

Competency improvement needs of teachers of brick/blocklaying and concreting works

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ABSTRACT

This study determined the competency improvement needs of teachers of brick/blocklaying and concreting works for effective teaching in technical colleges in Edo and Delta States. Three research questions gave credence to the study and two null hypotheses tested. A descriptive survey research design was used. A population of 64 respondents made up of 42 brick/blocklaying and concreting works (BBCW) teachers and 22 technologists was used. A 56- item competencies structured questionnaire was the instrument for the study. Three experts validated the instrument. A reliability coefficient of 0.74 was obtained. Research questions were answered with Mean and standard deviation, while independent t-test statistic applied to test the hypotheses. From the findings, it was revealed that brick/blocklaying and concreting works teachers and technologist need competency improvements for classroom management, planning instructions, evaluation strategies and different types of instructional techniques. It was recommended among others that, BBCW teachers and technologist be exposed to regular workshops, seminars and trainings for capacity building on areas of needs identified in the study.

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1. INTRODUCTION

Education is one of the tools that help to modify the behavior of its recipients to become better citizens and thus contribute positively to the society. According to Federal Republic of Nigeria [1], the goals of education are to develop appropriate skills to bring about individuals that are sound mentally, physically and socially to enable them to live and contribute positively to society good. Such knowledge, skills and attitude are acquired through the training provided in basic, post-basic and career education. National Business and Technical Education Board [2] is charged with the responsibilities of assessing students' competencies in their final level, after which they would be awarded both the National Technical Certificate (NTC), and National Business Certificate (NBC) respectively. Technical colleges for today in Nigeria are called Government Science and Technical Colleges (GSTC). This institution specializes in training students in trade and modular courses in addition to general education and science subjects. It is established by the Federal and State Government to enhance vocational education. These set of students are expected to be equipped with basic and skills that would make them to be better citizens in the world of work, Federal Republic of Nigeria [3]. Technical colleges were established with the mandate to improve on the skill acquisitions as well as to encourage occupational development. According to Umunadi [4], skill development

is important ingredient for propelling and harnessing a nation's natural resources for economic stability and emancipation. The opulence of any given society may determine the extent to which the society develops. Nigeria as nation appears to be fully blessed with natural and resources, but these resources are not fully harnessed for the betterment of the society. Skill acquisition is a prelude to national prosperity.

Trades in technical colleges are grouped into four categories indicating their relationship. The four major groupings include Engineering Trades, Construction Trades, Miscellaneous Trades and Business Studies, Okafor [5]. The construction trade is further subdivided into various trade modular programmed which include Brick/Blocklaying and Concreting Works (BBCW), foundation, painting and decorations, plumbing works, site management, finishing surveying and architectural works among others. Brick/blocklaying and concreting works require the skills in performing a given task in mixing of mortar by hand, moulding of blocks, laying of blocks, kerbs, rendering of walls, wall tiling, check and laying of curved walls (arches). It also involves workability test on concrete (slump test), placing of concrete, application of admixture to concrete, compaction, curing and fixing of concrete material, Odu [6]. According to National Business and Technical Examination Board [2], the objectives of Brick/blocklaying and concreting work trades are to be able to read and interpret building construction drawings; apply basic safety principles of construction/contracture procedures; identify blocklaying and concreting materials and their uses; produce sound reinforced and mass concrete structure; state materials used for finishing and their application in construction works; supervise simple construction projects; and set-up sub contract business in brick/blocklaying works and demonstrate basic principle of site organization.

From the foregoing, it is obvious that BBCW centres around the psychomotor domain with relevant emphasis on cognitive and affective domain. By implication, it therefore means that the three domains of learning must be properly taught in the right proportion and level for learning to take place effectively. Learning is a change in behavior due to prior occurrence or information. According to Janse quoting Gagne [7] defined learning as a change in an individual's capacities that continues during a specific period, and that cannot be ascribed to the natural process of ageing. The author further stated that learning is a resource that individuals and groups of people can use to acquire the skills needed to become a full-fledged member of society is the acquisition of knowledge or skills through study, experience or by being taught. In essence, learning in brick/blocklaying can be said to be a gradual process which involves the acquisition of skills and knowledge putting together the three domains of learning. Learning in technical colleges ranges from class activities usually theoretical as well as practical activities which students acquire through imitation, repetition and occupational participation. Teaching according to Hornby [8] involves the process of using various method to deliver the subject matter to the students, most times, the teacher may be seen as translator or middle man between the curriculum and the world of work. For effective teaching to be said to have taken place, the learning experiences structured by the teacher must match the needs of the learner. Similarly, Fakaye [9] sees teaching of technical competencies inherent in Brick/blocklaying and concreting work as being effective only if the teachers in the trade areas are knowledgeable in theoretical and practical components as student quickly loose respect and confidence in the teacher who do not seems to possess the required competencies in the act of teaching and learning. However, to be competent means having enough knowledge and skills to do something to a satisfactory standard. In the context of this paper, it is expected that competent teachers of technology are by all means expected to possess the skills, knowledge required in the teaching of the subject matter and where this is lacking, improvement of teaching competency of the teacher is therefore needed.

Improvement is the process of making something better than what is was before. Improvement is the development of circumstances in which something that is lacking is provided to a high quality standard, Okwelle [10]. It is also described as enhancement of a process of economic, social, political and cultural changes engineered in a given society by the effort of internal and external stakeholders. He stressed that improvement requires, enhancement of human and social capital to optimize social and economic development. The need for improvement always arises when there is a gap to fill. Skills are generally defined as the ability to perform task effectively. Ogbu [11] conceptualized skills as practical ability experiences, proficiencies or competencies possessed and displayed in performing a specific task. However, there are different types of skills that are expected to be possessed by BBCW teachers which include, generic skills, cognitive skills, manipulative, drawing skills, measuring, safety skills, among others. They are also called technical skills.

Professional skills involves the methods, strategies and techniques, the teacher employs in the teaching process which include, effective classroom management, motivational skills, pedagogical/teaching methods, evaluation strategies, good and effective use of instructional materials, and others. Professionally, classroom management is an essential aspect of teaching and learning. It is a veritable tool in the process of passing instruction from the teacher to the students. Classroom management, according to Omenka and otor [12] is the process of creating favourable condition for instructions as well as regulating social behavior of

students. Brick/blocking and concreting works teachers are expected to develop classroom management skills such as discipline and maintenance of orders and skill for effective and efficient performance. Similarly teaching method according to Ogwo and Oranu [13] is a recurrent pattern of teacher behaviour applicable to various subject matter, and characteristics of one teacher.

Evaluation strategy or technique is another professional skill that brings block laying and concreting teacher to possess and find out how much knowledge students have, and how much progress is being made which helps to real the extent to which the objective of the programme is achieved. According to Okoro [14], evaluation is useful in the evaluation of teacher's ability and its effectiveness. This position was affirmed in Table 3 that Brick/Blocklaying and concreting works teachers need competencies in evaluating outcomes of learning in BBCW trade in technical colleges. However, when a teacher evaluates his students he is directly evaluating his own ability and effectiveness as a teacher. According to Yangben and Seniwoliba [15], once a teacher is not able take control of their classroom, it may be difficult for them to take the class on track. They further stated that, it takes more time to correct misbehavior caused by poor classroom management skills. This is further affirmed in Table 1 that teachers do not need brick/blocklaying and concreting works in classroom management. From their perspectives, classroom management involves a good communication between the teachers and the students, as well as good learning environment. Technical teacher seems to have deficiencies in planning and implementing instruction in technology. Akpomi and Amesi [16] stated that fifty percent of the teachers in Nigeria school system were not qualified to teach. Also, Adedigba [17] quoting Teachers' Registration Council of Nigeria revealed that most of the teachers employed into teaching profession in Nigeria do not meet the required qualification for engagement. This was further affirmed in Table 2 that BBCW teachers and technologists need competencies in applying teaching methods and techniques for effective teaching in technical colleges.

Similarly, one of the goals of technical education at all levels is to produce skilled personnel/individual who can be self-dependent and self-reliant. This is why general education is allotted 30 percent of the study time while trade theory practice and related studies are allotted 65 percent and remaining 5 percent of the study time is allotted to supervise industrial training work experience, World Bank Report [18]. With 65 percent of the study time allocated to the acquisition of occupational skills, it would be expected that graduates of technical colleges in BBCW would become fully prepared craftsmen. It is however worthy of mention that teachers and technologists do not differ in teaching and planning for instruction. This position was confirmed in Table 4 that there is no significant difference in the mean responses of BBCW teachers and technologists on the competencies improvement needs in planning instruction for effective teaching in technical colleges. Zeidan and Bishnol [19] stated that it has become worrisome among industrialists that craftsmen from technical institutions do not have required work skills for employment in building construction sub-sector.

The researchers are worried that, if technical teacher improvement needs are not addressed, they might continue to produce BBCW graduates that will not be able to secure jobs in our industries or set up their own businesses. It is against these backdrops that the study seek to establish competency improvement needs of teachers of Brick/Blocklaying and Concreting works for effective teaching in Nigeria technical colleges. However, the main purpose of the study was to determine the competency improvement needs of teachers of Brick/Blocklaying and concreting works for effective teaching in technical colleges. Specifically, the study determined the following: 1) competency improvement needs of teachers of BBCW in classroom management for effective teaching in technical colleges in Edo and Delta States; 2) competency improvement needs of teachers of BBCW in using teaching methods and techniques for effective teaching in technical colleges; 3) competency improvement needs of teachers of BBCW in applying evaluation techniques for effective teaching in technical colleges.

The following research questions guided the study:

1. What are the competency improvement needs of teachers of BBCW in classroom management for effective teaching in technical colleges in Edo and Delta States?
2. What are the competency improvement needs of teachers of BBCW in using teaching methods and techniques for effective teaching in technical colleges?
3. What are the competency improvement needs of teachers of BBCW in using evaluation techniques for effective teaching in technical colleges?

The hypotheses of the study are:

1. Mean responses of BBCW teachers do not differ from technologists on the competencies improvement needs in planning instruction for effective teaching in technical colleges.
2. Mean responses of BBCW teachers do not differ from technologists on the competency improvement needs in teaching the technical skills for effective instructions in technical colleges.

2. RESEARCH METHOD

A descriptive survey research was used to carry out the study. According to Leary [20], a survey design is used when information are collected about people's attitude, beliefs, feelings, opinions and life style from representative of the population. The variables considered were competency improvement needs of teachers/technologist in planning instructions, teaching contents of BBCW in classroom management, teaching methods/techniques, applying evaluation strategies and using instructional materials to support teaching. The 64 respondents were used as the population made up of 42 BBCW teachers and 22 technologists. There was no sampling as all the respondents were used for the study. A self-structured competency questionnaire was developed by the researchers on a four point rating scale. Three experts validated the questionnaires. A Cronbach alpha was used to determine the reliability which yielded a coefficient of 0.74. Statistical package for social sciences (SPSS version, 22) was used to analyze the data collected, mean and standard deviation were used to answer the research questions while the t-test was used to test the null hypotheses at .05 level of significance.

3. RESULTS AND DISCUSSION

3.1. Discussion of results

Research Question 1: What are the competency improvement needs of teachers of Brick/Blocklaying and Concreting works in classroom management for effective teaching in technical colleges?

Table 1 presents the summary of the responses on the competency improvement needs of teacher of Brick/Blocklaying and Concreting works in classroom management for effective teaching in technical colleges. The result shows that 13 items were rated with a mean scores "Between 3.07 - 3.44 with standard deviation of within the range of 0.57-0.77 all of which are less than the standard deviation threshold value of 1.96 indicating that the responses of the respondents are clustered around the means. One out of the 14 items had its mean between 2.66-2.40 and standard deviation 0.39-0.38 indicating that Brick/Blocklaying and Concreting teachers did not need competency 14, for classroom management. Generally, classroom management item with negative performance gap value not needed; in essence, both the BBCW teachers and technologist agreed that the 13 listed competencies are needed for teaching in technical colleges in Edo and Delta State respectively.

Table 1. Respondents' mean rating of teachers of brick/blocklaying and concreting works in classroom management

No of Items	BBCW Teachers N=42	SD of BBCW	Techno. N=22	SD of Techn.	Mean	SD	Remark
14	3.25	0.61	3.11	0.68	3.18	0.65	Needed

Source: Field Work, 2020

Research Question 2: What are the competency improvement needs of teachers of BBCW in using teaching methods and techniques for effective teaching in technical colleges?

Table 2: Present the summary of the responses on the competency improvement needs of teachers of Brick/Blocklaying and Concreting works in applying teaching methods and techniques for effective teaching in technical colleges. The result shows that, the entire 11 items were rated with a mean score of "Between 2.85-3.32. The standard deviation for the 11 items was in the range of 0.49-0.92, indicating that the responses of the respondents are clustered around the mean. This clustering of the responses gives credence to the reliability of the means that BBCW teachers and technologist needed all the 11 competencies in applying teaching methods and techniques for effective teaching in technical colleges. In essence, both the BBCW teachers and technologist need all the competencies for teaching in technical colleges. The result shows that the grand mean of all respondents gave a value of 3.13 which implies that all the items were needed.

Table 2. Respondents' mean rating of teachers of brick/blocklaying and concreting works using teaching methods

No of Items	BBCW Teachers N=42	SD of BBCW	Techno. N=22	SD of Techno.	Grand Mean	Grand SD	Decision
11	3.17	0.96	3.09	0.82	3.13	0.89	Needed

Source: Field Work, 2020

Research Question 3: What are the competency improvement needs of teachers of Brick/Blocklaying and concreting works in using evaluation techniques for effective teaching in technical colleges?

Data in Table 3 revealed that 10 out of 11 items were rated with a mean score of between 3.15-3.44. The standard deviation for 10 out of 11 items were in the range of 0.47-0.76, indicating that Brick/Blocklaying and concreting works teachers needed 10 competencies in evaluating outcomes of learning in BBCW trade in technical colleges. One out of 11 item was negative indicating that teachers of BBCW and technologist do not need the competency for evaluating the learning outcome in Brick/Blocklaying and concreting works. Generally, teachers of BBCW and technologist need all the 10 competencies for evaluating the outcome of the learning in BBCW trade except on one item with negative performance rating. The grand mean of all the responses yielded 3.18 which implies that all the items were needed

Table 3. Respondents' mean rating of teachers of brick/blocklaying and concreting works using evaluation

No of Items	BBCW Teachers N=42	SD of BBCW	Techno. N=22	SD of Techno.	Grand Mean	Grand SD	Decision
11	3.24	0.51	3.13	0.64	3.18	0.70	Needed

Source: Field Work, 2020

3.2. Hypotheses Testing

Hypothesis 1: Mean responses of BBCW teachers do not differ from technologists on the competencies improvement needs in planning instruction for effective teaching in technical colleges.

Table 4 presents the summary of analysis of variance (ANOVA) test among technologists. Result: $F(63) = 0.597, p = 0.444$. Since $p > 0.05$, we do not reject the null hypothesis, hence it was concluded that there is no significant difference in the mean responses of BBCW teachers and technologists on the competencies improvement needs in planning instruction for effective teaching in technical colleges.

Table 4. Summary of analysis of variance (ANOVA) test among technologists

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.218	3	.218	.597	.444
Within Groups	17.562	60	.366		
Total	17.780	63			

Hypothesis 2: Mean responses of BBCW teachers do not differ from technologists on the competency improvement needs in teaching the technical skills for effective instructions in technical colleges in Edo and Delta States

Table 5 presents the summary of analysis of variance (ANOVA) test between teachers and technologist. Result: $F(63) = 3.875, p = 0.328$. Since $p > 0.05$, we fail to reject the null hypothesis, hence we conclude by stating the null hypothesis that there is no significant difference in the mean responses of BBCW teachers and technologist on the competency improvement needs in teaching the technical skills for effective instructions in technical colleges.

Table 5. Summary of analysis of variance (ANOVA) test between teachers and technologists

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2.517	3	1.258	3.875	.328
Within Groups	15.263	60	.325		
Total	17.780	63			

Findings on Research question 1 as regards improvement needs of teachers in classroom management revealed 13 competency improvement needs of BBCW teachers in classroom management for effective teaching in technical colleges. The competencies included the need for classroom instruction, make tools and equipment in good condition, and also arrange classroom setting to accommodate various instructional activities, provision of safety poster in the laboratory to encourage correct safety habit in sequence and logical order, arrange benches and machines properly to facilitate learning; supervise students activities in classroom/laboratory, apply corrective measures to enhance discipline in classroom/laboratory, organize routine cleaning procedure for the laboratory facilities and assign leaders among students to

coordinate activities among themselves. The findings were in line with the opinion of Adeyemi and Uko-Aviomoh [21], that arrangement of classroom setting and proper accommodation of various instructional activities improves performance of learners.

The findings of the study as regards improvement needs of teachers of BBCW in using teaching methods and techniques reveal 11 competency improvement needs of teachers in applying teaching methods and techniques for effective teaching in technical colleges. The competencies include use of appropriate teaching methods in presenting instruction to students and employ team teaching during demonstration and make demonstration meaningful to the learners. The findings were in agreement with the report of Aniagbogu and Asad [22].

The effective teaching competencies include evaluate students affective domain, assess students psychomotor performances and use varieties of evaluation techniques and procedures to evaluate students learning difficulties during instructions. These findings were in agreement with Nickols [23] who found that strategy ensures the achievement of the objectives. However, the testing of the null hypothesis revealed that BBCW teachers and technologist required improvement in all the planning of instruction for effective teaching. The finding of the study was in agreement with Uwaifo and Uwaifo [24], that appropriate and achievable behavioural objectives must be stated for a particular lesson. Finally, testing of the second hypothesis in respect to competency improvement needs in Brick/Blocklaying and Concreting works skills for effective teaching in the following competency, concept of BBCW, workshop safety rules and regulations, type of building and material, concept of maintenance, information and communication technology among others. The findings were in line with the opinion of Bickett [25] opined that competencies use skills and combine them for use them in work settings in order to identify behaviors of workers that enable them to perform their assigned duties assiduously.. The finding of the study was greatly supported Uwaifo and Uwaifo [24] that technical teachers must acquire relevant competencies and skills for effective teaching of technical and technology related courses in technical colleges in Nigeria. The finding was also supported by Okolie and Elom [26] that for teaching to be effective certain relevant skills are required to enhance learning.

4. CONCLUSION

From the findings, both brick/blocklaying and concrete works teachers and technologists. Teaching in technical colleges in Edo and Delta States needed skill improvement for effective teaching of the students most especially in psychomotor and affective domain of learning. It is essentially for the acquisition of requisite skills, knowledge and understanding for entry into occupational employment and for self-reliance. There is quite unfortunate, that most BBCW teachers and technologists do not seems to possessed the needed and required competencies to function effectively in the classroom, so there is therefore the need for them to be trained and retrained for capacity building on current pedagogical techniques, strategies on effective teaching in-line with global practices through workshops and seminars, modern technologies.

It is recommended that teachers of BBCW be exposed to training workshops and seminars needed to function effectively in classrooms. Also, teachers of BBCW should be trained for effective classroom management. Teachers of BBCW should undergo training on different instructional techniques and use of modern technologies for instruction and BBCW teachers should be periodically trained on different evaluation techniques in instructional delivery.

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