Journal of Education and Practice
ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)
Vol 3, No 16, 2012
www.iiste.org

The Influence of Teaching Approaches among Technical and Vocational Education Teachers towards Acquisition of Technical Skills in Kano State-Nigeria

Ali Idris[1, 2] (Corresponding Author)

Department of Technical and Engineering Education

[1]University Teknologi Malaysia, 81310 Skudai, Johor, MALAYSIA., Department of Science and Technology Education

[2]Bayero University Kano, 700241, Gwarzo Road, Kano-Nigeria

Tel: +60146463488, E-mail: aliidris.gwale@yahoo.com

Muhammad Rashid Rajuddin[1]

Department of Technical and Engineering Education

[1]University Teknologi Malaysia, 81310 Skudai, Johor, MALAYSIATel: 07-5534437,

E-mail: p-rashid@utm.my

Abstract

This paper examines the influence of various teaching approaches adopted by teachers of technical subjects in Kano-State of Nigeria, towards the production of competent and skilled graduates for industrial, economic and national development. The teaching methods employed for this study were: Problem Based Method, Context Based Method, Student Centred Method, Demonstration Method, Project Based Method, Lecture Method, Tutorial and Seminars, Fieldwork and Computer Based Method. Two hundred and twenty (220) male and female technical teachers in post-primary schools were used for the study. The findings revealed that, problem based, context based, and fieldwork teaching methods were significant predictors of technical skills among students. A significant difference in the teaching methods among the male and female teachers in six teaching approaches was found while no significant difference was observed in three other teaching approaches.

Keywords: Teaching Approaches, Technical Skills, Technical Teachers

1. Introduction

The existing technical skills gap between the students of technical and vocational education and the industry has become a major concern by parents, business leaders and educators in Nigeria. Employers have continually expressed their concern over the present graduates of technical and vocational education programs for their short of relevant skills required for employment. Therefore, the technical teachers who are responsible for the training and preparation of students for skills acquisition have great challenges in the cause of delivering their duties. Today's economy is full of sophistication with lot of competition among job seekers all over the world in which teachers of technical and vocational education must strive hard to ensure that students are given adequate and necessary foundation at basic level for the purpose of self-reliance and national development (Ferguson, 2007).

The main goals of teaching technical and vocational education in Nigerian technical colleges are to prepare students for the world of work through the acquisition of theoretical and practical skills (NPE, 2004). The students are expected to be equipped with the necessary knowledge within their trades in order to face the challenges of the labor market (Omo-Ojugo and Ohiwerei 2008). However, the current teaching approaches adopted by most of the teachers are focused on rote learning and "memorization and regurgitation of facts" which have dominated the system of technical and vocational education in Nigeria (Oduolowu, 2007).

Teaching methods or approaches could be regarded as the process and procedures adopted by the teachers in order to guide and prepare students through an organized and planned learning activities for the purpose of accomplishing educational goals. Proper selection of teaching method for a particular classroom situation enables the teacher to accomplish specific goals in their subject areas (Kennedy, 2011). Teaching methods involve the entire process of implementation of the principles of teaching for successful accomplishment of teaching tasks; therefore, teachers should focus on the selection of their teaching methods towards their subject matters and also consider the characteristics of the teacher, technical and environmental conditions, goals of teaching etcetera. It is also important to note that 'teaching is learning' and for teaching method to be effective towards knowledge dissemination, the process should be flexible so as to develop and broaden the horizon of the students, develop critical thinking among the learners as well as creating vision for both teachers and students in order to promote talents and business potentialities (Shiyan, 2010). The preparation of skilled graduates through

appropriate teaching approaches that will ensure tolerance, cooperation, and self-expression as well as self-reliant is highly recommended by educationists towards the teaching of skilled subjects in Nigeria (Ajibola, 2008).

It is a common practice in Nigeria where a teacher stands on the chalk board and delivers lesson through verbal instruction while the students serve as passive listeners and take note from the board. The approach is being practiced for all subject areas that even requires practical due to unavailability of teaching and learning materials in the schools (Osakinle, Onijigin and Falana, 2010). In the same vein, Alseddiqi and Mishra (2010) postulated that, the teaching and learning processes in technical and vocational education is still conducted using traditional way without injecting new approaches by the teachers which is actually depriving the students from learning the right skills needed for self-employment. Dar-Chin,Shao-Tsu & Ming-Hua (2006) believed that, the world is a global village with full of technological and economy based knowledge that offer the opportunity for people to prosper, this has resulted in changes witnessed by the society and industrial sector, the social values diversification, the teaching and learning approaches etcetera. To this end, students could no longer be passive learners and rely on what they could get from the school alone but must engage in different methods of improved learning through appropriate teaching methods in order to develop their thinking skills and problem solving ability.

1.1 Technical and Vocational Education Teacher

The initial stage of technical and vocational education teacher training should be multi-faceted in nature by focusing towards technical skills and pedagogical knowledge. The training is aimed at preparing the teacher with adequate knowledge and skills for the purpose of guiding and directing the learning activities in a specified trade subject. The technical and vocational education teacher must be equipped with technical skills, pedagogical knowledge and methodology of teaching technical subjects. However, due to the high expectations in the training of technical and vocational education students towards employment after graduation, there is also the need for competent and highly equipped technical teachers who possessed practical skills and methodology for imparting such skills to the students at various stages (Maclean and Kerre, 2009).

1.1.1 Research Objectives

The main objective of this research is as follows:

1. To examine the influence teaching approaches on technical skills by the teachers on technical and vocational education students.

2. To determine whether teaching approaches differ among the teachers in terms of gender.

1.1.2 Research Questions

1-Do teaching approaches influence technical skills among students?

2-Do the teaching approaches differ among the teachers in terms of gender?

1.2 Research Methodology

The study was a survey research conducted on all the trade teachers in technical colleges as well as some technical teachers of secondary schools in Kano State of Nigeria. The respondents that constituted the research were 220 (two hundred and twenty) teachers in various technical fields. A structured questionnaire was adapted by the researcher that was duly validated in terms of content by four experts. The reliability coefficient was sought using Cronbach's Alpha which yielded the result of 0.944. The instrument consisted of 51 items on a five point scale of Very High Importance (5), High Importance (4), Moderate Importance (3), Low Importance (2) and Very Low Importance (1). In analyzing the results of the study, independent t-test and regression analysis was conducted using SPSS version 17.0.

1.3 Results and Discussions

The analysis of teaching approaches involved various types of methods commonly used by teachers in the preparation of students' learning. The methods were presented to the teachers in the instrument in order to ascertain the influence of each method in the teaching of technical skills. The methods employed for this study were: Problem Based Method, Context Based Method, Student Centred Method, Demonstration Method, Project Based Method, Lecture Method, Tutorial and Seminars, Fieldwork and Computer Based Method. The results of the objective one on the influence of teaching approaches on technical skills in Table 1 shows the computed regression analysis and also reveals a significant model for the predictors of technical skills among the teaching methods with a multiple regression coefficient of 0.73, [$F(9,208) = 26.389$, $P < 0.05$; adjusted $R^2 = .533$]. To this end, the table shows that problem based, context based, and fieldwork teaching methods were significant predictors of technical skills among students as presented in Figure 1.

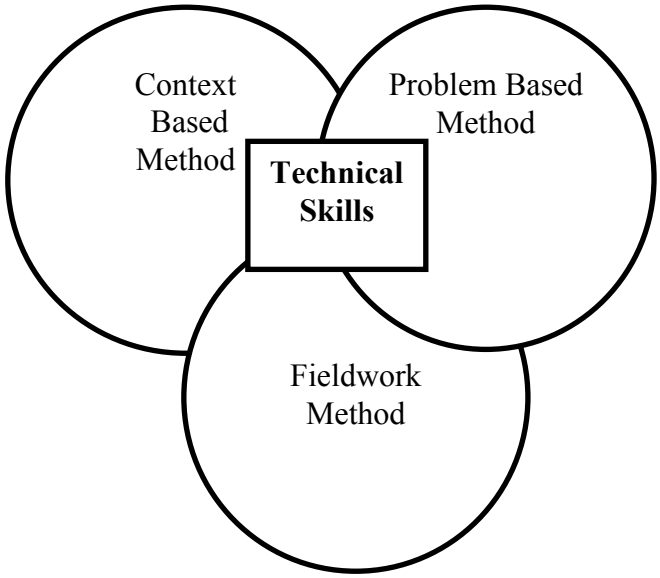

Figure 1: Teaching Approaches towards Technical Skills

Technical skills are the basic rudiments that a learner should possess in the area of his study based on the designed modules of the curricula. Therefore, the researcher believed that the three teaching methods identified are considered as the most important approaches in the teaching of technical skills. Good teaching approach enables the learner to acquire vital information which could be transformed towards the discovery of facts and provide opportunity for the learner to make useful contributions to the learning activities as well as taking care of various categories of learners that are within the boundary of below average, average and above average (NOUN, 2008).

In general, the graph in Figure 2 on teaching approaches shows a strong relationship with technical skills in the training of technical and vocational education students. The TVE teachers are entrusted with the duty of training students to acquire the needed skills for the world of work. Therefore, the teachers are expected to focus and direct their resources towards the development of skills, attitudes and work-related knowledge. They should also explore other approved methods and practices for the teaching of technical subjects. Similarly, in a research conducted by Rau, Chu, Ling and Chang (2006) postulated that, in the present knowledge-based economy, teaching approaches must be tailored towards developing the students' ability to "learn how to re-learn", to apply, to disseminate, to use and to innovate; to be able to respond to changes. In a related study conducted by Bello, Danjuma and Adamu (2007) stated that, the future and hope of any nation solely depend on the ability of the younger generations and the quality of technical and vocational education accorded to students towards national development.

Table 2 indicates a computed independent t-test for the differences in teachers' application of various teaching methods among gender. A significant difference was found among the gender in problem based $t(218) = 3.36$, $p < .05$, context based $t(218) = -2.50$, $p < .05$, lecture and $t(218) = 2.98$, $p < .05$; tutorial and seminars, $t(218) = 3.49$, $p < .05$, fieldwork $t(218) = 4.00$, $p < .05$ and computer based methods $t(218) = 2.41$, $p < .05$. However, no significant difference was found among teachers' gender in the application of Student centred $t(218) = 9.11$, $p > .05$; demonstration method $t(218) = -1.80$, $p > .05$ and project based method $t(218) = 9.11$, $p > .05$.

The findings in Table 2 shows a significant difference in the teaching methods among the male and female teachers in six teaching approaches while no significant difference was observed in three other teaching approaches. This could not be unconnected to the fact that technical skills need a physical involvement during the process in which female teachers are not very much passionate about such activities in Nigeria. Various reasons could be put to explain the teaching approaches used by women in technical and vocational education. One of such reasons as observed in a research conducted by Egun and Tibi (2010) is the societal stereotype on female gender role and the conflict between work and family responsibility, customs, attitudes and other behavioral decisions which play a significant role in the cultural practices in Nigeria, this has contributed immensely in the obstruction of women in technical and vocational education. Nnachi, (2008) also maintained that, barriers mediate negative consequences in the occupational career of females over males which was reinforced through circumscription and cultural belief that male are expected to perform better in science, mathematics and other technical subjects while females are more better in art subjects such as home economics,

textiles, languages etc. This actually made the teachers to dwell much on teaching the skills subjects in their own way thereby neglecting the right teaching methods that are needed for students' learning.

1.4 Conclusion

In conclusion, while the result of the study shows the importance of teaching approaches towards the development of technical and vocational education in Nigeria, the hope and future of any nation depends on the future of its youths which require high resource investment for both long and short term benefits of the country. In a situation where the youths are properly trained and equipped with the needed technical skills, a lot of developments are realized through economic stability, empowerment of families and communities, and also focusing towards sustainable developments. Many countries have realized the significance of developing the youths on sound technical and vocational education through appropriate teaching methods in order to realize their educational objectives. As the world is witnessing technological changes in all aspect of the field of technology, Peter, Abiodun and Jonathan (2010) postulated that, students must adapt to changes in line with their levels of thinking on handling machineries and equipment so as to commensurate with the industrial needs. This could only be achieved through the right teaching methods in order to equip the students with higher order thinking skills for them to be easily adaptable and flexible in their work. The use of the most appropriate teaching method is the only options left in the current globalize economy. Therefore, the government of Nigeria at all levels should give more attention towards training and training of technical teachers towards improving their teaching skills for an efficient delivery of the program. Up-to-date instructional materials should be provided for teachers in order to expose the students to the newly developed technologies in the world as well as develop creativity amongst the students.

Due to this fact, the teachers need training and re-training in order to learn more on the new areas of teaching methods for them to be able to impart the necessary knowledge and skills to their students. The government should also find a means of evaluating the teachers at the end of the year or there about in order to assess their progress. Therefore, in order to determine the quality of technical and vocational education program in Nigeria, the teachers need to be given proper attention for them to excel. The teachers need to learn new methods of teaching as well as improve ways of imparting the necessary knowledge and skills for the training of competent graduates that could be self-reliant and also fit into the industry. Teaching methods could be learned through attending workshops and seminars organized by various educational institutions as well as universities which could be of a high benefit to the teachers in their respective areas. They also need to supplement their practical skills through visits to industries and sites for exposure and learning that could not be gotten in classroom.

References

Ajibola, M. A. (2008). Innovations and curriculum implementation for basic education in Nigeria: Policy priorities and Challenges of practices and implementation. *Research Journal of international studies*, 8(5), 51-58.

Alseddiqi, M., and Mishra, R. (2010). A Diagnostic Study On The Teaching And Learning Styles In Engineering Education. Computing and Engineering Researchers' Conference. Dec 2010. University of Huddersfield, UK.

Bello, M.I. Danjuma, I.M. and Adamu, A.Y. (2007). A Survey of Vocational Training Needs of 15-25 Years old out-of-school Youths in Bauchi Metropolis. *Journal of Career and Technical Education,* 23(1), 56.

Dar-Chin, R., Shao-Tsu., Ping, L.and Ming-Hua (2006). Development and Teaching Approaches of Technical and Vocational Education Curricula. *9th International Conference on Engineering Education*.23 – 28 July. San Juan, PR.

Egun, A. C., and Tibi E. U. (2010).The gender gap in vocational education: Increasing Girls access in the 21st century in the Midwestern states of Nigeria. *International Journal of Vocational and Technical Education*, 2(2), 18-21.

Ferguson, R. L. (2007). Foundational Skills: The Currency That Purchases Opportunity in Tomorrow's Workplace Techniques. *Journal on Career and Technical Education*, 82(6),62.

Kennedy, O.O. (2011). Reappraising the Work Skill Requirements for Building Technology Education in Senior Secondary School for Optimum Performance in Nigeria. *European Journal of Applied Sciences,* 3 (2), 46-52.

Maclean, D.W and Kerre, B. W. (2009). A Technical and Vocational Teacher-Training Curriculum International Handbook of Education for the Changing World of Work. Springer Science+Business Media, 8(12), 1319-1332.

NOUN-National Open University of Nigeria (2008). *Business Education Methods*. Published by National Open University of Nigeria.

National Policy of Education (2004). Federal Republic of Nigeria. Lagos: NERDC Press.

Nnachi, R.O. (2008). *Sex Education in Nigeria School*: A Psychological Position. Owerri: Barloz Publishers

Oduolowu, E. A. (2007). A Comparison of the Universal Basic Education (UBE) programme in Nigeria and the Grundskola of Sweden. *Essays in Education, 20*, 90-93.

Omo-Ojugo, O. O. and Ohiwerei, O. F. (2008). School Factors Affecting the Teaching and Learning of Business Education Studies in Nigeria Schools. *Pakistan Journal of social studies*,5 (7) 663-675.

Osakinle, E.O., Onijigin, E.O., and Falana, B.A (2010). Teaching Methods and Learners' Environment in a Nigerian University. *African Journal of Basic & Applied Sciences,* 2 (1-2): 7-10.

Peter, O. I., Abiodun, A. P., and Jonathan, O.O. (2010).Effect of Constructivism Instructional Approach on Teaching Practical Skills to Mechanical Related Trade Students in Western Nigeria Technical Colleges. *International NGO Journal*, 5(3), 059-064.

Rau, D.C., Chu, S.T., and Lin, Y. P. (2006). Development and Teaching Approaches of Technical and Vocational Education Curricula. 9th International Conference on Engineering Education. July 23 – 28, 2006. San Juan, PR

Shiyan, W. (2010). Teaching Methods for a School-Based Curriculum-IEEE. International Conference on Networking and digital Society. (ICNDS). China, 30-31 May, Volume 2, 508-511.

Lawrence, S. et al. (2001). Persistence of Web References in Scientific Research. *Computer*. 34, 26-31.

Table 1. Regression Analysis for the influence of teaching approaches on Technical skills

Predictor Variables	**B**	**SEB**	**β**	**t**	**R^2**	**Adjusted R^2**	***p***
Problem Based Method	-.162	.040	-.246	-4.073	.533	.513	.000
Context Based Method	.342	.042	.491	8.115	.533	.513	.000
Student Centred Method	.026	.046	.036	.569	.533	.513	.570
Demonstration Method	.027	.045	.037	.593	.533	.513	.554
Project Based Method	-.048	.044	-.087	-1.086	.533	.513	.279
Lecture Method	-.064	.036	-.133	-1.792	.533	.513	.075
Tutorial and Seminars	.023	.036	.053	.624	.533	.513	.533
Fieldwork	.279	.050	.434	5.546	.533	.513	.000
Computer Based Method	.070	.038	.147	1.833	.533	.513	.068

B = unstandardized beta coefficient, SE B =standard error, β= standardized beta coefficient, R (multiple regression coefficient) = .730, t= t-test statistics, p= significant value

Table 1. Independent t- test for the difference among gender for teaching methods

Teaching Methods	Sex	Mean	Std. Deviation	t	*p*
Problem Based Method	Male Female	3.9180 3.4000	.78366 1.06274	3.36	.001
Context Based Method	Male Female	4.0546 5.3784	.68522 7.04096	-2.507	.013
Student Centred Method	Male Female	4.0984 3.9730	.66394 1.14228	.911	.363
Demonstration Method	Male Female	4.0237 4.5315	.54250 3.63748	-1.807	.072
Project Based Method	Male Female	4.0710 3.7568	.97799 1.21118	1.709	.089
Lectured Method	Male Female	3.1803 2.5676	1.09707 1.32373	2.98	.003
Tutorial and Seminars	Male Female	3.2623 2.4595	1.26537 1.32486	3.492	.001
Fieldwork	Male Female	4.1475 3.5405	.76681 1.14491	4.00	.000
Computer Based Method	Male Female	3.8306 3.3243	1.09381 1.47298	2.41	.017

N = 220, DF = 218, P < .05

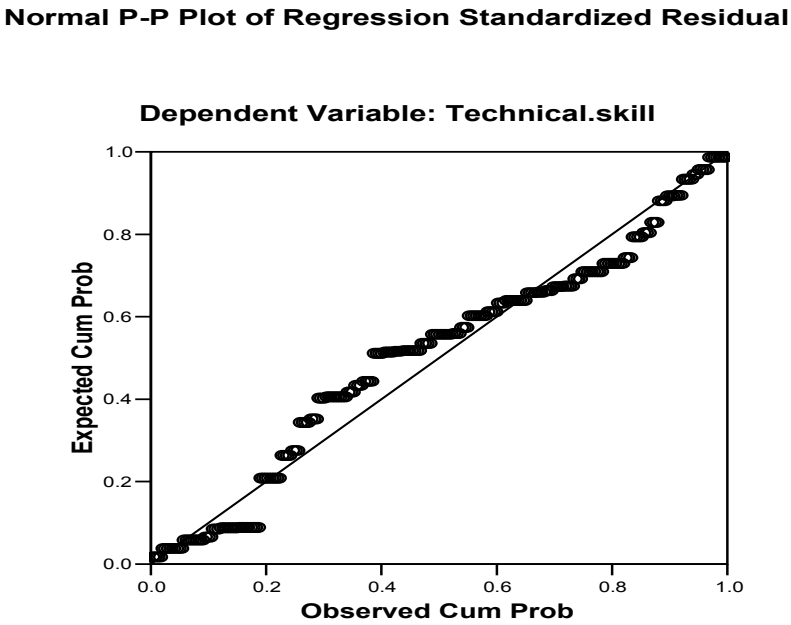

Figure 1: Relationships between teaching approaches and technical skills