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Factors Affecting Effective Delivery of Technical Skills Practical Lessons in The Colleges of Education in Ghana

Williams Brobbey
Department of Technical Education, Ada College of Education

Frank Bentum Mensah
Department of Technical Education, Komenda College of Education

Francis Kodwo Fordjour
Department of Technical Education, Komenda College of Education

***Moses Amo**
Ghana Education Service, Atwima Nwabiagya North District
P. O. Box 3831, Adum – Kumasi, Ghana

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ABSTRACT: *Despite the various interventions to ensure that technical colleges of education graduates are well equipped with the requisite practical skills to be able to train students in the basic concept of technical education and training for the technological advancement of the country, it has not been able to transform most students at the basic level of education. The purpose of this study is mainly to assess factors affecting effective delivery of technical skills practical lessons in selected colleges of education in Ghana. A census of the tutor population of 17 was used for the study. Data was analysed using descriptive and inferential statistics and results presented in tables. The study found that, most of the facilities for practical work were non-existence, students have little experience on practical work, the factors affecting practical work were practical experience of teachers, teaching experience, age, among others. It was evident that, provision of adequate resources, exposing students to the importance of practical work and organization educative field trips to firms could be used to improve the organization of practical work in the colleges of education.*

KEY WORDS: technical skills, practical lesson, technical education, college of education

INTRODUCTION

In the past years, the idea of technical skills has been altogether impacted by steadily expanding technology in the field of education and research. Practice-based education has been the moving research center by examiners in most educational undertakings (Njura, Kubai, Taaliu and Khakame, 2020). Around the world, nations have massively worked on the method of guidance conveyance to address cultural issues. These days, practical work is at the very front in instructing and learning attempts. As per García-Carrión, Roldán, and Campos (2018), instructing and learning modalities that are accepted to outfit students with practical skills in supposed learning by doing have been promising in information and expertise move.

Learning by doing is undeniably more worthwhile as far as information and skills procurement in any educational institution (Zhang & Xie, 2012). The wonderful improvement in learning has been seen in a scholastic climate that permits intelligent learning through request processes as talked about in past investigations by Zittleman and Sadker (2015). Practical work has been sealing to advance understudies' uplifting outlooks and upgrade inspiration for powerful learning and energizes understudies' advantage in all educational pursuits as depicted by Okam and Zakari (2017). Thusly, an uplifting outlook toward the significance of practical work genuinely influences understudies' accomplishment in farming (Otekunrin, Otekunrin & Oni, 2019).

All through the world, and specifically the nations of Sub-Saharan Africa, governments are re-establishing endeavors to advance technical and vocational education and preparing (TVET) with the conviction that ability arrangement improves efficiency and supports seriousness in the worldwide economy. As indicated by Ismail and Mujuru, S. (2020), as of late, concerns have been raised by most African nations about the move towards making TVET reciprocal to post-essential education.

There is a paradigm shift towards practical skills training with TVET in Africa which is increasingly being reshaped to make it more attractive, efficient and effective (Dasmani (2011). One of the key elements of TVET, as perceived by African governments, is its orientation towards the world of work with the curriculum emphasizing the acquisition of employable skills. Amedorme and Fiagbe (2013), also stressed that, African countries in recent times, are developing new strategies to rejuvenate TVET in Africa. The expectation is that TVET will promote skills acquisition through competency-based training. If this vision should materialise, it will require proficiency testing for employment in order to promote sustainable livelihoods and responsible citizenship.

Technical and Vocational Education and Training is a basic component in the advancement condition since it permits individuals and societies to unravel their true capacities, extend their perspectives and adjust to the progressions in the unique world (Nsiah-Gyabaah, 2009). Essentially, the motivation behind technical and vocational education is to prepare young men and women with the technical and expert skills required for economic advancement of the country. The emphasis is on training people for self-employment and sustainability of the economy.

Despite the various interventions to ensure that technical colleges of education graduates are well equipped with the requisite practical skills to be able to train students in the basic concept of technical education and training for the technological advancement of the country, it has not been able to transform most students at the basic level of education. According to Adam (2011), the vocational technical training has not attracted most youths in Ghana because technical institute graduates are not able to enter into employment in their respective fields of training. It is believed that, most technical college of education students nowadays are not enthused with the practical component of the technical colleges programme, as a result, they lack the practical experience of the programme to be able to incorporate the practical aspect of the programme into their lessons. Some questions emerge as what have accounted for the low interest in the practical component of the technical colleges. In view of this, there is the need to unravel the

mystery behind the apathy of technical college students on practical component of their programme. The purpose of this study is mainly to assess factors affecting effective delivery of technical skills practical lessons in selected colleges of education in Ghana. Specifically, the study is set to:

1. Identify availability of facilities for the implementation of technical skills practical lessons.
2. Assess attitudes of students towards technical skills practical lessons
3. Determine the factors affecting effective delivery of technical skills practical lessons.
4. Identify strategies of improving the delivery of effective technical skills practical lessons

LITERATURE REVIEW

The Development of Technical Education in Ghana

Education in Ghana is accepted to be the vehicle to speed up financial and social development and advancement. This has been the way of thinking of governments from the frontier time till today. On the records of the confidence in the advantages of education, progressive governments of Ghana have been utilizing education to carry out formative approaches and projects. Vocational technical education had been underscored in Ghana's education framework since the pioneer time. The reason then, at that point, was to prepare the adolescent in different exchanges like providing food, needlework, carpentry, stone work, and blacksmithing among others to become gifted specialists and valuable residents (Macbeath, 2010). Somewhere in the range of 1914 and 1927, the Governor of the Gold Coast, Sir Gordon Guggisburg proposed 16 standards for education. This proposition required the arrangement of exchange of schools. As at 1922, there had been four exchange schools laid out in the country. After the country's autonomy in 1957 nonetheless, it was understood that the nature of education acquired from the frontier government didn't address the nation's necessities and basic issues. Different survey advisory groups accentuated this reality and proposed cures. Critical among them were the Kwapong Committee Report in 1968 and the Dzobo Report in 1973. These reports set the rhythm for changes in Ghana's education framework. Notwithstanding, it was not until 1987 that another construction and content became usable. Under the 1987 educational change, the truth has been to guarantee that all residents paying little heed to orientation or economic wellbeing are practically proficient and useful.

Vocational technical education is instructed at all degrees of education in the country. The focus on the fundamental level is to open students to a scope of practical exercises in the vocational field to make them acquainted with, and animate their advantages in vocational subjects. This offers understudies at this level equivalent chance to pick their future professions in either the vocational technical or general field. Likewise, it furnishes them with essential word related skills that will empower the individuals who don't look for additional education to go into profitable paid or independent work in industry. Move on from the essential level could likewise enter the casual area for apprenticeship preparing.

At the secondary level, preparing is vocational in nature. Ghana utilizes a mixture of two ways to deal with arranged vocational technical education at this level. There are vocational technical institutions which target preparation and bestowing practical preparation and skills

leading to the delivery of artisans, craftsmen, technicians, and other middle-level personnel in commerce, agriculture, technology, science and industry. The main subjects approach is likewise utilized in the customary senior secondary educational system which Here there exists main subjects and a group of elective subjects which could be vocational technical in nature. The focuses on this level is to prepare young fellows and ladies with applicable useful skills that will empower them to satisfy the country's labor needs in the area of technology, industry, trade, and business (Ackah & Aryeetey, 2012).

Vocational technical education at the tertiary level is technical in nature. It is coordinated inside post-auxiliary institutions or tertiary institutions. This is the most significant level of vocational technical education in the country. Vocational technical education frameworks in Ghana consistent to go through change intended to expand on the inborn qualities of the framework. Late significant change concerns the setting up of public preparation bodies, and the sanctioning of regulations to reinforce public vocational preparation programs. Government of Ghana has as of late passed an Act of Parliament that lays out a Council for Technical and Vocational Education and Training (COTVET) which will have generally liability regarding skills advancement in the country.

Factors affecting implementation of technical education in Ghana

According to Olusola (2019), one dilemma which has preoccupied many countries for a long time is whether to concentrate investment in general or vocational education. Be that as it may, in human resources terms, general education makes, general human resources and TVET prompts explicit human resources. The previous enjoys the benefit of adaptability and, hence, the chance of moving starting with one work then onto the next, while the latter option doesn't. In such manner, many individuals consider general education as an appropriate sort of education that is fit for reacting to financial and workforce changes in the public arena. There again, technical and vocational education enjoys the benefit of conferring explicit occupation and significant skills which make the worker all the more promptly appropriate for a given work and more useful. It is in this light that most educational frameworks in Africa attempt to join both general and vocational floods of education in fluctuating extents to suit their educational objectives and yearnings.Alternately, Dasmani (2011) noticed that, regardless of the benefits of conferring position related skills and the undeniable degree of joblessness among those with general education, the acknowledgment and inclination for general education by the adolescent in the Sub-Saharan Africa is high. The justification behind this is that staff in managerial and positions of authority are for the most part looked over individuals with an overall education foundation. Subsequently, discussing the significance of TVET, with practically no conscious activity to follow up the manner of speaking, won't change its helpless picture and low status.

There are various elements that influence the adequacy of vocational technical education in Ghana. Amedorme and Fiagbe (2013) summed up these worries closing conveying quality vocational technical education programs, cost of preparing, financial states of learners, the necessities of the casual area, the requirements of the work market and employability of the area. Reddan and Harrison (2010) contended that vocational technical education institutions need to rebuild their projects to be receptive to the necessities of the gig market, particularly the business. To accomplish this objective, vocational technical education educational plans should zero in on results in conditions of the skills, information and mentalities required

industry. That is, vocational technical education arrangement ought to be receptive to the requests of industry. Matsumoto (2018), vocational technical education should be more diverse because of the changes in the labour market, to be able to integrate the youth into the working world.

Bagale (2015) recognized two significant goals of vocational technical education as the pressing need to prepare the workforce for self-employment and the necessity to raise the productivity of the informal sector. They bring up that absence of assets that prompts cuts in the volume of preparation in open institutions. These slices are a deterrent to seeking after the basic goals of giving preparation and raising creation. Considering the costly idea of vocational technical education as a type of education, an extended framework with vital and sufficient offices really must prompt the viability of the framework. Related examinations completed by Islam and Mia (2007) in Bangladesh uncovered that both formal and non-formal vocational technical education missing the mark on viable linkage among preparation of work. It further noticed that in view of its absence of intelligible mode, practical skills preparation which does not create the imperative skills for the gig market. Moreover, the learners likewise needed preparation experience, drive and inspiration to release their obligations successfully.

METHODOLOGY

Research Design

The researcher used a cross-sectional survey design because the study intended to pick only some representative sample elements of the cross-section of the population (Creswell, 2012). The survey was also preferred because it allowed the researcher get detailed inspection of the factors affecting effective delivery of technical skills practical lessons in selected colleges of education in Ghana (Creswell, 2012). This aided the researcher to get respondents to provide appropriate data, both in terms of relevance and depth to the study (Creswell, 2009).

Population and Sample Size

The targeted population were technical tutors and students selected from three college of education in Ghana. These were Mampong Technical College of Education, Ada College of Education and Komenda College of Education. There were 17 tutors in the technical departments of the colleges at the time of research. For the purpose of this study, the researchers used a census of the tutor population in the technical departments of the colleges for the research

Questionnaire Administration

A questionnaire was designed and administered via online to solicit information for the study. The completed questionnaires were also received via online to a data base for the analysis. The questionnaire was made up of closed ended likert scale items. A questionnaire technique via online was adopted because it assures anonymity and permit wider coverage of respondents who are geographically dispersed.

Validity and Reliability of the Instrument

The questionnaires were pre-tested by ten teachers conveniently selected from the study area to assess validity and reliability items (Dillman, 2005). After the pre-testing of questionnaire, it was revised accordingly based on the feedback received from those groups.

Data Analysis

All questionnaires obtained were exposed to assessment procedure to guarantee that the information gathering strategy was performed appropriately. Each questionnaire completed was inspected to determine whether it was usable. The data collected from the questionnaire were coded and captured into Statistical Package for Social Sciences (SPSS) version 20 for Windows after which analysis was done to generate the descriptive and inferential statistics of the data gathered.

Ethical Consideration

In this research, respondents willingly took part in the study though they also had the right to withdraw from the research. Protection of confidential data given by respondents and their anonymity and reactions of respondents were also observed. A comprehensible account of the rationale of the study and type of access required were therefore provided.

RESULTS AND DISCUSSION

Demographic Characteristics of Respondents

Table 1 shows that tutors in the Colleges of Education were dominated by males (82.4%) while females were (17.6%). Also, 52.9% had first degree while 47.1% had master's degree as qualifications. Furthermore, all the tutors (100%) had some form of practical experience. Besides, 64.7% of the tutors organize practical lessons for the students while 35.3% do not organize practical lessons for their students. Finally, the average age of the teachers was 39 years while the average teaching experience was 13 years.

Table 1: Demographic Characteristics of Respondents

	Frequency	Percent
Gender		
male	14	82.4
female	3	17.6
Qualification		
Bachelor of Education	9	52.9
Masters	8	47.1
Practical experience		
Yes	17	100.0
No	0	0.0
Organization of practical lessons		
Yes	11	64.7
No	6	35.3

Descriptive Statistics				
	Minimum	Maximum	Mean	Std. Deviation
Age	28	56	39.65	8.085
Teaching experience (in years)	4.00	30.00	13.4118	7.91406

Source: Field Data, 2022

Availability of Facilities for the Implementation of Practical Work

Table 2 indicate the availability of facilities for the implementation of practical work rated by tutors. This was necessary to ascertain the facilities that are available for proper implementation of practical work in the colleges of education. The data shows that, majority of colleges have some amount of equipment/tools for practical work (mean=3.65, SD=1.11), followed by materials for practical (mean=3.59, SD=1.12), designed field trips (mean=3.24, SD=1.60). However, demonstration models (mean=2.89, SD=1.73), effective attachment programme (mean=2.82, SD=1.81), workshop attendants (mean=2.71, SD=1.86), practical lab (mean=2.65, SD=1.50) and designed exhibitions (mean=2.47, SD=1.46).

From the results, it appears that most of the facilities for practical work were rated on the average level. This indicates that, facilities for practical work in the colleges of education is not the best. This may not promote the smooth implementation of practical work in the colleges of education. According to Nsiah-Gyabaah (2007), Although, Technical Vocational Education and Training is recognized as an important subsector for the attainment of the industrial development in Ghana, the training content at some levels are outdated and the quality of teaching and learning has continued to decline partly due to insufficient resources.

Table 2: Availability of Facilities for the Implementation of Practical Work

Descriptive Statistics

	Mean	Std. Deviation	Rank
Equipment/tools for practical work	3.6471	1.11474	1st
Materials for practical	3.5882	1.12132	2nd
Designed field trips	3.2353	1.60193	3rd
Demonstration models	2.8824	1.72780	4th
Effective attachment programme	2.8235	1.81091	5th
Workshop attendants	2.7059	1.86295	6th
Practical lab	2.6471	1.49755	7th
Designed exhibitions	2.4706	1.46277	8th

Source: Field Data, 2022

Attitudes of Students towards Practical Work

Table 3 indicate the attitudes of students towards practical work rated by tutors. The data shows that, teachers think Students see practical work as very tedious (mean=3.65, SD=1.06), followed by students who think that practical work is boring (mean=3.06, SD=1.60).

On the other hand, they did not agree that, students do not often prepares towards practical work (mean=2.24, SD=1.46), students have little experience on practical work (mean=2.24, SD=1.39), students think that it is time consuming (mean=2.18, SD=1.19), students do not have any interest in practical work (mean=2.13, SD=1.27), students think that it does not build on their knowledge for future field of work (mean=2.12, SD=0.78) and students think that practical aspect of the programme is not relevant (mean=1.88, SD=1.41).

The data indicate that students have little experience on practical work which make them think that practical work may be tedious. However, teachers were of the view that, students think that practical work is relevant which can build on their knowledge for future field of work. According to Ismail and Mujuru, (2020) despite the advantages of imparting job-related skills and the high level of unemployment amongst those with general education, the recognition and preference for general education by the youth in the Sub-Saharan Africa is high. The reason for this is that personnel in administrative and leadership roles are generally chosen from people with a general education background. Thus, talking about the importance of TVET, without any deliberate plan of action will not change its poor image and low status among the youth.

Table 3: Attitudes of Students towards Practical Work

Descriptive Statistics

	Mean	**Std. Deviation**	**Rank**
Students see practical work as very tedious	3.6471	1.05719	1st
Students think that practical work is boring	3.0588	1.59963	2nd
Students do not often prepare towards practical work	2.3529	1.45521	3rd
Students have little experience on practical work	2.2353	1.39326	4th
Students think that it is time consuming	2.1765	1.18508	5th
Students do not have any interest in practical work	2.1276	1.26897	6th
Students think that it does not build on their knowledge for future field of work	2.1176	.78121	7th
Students think that practical aspect of the programme is not relevant	1.8824	1.40900	8th

Source: Field Data, 2022

Factors Affecting Effective Delivery of Practical Lessons

Table 4 indicates the factors affecting effective delivery of practical work. From Table 4 it was found out that R^2 = 0.9542 which indicates that there is about 95% positive relationship between the factors affecting effective delivery of practical work, Adj R^2= 0.8167 which indicates that the variation in the factors can be explained by the variation in effective delivery of practical work and Std. Error of the Estimates is between 0.02 and 0.75 which means that the measure of variability of the variables are highly correlated.The tests of significance of the regression model between the factors affecting effective delivery of practical work. From the Table 4, F (12, 4) = 6.94, p=0.0003, and therefore can conclude that the regression is statistically significant. The result shows that there exists positive and significant relationship between factors affecting effective delivery of practical work.

As indicated in Table 4, 25% of the total variation in the factors affecting effective delivery of practical work is explained by the estimated regression model. The explanatory variables that were statistically significant in factors affecting effective delivery of practical work were practical experience of teachers (PRAEXP), teaching experience (TEAEXP), age (AGE) lack of administrative support (LADMSUP), gender (GENDER), limited time to complete the programme (LTIME), large class size and grouping problem (LACLSIZE) and qualification

(QUAL). However, inadequate resources for practical work (INRES), poorly equipped school workshop (PSWSHOP) and difficult and time consuming (DITICONS) were not significant. With the exception of age and practical experience of teachers, all the other significant variables positively influenced the likelihood of effective delivery of practical work. Practical experience of teachers, teaching experience, age and lack of administrative support were significant variables at 1% while the rest were 5% significance level. The significant variables also met their prior expectations.

From Table 4, the estimated marginal effect of practical experience of teachers is -.5602908. This means that all things being equal, the probability of effective delivery of practical work is higher by 56% for a unit decrease in practical experience of teachers. The results also showed a marginal effect of .111976 for teaching experience. This implies that the probability of effective delivery of practical work will increase by 11% for a unit increase in teaching experience, all things being equal. Again, the results showed a marginal effect of -.1538427 for age of teachers. This implies that the probability of effective delivery of practical work will decrease by 15% for a unit increase in the age of teachers. Besides, the results showed a marginal effect of .5272281 for lack of administrative support. This implies that the probability of effective delivery of practical work will increase by 52% for a unit increase in the administrative support, all things being equal. In addition, the results showed a marginal effect of 654811 for gender. This implies that the probability of effective delivery of practical work will increase by 65% for a unit increase of males if all things being equal. The results showed a marginal effect of .679472 for limited time to complete the programme. This implies that the probability of effective delivery of practical work will increase by 67% for a unit increase in the time to complete the programme, all things being equal. Finally, the results displayed a marginal effect of .7262993 for qualification of teachers. This implies that the probability of effective delivery of practical work will increase by 72% for a unit increase in the qualification of teachers, all things being equal.

Table 4: Factors Affecting Effective Delivery of Practical Lessons

PRAL	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]
GENDER	.654811	.2908482	4.01	**0.016**	.3579558 .973004
AGE	-.1538427	.0328265	-4.69	**0.009**	-.2449837 -.0627016
QUAL	.7262993	.2222638	3.27	**0.031**	.1091961 1.343403
TEAEXP	.111976	.0229932	4.87	**0.008**	.0481365 .1758155
PRAEXP	-.5602908	.1726881	-3.24	**0.001**	-.397501 -.0808318
INRES	-.1988631	.3487992	-0.57	0.599	-.1672851 .7695587
LTIME	.679472	.4587095	3.66	**0.022**	.4058904 2.953054
PSWSHOP	-.5985433	.2842906	-2.11	0.103	-.387861 .1907738
DITICONS	.0372273	.2734553	0.14	0.898	-.7220062 .7964609
LACLSIZE	.4403316	.1243306	3.54	**0.024**	.0951346 .7855287
LADMSUP	.5272281	.3167652	4.82	**0.009**	.6477464 2.406709
_cons	4.211032	.7502859	5.61	0.005	2.127904 6.294159

Number of obs = 17 F(12, 4) = 6.94 Prob > F = 0.0003

R-squared = 0.9542 Adj R-squared = 0.8167 Root MSE = .25092

Source: Field Data, 2022

Strategies to Improve the Organization and Implementation of Practical Work

Table 5 indicate the strategies to improve the organization and implementation of practical work tutors. The data shows that strategies that can be used to improve the organization and implementation of practical work in the colleges of education are timely maintenance of laboratories (mean=4.47, SD=1.01), adequate administrative support (mean=4.41, SD=1.06), educative field trips to industrial firms (mean=4.12, SD=1.22), adequate motivation of tutors (mean=4.06, SD=1.14), allocation of adequate time for practical work (mean=4.06, SD=1.19), engagement of more workshop attendants (mean=4.00, SD=0.50), organisation of industrial exhibitions (mean=3.94, SD=1.22), exposure of students to the importance of practical work, (mean=3.94, SD=1.55), regular in-service training of tutors (mean=3.88, SD=1.41) and provision of adequate resources, (mean=3.59, SD=1.33).

It was evident that, all the strategies especially provision of adequate resources, exposing students to the importance of practical work and organization educative field trips to firms can be used to improve the organization of practical work in the colleges of education. According to Yangben and Seniwoliba (2014) there are certain concerns concluding delivering quality vocational technical education programmes, cost of training, socio-economic conditions of trainees, the needs of the informal sector, the needs of the labour market and employability of the sector. In view of this, Reddan and Harrison (2010) posit that vocational technical education institutions need to restructure their programmes to be responsive to the needs of the job market, especially the industry. Thus, the goal of vocational technical education curricula must focus on outcomes in terms of the skills, knowledge and attitudes required industry.

Table 5: Strategies to Improve the Organization and Implementation of Practical Work

Descriptive Statistics

	Mean	Std. Deviation	Rank
Timely maintenance of laboratories	4.4706	1.00733	1st
Adequate administrative support	4.4118	1.06412	2nd
Educative field trips to industrial firms	4.1176	1.21873	3rd
Adequate motivation of tutors	4.0588	1.14404	4th
Allocation of adequate time for practical work	4.0588	1.19742	5th
Engagement of more workshop attendants	4.0000	.50000	6th
Organisation of industrial exhibitions	3.9412	1.21948	7th
Expose students to the importance of practical work	3.9412	1.54853	8th
Regular in-service training of tutors	3.8824	1.40900	9th
Provision of adequate resources	3.5882	1.32565	10th

Source: Field Data, 2022

CONCLUSION

It appears that most of the facilities for practical work were rated on the average level. This indicates that, facilities for practical work in the colleges of education is not the best. This may not promote the smooth implementation of practical work in the colleges of education. Also, students have little experience on practical work which makes them think that practical work may be tedious. However, students think that practical work is relevant which can build on their knowledge for future field of work.

There was positive and significant relationship between the factors affecting practical work. This means that, effective delivery of practical work in the colleges of education is influenced by several factors such as practical experience of teachers, teaching experience, age, lack of administrative support, gender, limited time to complete the programme, large class size and grouping problem and qualification.

It was evident that, some strategies could be used to improve the effective delivery of practical work such as provision of adequate resources, exposing students to the importance of practical work and organization educative field trips to firms can be used to improve the organization of practical work in the colleges of education.

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