

HUMAN CAPITAL DEVELOPMENT PRACTICES AND THE PRODUCTIVITY OF BRICK/BLOCKLAYING AND CONCRETING WORKS TEACHERS IN AN ERA OF UNCERTAINTIES IN NIGERIA

ABUSOMWAN Sunday Bello (Ph.D) & OZONO George (Ph.D)

Department of Vocational and Technical Education,
Faculty of Education, University of Benin,
Benin City, Edo State, Nigeria
Tel: +2348036701752
E-mail: sunday.abusomwan@uniben.edu

Abstract

This study focused on human capital development practices and the productivity of Brick/Blocklaying and Concreting Works teachers in an era of economic uncertainties in Nigeria. Two research questions guided the study while one null hypothesis was formulated and tested at .05 level of significance. The study adopted a descriptive survey research design. The population of the study comprised 179 male and 52 female BBCW teachers. The instrument used for the study was a questionnaire. The instrument was validated by three experts in the Department of Vocational and Technical Education, Faculty of Education, University of Benin, Benin City. The internal consistency of the instrument was determined, using Cronbach's Alpha formula method and it yielded a reliability coefficient of 0.78. The data collected were analysed using frequency counts, simple percentage (%), mean ($\bar{x}$) and standard deviation (SD), while independent t-test was used to test the hypothesis at .05 level of significance. The findings of the study showed that all the listed skills under technical and pedagogical competencies are highly required. Similarly, findings from the study also showed no significant difference in the mean ratings of male and female teachers of BBCW on the required human capital development practices of teachers in technical colleges in South-south Nigeria. The study concluded that, teachers of BBCW require high human capital development practices in both technical and pedagogical skills for effective and efficient instructional delivery in all the technical colleges. The study recommended that, both the technical and pedagogical skills be embedded or integrated into BBCW trade curriculum for technical colleges.

Keywords: Human capital development, productivity of teachers, Brick/Blocklaying and Concreting Works

Introduction

In order to ensure good and continuous improvement in all areas of the school activities leads to human capital development practices. Hence, the importance of human capital in the growth and development of any organization or institution of learning cannot be over-emphasized. Over the years, organizations/institutions at all levels have given high premium to human capital development practices. Human capital literally means skills, talents, experiences, abilities and competencies possessed by employees of an organization.

According to Adelakun in Olamide (2023), human capital is the ability and skills of human resources to perform labour. It is important to note that the worth and values of an organization/institution depend on the availability of human resource management, that is, in terms of knowledge, talents, experience and expertise. The development and combination of all these attributes gives the organization or institution its distinctive character an edge over its contemporaries. Human capital development practices are conceived, as a working process of improving and updating the skills, knowledge, talents and ability of an individual for better

productivity. It is the process of acquiring and increasing the number of persons who have the skills, education and experience(s) which are critical for economic growth of the country, (Adelakun, in Olamide, 2023). It is a process of boosting the human knowledge and facilitating the productivity and skills of workers (teachers) through training and continuous education. In other words, human capital development practices are basically concerned with equipping the citizens with necessary skills to make them knowledgeable, skillful and productive within the business circle.

Human capital development may also be referred to as the process by which the organization/institution help her employees to acquire relevant knowledge, skills and abilities through continuous and deliberate planned process with the aim of performing various tasks associated with their present or expected future roles. Additionally, Hiltrop, in Imran, Lugman and Zaki (2016), averred that plenty of evidences are available that represent strong positive relationship between the organizational human capital development measures and its staff productivity. The focus on human capital in organization or institution demonstrates the view that market value of the organization or institution is less dependent on tangible resources, rather than on intangible ones, especially human resources. Example of human resource in any institution of learning is the teacher.

A teacher is someone who is professionally prepared to improve and promote the social and academic development of the society education both young and old through a patterned curriculum. That is why, human resource development practices is the framework for helping employees develop their personal and organizational skills, knowledge and abilities (Heathfield, 2019). It involves the development of personnel in an organization towards motivating them to become competent and hardworking in achieving the goals of an organization. The Federal Republic of Nigeria (FRN) (2013) stated that one of the goals of education in Nigeria is the development of appropriate skills, mental, physical and social abilities and competencies to empower the individual to live in and contribute positively to the society. Such knowledge, skills and attitudes are acquired through the training provided in basic, post-basic and career education.

According to Ugwu in Abusomwan (2023), stated that the future of any nation lies on the skills, knowledge and abilities which the citizens are expected to acquire from vocational education offered in technical institutions, especially in brick/blocklaying and concreting works (BBCW). Brick/blocklaying and Concreting Works, is one of the trades in technical college curriculum. BBCW operation involves the skills required in accomplishing a given task in mixing of mortar by hand, moulding of bricks/block laying of blocks among others. Similarly, according to Dauda, Bello, Usman and Adewole (2020) teaching of technical competencies inherent in brick/blocklaying and concreting works can only be effective if the teacher in the trade area is knowledgeable in both theoretical and practical aspect as students quickly loose respect and confidence on the teacher who does not possess the required competence in the act of teaching. Therefore, in order to know how effective teaching is taking place in BBCW trade, teachers in this trade area must have to show mastery in technical, pedagogical as well as teacher's gender.

Statement of the Problem

It is widely perceived that, most brick/blocklaying jobs are carried out by local artisans as most technical graduates craftsmen from technical colleges are unable to meet up with the demands of the society. This is a clear indication of poor human capital development practices of technical teachers in spite of huge budgetary allocation to technical colleges in South-south Nigeria. This assertion was corroborated by Obed and Doukpola (2022) that there is a growing concern among industrialists and builders that graduates craftsmen from technical colleges do not seem to possess adequate work skills necessary for employment in

building construction industries. This of course, demonstrate the fact that BBCW students may not have been well taught, probably because, the technical teachers do not possess the required knowledge, right competencies and occupational skills that would make them effective in the teaching and learning process. It is against this backdrop that the study seeks to investigate whether human capital development practices will foster and improve the quality of graduates craftsmen from technical colleges in South-south Nigeria.

Purpose of the Study

The study examines human capital development practices and the productivity of technical teachers in an era of uncertainties in Nigeria. Specifically, the study seeks to:

1. ascertain the technical human capital development practices and the productivity of technical teachers in Brick/Blocklaying and Concreting Works in technical colleges in South-south Nigeria.
2. determine the pedagogical human capital development practices and the productivity of technical teachers in Brick/Blocklaying and Concreting Works in technical colleges in South-south Nigeria.

Research Questions

The following research questions guided the study.

- 1) What are the technical human capital development practices and the productivity of technical teachers in Brick/Blocklaying and Concreting Works in technical colleges in South-south Nigeria?
- 2) What are the pedagogical human capital development practices and the productivity of technical teachers in Brick/Blocklaying and Concreting Works in technical colleges in South-South Nigeria?

Hypothesis: The null hypothesis was tested at 0.05 level of significance:

There is no significant difference between the mean ratings of male and female technical teachers in technical colleges in South-South Nigeria.

Methodology

The study adopted descriptive survey research design. Survey research design according to O'Leary (2014) uses questionnaire to collect information about people's attitude, belief, feelings, opinion and life styles. The survey research design was considered appropriate because the study focuses on the collection of data from male and female technical teachers to ascertain their human capital development practices and level of productivity in the teaching of BBCW in technical colleges in South-South Nigeria. The population of the study is made up of 179 males and 52 female technical teachers in the study area and census sampling technique was used because of the manageable size of the population. The instrument for data collection was a structured questionnaire titled "Human Capital Development Practices and Productivity of Technical Teachers (HCDPPTT) developed by the researcher. The questionnaire has one response column; the required category is based on a 4-point rating scale with nominal values as follows: Highly Required HR = 4, Required R = 3, Moderately Required MR = 2 and Seldomly Required SR = 1. The respondents were required to tick one of the options against an item to indicate the extent of human capital development practice required. The instrument was validated by three validates from the Department of Vocational and Technical Education, Faculty of Education, University of Benin, Benin City.

The reliability of the instrument was determined using Crobach's Alpha method as 15 copies of the instrument were administered once to 10 male and 5 female BBCW teachers.

The respondents were not part of the population used for the study. The reliability coefficient of the instrument yielded 0.78 which shows that the instrument was reliable over time. A direct delivery technique was employed in the administration of the questionnaire. The researcher was assisted by two trained research assistants to administer the questionnaire to the respondents. The descriptive and inferential statistical tools were used to analyse the data. Frequency counts and percentage (%) were used to analyse the demographic information of the respondents, while the Mean ($\bar{x}$) and Standard Deviation (SD) were used to answer the research questions raised, the decision rule was based on any calculated mean ($\bar{x}$) equal or greater than 2.50 was considered not required. While any calculated mean ($\bar{x}$) less than 2.50 was considered as not required. The hypothesis was analysed at .05 level of significance using t-test statistics. The probability value (p) was used. If the p-value is less than or equal to .05 the null hypothesis was rejected, but if the p-value is greater than .05, the null hypothesis was accepted.

Profile of Respondents

Table 1: Respondents' Profile

S/N	Variables	Attributes	Frequency	Percentage
	Sex	Male	179	77.5
		Female	52	22.5
Total			231	100.0

Table 1 showed that 179 (77.5%) of the respondents were male while 52 (22.5%) of the respondents were females Brick/Blocklaying and Concreting Works teachers in technical colleges in South-South Nigeria.

Analysis of Research Questions

Research Questions 1: What are the technical human capital development practices and the productivity required by teachers of Brick/blocklaying and concreting works in technical colleges in South-South in Nigeria?

Data for answering research question 1 are presented in Table 2

Table 2: Technical human capital development practices and the productivity required by teachers of Brick/blocklaying and concreting works in technical colleges in South-South in Nigeria

S/N	Item Statements	Mean ($\bar{x}$)	SD	Decision
1	Identify and select first aid materials for safety of students	3.12	.9	Required
2	Select basic drawing tools, instrument and materials for building drawing class	3.29	.6	Required
3	Use appropriate handtools and equipment for site preparation.	3.01	.5	Required
4	Select tools, equipment and materials for setting out building on site.	2.82	.8	Required
5	Select appropriate tools, materials and equipment for excavation of trenches.	2.99	.9	Required
6	Select tools, equipment and materials for measuring surfaces and materials.	3.35	1.0	Required
7	Select tools, equipment and materials for	2.61	.8	Required

	manufacturing of brick/blocks.			
8	Select block/block laying tools.	2.99	.7	Required
9	Select wall straightness tools	3.19	.7	Required
10	Select cutting and trimming tools.	2.74	.6	Required
11	Select finishing tools, equipment and materials.	3.01	.8	Required
12	Select materials, tools and equipment for concrete works.	2.93	.7	Required
13	Select types of materials, tools and equipment used in building walls.	3.17	.6	Required
	Grand Mean ($\bar{x}$)	3.02	.7	Required

Key: SD = Standard Deviation; R = Required; NR = Not Required

Decision Key: Required = greater than or equal to 2.50; Not Required = less than 2.50.

Data in Table 2 revealed that the mean ratings of required technical human capital development practices ranged between 2.61 and 3.35 and standard deviation of .5 and 1.0 since the mean ratings of responses for all the 13 items in Table 2 were greater than the decision point of 2.50, it indicates that all the 13 technical human capital development practices are required by teachers of Brick/Blocklaying and Concreting Works in technical colleges in South-South Nigeria.

Research Questions 2: What are the pedagogical human capital development practices and the productivity required by teachers of Brick/blocklaying and concreting works in technical colleges in South-South in Nigeria?

Data for answering research question 2 are presented in Table 3

Table 3: Pedagogical human capital development practices and the productivity required by teachers of Brick/blocklaying and concreting works in technical colleges in South-South in Nigeria.

S/N	Item Statements	Mean ($\bar{x}$)	SD	Decision
1	Plan lesson well and deliver in classroom	2.97	.5	Required
2	Detect problems on time and develop means of solving them.	3.01	.7	Required
3	Make decision on the basis of thorough analysis of the situation.	2.88	.9	Required
4	Make effective use of classroom for teaching and learning BBCW trade.	3.12	.7	Required
5	Arrange classroom setting to accommodate various instructional activities.	2.71	.6	Required
6	Apply corrective measures to enhance discipline in the classroom/laboratory.	2.69	.8	Required
7	Establish and maintain up to date students' progress report/records.	2.65	.6	Required
8	Actively supervise activities of students in the classroom/laboratory.	2.74	.9	Required
9	Provide safety poster in the laboratory to encourage safety habits	2.85	.5	Required
10	Recognise the need for adequate ventilation in the	2.59	.7	Required

	classroom/laboratory.			
11	Deliver instructions in BBCW trade in workshops, classroom and laboratory.	3.16	.7	Required
12	Use different mode of instruction for effective teaching.	3.22	.8	Required
13	Employ varieties of evaluation techniques	2.90	1.0	Required
14	Detect problems on time and develop means of solving them.	2.83	.6	Required
15	Make effective use of classroom for the teaching of BBCW trade.	3.09	.9	Required
16	Use instructional aides to support teaching of BBCW trade.	3.11	.5	Required
17	Use incentives to motivate students during classroom instructions.	2.51	1.1	Required
18	Apply corrective measures to enhance discipline in the classroom.	2.64	.7	Required
19	Support lesson with appropriate teaching aids to motivate students.	3.06	5	Required
20	Identify achievable goals, objective of the lesson.	2.68	.9	Required
	Grand Mean ($\bar{x}$)	2.87	.7	Required

Key: SD = Standard Deviation; R = Required; NR = Not Required

Decision Key: Required = greater than or equal to 2.50; Not Required = less than 2.50.

Data in Table 3 indicated that the mean ratings of pedagogical human capital development practices required by BBCW teachers have a range between 2.51 and 3.22 with standard deviations of 1.1 and .8 since the mean rating of responses to the 20 items in Table 3 were all greater than the decision point of 2.50, it indicated that all 20 pedagogical human capital development practices are required by teachers of BBCW in technical colleges in South-South Nigeria.

Hypothesis

The results of the hypothesis tested for the study is presented.

H0₁: There is no significant difference between the mean ratings of male and female of technical teachers in technical colleges in South-South Nigeria.

Data for testing hypothesis 1 are presented in Table 4.

Table 4. t-test statistics of mean ratings of technical teachers of BBCW teachers based on gender (male and female) on human development practices and their productivity technical colleges in South-South Nigeria.

Table 2: t-test Comparison of Difference in Mean Scores between Male and Female Technical College Students in ESAT.

Gender	N	$\bar{x}$	Mean Diff	SD	t	Df	p-value.
Male teacher	179	2.83	.00	.82	.653	230	.164
Female teacher	52	2.83					

Result : $t(230) = .653$, $p = .164$. Result in Table 4 showed that the degree of freedom is 230 and t-value is .653, while the p-value is .164, which is greater than the level of significance of .05. Thus, we accept the null hypothesis. This showed that there is no significant difference between the mean ratings of male and female teachers of BBCW.

Discussion of Findings

Study findings for research question one revealed that all 13 technical human capacity development practices under study are required by teachers of BBCW. The 13 technical human capacity development practices under study were itemized into 13 human capacity development practice and they are all required by teachers of BBCW in technical colleges in South-South Nigeria. Hence, the respondents' response to each of the 13 technical human capacity development practices had mean ratings that were all above the decision point of 2.50 and ranged between 2.61 and 3.29 with standard deviation of .8 and .6. Similarly, now that all the 13 technical human capacity development practices currently under study had mean ratings that were above 2.50 and this showed that they are all required by teachers of BBCW. This finding is in line with Salami, Olateju and Popoola (2016) who conducted a study titled "Availability of equipment and workshops materials for teaching technical subjects in the Government Technical Colleges of Ogun State" and found that tools, equipment and materials were highly needed for improved technical human capacity development of teachers. This study also corroborate the findings of Mbagha, Sambo and Aminu (2018) who conducted a research titled "Adequacy of workshop facilities in Colleges of Education (Technical) for training of trade teachers of Technical Colleges in North Eastern States of Nigeria and found that majority of teachers sampled in their study do not exhibit the required technical competencies due to inadequate equipment, tools and machines available in the colleges.

Study findings for research question two revealed that all 20 pedagogical human capacity development practices under study are required by BBCW teachers. The respondents' response to each of the 20 pedagogical human capacity development practices items had mean ratings that were all above the decision point of 2.50, and ranged between 2.59 and 3.22 with standard deviation of .5 and .8, and this showed that they are all required by teachers of BBCW.

The findings are in line with Akpan and Edidiong (2013) study on the pedagogical development skill competencies needed by basic technology teachers in Akwa Ibom State of Nigeria and found that high training was needed on two pedagogical competencies while moderate training was needed on 5 out of the 11 listed instructional materials development and utilization competencies. In addition, this study agrees with Bakare, Adelaja and Ajisegbede (2021) which was carried out to determine the pedagogical skills capacity building needs of teachers for effective teaching of basic technology curriculum to students in junior secondary school basic technology curriculum content. The findings of this study also corroborates Eze, Okereke, Asogwa and Udogu (2015) on pedagogical skills need of Industrial Technical Education trainers for quality instructional delivery in universities in Enugu State and found that Industrial Technical Education trainers need professional development in the use of information and communication technology for quality as well as practical experiences in related industries on the use of emerging technologies for effective purposes.

The finding with respect to the null hypothesis revealed that there is no significant difference ($p < .05$) between the mean ratings of male and female teachers of BBCW on the required human capacity development practices and the productivity of BBCW teachers based on gender in technical colleges in South-South Nigeria. This shows that male and female teachers of BBCW do not differ as regards required human capacity development

practices. The finding of the study corroborates Mshelizah (2020) study on the problems of improper maintenance and utilization of mechanical technology workshops, facilities and equipment in technical colleges in Bauchi State and found that male and female teachers of technical colleges in Bauchi do not differ on the technical competency needs for the efficient utilization of mechanical technology workshops, facilities and equipment in technical colleges in Bauchi State. Contrary to the finding of this study, Adodo (2014) study examined the competency of secondary schools teachers in evaluating students' cognitive and psychomotor achievement in BST with teacher's gender, years of experience and qualification as variables and found that there was a significant difference in teachers' gender and their competencies in evaluating science learning outcome.

Conclusion

This study has shown that there is need to improve upon human capital development practices and the productivity of technical teachers' competencies through regular staff training. There is also, the need for brick/blocklaying and concreting craftsmen graduates and technicians alike to be equipped with the 21st century work skills such as high human capital development practices in technical and pedagogical skills. This is due to the fact that BBCW teachers do not differ in their responses towards gender status. The study therefore, conclude that for effective and efficient instructional delivery of brick/blocklaying and concreting works, the under study technical, pedagogical and gender human capital development practices and productivity of teachers must be considered to be top priority including skills required in technical colleges in South-South Nigeria.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Technical human capital development practices should be embedded into BBCW trades curriculum, because it is crucial for survival in the present day competitive building construction industries.
2. Pedagogical skills should be integrated into BBCW trades curriculum for the advancement of relevant pedagogical knowledge among teachers of BBCW in technical colleges in South-South Nigeria. These measures will concretize teaching and learning and make learning to be permanent in the students.
3. There should be equity and fairness in gender representation when seminars and workshops are organized so as to reduce or totally eliminate any form of disparity between male and female teachers of BBCW in technical colleges in South-South Nigeria.

References

- Abusomwan, S.B. (2023). Competency needs of teachers of brick/blocklaying and concreting works in technical colleges in South-south Nigeria. *PhD Thesis, Department of Vocational and Technical Education, University of Benin, Benin City.*
- Adodo, S.O. (2014). Competency of the secondary schools teachers in evaluating students' cognitive and psychomotor achievement in BST with the teacher's gender, years of experience and qualification as variables. *Journal of Emerging Trends in Educational Research and Policy Studies (JETERAPS)*, 5(3), 48-53.
- Akpan, G.A. & Edidiong, I.S. (2013). Professional development needs of basic teachers in Akwa Ibom State. *Nigeria Vocational Association Journal*, 18(1), 33-45.
- Bakare, J.A., Adelaja, S.R. & Ajisegbede, J.O. (2021). Competency improvement needs of Techno teachers for teaching of applied electricity to students in senior secondary schools in Lagos State. *Journal of Humanities and Social Sciences*, 13(4), 63-73.

- Daudu, I., Bello, K.A., Usman, A.N. & Adewole, G.S. (2020). Constraints to effective utilization of student-centred institutional strategies for teaching blocklaying and concreting at technical college level in Niger State. *Open Journal of Science and Technology*, 3(2), 100-109.
- Eze, O.O., Okereke, G.K.O., Asogwa, J.O. & Udogu, K.E. (2018). Professional improvement needs of industrial technical education trainers for quality instructional delivery in universities in Enugu State. *Journal of Centre for Technical Vocational Education, Training and Research (JOECETVETAR)*, 5(2), 160-168.
- Federal Republic of Nigeria (2013). *National policy on education (6th edition)*. NERCDC Press, Yaba Lagos, Nigeria.
- Heathfield, S. M. (2019). Training: Your investment on people development and retention. About.com Guide. Human Resource [on-line] Assessed on January 20, 2012 from the http://humanresources.about.com/od/educationgeneral/a/training_invest.htm
- Imran, A., Lugman, M. & Zaki, A. (2016). Impact of human capital practices on project success. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 5(6), 1-16.
- Mbaga, E.V., Sambo, M.M. & Tijani, A. (2018). Adequacy of workshop facilities in colleges of education (Technical) for training of trade teachers of technical colleges in North Eastern States of Nigeria. *International Journal of Vocational and Technical Education Research*, 4(1), 42-49.
- Mudric, M. (2013). On gender role (gender) approach to social education. *Vospitatel' nayerrabota v shkole*, 5(3), 15-21.
- Obed, O. & Doukpola, O. (2020). Effect of 3D printed architecture model on students performance in brick/blocklaying and concreting programme in technical colleges in Rivers State. *International Journal of Advanced Research and Learning*, 1(1), 156-169.
- Olamide, G.B. (2023). Human capital development practices and the productivity of confidential secretary in public polytechnic in South-West, Nigeria. *Unpublished M. Ed Project, Department of Vocational and Technical Education, University of Benin, Benin City*.
- O'Leary, Z. (2014). *The essential guide to doing your research project (2nd Ed.)* London: SAGE.
- Salami, C.A., Olateju, I.A. & Popoola, S.O. (2016). Availability of equipment and workshop for teaching technical subjects in the Government Technical College in Ogun State, Abeokuta. *International Journal of Capacity Building in Education and Management*, 2(4), 21-31.