilities with positive results. Supporting this view, Mgijima (2016) stated that teaching competencies are thus complex combinations of knowledge, skills, understanding, values and attitudes leading to effective action in classroom situation.

The responses of the Industrial Technical Education trainers to items 19-25 under research question 2 that sought to identify the challenges to professional development by Industrial Technical Education trainers showed that trainers agreed to the fact that expensive cost of professional development training, family responsibility, conflicts with work schedule and assigned duties and absence of incentives for participation in professional development are challenges to their professional development. The respondents however disagreed that lack of prerequisites, lack of employer support and lack of relevant offers constituted challenges to their professional development training. The perceived challenges are in line with the opinion of Serafini (2018) who opined that success of professional development efforts suffers from some setbacks ranging from personal to organizational and other factors. Serafini listed some of the perceived barriers to include lack of pre-requisites, cost (i.e. it was too expensive, unaffordable), lack of employer support, family responsibilities, lack of relevant offers and absence of incentives for participating. Also, Girvan, Conneely and Tangney (2016) observed that for teachers, professional development is both an intellectual and personal endeavour which requires not only engagement with new and differing ideas about education, trying out new activities and developing classroom practice, but also an emotional response as personal beliefs are challenged. Personal and emotional factors could influence either positively or negatively a trainers engagement in professional development. Hence, employ support, lack of incentive for engagement in professional development and family responsibilities are very sensitive issues to be addressed so as to promote Industrial Technical Education trainers involvement in continuous professional development.

Conclusion

The findings of the study showed that the trainers needed professional improvement in

most of the competencies identified. Hence, opportunities should be created within the institution for those required competencies to be acquired through professional development training programmes. Such training programmes should emphasize competencies as effective integration of ICT in lesson delivery, how to use new technology in teaching among others.

Also some perceived hindrances to professional development should be taken care of both by the government and the institutions administration. Hence, cost should be subsidized to boost participation, incentives should be provided for participation, and counseling should be provided to enable trainers harmonize their work with family demands to ensure success in their profession.

Recommendation

In line with on the conclusion of this paper, the following recommendations have been made:

1. Administrators of tertiary institutions offering Industrial Technical Education programmes should organize professional development programmes of trainers within their institutions to enable effective participation of trainers without excessive financial involvement.
2. Incentives should be made available for Industrial Technical Education trainers who are willing to travel outside their local institutions to be part of professional development programmes taking place at distant locations.
3. The institutional administrators should liase with the relevant industries to organize training programmes where industry experts will demonstrate state of the art practice and new technologies for machine operations and work processes.
4. Industrial Technical Education trainers should harmonize their family responsibilities with their work, income and time in order to take advantage of professional development opportunities.

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