

Project Method of Teaching Visual Arts and Teacher Trainees Content Knowledge Achievements in Ghana Colleges of Education

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Abstract The purpose of this study was to find out the content knowledge achievement of teacher trainees who are taught practical topics in visual arts using project method of teaching and those who are not. The study employed analytical survey design. The study targeted 3- year diploma in basic education colleges of education students in second year offering visual arts as an elective and visual arts lecturers in colleges of education in Ghana. The sample size for the study was 122 (115 students and 7 lecturers). The instruments used for data collection were questionnaire and interview guide. The hypotheses formulated for the study were tested using Pearson point-biserial correlation coefficient. The result of H_{01} indicated that there is significant difference in content knowledge achievements between the teacher trainees who were taught using project method and those who were not. H_{02} revealed that practical activities teacher trainees offering visual arts are exposed to through the project method of teaching has a positive relationship on their content knowledge achievements. It was found out that teacher trainees who were taught practical topics in visual arts using project method of teaching acquire new and adequate content knowledge than those taught using other methods of teaching. The study recommended that lecturers teaching visual arts should employ project method in teaching practical component of the syllabi. Teacher trainees studying visual arts should be motivated to undertake project works that would enable them to acquire relevant skills needed to effectively handle the creative arts and basic design and technology subjects at the basic level of education in Ghana.

Keywords: project method, visual arts and learner achievement

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1. Background to the Study

The motive of teaching and learning visual arts in colleges of education in Ghana is to produce qualified and better visual arts teachers for basic schools in the country. Project method of teaching is a mode of teaching that comprises learners in inquiries of probing problems which end in authentic products. According to [1], project method of teaching encourages learning by doing which raises mastery of content knowledge by the learners. The use of project method of teaching has a great impact in the development of the learners as well as the act of knowledge and skills acquisition and use [2]. Project method of teaching and learning is a non-traditional education model that seeks to better prepare students for solving real-world problems and issues while teaching them what they need to know to succeed in school right now. According to [3], the project method

encourages the learners to be self-directed, build research skills and help them to determine their own needs. Reference [4] state that the project method of teaching and learning make students acquire new information and skills whilst tackling for a long period of time an intricate question or problem, within the context of a certain course. It is also referred to as Project-Based Learning (PBL) as it involves the making of actual projects by the students. Projects are student-centered, following standards, parameters, and milestones clearly identified by the teacher. Students have control over the planning, refining, presenting, and reflecting of the project. Project method of teaching and learning involves giving tasks to students to produce something, such as a process or product design, a computer code or simulation, or the design of an experiment and the analysis and interpretation of the data. The project method of teaching aids the student to develop competencies such as the intellectual skills, psychomotor skills and affective skills [5].

2. Statement of the Problem

The visual arts component of vocational education in colleges of education in Ghana is a programme of study designed to equip teacher trainees with the basic skills needed to handle the visual arts component of creative arts and basic design and technology curricula in basic schools. The study of visual arts in Ghana's colleges of education is based on the theory of learning by doing, not passive or rote learning. According to [6], practical problem solving methods should be adopted in teaching visual arts and teaching must be based on hands-on –activities. Project method of teaching has been identified by most authorities as the appropriate method of teaching skills acquisition programmes in the globe since it encourages learning by doing. There have been several allegations that graduates of visual arts from Ghana colleges of education find it difficult to handle the visual arts components of creative arts and basic design and technology curricula in basic schools. This may be due to rote learning methods used by visual arts lecturers to teach practical topics instead of project method. This current study intended to investigate the content knowledge achievements of teacher trainees who are taught practical topics in visual arts using project method and those who are not.

3. Research Objectives

- i. To find out the content knowledge achievements of teacher trainees who are taught practical topics in visual arts using project method of teaching and those who are not.
- ii. To outline visual arts practical activities Ghana colleges of education second year elective visual arts trainee teachers are exposed to during training.

4. Null Hypothesis

To obtain the results for objective one and two, the following null hypotheses were formulated and tested:

H₀₁: There is no significance difference between content knowledge achievements of teacher trainees who are taught practical topics using project method and those who are not.

H₀₂: Practical activities teacher trainees offering visual arts are exposed to through project method of teaching has no relationship on the content knowledge achievements of the trainees.

5. Research Design

In this study, Analytical survey design research was employed because both quantitative and qualitative data were involved in this study. According to [7], a survey is a systematic technique for amassing data from (a sample of) individuals for the purposes of constructing a quantitative description of the attributes of the bigger population of which the individuals are members. Surveys are conducted to collect data that reflects population's attitudes, behaviours, opinions and beliefs that cannot be observed

directly. Reference [8] states that analytical survey design is a research design that allows for both descriptive and inferential statistics to be used in data analysis. Analytical survey design enabled researchers to answer questions such as why, what, where, who, how many and how much. In other words, it is a design that fits researches of all purposes – descriptive, inferential, explanatory, and exploratory [9].

5.1. Target Population

This study targeted 127 3-year diploma in basic education colleges of education students in second year offering visual arts as an elective and 7 visual arts lecturers in four (4) colleges of education in the Volta and Oti regions of Ghana namely; St. Francis College of Education, Jasikan College of Education, Peki College of Education, and Dambai College of Education. Table 1 shows the breakdown of the target population.

Table 1. Target population for the Study

Participants	Population
Teachers Trainees	127
Lecturers	7
Total	134

5.2. Sampling Techniques

Purposive and simple random sampling techniques were used in this study to enable the researcher to get relevant information needed for the study. The purposive sampling was used to select only 3-year diploma in basic education teacher trainees offering visual arts as an elective subject and lecturers teaching visual arts in colleges of education in Ghana. According to [10], the purposive sampling is normally used to select respondents who are likely to provide the relevant data a researcher is interested in collecting. Simple random sampling was used to select the targeted teacher trainees. Simple random sampling was used because the researcher cannot collect data from all teacher trainees offering visual arts in the 4 colleges targeted. Simple random sampling according to [11] is a technique in which every individual in the target population has an equal chance of being selected.

5.3. Sample Size

To obtain the sample size for this study, the researcher used the sample size determination formula provided by Yamane (as cited in [8]) at a 95% confidence level and $p= 0.05$, to take care of sample error and degree of variability.

$$n = \frac{N}{1 + N(e)^2}$$

Where n is the sample size, N is the population size and e is the level of precision/sampling error. Using the formula above, with teacher trainees' population of 127, the study arrived at 91 trainees. However, the researcher theorised that some teacher trainees may not return their questionnaires and so the sample size for the teacher

trainees was 20% upward adjusted to cater for non-return of the questionnaires. The teacher trainees sample size for the study was therefore, 115. But, the population of lecturers (7) remained the same because it was too small to sample. Table 2 indicates the breakdown of the total sample size.

Table 2. Sampling Grid of Participants for the Study

Participants	Population	Sampled
Teacher Trainees		115
Lecturers		7
Total		122

5.4. Instrumentation

According to [12] research instruments are the tools that help a researcher to gather data and they comprise document analysis, questionnaire, interview guide, and observation. Research instruments are what a researcher utilise to collect data to answer research questions [13]. The research instruments used for collecting data in this study were questionnaire and interview guide. The questionnaire was used to collect data from teacher trainees and was the main tool employed in this study. The questionnaire was considered necessary because it allowed large amounts of data to be amassed at the same time. Interview guide on the other hand was used to amass data from visual arts lecturers.

6. Data Analysis

The data collected were analysed quantitatively and qualitatively to address the objectives. Statistical Package for Social Sciences (SPSS) was employed to analyse the quantitative data gathered from close-ended questionnaires. Inferential statistic was used in the data analysis. Pearson point-biserial correlation was used to test the two null hypotheses formulated at $p < 0.05$ alpha level of significance. The open-ended questionnaire and interview conducted were transformed to create records. The transformation of raw data was done by hand under the various themes.

7. Findings and Discussions

7.1. Findings

H_{01} : There is no significance difference between content knowledge achievements of teacher trainees who are taught practical topics using project method and those who are not.

To test the null hypothesis which stated that there is no significance difference between content knowledge achievements of teacher trainees who are taught practical topics using project method and those who are not, point-biserial correlation coefficient was used because this statistical tool is normally used to test the relationship between independent variables and dependent variables in a research. Table 3 shows the results of this analysis.

Table 3. Point-biserial correlation between content knowledge achievements of teacher trainees taught using project method and those who are not

Variable	Point-Biserial Correlation (r)	Sig. (2-tailed)
There is no significance difference between content knowledge achievements of teacher trainees who are taught practical topics using project method and those who are not.	.742**	0.002

** . Correlation is significant at the 0.01 level (2-tailed) $N= 115$

The results in Table 3 indicate that there is a significance difference between content knowledge achievements of teacher trainees who are taught practical topics using project method and those who are not ($r_{pb} = .281$, $n=115$, $p=0.002$, $R^2 =0.002$). The null hypothesis (H_{01}) that state that there is no significance difference between content knowledge achievements of teacher trainees who are taught practical topics using project method and those who are not has been rejected because the point-biserial correlation coefficient of $r_{pb} = .281$ and the p value (0.002) was less than the significance level (0.05). This suggests that there is a significant difference in content knowledge achievements between the teacher trainees who were taught using project method and those who were not.

H_{02} : Practical activities teacher trainees offering visual arts are exposed to through project method of teaching has no relationship on the content knowledge achievement of the trainees.

To test the null hypothesis H_{02} which state that practical activities teacher trainees offering visual arts are exposed to through project method of teaching has no relationship on the content knowledge achievement of the trainees, point-biserial correlation coefficient was again used. Table 4 shows the results of these analysis.

Table 4. Point-biserial correlation between practical activities teacher trainees are exposed to through project method and their content knowledge achievements

Variable	Point-Biserial Correlation (r)	Sig. (2-tailed)
Practical activities teacher trainees offering visual arts are exposed to through project method of teaching has no relationship on the content knowledge achievement of the trainees.	.266**	0.004

** . Correlation is significant at the 0.01 level (2-tailed) $N= 115$.

The results in Table 4 show that there is a relationship between practical activities teacher trainees offering visual arts are exposed to through the use of project method of teaching and the content knowledge they achieved ($r_{pb} = .266$, $n=115$, $p=0.004$, $R^2 =0.004$). The null hypothesis (H_{02}) which stated that practical activities teacher trainees offering visual arts are exposed to through the project method of teaching has no relationship on the content knowledge achievements of the trainees was rejected because the point-biserial correlation coefficient of $r_{pb} = .266$ and the p -value (0.004) was less than the significance level (0.05). It has been concluded that

practical activities teacher trainees offering visual arts are exposed to through the project method of teaching has a positive relationship on their content knowledge achievements.

7.2. Discussions

Objective 1: To find out the content knowledge achievement of teacher trainees who are taught practical topics in visual arts using project method of teaching and those who are not

It has been revealed in Table 1 that teacher trainees exposed to practical topics in visual arts using the project method of teaching in colleges of education in Ghana acquire adequate content knowledge and skills to competently handle the visual arts component of the basic school curriculum than those taught using other methods of teaching. The qualitative data obtained from visual arts lecturers through the use of interview guide also affirmed that teacher trainees who are taught practical topics using the project method of teaching achieve adequate content knowledge and give better feedback during their examination than those who are exposed to practical topics using other methods. These current findings are in support of [14] who opined that the students who are taught with the project method achieved better than those taught with the orthodox lecture method. The findings are also in agreement with [15] who asserted that the project method of teaching aids in growing knowledge and skills very efficiently as a result of close collaboration on social partaking. Again, the present findings are also in consistent with [16] who stated that the project method of teaching contribute to the enhancement of students' knowledge and skills effectively. These findings are in line with [17] who stated that the use of project method produced better-quality results among the students. The findings also agreed to [1] who opine that the use of project method of teaching and learning inculcates the vital knowledge, skills and values in the students in a better way than the use of lecture and discussion methods.

Objective 2: To outline visual arts practical activities Ghana colleges of education second year elective visual arts trainees are exposed to during training

According to [18], visual arts is compulsory for all first year diploma in basic education students except those reading Science. In all, general programme students (Non Science Students) study the fundamentals in visual art in first year, first semester only. In second year, the course becomes an elective for those who wish to continue with the visual arts. During the second year first semester, all teacher trainees pursuing visual arts an elective subject study principles and methods of teaching visual arts as a compulsory subject. In semester two of second year, students offering visual arts have five (5) subject areas but have to choose only one option. These areas include assemblage & construction, fabric & leather decoration, modeling, casting & carving, visual communication and weaving & stitching. The students are equipped with content knowledge from any one of the above five subjects they select. Table 5 contains the five (5) elective subject areas and practical activities trainees are exposed to during the second semester of second year.

Table 5. Elective subjects and practical activities students are exposed to

Subject Area	Practical Activities
Assemblage and Construction	Students that select assemblage and construction are equipped with practical skills which lead to the use of tools and materials produce art products such as mobile toys, moveable toys, mask, animals, figures and toy vehicles.
Fabric & Leather Decoration	Students are equipped with techniques of producing products such as bags, footwear, tie & dye, batik, marbled fabrics, printed cloths, printed shirts, chair backs and foot rest.
Modeling, Casting & Carving	The techniques of producing artefacts such as floor vases, decorative pieces, murals etc. are learned.
Visual Communication	Students are equipped with the techniques of manufacturing articles such as paper bags, calendars, labels, packages. They also learn photography, painting, drawing, pyrography and illustration.
Weaving & Stitching	Here students are trained to manipulate tools and materials to come out with products such as kente cloth, macramé items, straw hats, mats, cane/rattan furniture, knitted fabrics etc.

8. Conclusion

The purpose of this study was to find out the content knowledge achievement of teacher trainees who are taught practical topics in visual arts using project method of teaching and those who are not. The result of H₀₁ indicated that there is significant difference in content knowledge achievements between the teacher trainees who were taught using project method and those who were not. H₀₂ revealed that practical activities teacher trainees offering visual arts are exposed to through the project method of teaching has a positive relationship on their content knowledge achievements. It was found out that teacher trainees who were taught practical topics in visual arts using project method of teaching acquire new and adequate content knowledge than those taught using other methods of teaching.

9. Recommendations

This study recommended the following:

1. Lecturers teaching visual arts should employ project method in teaching practical component of the syllabi.
2. Teacher trainees studying visual arts should be motivated to undertake project works that would enable them to acquire relevant skills needed to effectively handle the creative arts and basic design and technology subjects at the basic level of education in Ghana.

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