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Application of Problem-Based Learning Method (PBLM) in Teaching Visual Arts by Primary School Teachers in Maiduguri, Borno State, Nigeria

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Abstract
This study was aimed in assessing the application of problem-based learning method in teaching visual arts subjects by public primary school teachers. Three objectives and three research questions were raised. The survey research design was used. A total of forty (40) arts teachers were selected for the study. The purposive sampling technique was used to select the subjects. Teachers Teaching Observational Guide (TTOG) consisting of 23-items developed by Sam (2006) was adopted modified with reliability of 0.85 and questionnaire were used as instrument for data collection. Data were converted into frequency and percentage for analysis. The major findings shows that public primary school Teachers do not know how to use problem-based learning method in teaching visual arts subjects; Teachers do not know about problem- based learning method and Teachers were faced with problems of lack of in-service training, seminars and workshops on how to use the method, lack of facilities, equipments, materials and lack of awareness on the subject itself are all problems faced by Teachers. Finally, conclusion and recommendations were made.
Keywords: Problem based, Traditional teaching method, Teacher, Visual arts

1. Introduction

Teacher education programmes as implement in Teacher training institutions in Nigeria as well as in other countries aim at producing professionally competent Teachers who can function effectively in planning and directing the activities of learning. The major components of any Teacher education programmes include courses in a number of theoretical studies and practical aspect. The effective Teacher is that person who not only possesses sound theoretical knowledge of the principles of education and subject of specialization but also one who can apply acquired skills, attitude and techniques (method) to actual teaching learning situation. Classroom teaching is one of the pervasive essences of education linked with schooling. In no small measure, this holds true for set –ups where knowledge, skills acquisition and behavioural change constitute the major challenges of education. Busari and Madueke (2005) noted that prior to postmodernism era; teaching has been too traditional, teacher-centred, theoretical with very little touch on inquiry, overemphasizing memorizations of definitions, competitions and individual isolations. A paradigm shift to postmodernism in which humanistic education characterized school activities has globally occurred. The application of a Problem-Based Learning Method in teaching Visual Arts education has given a new direction to the delivery of qualitative education.

Problem-based leaning is an instructional strategy that challenges pupils to learn how to learn, it immerses pupils active, investigative learning (Sellwood, 2005). It starts with a problem to solve rather than content to be mastered. Through participation in a series of practical problem which may involve designing, modelling, casting, engraving, it is assumed that the learner will acquire both theoretical knowledge and higher-order thinking skills (problem – solving skills). Gagne (2007), stressed the importance of problem-based learning and noted that abstract concepts must be built upon concrete situations in order to operationalize declarative knowledge. Andre (2008), emphasized that, the importance of problem – based learning method lies in the degree of information processing required of the learner. In identifying problems, searching for solution and presenting results, the learner has multiple opportunities to encode and accommodate new knowledge. Problem – based learning method has been greatly influenced by the work of Dewey (1996) described five steps in interactive process that comprised: (a) felt difficulty, (b) clarification of the problem (c) identification of possible solutions, (d) testing the suggested solutions, (e) verification of the results. Many elements of PBLM are deriving from principles of inquiry-based learning, which in turn, were deriving from the constructivist teaching approach. Thomas (2009), emphasized that in the PBLM environment students are, in fact investigating solution to a problem. They build their own knowledge by active learning, interactive with the environment as suggested by the constructivist approach, working independently or collaborating in teams, while the teacher direct and guide and they make a real product.

No much research was found that related training in problem – based learning method to primary schools Teachers. However, Diaber (2009), noted many common instructional elements among investigative delivery system such as project method, inquiry teaching, discovery learning and case based learning. Studies conducted by Sweitzer and Anderson (2007), reported that effective Teacher preparation procedures included: (a) systematic observation of inquired practices (b) Micro teaching, (c) feedback, in which supervisory conferences

were combined with videotaped observations, knowledge, skills and personality attribute are all prerequisite.

Hutchinson (2008), study found that, Teachers who participated in PBLM and an inquiry-oriented seminar assumed more active teaching and learning roles than those Teachers who participated in a traditional seminar setting and individual setting. Fernandes (2005), who compared the effects of explicit and implicit teaching of a Polya's heunstic model, reported that Teachers, who participated in teaching using the PBLM, improved significantly the problem–solving performance of those Teachers and the learners. Fernandes concluded that in order to teach PBLM, Teachers must be competent problem – solves who are aware of the methods and processes that they employ. Studies conducted by Nandi, Chan, and Chan (2010) and Lai and Tang (2005) respectively on the use of PBLM and obstacles to its implementation shared that, Teachers do not know how to use the PBLM even though preferred to use and also mentioned some factors that hindered its implementation such as resource, staff training and time.

2. The Problem

Although, a host of studies showing the implications of problem – Based Learning Method (PBLM) for instructions have been offered from different researchers in various disciplines in the developed nations, relatively few studies have addressed the need to prepare and apply Teachers to teach higher order thinking skills (problem – solving skills). For this reason, little is known about the experiences and usage in the teaching of Visual Arts in public primary schools by Art Teachers in Maiduguri, Borno state.

Have the public primary schools Teachers acquired the knowledge, skills needed to be competent problem solvers and to use PBLM effectively as an instructional strategy in classrooms and studios? The purpose of this study was to survey the usage of PBLM procedure for the teaching of Visual Arts among public primary schools Teachers in Maiduguri Metropolitan Council, of Borno State. The following research questions were posed to guide the study:

a. do Teachers use PBLM (problem – based learning method) in teaching Visual Arts?
b. What do teachers know about PBLM?
c. What are the constraints affecting teachings using PBLM?

3. Method

3.1 Research Design

The survey research design was used for this study. The survey design seems to be appropriate because the general purposes of survey are to reveal current situations, point out the acceptability of the status quo and also show the need for changes because it involved collection of information from selected primary schools in different parts of Maiduguri Metropolitan Council of Borno State.

3.2 Population and Sample

The target population for this study consisted of all Teachers in thirty six (36) primary schools in Maiduguri Metropolitan Council (MMC). As at the time of this study, there was no particular Teacher for specific subjects at the primary school level. Teachers tend to teach all subjects assigned to them regardless of specialization. The sample comprised of forty (40) teachers drawn from ten (10) primary schools in MMC. The purposive sampling technique was used to select the subjects, because not all the public primary schools offer Visual Arts subjects.

3.3 Instruments

The research instruments used for this study were Teacher Teaching Observational Guide [TTOG] on using PBLM and questionnaire on the constraints faced using PBLM. The Teacher Teaching Observational Guide [TTOG] developed by Sam (2006) was adopted and modified for this study, consisting of 23 items with reliability coefficient (0.85) ascertained through Cronbach alpha. To rate the level of competency of using PBLM, the Likert-type scale from 1-5 was used (Excellent 5, very good 4, good 3, fair 2 and poor 1) respectively at the end of each observation while yes or no indices was used on the questionnaire.

4. Results

The data collected were analysed using frequency and percentages. The presentation of the results was in line with the research questions posed to guide the study.

Research question 1: Do teachers use the PBLM in teaching visual arts?

Table 1.0: Frequency and Percentage Scores on Teacher's Knowledge Using the PBLM (N=40)

Item A		Level of existence				
S/No.	**Knowledge**	**Excel-lent**	**Very good**	**Good**	**Fair**	**Poor**
1.	Understanding of the overall objectives for the teaching	0(0%)	0(0%)	8(20%)	10(25%)	22(55%)
2.	Teaching materials and their use	0(0%)	0(0%)	10(20%)	14(35%)	16(40%)
3.	Basic principles and method of PBLM	0(0%)	0(0%)	2(5%)	6(15%)	32(80%)
4.	Method used for evaluation in PBLM	0(0%)	0(0%)	0(0%)	5(12.5%)	35(87.5%)
5.	Steps necessary in promoting PBLM	0(0%)	0(0%)	0(0%)	2(5%)	38(95%)
6.	Rational and techniques of self-directed learning	0(0%)	0(0%)	0(0%)	4(10%)	36(90%)
7.	Understanding of the mechanics of group dynamic and mechanics of peer feedback	0(0%)	0(0%)	4(10%)	8(20%)	28(70%)
8.	PBLM (creative and critical thinking in pupils)	0(0%)	0(0%)	2(5%)	8(20%)	30(70%)

Table 1.0 shows the percentage scores on observation of Teachers on knowledge using PBLM. The result shows that 95% of the teachers do not have knowledge necessary in promoting PBLM; 90% do not know the rational and technique of self-directed learning; 87% do not know method used for evaluation; 80% do not have the basic principles and method of PBLM; 75% of the teachers do know PBLM for promoting creative and critical thinking while 70% do not have the knowledge of understanding the mechanics of group dynamics and mechanics of peer feedback.

Table 1.1: Frequency and Percentage Scores of Teacher's Personal Attribute Using PBLM

Item B		Level of Existence				
S/No.	**Personal attributes of the teacher demonstrating an acceptance of:**	**Excel-lent**	**Very good**	**Good**	**Fair**	**Poor**
9.	The PBLM approach as an effective method for acquiring information and for developing the ability to think creatively and critically	0(0%)	0(0%)	0(2%)	6(15%)	34(85%)
10.	The self-directed learning approach	0(0%)	0(0%)	0(0%)	12(30%)	28(70%)
C.	**Is the teacher fulfilling his/her responsibilities by:**					
11.	Arranging his/her personal schedule during the teaching period in order to be adequately available?	0(0%)	0(0%)	6(15%)	15(35.5%)	19(47.5%)
12.	Being prepared to have individual meetings with students as required	0(0%)	0(0%)	0(0%)	4(10%)	36(90%)

Table 1.1 shows the percentage scores on the personality attributes of the teachers while teaching. Result indicated that 90% of the teachers were not prepare to have individual meetings with students as required, 85% do not demonstrate an acceptance of PBL approach as an effective method for acquiring information and for developing the ability to think creatively and critically; 80% do not fulfil their responsibilities of conducting students evaluation activities throughout the teaching period while 70% of the teachers do not demonstrate an acceptance of the self-directed learning approach.

Table 1.2: Frequency and Percentage Scores of Teacher's Skills Using PBLM

Item C		Level of existence				
S/No.	**Skills in facilitator learning**	**Excel-lent**	**Very good**	**Good**	**Fair**	**Poor**
13.	Conducting students' evaluation activities throughout the teaching period.	0(0%)	0(0%)	0(0%)	8(20%)	32(80%)
14.	Asking non-directive question, stimulating, inquiry and challenging students as appropriate	0(0%)	0(0%)	0(2%)	5(12.5%)	35(85.5%)
15.	Showing consequences of students responses	0(0%)	0(0%)	8(20%)	10(25%)	22(55%)
16.	Providing attractive views and cues	0(0%)	0(0%)	6(15%)	10(25%)	24(60%)
17.	Indicating when additional external information is required	0(0%)	0(0%)	4(10%)	8(20%)	28(70%)
18.	Referring students to resources as appropriate	0(0%)	0(0%)	8(20%)	12(30%)	20(50%)
19.	Avoid lecturing to the students	0(0%)	0(0%)	0(0%)	8(20%)	32(80%)
E	Skills in promoting individual learning by:					
20.	Helping student to develop a study plan	0(0%)	0(0%)	0(0%)	15(37.5%)	25(62.5%)
21.	Helping students to improve study method	0(0%)	0(0%)	10(25%)	14(35%)	16(40%)
F	**Skills in student evaluation:**					
22.	Review and clarifying programme goals	0(0%)	0(0%)	0(0%)	10(25%)	30(75%)
23.	Preparing evaluation report on the individual students learning	0(0%)	0(0%)	0(0%)	15(37.5%)	25(62.5%)

Table 1.2 shows that 85.5% of the teachers do not ask non-directive questions, 80% do not avoid lecturing to the students; 75% do not review and clarify programme goals; 70% were poor in indicating when additional external information is required; 62.5% poor in helping students to develop a study plan and also poor in preparing evaluation report on the individual students learning respectively.

Research question 2: what do Teachers know about PBLM?

Table 2: Teachers Responses on what they Know About PBLM [N=40]

Statement		Yes		No	
S/No.		**Frequency**	**Percentage**	**Frequency**	**Percentage**
1.	Have never heard of this method	36	90%	4	10%
2.	Have not being taught of the method	38	95%	2	5%
3.	I don't use this method	40	100%	0	0%

Table 2 shows teachers responses on what they know about PBLM. Result shows that 100% (40) of the teachers do not use the PBLM while teaching visual arts; 95% (38) of the teachers have not being taught of the PBLM while 90% (36) of them have never heard of PBLM.

Research question 3: What are the constraints faced in using PBLM?

Table 3: Frequency and percentage responses of teachers on constraints faced using the method (N=40)

Statement		Yes		No	
S/No.		**Frequency**	**Percentage**	**Frequency**	**Percentage**
1.	Lack of training on how to use the PBLM	40	100%	0	0%
2.	Lack of awareness on the subject itself	30	75%	10	25%
3.	Lack of enough time	36	90%	4	10%
4.	Lack of facilities like studio, classroom etc	36	90%	4	10%
5.	Lack of equipments like computer, sewing machines, kiln, knives, projector, camera, etc	30	75%	10	25%
6.	Lack of materials like clay, colour, drawing papers, paints	26	65%	14	35%

Table 3 shows that 100% of the Teachers responded that lack of training on how to PBLM was one of the problems faced, 90% indicated lack of time and facilities respectively were also problems faced while 75% of Teachers respectively indicated lack of equipments and awareness of the subject (visual art) were constraints affecting the learning and teaching using PBLM.

Discussion of Findings

This study was aimed in assessing the usage of PBLM of teaching Visual Arts among public primary school Teachers in Maiduguri Metropolitan Council, of Borno state. The findings of this study shows that the usage of PBLM is indeed very low [poor] amongst Teachers teaching Visual Arts, majority of the Teachers do not have the knowledge, personal attributes and skills in promoting PBLM skills in the learner. This findings is not consistent with studies by Sellwood (2005), Gagne (2007) and Andre (2008] whose literature tend to indicate that Teachers use PBLM to immerses pupils active, investigative learning and emphasized that the importance of PBLM to the Teacher lies in the information processing required of the learner and as such Teachers must have the knowledge, skills and personal attributes to use the method. What this finding suggest, was that the Teachers involved in this study have no coaching and training on teaching strategies, in essence, teachers need to receive training in both theory and practice in order to be well equipped with methodology of teaching.

Similar result was obtained when research question two regarding what teachers know about PBLM. All of the teachers were not using PBLM to teach Visual Arts in the selected schools, majority of the teachers have not being taught and have never heard of the PBLM. This result collaborates work presented by Lai and Tang (2005) and Nandi,Chan and Chan (2010), whose finding indicated that Teachers do not know how to use PBLM. This study also suggests that, PBLM in teaching Visual Arts has apparently still not made significant impact among Teachers in public primary schools in Maiduguri Metropolitan Council. By implication, the advantages of using the method in Visual Arts classes are still untapped by most Teachers.

However, Teachers (100%) lacked training on how to use PBLM; lack of facilities, equipments; materials and time were all constraints faced by teachers. Teachers agreed that, these problems hindered them the privilege of using this method. For teachers to be competent problem – solvers, there is need for trainings and availability of these resources. This finding is not in accordance with studies of Diaber (2009), Sweitzer and Aderson (2006), Hutchinson (2008) and Fernandes (2005), who in their studies found that, teachers who participated in an inquiry-oriented and PBLM seminar and workshops assume more active teaching and learning roles than those teachers who participated in a traditional seminar settings.

Conclusion

It can be concluded that, public primary schools Teachers teaching Visual Arts subjects do not have the knowledge, personal attributes and skills to use the PBLM, perhaps, due to lack of coaching in teaching strategies during their school days. There was very low level of competency in using the method among teachers because majority of the Teachers have not being taught of PBLM and never heard of the method, this could be due to lack of Teachers qualification and experience in teaching. All Teachers do not use PBLM during Visual Arts classes, perhaps due to lack of training, facilities, equipments, time and materials as most Teachers agreed hindered the implementation of this method. The Visual Arts curriculum did not find fulfilment in the area of teaching and learning due to inability of the Teacher in using the method. It can therefore, be concluded, that effective use of PBLM in primary schools by Teachers depend on the availability of trained and educated Teachers; Teachers who know the methodology, subject content and understand of the learner.

Recommendations

Based on the findings in this study and the conclusions drawn, the following recommendations were made that:

1. There is need for Teachers to be trained and educated on what PBLM is, its important and rational should be made clear.
2. Primary school Teachers who do not have teaching qualification and experience should go and enrol in postgraduate diploma courses in education so as to be equipped in teaching strategies, this may enhance their ability in the use of PBLM.
3. Primary schools should be equipped with facilities, equipments and materials to enhance the use of PBLM and enough time should be allotted during art classes so that PBLM can make an impact on the learner.

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