

IDENTIFICATION OF TECHNICAL TEACHERS' PROFESSIONAL SKILLS REQUIRED FOR IMPROVING THE QUALITY OF GOVERNMENT SCIENCE AND TECHNICAL COLLEGE STUDENTS IN KANO STATE NIGERIA

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ABSTRACT

The purpose of the study was Identification of Technical Teachers' Professional Skills Required for Improving the Quality of Government Science and Technical College Students in Kano State-Nigeria. The study was guided by two research questions. A descriptive survey research design was used. The population of the study was 81 technical teachers and 15 administrators making a total of ninety-six (96) respondents. The entire population was used for the study. The instrument used for this study was a structured questionnaire, constructed with a five-point rating scale named Identification of Technical Teachers' Professional Skills Required for Improving the Quality of Government Science and Technical College Students in Kano State (ITPSRIQGSTCSKSQ) which was used for data collection. The reliability coefficient of the instrument was 0.95. The data for the study were analyzed using Microsoft Excel, Mean Standard Deviation, and Grand Mean. The findings of the study among others: Technical teachers required professional experiences like the ability to continue by the acquisition of new skill/information needed to keep pace with both technology and teaching profession advancement, for improving the quality of government science and technical college students in Kano State. Based on these findings, recommendations among others are: Technical teachers should have frequent participation in the industry-academic project, workshop, and seminar, to improve the quality of government science and technical college students.

Keyword: - Technical Teachers, Professional Skills, Technical Education.

INTRODUCTION

A profession is an occupation that is dependent upon particular intellectual study and training for the endowment of skilled service to other members of society; government, private agencies for a positive payment or remuneration (Dada and Fadokun, 2010). The National Teachers Institute (NTI, 2015) defined a profession as an occupation that demands of all who work in it a prolonged and specialized knowledge, skill, and attitudes that are necessary for a

particular service in the society. Swick (2014) stated that a profession is a process of having a specific knowledge area with associated abilities that apply to the welfare of the public such as medicine, law, and teaching, ranked by the public at the top of prestigious occupations. Therefore, it is a job that requires special skills or knowledge through special training with a high level of education; and it utilizes functional education and mental ability rather than manual or physical labor. In the same vein, Mele (2018) defined a profession as a type of job that requires an advanced and lengthy period of training. But professionalism in another way according to Chris (2017), is defined as ‘those policies and bombast employed by members of a profession in seeking to advance the status, salary, and situations. Professionalism is the firm devotion to courtesy, uprightness, and accountability when dealing with persons or other companies in the business environment, teaching, and learning process, this peculiarity often includes a high level of brilliance going above and beyond basic obligation Osmond (2017).

According to the Organization for Economic Cooperation and Development (OECD, 2010), technical teachers are simply defined as those who are primarily responsible for imparting practical and theoretical skills instructions. Technical teachers are the professional, who imparts knowledge, learning experiences at their disposal to stimulate, guide, direct and facilitate learners to acquire adequate mastery of the skills being imparted (Akindutire and Ekundayo, 2012). Technical teachers are those who teach academic and technical content to deliver students with the skills and knowledge essential to enter an occupation (Osmond, 2017). Therefore, Technical teachers in technical colleges are supposed to become fully professional teachers by combining both the teaching skills with the required professional skills.

Skill is thought of as a quality of the act that does not rely solely upon a person’s fundamental, distinctive capacities but must be developed via exercise, practice, and experience (Chell, 2013). Skills are more commonly used in the context of trade, occupations, and vocations and are usually aimed at practical purpose (Kumazhege & Egunsola, 2014). Thus, skills in general should be understood as being something that can be learned and enhanced with practice. However, professional skill is the ability to be proficient, adequate ownership of the required skills and knowledge; qualification, or capacity (Ouwasola, 2014). He also posited that professional skill in a convincing term replicates the ability to do something in dissimilarity with the extra outmoded ability to establish knowledge. The fundamental objective of teaching is to integrate the professional experience into educational courses, based on this, a teacher must use professionally experienced to integrate theory and practice, and also use professional internships to enhance students’ practical experiences, and further cultivate the professional skills required the teachers in their students (Chung, 2015). According to the Teachers Registration Council of Nigeria (FRN, 2013), professional knowledge is the ability of teachers’ knowledge to covers all the themes and topics stipulated in the subject curriculum issued by the appropriate curriculum authority.

Quality is the grade of quality at a satisfactory price and control of inconsistency at a satisfactory cost (Ibrahim, 2012). Quality according to Ibrahim (2012) is an instrument that refers to the process of estimate, accreditation, review, and external inspection for the educational outcome. In TVET, quality is unswervingly connected to the accomplishment of the learning outcomes (knowledge, skills, and capability achieved after the learning process) that accomplishes the key stakeholders’ expectations: - students, parents, employers, and the public in general (Ayonmike, 2013). The quality of the TVET system is a key and important factor to any nation that needs to earn the benefits of this all-important facet of the education system.

Technical colleges are established for the training of students to acquire practical skills, knowledge, and attitude. However, the major goals of technical colleges are to produce efficient and relevant craftsmen that will promote industrial development in the area of maintenance, production of goods, and general services (Ibrahim, 2017). While Government Science and Technical College Students according to Federal Republic of Nigeria (FRN, 2013) are expected to possess skills in motor vehicle mechanics work, agricultural implements and equipment, auto electrical work, mechanical engineering craft practice, welding and fabrication, electrical installation and maintenance work, radio television servicing, air conditioning, and refrigeration, block laying bricklaying and concreting work, painting and decorating, plumbing and pipefitting, carpentry and joinery, furniture making and upholstery, automobile engineering practice. Therefore, it is against this background that the researcher identified the professional skills required for improving the quality of government science and technical college Students in Kano State.

Statement of the Problem

Technical colleges are established for the training of students to acquire practical skills, knowledge, and attitude. However, the major goals of technical colleges are to produce efficient and relevant craftsmen that will promote

industrial development in the area of maintenance, production of goods, and general services (Ibrahim, 2017). It is known that a large number of Science and Technical College graduates are jobless for years, while the service, maintenance, production, and construction industry complain of a lack of skilled workers. Aluko (2014) observed that experience requirements are now stated in terms of competencies and skills rather than years spent in training. To support this, the Nigerian Employers Consultative Association NECA, in Urien (2017) stated that, companies were not recruiting but adopting employment protection strategies due to the very poor quality of graduates, who do not meet the demands of the industry. There is needed to look at the most potent way out of this problem. One of the strategies that can help in solving the problem of unemployment among the students is professional skills (Ouwasola, 2014).

Acquisition of professional skills by technical teachers in Government Science and Technical Colleges will solve the problem of unemployment, created by poor quality students. The problem of this study was that technical teachers were having inadequate professional skills like professional experiences and professional knowledge required by technical teachers for improving the quality of government science and technical students. This study is therefore imperative to come up with the professional skills required by technical teachers.

Purpose of the Study

The main purpose of the study is to identify the:

- Professional experiences required by technical teachers for improving the quality of government science and technical college students in Kano State.
- Professional knowledge required by technical teachers for improving the quality of government science and technical college students in Kano State.

Research Questions

The following research questions were formulated to buttress determine the objective of the study

- What are the professional experiences required by technical teachers for improving the quality of government science and technical college students in Kano State?
- What is the professional knowledge required by technical teachers for improving the quality of government science and technical college students in Kano State?

METHODOLOGY

The study was carried out using a descriptive survey research design. This study fits into descriptive survey design in the sense that, it aimed at collecting data from a representative sample of technical teachers and administrators in technical colleges. The study was carried out in the Kano State of Nigeria. The population of the study was 96 respondents. Consisting of the school administrators (Principals, Vice Principals, and Senior Masters) and Technical teachers of the Government Science and technical colleges in Kano state. The population of this study is not large, so the entire population was used in the study. Uzoagulu (2011) maintained that, in a study using the whole subjects or objects (population), sample and sampling technique are not employed.

The instrument for data collection was a structured questionnaire tagged Identification of Technical Teachers' Professional Skills Required for Improving the Quality of Government Science and Technical College Students in Kano State (ITTPSRIQGSTCSKSQ). The questionnaire which was designed by the researchers was divided into sections A, and B. Section A elicited a response on Professional Experiences, and section B response to Professional Knowledge. The instrument was designed using a five-point rating scale, the response options and their assigned numerical values were as follows: Highly Required (HR) 5 points; Required (R) 4 points; Moderately Required (MR) 3 points; Slight Required (SR) 2 points, and Barely Required (BR) 1 point. The instrument was suggested to face and content validation by three experts in the relevant area of the study.

The reliability of the instrument for internal consistency was determined using the split-half method. The instrument was trial-tested on 6 administrators and 30 technical teachers in two technical colleges from Jigawa State, which was not part of the study area. Pearson Product Moment Correlation Coefficient was used to correlate the result of the two halves. The reliability index of the instrument was found to be 0.95. The 96 questionnaires were administered filled by the respondents and then retrieved by the researchers, which represent 100% returned. The data collected

was analyzed using Microsoft Excel. Mean and standard deviation was used to answer the research questions, Real limits were assigned to response options which were used to determine the cut-off points for interpreting and making a decision.

Decision Rule: Items of the research questions with a mean response of 3.50 and above were considered as Required Professional Skills, while those with a mean below 3.50 were considered as Moderately Required Professional Skills.

RESULTS

Table 1: Mean Rating and Standard Deviation of Opinion of Technical Teachers and Administrators on Professional Experiences Required by Technical Teachers to Improving the Quality of Government Science and Technical College Students. N= 96 (n1= 81, n2= 15)

S/N	Items	\bar{X}_1	\bar{X}_2	\bar{X}_G	σ	Remarks
Professional Experiences						
1	Use the professional internships to enhance student's practical experience	4.41	4.67	4.45	0.73	Required
2	Cooperate with industry-academic research project department	4.19	4.20	4.19	0.63	Required
3	Frequent participation in the industry-academic project, workshop, and seminar	4.14	4.27	4.16	0.60	Required
4	Linking classroom teaching with industry services	4.28	4.27	4.28	0.67	Required
5	Integrating work-related knowledge into the classroom	4.15	4.40	4.19	0.60	Required
6	Designing courses using professional information	4.16	4.33	4.19	0.62	Required
7	Understanding the needs of various relevant career path	4.02	4.20	4.05	0.57	Required
8	Instruction and management of students in the classroom	4.33	4.40	4.34	0.69	Required
9	Ability to help the student understand the importance of positive work attitudes	4.37	4.53	4.40	0.71	Required
10	Ability to help the student understand the importance of learning teamwork	4.42	4.53	4.44	0.74	Required
11	Ability to help the student understand the importance of mastering work competencies	4.44	4.53	4.46	0.74	Required
12	Commitment to embed reflective practice about effective teaching in a school context	4.22	4.33	4.24	0.66	Required
13	Ability to transform academic knowledge into practical knowledge	4.31	4.13	4.28	0.67	Required
14	Provide students with appropriate career-related advice	4.10	4.20	4.11	0.61	Required
Grand Mean		4.25	4.36	4.27	0.66	Required

Source: Field survey, 2020

Key: \bar{X}_1 = technical teachers, \bar{X}_2 = administrators \bar{X}_G = Grand mean of items, σ = standard deviation, **n1** = number of technical teachers **n2** = number of administrators

Table 1 revealed that a total of fourteen professional experience items were presented to the respondents. As indicated in the table, the opinion of technical teachers and administrators indicated that all 14 items under this research question are required as professional experiences by technical teachers for improving the quality of government science and technical college students in Kano State. 3 items (1, 10, and 11) stand out as the items with the highest grand mean ranging from 4.44 to 4.46.

The standard deviation of the two groups of respondents shown close but different ranges below 0.74 which indicated that the responses in each group were closely unanimous in their opinions. The grand mean of all the two

groups shown a 4.27 mean. Based on this data presented and analyzed, the result has clearly shown that professional experiences like use the professional internships to enhance student's practical experience, frequent participation in the industry-academic project, workshop and seminar, commitment to embed reflective practice about effective teaching and learning in a school context, ability to help the student understand the importance of mastering work competencies and ability to help the student understand the importance of positive work attitudes are required by technical teachers for improving the quality of government science and technical college students in Kano State.

Table 2: Mean Rating and Standard Deviation of Opinion of Technical Teachers and Administrators on Professional Knowledge Required by Technical Teachers for Improving the Quality of Government Science and Technical College Students. N= 96 (n1= 81, n2= 15)

S/N	Items	\bar{X}_1	\bar{X}_2	\bar{X}_G	σ	Remarks
Professional Knowledge						
15	Ability to initiate a learning process that enables the student to achieve specific pedagogical objectives	4.54	4.53	4.54	0.83	Highly required
16	Ability to demonstrate practical knowledge	4.58	4.67	4.59	0.88	Highly required
17	Appropriate selection of teaching methods	4.56	4.60	4.56	0.82	Highly required
18	Ability to gather necessary learning material before the real instruction	4.47	4.60	4.49	0.76	Required
19	Ability to structure learning experience to provide learning in the shortest time for effective learning	4.44	4.20	4.41	0.75	Required
20	Adequate knowledge of the subject matter	4.49	4.73	4.53	0.79	Highly required
21	Appropriate selection of teaching aids	4.48	4.80	4.53	0.80	Highly required
22	Ability to establish a relationship among facts in your area of specialization	4.52	4.40	4.50	0.81	Highly Required
23	Ability to aid students in the basic process skills of observing the practical procedures	4.36	4.40	4.36	0.70	Required
24	Ability to attend workshop/seminar with science base teachers where guided discovery as a method of instruction is mostly used which equally can be applied in TVE	4.31	4.27	4.30	0.67	Required
25	Ability to exchange observations on innovation ideas in the teaching profession	4.31	4.40	4.32	0.72	Required
26	Ability to continue by acquisition new skill/information needed to keep pace with teaching profession advancement	4.28	4.27	4.28	0.67	Required
27	Ability to co-opt outside experts in various areas of specializations for continuous assistance in practical work.	4.26	4.13	4.24	0.65	Required
Grand Mean		4.43	4.46	4.44	0.76	Required

Source: Field survey, 2020

Key: \bar{X}_1 = technical teachers, \bar{X}_2 = administrators, \bar{X}_G = Grand mean of items, σ = standard deviation, **n1** = number of technical teachers **n2** = number of administrators

Table 2 revealed that a total of thirteen professional knowledge items were presented to the respondents. As indicated in the table, the opinion of both technical teachers and administrators indicated that 6 items (15, 16, 17, 20, 21, and 22) were highly required professional knowledge and the 7 items (18, 19, 23, 24, 25, 26 and 27) were required professional knowledge.

The standard deviation of the two groups of respondents shown close but different ranges which is below 0.88 which indicates that responses in each group were closely considered undisputed in their opinions. Thus, the grand mean of all the two groups shown a 4.44 mean. Based on the data so far presented in table 2, it was indicated that professional knowledge items such as the ability to continuous by acquisition new skill/information needed to keep pace with both technology and teaching profession advancement, ability to attend workshop/seminar with science base teachers where guided discovery as a method of instruction is mostly used which equally can be applied in TVE, ability to exchange observations on innovation ideas and viewpoint of fellow technical teachers teaching profession and ability to initiate learning process that enables the student to achieve specific pedagogical objectives are required by technical teachers for improving the quality of government science and technical college students in Kano State.

Findings

The findings of this study revealed summarily that:

- Technical teachers required professional experiences for improving the quality of government science and technical college students in Kano State.
- Technical teachers required professional knowledge for improving the quality of government science and technical college students in Kano State.

Discussion

The findings of this study disclosed that technical teachers require all the fourteen items presented in table 1 as required professional experiences for improving the quality of government science and technical college students in Kano State. This conforms to the findings of Chung (2015) who found that teaching qualification, type and number of professional licenses held, and contribution in continuing professional education meaningfully affected teaching quality, and that educators' work experience pointedly affected students' learning fulfillment, the professional experience had a moderating consequence on the relationship between teaching quality and students' learning fulfillment. It is also in line with the findings of Ufonabasi & Friday (2014) which revealed that there was a significant influence on teacher qualification and experience on the quality of chemistry education.

The findings of this study concerning research question 2 also revealed that technical teachers required professional knowledge like the ability to demonstrate practical knowledge, ability to initiate and support learning process that enables the student to achieve specific pedagogical objectives, adequate knowledge of the subject matter, appropriate selection and uses of teaching aids, ability to gather necessary learning material, practice and test such material before the real instruction for improving the quality of government science and technical college students, this is in line with findings of Ololube (2006) who found out that teachers required professional knowledge and professional teaching skills, as well as a broad base of general knowledge (e.g., morals, service, cultural capital, institutional survey) primarily, to carry out instructional processes successfully, teachers should be both academically and professionally skilled.

CONCLUSION

Professional experiences and professional knowledge are among the professional skills required by every technical teacher. These make teachers improve and learn better ways of teaching, develop better organization and planning skills, it is positively associated with student achievement gains throughout a teachers' career. On the other hand, Professional experiences and professional knowledge improve the quality of students which makes them enjoy a plethora of benefits thereby snowballing the effectiveness of their performance in the classroom and have a better learning outcome.

RECOMMENDATIONS

Based on the finding of the study, the following recommendations were made



- Technical teachers should have professional experiences for improving the quality of government science and technical college students.
- Technical teachers should possess professional knowledge for improving the quality of government science and technical college students.

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