

**THE APPLICATION OF EDUCATION PROJECT MANAGEMENT  
CYCLE TECHNIQUE ON THE MANAGEMENT OF EDUCATION  
PROJECTS IN SECONDARY SCHOOLS IN NORTH  
EASTERN NIGERIA**

**BY**

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**A thesis submitted to the Department of Science Education, in  
partial fulfillment of the requirements for the Degree of Doctor of  
Philosophy in Educational Management**

**NOVEMBER, 2010**

## **DECLARATION**

I declare that the work described in this thesis represents my original work and has not been previously submitted in part or in full to any University or similar institutions for any Degree or Certificate.

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**APPROVAL PAGE**

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**DEDICATION**

This work is dedicated to my late father, Mohammed Arabi Badau and mother Mairo Mohammed Badau who tried to see that I acquire a functional education.

## **ACKNOWLEDGEMENTS**

Profound gratitude goes to Allah, first and foremost, the beneficent, merciful and King of the Day of Judgment for his grace, who made this work possible. The researcher is most grateful to the major supervisor of this study, Professor (Mrs.) Roseline E. Uyanga, whose guidance and wealth of experience brought this work to conclusion. Dr. (Mrs.) J.M. Ndagana's assistance as co-supervisor of this study and her thoughtful advice in many areas will always be cherished by the researcher.

Special appreciation goes to all lecturers in the department of Science Education especially Dr. W. Bukar who was on sabbatical leave, from Education Department, University of Maiduguri for his guidance on the content of this research, Dr. Sofeme Reuben Jebson for designing the methodology and particularly the Head of Department (HOD), Dr. John Sakiyo for his useful suggestions during and after the seminars.

The researcher is grateful to Prof. A.G. Akpa and Prof. S.U. Udoh of the Department of Arts and Social Science of the University of Jos for the lectures on Research Methodology and brief supervision of the work. My thanks go to the lecturers of the department of Technology Education, especially Dr. K.H. Bulama for the content corrections of the work, encouragement at all times and others for their useful advice.

The researcher is also grateful to staff of Planning, Research and Statistics department, Ministry of Education Yola especially Mr. Ishaku Joshua and indeed Examination Administration staff of National

Business & Technical Examinations Board (NABTEB), Benin City. Thanks go to Mr. Dennys Okorafor, Larry and Mrs. Dasofunjo of the Department of Examination Administration, (NABTEB) for typing the manuscript.

The researcher is grateful to his relations and his family who supported him financially and morally. Thanks go to Dr. Mammudu Halidu Badau of the Department of Food, Science and Technology, University of Maiduguri who was very supporting and encouraging. Finally, the researcher is grateful to his wife Maryam Kabiru Badau, his sons Zayyad and Zahradeen, his daughter, Zubaida who all bore the brunt of the financial burden.

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## **ABSTRACT**

Educational projects in Nigerian secondary schools have been described as a neglected aspect of the educational system. The inadequate provision, under utilised and poor condition of educational facilities in our secondary schools therefore attracted attention and criticisms from educationist all over. Some states have not been able to provide, utilise and maintain educational facilities through the application of EPMCT in capital projects even where there is evidence of funding. This study investigated the application of Education Project Management Cycle Technique (EPMCT) on the management of education projects in secondary schools in North Eastern Nigeria. Ex-post facto survey research design was adopted for the study. A sample of 37 educational planning specialists and 76 non educational planning specialists from planning divisions of the Ministries of Education, 381 school administrators, 1,743 teachers and 193 school maintenance personnel from 1880 secondary schools were randomly drawn. Proportional sampling along the six states of North Eastern Nigeria comprising of Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe was carried out of a population of 40,708. A close structured questionnaire with five point response scale and checklist of educational facilities were used for data collection. Six research questions were asked and answered through grand means, standard deviations and percentages. Five hypothesis

were formulated and tested at 0.05 level of significance, while Z-test statistics and Analysis of Variance (ANOVA) were used to test the hypotheses. The reliability coefficient of the instrument was 0.96 using Cronbach alpha while four validators carried out face validations. Some of the major findings of the research reveal that secondary schools were lowly involved in the identification, implementation, evaluation, sustainability of education projects. Educational and non educational planning specialists accepted that the planning divisions of the Ministries of Education were highly involved in the preparation of feasible education projects. School administrators did not accept that the application of EPMCT by the planning divisions of the Ministries of Education achieved the availability of educational facilities in secondary schools. It was also found out that school administrators, teachers and school maintenance personnel do not differ significantly on involvement of secondary schools in sustainability of maintenance of education projects in their schools. The study concluded that secondary schools were not highly involved in the application of EPMCT which has not made educational facilities available in their schools. Recommendations for the application of EPMCT were offered.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of the Study:

Educational projects particularly facilities are no doubt one of the keys to successful teaching and learning. It is on this premise that Ihuoma (2008) opined that any educational system which toys with the adequate provision, utilization and maintenance of physical facilities through management of education projects is endangering the success of students. Any educational system is incomplete if education projects do not adequately provide, utilize and maintain physical facilities. This underscores the importance of education projects in creating conducive environment for teaching and learning.

Arguments by (Bulama, 2001 & Ojo, 2006) are rife supporting the place of adequate provision, utilization and maintenance of school facilities because they enable a skillful teacher to achieve a level of instructional effectiveness. However, it can still be argued that the physical presence of these facilities does not per se facilitate teaching and learning. They have to be adequately provided, utilized and maintained through education project management to create comfortable learning environment (Ihuoma 2008). Effective provision, utilization and maintenance of

educational facilities through management of education projects will therefore ensure adequate and functional facilities to accommodate all programmes in the school curriculum. It is also a condition for curriculum implementation, and the curriculum finds its physical expression in education projects. School buildings, furniture and equipment which are adequately provided, utilized and maintained through education project management should create an environment where teaching and learning will be effective. Environmental and human factors as well as buildings, furniture and equipment suitable for teaching and learning should be considered in the provision, utilization and maintenance of educational facilities. Although environmental factors which affect behaviour change are known to be more difficult to accomplish through school buildings, furniture and equipment, the physical aspect of the environment may be relatively well controlled by known engineering methods (White and Fortune, 2002).

Education projects in Nigerian secondary schools have been described as a neglected aspect of the educational system. Ojo (2006) pointed out that although one potent index for evaluating standards and quality in education is the condition of educational facilities for teaching and learning, no other area had been neglected by educational planners, during and after the colonial

era like education projects. The inadequate, under utilized and poor condition of educational facilities in our secondary schools therefore attracted attention and criticisms from educationists all over. Infact the demands for the 6-3-3-4 system of education further exacerbated these inadequacies to become glaring. Abinu and Jagboro (2002) observed that in many secondary schools, school buildings, furniture and equipment are not provided, utilized and properly maintained even where adequate funding was provided for managing capital education projects. According to Bulama (2001), the material resource for the implementation of 6-3-3-4 system were underutilized to the extent that in many schools a good number of these items of equipment were kept in the principal's office or neglected outside a building, while many others had been vandalized for lack of utilization and maintenance.

In the North Eastern region of Nigeria, comprising Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe States, the problems of inadequate, underutilized and poorly maintained educational facilities through education projects appear to be more severe. An interaction with the officials of Planning Divisions of the Ministries of Education in the six states under study, revealed that school buildings, furniture and equipment were still inadequate, underutilized and poorly maintained in secondary schools.

Ojo (2006) stated that a good number of the equipment supplied to secondary schools by the Federal Ministry of Education could still be found in crates for lack of utilization. Ikoya (2008) observed that teaching and learning in secondary schools in Nigeria are not properly organized because education projects do not adequately provide, utilize and maintain physical facilities.

Some educationists see the poor state of educational facilities in Nigeria as a result of lack of economic visioning. Ihuoma (2008) opined that the National Policy on Education was made at the time that Nigeria's economy was strong but now with a faltering economy, secondary schools still do not have laboratories and workshops. Bulama (2001) observed that some states could not build enough classrooms, workshops and laboratories in secondary schools for lack of money.

Inadequacy of funds seems not to be the most cogent explanation for the poor state of educational facilities in secondary schools. As pointed out by Aibinu & Jagboro (2002), physical facilities are inadequately provided, under-utilized and not maintained even when adequate funds have been made available. Bulama (2001) observed that all over the country, secondary schools are burdened with lack of buildings, furniture and equipment for teaching and learning. Thus, poor implementation

of techniques and models of education project management may be hypothesized as other cogent reasons for the inadequate provision, utilization and maintenance of educational facilities in secondary schools.

Educational facilities are adequately provided, utilized and maintained in secondary schools through effective education project management. Choudhury (2005) reported that effective education project management improves the state of educational facilities. According to Roberts (2000) education project management is the process of coordinating the execution of tasks through the application of various techniques of project management by educational planners. A number of education project management models exist. In Nigeria, according to Bogunjoko (2006), Programme Evaluation and Review Technique (PERT), Critical Path Method (CPM), Cost benefit analysis and Work Breakdown Structure (WBS) are popular early techniques used in the management of education projects.

Abdullahi (2006) reported that the implementation of EPMCT is also common in education projects in public secondary schools. United Nations, Educational, Scientific and Cultural Organization Kerzner, (2004) recommended system approach for managing complex education projects in institutions of learning in Nigeria.

The responsibility of managing education projects such as physical facilities is a collective one. The planning divisions are empowered by Federal and State Ministries of Education to manage education projects to adequately provide, utilize and maintain educational facilities in secondary schools. Accordingly, State Ministries of Education ensure that educational facilities are adequately provided and managed through models of project management.

As a pre-requisite for providing, utilizing and maintaining educational facilities, architects and engineers who provide the technical services collaborate with educators (teachers, educational planners, educational administrators) and also students to apply the techniques and models of education project management.

The 1988 Civil Service Reforms created a planning department in the Federal and State Ministries of Education to perform among others the function of managing education projects in public secondary schools. The responsibilities of the department are to plan and manage projects using the five stages of EPMCT. The application of the technique which rests with the planning divisions of the Ministries of Education is suppose to involve secondary schools at all the stages of identification,

preparation, implementation, evaluation and sustainability of the technique. This is expected to result in adequate provision, utilization and maintenance of physical educational facilities in the features of project management. Educational planners in North Eastern zone are suppose to involve secondary schools to successfully apply EPMCT because they are beneficiaries of educational facilities for teaching and learning.

Efforts have been made by organizations, like Education Trust Fund (ETF) to apply EPMCT to enhance educational facilities and infrastructure in secondary schools in the North Eastern Nigeria. ETF impact assessment Team (2006) revealed that school buildings, furniture and equipment were adequately provided, but not utilized and maintained in the states of North Eastern Nigeria through the application of EPMCT in the ETF intervention projects. The team has indicated the involvement of beneficiaries in secondary schools in the application of EPMCT.

## **1.2 Statement of the Problem**

The inadequate provision, underutilization and poor maintenance of educational facilities through the application of the five stages of EPMCT have been critically examined by educationists in the states of Nigeria. States have not been able to provide, utilize and maintain educational facilities even where there

is evidence of funding management of capital projects. Secondary schools have not been highly involved in the holistic application of complete or selected stages of EPMCT to adequately provide, utilize and maintain educational facilities in their schools.

The negative effect of this condition on the performance of the secondary school graduands can be enormous. Inadequate provision, utilization and maintenance of physical educational facilities through the application of EPMCT, affects the performance of secondary school graduates. Poor teaching and learning in secondary schools take place where physical educational facilities are not adequately provided, utilized or maintained. If school buildings, furniture and equipment are not utilized, and maintained, secondary school programmes suffer and this leads to the production of secondary school failure. No empirical data has revealed that the involvement of secondary schools in the application of EPMCT has achieved the adequate provision, utilization and maintenance of physical educational facilities.

The planning divisions of the Ministries of Education in the six States of the North Eastern Nigeria, may partially involve the secondary schools in the application of the EPMCT even though they know how best physical educational facilities can be provided,

utilized and maintained for their everyday usage. Physical educational facilities are adequately provided, utilized and well maintained through the application of EPMCT so that conducive environment for teaching and learning can be achieved.

The efforts of the State Ministries of Education in the North Eastern Nigeria to provide, utilize and maintain physical educational facilities through the application of EPMCT have probably not gone far enough. Considering the efforts made by ETF and States Ministries of Education in application of EPMCT, classrooms, laboratories, workshops, chairs and tables, machines and tools should have been available in secondary schools in North Eastern Nigeria.

### **1.3 Purpose of the Study**

The main purpose of this study was to investigate the application of Education Project Management Cycle Technique by the planning divisions of Ministries of Education in the North Eastern Nigeria. The specific objectives were:

1. to determine the level of involvement of secondary schools in the identification of priority education projects in their schools.

2. to determine the level of involvement of planning divisions of the Ministries of Education in the preparation of feasible education projects in secondary schools.
3. to determine the level of involvement of Secondary schools in the implementation of education projects in their schools.
4. to determine the level of involvement of secondary schools in the evaluation of the utilization of education projects in their schools.
5. to determine the level of involvement of secondary schools in the sustainability of the maintenance of education projects in their schools.
6. to determine the level to which application of EPMCT has led to the availability of educational facilities in secondary schools.

#### **1.4 Research Questions**

The following research questions were raised to guide the study:

1. To what level are secondary schools involved in the identification of priority education projects in their schools?
2. To what level are the Planning Divisions of the Ministries of Education in North Eastern region involved in the preparation of feasible education projects in secondary schools?

3. To what level are secondary schools involved in the implementation of education projects in their schools?
4. To what level are secondary schools involved in the evaluation of the utilization of education projects in their schools?
5. To what level are secondary schools involved in the sustainability of maintenance of education projects in their schools?
6. To what level has the application of EPMCT led to the availability of educational facilities in secondary schools?

### 1.5 Hypotheses

The following null hypotheses were formulated and tested at 0.05 alpha level of statistical significance.

H<sub>01</sub>. There is no significant difference between the opinions of school administrators and teachers on involvement of secondary schools in the identification of priority education projects in their schools

H<sub>02</sub>. There is no significant difference between the opinions of educational planning specialists and non educational planning specialists on involvement of the planning divisions of the Ministries of Education in the preparation of feasible education projects in secondary schools.

H<sub>03</sub>. There is no significant difference among the opinions of educational planning specialists, non educational planning specialists, school administrators and teachers on involvement of secondary schools in the implementation of education projects in their schools.

H<sub>04</sub>. There is no significant difference among the opinions of educational planning specialists, non educational planning specialists, school administrators and teachers on involvement of secondary schools in the evaluation of the utilization of education projects in their schools.

H<sub>05</sub>. There is no significant difference among the opinions of school administrators, teachers and school maintenance personnel on involvement of secondary schools in the sustainability of the maintenance of education projects in their schools.

## 1.6 Significance of the Study

This research will benefit the secondary schools because their priority project needs will be identified for effective planning and implementation. It will strengthen the ability of educational planners to prepare feasible education projects that are consistent with priorities and viable educationally, socially and administratively. The findings of the study will educate Ministries of

Education on how to prepare feasible projects and get results. The outcome of the research will assist the Ministries of Education in North Eastern zone in financing feasible education projects in secondary schools.

The research will provide information for educating principals, vice-principals and teachers on how the application of EPMCT by the planning divisions provide adequate educational facilities in secondary schools. The outcome of the research will assist the government in getting good results from the huge sum of money spent on provision of educational facilities.

The principals will also know that projects sustained will maintain educational facilities so that they can last for teaching and learning in secondary schools. Principals and Teachers will understand that projects evaluated guarantee utilization of educational facilities in their schools.

The parents would equally benefit from this study because they will know how the government is improving the quality of education of their children through utilization of educational facilities in secondary schools. The research will be of benefit to parents because they will have the knowledge of increasing the lifespan of educational facilities through project sustainability. The

above development will at the end improve the standard of education in North Eastern Nigeria.

### **1.7 Scope of the Study**

The study was carried out on management of education projects particularly physical facilities in public secondary schools because the planning divisions only manages education projects in public secondary schools in the North Eastern Nigeria. The study concentrated on the management of projects in secondary schools through the application of the five stages of EPMCT. It covered the management of education projects in all the secondary schools in the six States in the North Eastern zone – Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe. This included boarding, day, arts, science and technical secondary schools which are categorized into grades A, B, C and D schools. This study was delimited to 2007 because democratic governments in the six States of the North Eastern Nigeria embarked on the construction and rehabilitation of education projects in secondary schools during the one year to accommodate large student's population.

### **1.8 Operational Definition of Terms**

For the purpose of this study, the underlisted terms was defined as follows:

**Education project management by the Technique-** This is a series of five (5) stages in education project life span from identification, preparation, implementation, evaluation and sustainability.

**Education Projects –** This is a set of investments and planned activities in a school aimed at achieving specific objectives within a predetermined time frame and budget.

**Education Planning Specialists –** These are staff of the planning divisions of the Ministries of Education with professional educational qualifications as educational planners e.g. B.A.Ed, B.Sc.Ed, B.Ed, M.Ed, Ph.D(Ed).

**Non-educational Planning Specialists –** These are staff of the planning divisions of the Ministries of Education without professional educational qualifications, e.g. B.A (Hons), B.Sc (Hons), M.A., M.Sc. and Ph.D.

**School Maintenance Personnel –** These are technicians in the secondary schools charged with the responsibility of maintaining educational facilities.

## CHAPTER TWO

### REVIEW OF RELATED LITERATURE

The present review of related literature was organized under the following subheadings:

- 2.1 Theoretical framework of the study.
- 2.2 The Concept of Education Project Management.
- 2.3 Evaluation Models in Education Project Management.
- 2.4 The Application of the successive stages of EPMCT.
- 2.5 Participation in the Application of EPMCT.
- 2.6 EPMCT Application Performance of Physical Educational Facilities.
- 2.7 Review of Related Empirical Studies.
- 2.8 Summary of Literature Reviewed.

#### **2.1 Theoretical Framework of the study**

The logical successive procedural stages in the Project Management Body of Knowledge (PMBOK) developed by the project management institute in United States of America, was used as project management theoretical framework in this study. This reveals that activities and tasks are the unit of analysis in the core process of project management like scope management, time, management and cost management and that their management and control is centralized. This was presented by Koskela and

Howell (2002) as meeting project requirement through selection and application of appropriate processes of initiating, planning, executing, controlling and closing.

### Stages in the PMBOK Theory

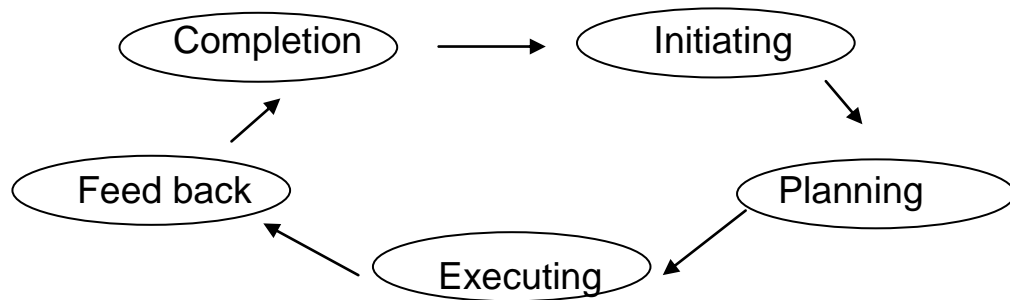


Fig. 1. PMBOK theory to project management.

Source: Koskela and Howell, 2002:5

Koskela and Howell explained the six stages as follows:

- a. Initiating:- This is the process of diagnosing and identifying the problems to generate project idea.
- b. Planning:- This is the preparation for the project to take off smoothly. It does not limit itself to paper work and thinking but many activities including field work.
- c. Executing:- This is the real activities of the project. It is where something starts growing in the field and people for the first time can see the projects.
- d. Feed back: - This is the process of reporting performance to make corrections for the executing processes.

- e. Completion: - This is the handing over of project to the satisfaction of the beneficiaries, project accounts closed, materials reconciliation carried out, outstanding payments made, and dues collected.

Other theories of project management which attempted to explain EPMCT are the Business Roundtable (1992) modern project management system and Lackney's (2003) educational facility management theory. The Business Roundtable modern project management system theory indicates the interrelatedness of the functions of project management. The systems comprise of planning and scheduling, cost estimating, budgeting control and accounting, quality assurance and materials management. At the same time, the systems are linked so that a change of data in one function will immediately show its effect on all other functions. Most existing literature have criticised the modern project management system that it can only be used in industrial, utility and commercial related projects (Mahlick, 1993).

Lackney (2003) propounded an educational facility project management theory and this showed an interface of six activities of educational facility planning, financing, design, construction, operations and maintenance. Critics of the theory reported that one of its limitations is that it can only be used for physical facility

project management (Beynon, 1997). Since PMBOK has a wider coverage of project management activities and originates from a project management institute, its use as a theoretical framework in the present evaluation research is justified.

## **2.2 The Concept of Education Projects Management**

Education projects are important and carefully planned pieces of work that intend to bring new innovations to deal with a problem in the educational system. It is any undertaking with a defined starting point and defined educational objectives by which the objectives are to be accomplished. Education project management is a kind of system that depends on the skills or different persons from different sectors of the system. It is the art of directing and coordinating human and material resources throughout the life of an education project by using modern management techniques to achieve predetermined objectives or scope, cost, time, quality and stakeholders satisfaction (Wideman, 2001). This include application of knowledge, skills, tools and techniques to project activities and by selection and application of appropriate processes for initiating, planning, executing, controlling and closing to accomplish the meeting requirement of project (PMI, 2008).

According to Damiba (1980), education project management is the process of coordinating the execution of tasks that do not carry out itself but for which educational planners are responsible. Magnen (1992) defined education project management as the process of carrying out many tasks including distribution and management, problem solving, decision-making, negotiation and understanding other tasks. These tasks are also carried out through the application of project management techniques and evaluation models.

Psacharospouloun & Woodhall (1985) agreed that although the concept is a set of educational investment and other planned activities aimed at achieving specific objectives within a pre-determined time frame and budget, it generally includes physical or hardware investments like construction, furniture, equipment and supplies which are important in projects with qualitative or institutional objectives. From a comparative analysis of case studies of education project management, Runner, Altner & Mahlick (1998) confirms the view expressed by Psacharospouloun & Woodhall (1985) by reporting that education project management involve investing in buildings and supplies to achieve institutional objectives.

Public sector education project management, according to International Institute of Educational Planning (IIEP, 1985), comprises of two components namely:

- (a) Pure project management: This is where a planning department is created with full elements and resources to function without borrowing the resources.
- (b) Matrix organisation: This is where the planning department is created with all necessary functions but shares resources with the other concurrent department and other functional departments from where they borrow.

To be effective therefore, project management depends on the nature of the education project, the amount of money available, execution period and ability of people involved to understand the project (Devarusu, 1995).

Various groups involved in project management have expressed opinions on the process of project management. UNDP (1997a) asserted that there must be a conscious effort to rely on the school community (people who are the target beneficiaries of such projects). Knowledge of local culture, politics, power structure and other local peculiarities must be considered in the quest for community participation in the management process. Indeed,

Federal and State governments have acknowledged their limitations in ensuring sustainable education projects alone, and at various times have called on the citizens, private sector organisations (PSOS), community based organisations (CBO) and non-governmental organisations (NGO) to become partners in this direction.

Paul (1997) viewed community based organisations (CBOs), non-governmental organisations (NGOs) and private sector organisations (PSOS) as playing active roles in managing education projects, which can enhance bottom-up management by:

- (a) Strengthening school community resources management.
- (b) Increasing stakeholder's commitment and ownership of education policies and projects.
- (c) Developing, promoting, implementing and sustaining education projects for the benefits of the school communities.
- (d) Enhancing collaboration between local communities, governments (Federal, State and Local) and donors in the promotion of sustainable projects.

- (e) Actively promoting the concepts of consent, legitimacy and transparency and accountability to the people.

Based on the foregoing, it can be concluded that the activities of the planning divisions of the Ministry of Education in managing education projects are coordinated through management functions. Thus, it is aimed at using the available resources to achieve pre-determined goals. Successful education project management therefore involves the commitment of government, individuals, organisations and beneficiaries through organized coordinated activities.

Situation and policy analysis (SAPA, 1998) survey by FGN/UNICEF did show that school buildings, furniture and equipment are not adequately provided, utilized and maintained in secondary schools due to partial involvement of the schools in the application of EPMCT. The National Planning Commission project monitoring report (1998) also reported that most projects in the education sector are abandoned due to poor application of EPMCT through the partial involvement of secondary schools. Education Sector Analysis (ESA, 2000) revealed that failure of the project application agencies to involve secondary schools in the application of EPMT is responsible for poor project management.

## 2.3 Evaluation Models in Project Management

Finch & Crunkilton (1984) defined a model as a simplified, yet communicable representation of real world setting or situation. They indicate three ways by which models communicate or convey the real world setting which includes use of system, linear fashion and through arrangement of concepts. Alkin & Ellet (1990) described two general ways in which models are used in evaluation:

- (a) as a set of rules, prescriptions, prohibitions and guiding frameworks which specify what a good or proper evaluation is and how it should be carried out.
- (b) as a set of statements and generalizations which describe, predict or explain evaluation activities.

Okoro (1991) considered evaluation models as a systems approach to solving problems in education. It aids understanding of components and shows how changes in one component affect the other components. An evaluation model according to Okoro, may be regarded as a set of steps or a system of thinking which if followed, will result in the generation of information that will be used in improving education programmes. The efficiency of decisions made and the whole functioning of the project management system is determined by the adequacy of models for

real processes and their meeting the requirements of project management tasks and goals (Roberts, 2000).

In the historical development of models for achieving the goal of project management, Bogunjoko (2006) advanced that Programme Evaluation and Review Technique (PERT), was developed in 1958 to assess project management. At the same time, the Dupont Corporation invented a similar model called Critical Path Method (CPM). PERT was later extended with a Work Breakdown Structure (WBS) Both PERT and CPM use project network and the notions of critical path analysis, critical activities, activity float and slack which are common to both. There is not much difference. With CPM, the amount of time needed to complete each job/activity is assumed to be known with certainty. The relationship between the amount of resources employed and the time needed to complete various activities is also assumed to be known. CPM is therefore not concerned with uncertainty in job time as is PERT. It is concerned with obtaining trade-off between cost and completion date. It is used in construction, maintenance and other projects where there has been some experience.

The CPM model is used for network analysis evaluation. The purpose of network analysis model is to breakdown a complex project into very small constituent parts so that these become

individually quantifiable and controllable. Choudhury (2005) listed a breakdown which provides a basis for:

- i. preparing a project work plan.
- ii. listing all major tasks and sub tasks.
- iii. prepare the bill of quantities.
- iv. constructing a project network.
- v. preparing the project budget.
- vi. scheduling project activities/jobs.
- vii. allocating resources for project execution.
- viii. monitoring progress and controlling resources allocation and utilization during execution.

Network Analysis Techniques (NAT) model according to (Bogunjoko, 2006) enforces a clear distinction between planning which is placing activities in their proper order and scheduling which is showing when activities shall be carried out.

The network analysis model for project management is broken into four stages:

- (a) The network construction: This is planning by identifying necessary activities or jobs, ordering the activities in technical sequence or priority and estimating the completion time of various activities.

- (b) Analyzing the network: This planning by critical path analysis is analyzing the network to identify the critical path, the critical activities, the earliest event time, the latest event time and the activity float or slack.
- (c) Scheduling refers to when it is to be done and how much is to be done. It is the addition of durations and resources and adjusting them for optimum results.
- (d) Control aims at enforcing the implementation of plans and directions. By establishing control and controlling the on-going education projects, it is possible to keep them on the pre-determined course which is in the best interest of the project (Choudhury, 2005).

One of the more important and powerful models for evaluating a large complex project according to Wideman (2001), is the WBS which greatly facilitates control. A WBS is a task-oriented family tree of activities which organize, define and graphically display the work to be accomplished. By means of WBS, the scope of the project can be broken down into a suitable coded structure that identifies manageable segments which clearly assigned responsibilities. To evaluate project effectively, WBS must:

- i. Establish an information structure for describing the projects scope in its entirety.
- ii. Serve as an effective means of communication to integrate the objectives and activities of all the internal and external organisations involved in the project.
- iii. Represent the planning of the project step by step.
- iv. Separate sequential and parallel activities assigned to different groups who will schedule, measure and control their own performance and,
- v. Reflect the procurement strategy during the various stages of the projects life cycle.

Other general models which can assess effective project management are broadly grouped by Choudhury (2005) into the following:

1. Project selection (PS) with cost – benefit analysis and risk and sensitivity analysis.
2. Project execution planning (PEP) comprising of WBS, project execution plan (PEP), project responsibility matrix and project management manual.
3. Project scheduling and coordination (PSC) consisting of bar charts, life cycle curves, line of balance (LOB) and networking (PERT/CPM).

4. Project monitoring and progressing (PMP) use progress measurement technique (PROMPT), performance monitoring technique (PERMIT) and updating, reviewing and reporting technique (URT).
5. Project cost and productivity control technique (PCPCT) utilize productivity technique, value engineering (VE) and cost/WBS.
6. Project communication and clean-up techniques (PCCT) apply control room and computerized information system.

Lundeberth (1993) proposed an X-Phase model for project management accounting and control principles life cycle through conceptual model of relations between generic project stages, information system development and product life cycle. It is a tool for discussing processes and stages in project process. The model states that each process uses input and produces output. Any process leads to changes compared with the initial state. The project traditional waterfall model by Olle, Hagelstyeen & Macdonald (1991) depicts development as a series of stages starting with analysis of needs and ending with construction of the information system or possibly application of it in the organisation it is to support.

The V-shaped model from Nilsson (1988) emphasized the consecutive checking in later stages that the constructed information system meets the needs identified in earlier stages. It comprises of diagnosis, change study, activity study, information study, system design, realization, implementation, follow up and assessment.

Voyo Payev & Gertrude (2006) described a new class of network models adequately reflecting the complex project realisation process that are used for stating and solving optimal management tasks for projects. These models referred to as cycle alternative network models (CANMS) are the most flexible and adequate in the range of known tools for describing the process of managing and control over the development of a complex sophisticated project. CANMS offer all the advantages of generalized and stochastic models in comparison with traditional models while at the same time molding just a slight complication of the language used for describing CANMS.

The UNESCO (1981) proposed a systems approach which is a planning cycle that explains the place of education projects in the planning process. It describes the complexity of education projects, which is exposed to the entire economic, social and political context within a country and even its frontiers. The stages

include diagnosis, goal, objective, strategies, choice and implementation. In project management literature, Kerzner (2004) drew a system model to planning, scheduling and controlling project. This consists of project life cycle phase which consists of idea, creation, usage, modification and termination. Bogunjoko (2006), Wideman (2001) and Kerzner (1989), agreed on phase evaluation model to project management. The four basic phases are:

- a. Concept: This is for developing the project parameters in outline.
- b. Development: This is to plan and design and define the facility.
- c. Execution: This is to implement the plan of activities.
- d. Transfer: This is to transfer the completed facility to the beneficiaries.

Reiss (1992) demystified today's tools and techniques of project management and recommended a model with nine (9) steps in successful project management as follows:

- i. Define the project
- ii. Build the plan
- iii. Get the plan prepared
- iv. Agree on the plan with your managers

- v. Disseminate and communicate
- vi. Do some work
- vii. Updates
- viii. Repeat updates as required
- ix. Receive your congratulations.

A project managerial model by Meredith (2000) suggested that the basic cycle can easily be remembered by the mnemonic “POEM” standing for plan, organize, execute, monitor and control project. Meredith further explains as follows:

**Plan:** This is the first step to plan the project with respect to scope, quality, time and cost.

**Organise:** This is the second basic step which analysis various activities required in planning and executing a project to provide a closely related project team.

**Execute:** This is the execution of plan through human beings by understanding their strengths and weaknesses, mental and social abilities, and how to build a complex mixture of the humans into a dynamic and productive team.

**Monitor and Control:** This is where deviations in the project must immediately receive management attention, either by re-allocation of resources or modifications of the plan.

El-jack (1998) & Almeida (1999) synthesized UNESCO experience and proposed a systematic model which shows the interface of four major activities: Analysis and diagnosis of existing situation, research and development to establish standard, planning and drawing of future projects and implementation of educational facilities projects maintenance, repair and construction. This model has been generated by architects as a result of working together with educational planners and it is very similar to the model for planning educational reform projects presented by Haddad & Demsky (1995).

The context, input, process and product evaluation model (CIPP) was known to have grown out of the formative and summative evaluation models developed by Stufflebeam in 1968. Okoro (1991) explained the four different evaluation units that make CIPP model. The “context” evaluation is concerned with the determination and validity of goals and objectives. The “input” evaluation provides information on resources available and they may be used to achieve goals. “Process” evaluation is done during project implementation and provides feedback on quality of implementation. “Product” evaluation assesses the utilization of a project and is usually carried out after completion of the project.

The most advanced and universally accepted model for evaluating projects management is the EPMCT. The logical successive procedural stages in the model given by Magnen (1991) are:

- (a) Project identification: This is the process of identifying problems, diagnosing problems, searching for project idea and describing strategies.
- (b) Projects preparation: This is to select project ideas that are most likely to contribute to the attainment of objectives, conduct feasibility studies, determine that the project selected is a priority and will contribute to the attainment of educational objectives.
- (c) Projects implementation: This is the stage of scheduling and actually carrying out project implementation. It is the mobilization of all resources to provide the goals and service seen as output.
- (d) Projects evaluation: This is the relationship of the assumptions at formulation and appraisal stages to real life situation on the field. This aims at introducing interior adjustments and corrective action.

- (e) Projects sustainability: This is the utilization of projects by direct recipients after completion of the projects without further external assistance.

This technique achieved better results in terms of provision, utilization and maintenance of educational facilities by involving secondary schools. Unfortunately, many education projects experience failure and abandonment due to the inability of the educational planners to involve secondary schools in the application of the five stages of the technique. Secondary schools are involved in the management of their projects through the application of the five stages of EPMCT to determine priority in the provision, utilization and maintenance of educational facilities:

These stages of EPMCT evaluation model was used in this study to assess the way the planning divisions of the Ministries of Education used the model in managing education projects in North Eastern Nigeria. The model was used in this study because all the sequential stages will provide, utilize and maintain educational facilities if properly implemented.

## 2.4 The Application of Successive Procedural Stages of EPMCT

Evaluation studies have become very important tools for ascertaining the performance of project management units. Baku (2007) define application as the process of measuring outcome and using the results of this measurement to take decisions. It is a means of generating and analyzing data for the purpose of informing policy-makers and the public about the level of progress being made in implementing EPMCT towards the educational development of the society. This is use as a mechanism for establishing the effectiveness of educational projects.

Impact application has been defined by ETF (2006) as a process through which an organisation continuously look at itself from the eyes of its beneficiaries and stakeholders with a view to knowing what value is placed on its activities. It is a form of performance measure that provides strategic management post mortems by which policies, systems and procedures are evaluated. Impact application is a means by which output is measured so that managers can fully appreciate the value of what has been achieved while leaders including politicians can see what their policies have achieved.

As a call to action, impact application according to Yijie (2001) is a simple act of defining measures to help to enlighten the

organisation and clarity of goals. A clear definition of the expected outcomes and the expected benchmark to measure those outcomes makes people begin to ask the right questions, to redefine the problem they have identified with a view to solving them. Usually, when impact application starts, people immediately begin to focus on the goals and mission of the organisation. If you do not assess or measure results you cannot tell success from failure and you could well be rewarding failure. Measuring performance therefore derives continuous process improvement, policy review, re-examination of procedures and structures as well as the implementation of improvement.

Impact application of EPMCT helps to incorporate customer needs and expectations unto their strategic planning process; helps to achieve results which customers and stakeholders actually care about; helps to improve efficiency, effectiveness and customer service and promotes innovative solutions that improve the effectiveness of policy, the quality of service and responsiveness of users needs.

The process of application of EPMCT according to Victoria (2002) has four stages namely:

- a. Identifying the stakeholders.
- b. Identifying the objectives of organizational activities.

- c. Developing indices of achievement; and
- d. Need assessment.

#### 2.4.1 Education Project Management Cycle Technique

All education projects pass through a series of sequential stages which are known as the project management cycle, because each stage is the successor of the preceding one while the last stage prepares the first of the next cycle. The aim of managing education projects through the implementation of EPMCT is to attain quantitative and qualitative project results in terms of economy, efficiency and effectiveness (UNDP, 1997b).

Warren (1982), Baum & Tolbert (1987) have independently defined education project cycle as consisting of a series of stages in a project life span from the identification of project needs and project preparation to project implementation, project evaluation and project sustainability. Project cycle management technique makes sense because all the stages of identification, preparation, application, evaluation and sustainability have important roles to play in successful project management (Paul, 1988). The public sector education projects management utilize the implementation and supervision stages of the cycle more than the remaining ones. (Uganga, 1995). From general observations, the jumping of the other stages has been found to contribute to project abandonment

or failure. Thus, it is therefore very important for the educational planners to strictly adhere to all the stages in the technique. Magnen (1991) categorized the application of EPMCT globally into three phases. These phases were considered both in terms of their objectives and of their domains of action or content. The features of their historical development globally were dated into sixties, seventies and eighties. During the 1960's the quality of civil engineering work was generally satisfactory. But the supplying of equipment was almost always plagued by delays and its quality sometimes turned out to be inadequate.

Two main objectives of variable importance were globally pursued in the 1970s, depending on the funding organisation: These were (i) generalized basic education, selective development of the secondary level of education and training to meet the demand for qualified manpower; (ii) improvement of the effectiveness and quality of education. Financial constraints in the 1980s, made it necessary to examine secondary education expansion projects with mere caution, and give priorities to the renovation of existing facilities, qualitative improvement and institutional development. The features of application of EPMCT in secondary schools during the last twenty-five years in developing countries, as identified by Mahlick & Magnen (1992) were

qualitative improvement, which warranted the achievement of institutional objectives in terms of educational facilities.

A report by the Education Tax Fund (2002) in Nigeria emphasized on the implementation of EPMCT in order to make ETF beneficiaries comply with the requirements of accountability and radical intervention. ETF education project cycle has the following stages:-

1. Planning: This is to ensure that a project is implemented as scheduled and the benefits reach the target beneficiaries.
2. Identification and Prioritization: This is to identify critical areas needing immediate attention and prioritized by the beneficiaries so that the projects will have immediate and lasting impact on the academic programmes of institution.
3. Formulation and Documentation: This involves careful preparation of tender documents (drawings, specifications and bills of quantities, alternative source for materials and/or equipment) by the beneficiaries to allow for the most competitive and reasonable costs of the projects.
4. Tender and Award of Contract: This is the submission of working drawings, articles of agreement, dedicated account for ETF disbursements, schedule of dilapidation, progress

photographs, payment vouchers, financial returns, beneficiaries' progress report and documentation on library intervention to ETF headquarters by beneficiary institution.

5. **Publicity:** This is to create awareness to beneficiaries through labeling of ETF projects, putting sign board of the projects, publishing the projects in internal bulletins of institutions and pasting the lists of projects on notice boards.
6. **Post-contract documentation:** This is the process of documenting contract after its completion.
7. **Implementation:** This is the actual execution phase of the projects using the approved funds. For easy supervision of the projects, ETF disburses funds to the institutions in three instalments of 40; 35; 25 percent in case of construction or erection of facilities/structures or two instalments of 75; 25 percent for procurement of equipment or training or items.
8. **Disbursement of funds:** This is a process where a letter of approval of projects with the first tranche of the allocation which shall be either 40 or 75 percent depending on the projects undertaken, is released to the institution. Further disbursement shall be in stages of second tranche of 35 percent, third tranche of 25 percent but specifically subject to

satisfactory utilization of the fund released on the identified projects.

9. Inspection: This is the process of conducting inspection visits to projects, legibility of documents, maintenance of projects through sustainability, certifying the quality (standard) of work, issuance of practical completion certificates and fluctuation/variations in projects cost (ETF, 2002:8).

Education projects identification, preparation, implementation, evaluation and sustainability are the stages to be considered in the assessment of the implementation of EPMCT.

#### 2.4.2 Education Projects Identification

Theoretically, project identification is the first stage in the application of EPMCT. Mahlick; Gniark & Ramaroson (1992) and Magnen & Mahlick (1994) are of the opinion that the purpose of identifying education projects is precisely to select one out of several projects with high priority for the country's or states educational development and then to define their objectives, strategy and main characteristic. It also shows that the project is in conformity with national or states development and education policies. This early selection means that the long and expensive

stage of preparation can be reserved for those projects whose priority is justified (UNDPGEF, 2002).

A study on identifying education project by project management units showed that the education system diagnosis should be used by involving beneficiaries to collect and analyze data about the system and the way it meets societies needs (Ramaroson, 1992). Martin, 1994 stated that critical analysis of the education sector should be conducted through the involvement of end-users to pin down not only the societies educational needs, as they can be predicted from development projections, but also from the demand for education by pupils and families. Fuller (1986) noted that projects can be identified by a high priority need of the society like demand by parents for new secondary school, or a dearth of engineers. It might also be the need to solve a serious problem confronted by the education system, such as poor achievement of pupils while Beynon (1989) on the other hand, considers education system diagnosis as a prelude to major educational reforms through effective comprehensive assessment of the quantity and quality of educational facilities. Therefore, before identifying projects in secondary schools, it is necessary for the planning divisions of the Ministries of Education to analyse the

education situation, socio-economic and government policy by involving the schools.

Baum & Tolbert (1985) reported that a Ministry of Education is created to assess the needs of the communities in terms of education and to ensure that they are satisfied. Damiba (1992) agree with Baum & Tolbert (1985) that data and information on school needs is important in situation analysis for identification of education projects. Educational planners should know that if an education project is to be identified in a school, the characteristic of such state with regards to the needs at all levels of education should be determined.

A study on personnel and priority project identification carried out by Damiba; Martin & Ramarosan (1992) showed that it required varied expertise particularly in education and economics. Consequently, this stage ought to involve multidisciplinary teams formed by educational planning departments and as the World Bank (1996) explains, shall include a planner and one or several education specialists in primary, secondary, post – secondary, technical, agricultural education, a specialist in curriculum development, one or two economists, (human resources, finance) and sometimes other specialists as well (for example in sociology, school construction or textbook production).

A study on planning for identification of projects by Thierry (1987), specified that the activities involved in the technique are definition of the education policy, estimation of available resources and elaboration of the projects. The period to be covered by the project plan should be short, usually three to five years. Verspoor (1989) categorized the task into selecting the objectives by top-level policy makers and translating the objectives into specific actions by the technical staff. The definition of objectives is an integral part of project identification. Igor & Serge (1994) differentiated between national development objectives which are used for identification of projects in Nigeria. These are general objectives, priorities and strategies for development. Educational planners will then translate these objectives in quantitative targets, which in the course of the plans and elaboration can be revised according to available resources in the education sector.

#### 2.4.3 Education Projects Preparation

Preparation of projects is the process of organizing all aspects of the project which will determine its success. According to Mahlick (1993), the purpose of preparation by the Ministry of Education is to study in details all aspects of the project so as to ensure that it is reasonably feasible so as to plan its execution.

Sequeira (1992), in his review, observed that the goals of project preparation are:

- a. Presenting the project in detail for appraisal by financing decision-makers which may be national, state, community and external aid sources.
- b. Planning its implementation for timely completion and proper achievement of the expected results.

In order to make project preparation realistic and concrete in nature, Verspoor (1986) reported that educational planners are partially involved in the three distinguishing phases as follows:

- a. The pre-preparation studies aimed at shedding light on specific issues. For example, the prospective school map; the demand for specific type of education; employment opportunities for graduates; circulars; the future organisation of an institution, a particular aspect of education financing.
- b. Drafting of the project preparation report, setting out the projects objectives, compositions, costs and organisation.
- c. The detailed technical elaboration aimed at preparing architectural programmes and drawings, equipment lists, tender documentation, drafts of regulations, post descriptions and detailed curriculum. This is necessary to start implementing a project like construction of buildings, ordering

furniture, equipment and supplies, recruiting teachers and pupils and opening classes.

Studies carried out on project preparation in Mexico, Lithuania, Tarasia and Tanzania under the World Bank by Verspoor (1989) revealed that the techniques of project preparation takes the form of key questions which the project idea, project formulation framework and preparation format can answer through certain processes and stages like stating the problem, adjusting the problem and preparing proposal. The technique had not been successful in view of the complicated nature of the process and stages of preparation. However, UNDP (1997) in Nigeria proposed new approaches to effective project preparation which brings guidelines and standard lists for project proposal and document preparation. This makes the educational planner and his team to ask valid questions that relate to priority and feasibility criteria as follows:

- (a) is the project justified by priority needs or problems of schools?
- (b) does it respond to a demand on the part of future beneficiaries in schools?
- (c) is the project in conformity with national or state policies?
- (d) is it educationally well designed?

- (e) is it sound from the architectural point of view?
- (f) is it socially and politically acceptable?
- (g) is its complexity in line with the administrative capacities of national or state staff?
- (h) will the institutions created or the improvements introduced be lasting?
- (i) is the project feasible in financial terms?

A study on construction of education projects in Nigeria by Lawal (2003) pointed out that the guidelines for project preparation may require involving Ministry of Education to compare several options in order to select the best or the one offering an optimum balance between cost and effectiveness. For example:

1. Is it better to replace dilapidated classrooms or to renovate them?
2. To construct buildings on direct labour or to bring contractors?
3. To construct staff housing or to rent existing accommodation?
4. To use less expensive but less durable or more demanding in maintenance or imported technique or materials?

Most literature have accepted the process of involving Ministry of Education in considering options in project preparation (Hutton & Roston, 1991).

With regard to cost, Beynon & Caldarone (1989), observed that only architects are involved in a better dialogue when they follow guidelines which involve functionality, building materials and construction techniques, aesthetics and cost. Typically, critics judge building construction projects by one or two of these factors that they understand. These narrow judgements are unfair as good project design is evaluated only when all the factors have been satisfactorily addressed.

Feasibility study, which is used in project preparation, is an investigation to determine the viability, desirability or practicability of under taking a project. Reutersward (1990) supported the definition by explaining that it explores every alternative available and forecasts things that will most probably occur when the project becomes operational. It tells the why, when and how of proposed project. A project is feasible only if its objectives are realistic, and if its effects are sustainable. It is also feasible if the country or state has enough human and financial resources for its implementation (UNESCO, 1996). In other words, only if the expected results,

have a good chance of being achieved and the project being maintained after completion of implementation.

A analytical study of relevant reports produced by Educational Planners at the end of a feasibility study by Damiba (1993) specified that it is used to

- a. Confirm the rationale for selecting the preferred projects.
- b. Provide preliminary design and cost estimates for the project.
- c. Address the institutional arrangements at the agency and community levels, the subsequent operation and maintenance of the facilities and financial aspect.
- d. Confirm that the project is technically feasible, financially viable, socio-culturally acceptable and economically justifiable.

One of the authors like Heyeneman (1996) gave his views on involvement of the Ministries of Education in appraising feasibility reports for preparation of education projects. He asserted that Ministries of Education are not involved in feasibility and efficiency priority of education projects which are well justified and whose objectives:-

- a. Are clearly set out and consistent with one another.

- b. Respond to needs or to the demand that are well defined and of recognized importance.
- c. Are in conformity with the national or state development policy and plans.

The process of negotiation which ends the preparation stage was proposed by Drake, Pair & Ziogas (1997) and Altner, Magnen & Martin (1998), from different angles. Drake et al, specified that negotiations take place between representatives of the Ministry of Education and the finance decision makers. The Ministry of Education representatives obviously have a better chance of having their point of view accepted if they are involved in well prepared project documentation and if they are perfectly familiar with the different aspects. The process of negotiation confronts representatives of the Ministry of Education (spenders) and those of financing body (financier) be it the Ministry of Finance, or planning or external aid source. Altner et al, stated that the process of negotiation for education projects can be with donors or between the Ministry of Education and Ministry of Finance or between various departments within the Ministry of Education.

Altner and Mahlick (1998) recommended that the good qualities and behaviour of experienced negotiator which will enable

him to have command of points in the project negotiating process are:

- i. Seek to maintain certain amount of pressure on the other side.
- ii. Seek out possibilities for currencies of exchange towards acceptable compromise.

Although project preparation is full of pitfalls, in terms of involving educational planners, they should design projects based on feasibility studies, appraisal and negotiation for successful implementation.

#### 2.4.4 Education projects implementation

The third and most difficult stage of the EPMCT is implementation and financial management. Project implementation is defined by Courtney & Hovik (1997) as the process of carrying out all the investments and other actions provided for by the project e.g. construction of buildings, purchase of equipment, training of staff, technical assistance, miscellaneous services. Although this encompasses construction of the facilities and supporting activities, it ends when the schools or other institutions developed by the project can function normally.

Hallak (1998), in a closely related opinion, pointed out that it is generally the longest stage of the cycle during which schools are

built or prepared, their equipment installed, teachers trained, innovations introduced and service research or administrative institutions established or reformed. The new schools at the end should be able to function on their own without additional investment. Thus, the responsibility for execution of an educational facilities projects lies with the ministry of education and other ministries like public works or with the donor agency as regards the components they have financed.

An analysis was carried out on three (3) relevant studies (Ramaroson, Gniark & Martin, 1992, Cash, 1993, Martin & Magnen, 1995) on costing project application, to determine the characteristics of the strategies used. Ramaroson; Gniark & Martin (1992) believe that costing is one of the activities used to look for source of funding project implementation; Cash (1993) showed that school beneficiaries are involved in costing implementation to propose alterations in the standard construction or renovation cost which are multiplied by a distance factor, to allow for the distance between the institutions and the site of raw materials production or unloading, which must be added the cost of site development, roads, provision of water, electricity and telephone lines. Martin & Magnen, (1995), in their study observed that projects are costed through preliminary cost, estimates, bill of quantities and

quotations to determine project implementation cost by architects. Caillods; Gottle & Lewin (1997) reported that the preparation of a work plan for project implementation require the following steps;

1. listing the activities of the project randomly to ensure that you have not missed any, and all the activities that you have listed are clearly separated from one another and overlap one another.
2. arranging them in chronological order at the time of commencement of each activity funded locally, nationally or through external aid.

Thus, educational planners should prepare work plan in order to make project application efficient and coordinated to review progress and achievement made.

Supervision is one of the strategies for project implementation. Vickery (1984) noted that the ministry of education and works are involved to provide engineers or consultants to supervise education projects, to ensure that they achieve project objectives. He explained that the purpose of supervision is to identify and deal with problems that may arise during construction and procurement of goods and services. Fuller (1990), incorporated supervision as a process of identification, mobilization, organisation and institutionalization to recognize

limitations and attempt to overcome problems. Thus, educational planners get involved in supervision of implementation of projects by being appointed to the application team, be it as a regular post within the existing ministry hierarchy or detachment to specially created implementation unit. They are charged with the responsibility of ensuring that education components of a project come together and coordinate the supervising engineer who will prepare the critical path diagrams that are used to manage the various construction components (Beynon, 1997).

A study under the aid management programme of United Nations Development Programme in Nigeria, UNDP (1997c) reported that education project funding by the federal, state and local governments in Nigeria are from federal government account, state government grants and internally generated revenue. Each tier of government is endowed with financial autonomy to facilitate project execution. UNDP, further observed that the source of funds from revenue allocation is distributed to the three tiers of government to finance projects implementation effectively. The revenue is allocated based on disparity in natural endowments and economic potentialities. Thus, considerations which include population, national interest, equality, derivation, geographical

peculiarities, landscape, internal revenue efforts, absorptive capacity and fiscal efficiency are made in the allocation of fund.

Another study of financial reports of projects application revealed different processes of financial management. Accountability and Transparency (Marques & Lopez, 1998), budgeting control (Lewin, 1987), Budget implementation (World Bank, 1998), Financial accounting (UNDP, 1997c and Jallade, 1987), store management (Schltz, 1981) and internal control (Gills; Perkins; Roemer & Snogress, 1983). These studies have been examined in order to determine the extent to which they relate to the present research. Marques & Lopez, asserted that accountability and transparency is paramount in financial management of projects. Transparency is worthless if it does not match appropriate accountability for use of discretion and accountability is meaningless if it does not spring from a transparent medium in project management.

Marques & Lopez (1998), views differ from the one of Lewin (1987), where he proposed that financial management in project implementation should be carried out through budgeting control. Budgeting covers the process of preparing the action plan but control is the management technique used to plan execution and control operation activities aimed at achieving set targets within a

stipulated time frame. World Bank, concluded that carefully and properly planned budget when properly implemented will create a conducive environment for implementing education projects. It may also eliminate cases of project abandonment. A properly planned project budget may result in a well planned education project.

Jallade (1987) and UNDP (1997c) expressed their different views that concern for financial accountability in Nigeria has resulted in the introduction of anti-corruption policies like agreement and bonds in the course of project implementation. Schltz, from a related study, pointed out that store management plays a vital role in financial management. Although store management is a collection of goods and property, it includes all movable properties purchased, manufactured or otherwise acquired. Thus, stores can be said to be fund (real money) in other forms. Project staff are usually accused of conniving with store personnel to divert goods and properties meant for project execution. Gills et al, opinion is interesting in the sense that the method of financial management is internal control. Auditing, which is one of the elements of internal control, is for economy, efficiency and effectiveness in education projects implementation (World Bank Development Report, 1996). Internal auditors pass project transactions unconsciously when the contractors entice them with

monetary benefit. All these have failed to offer useful advantage since these have never helped matters as far as project failure is concerned (Gundiri, 1995).

Four other relevant studies conducted on financial management in project application specified different approaches- contract management (Elliot, 1991), Subcontract management (Onwuka & Bongi, 1991), procurement and purchase research (Dopsal, 1991), negotiation (Lewin, 1987). According to Elliot, contract management is a means of obtaining the services you will need to carry out your education project through a contractual agreement. He explained that contract management is the management of uncertainty and risk through preparation, selection and contract administration. Beynon (1997) agreeing with Elliot, on contract administration, reported that the problems associated with the technique of contract management is the fact that they are alien in nature and also most of the contractors cannot properly comprehend the contract conditions. The attending problems are numerous delays on the completion of the projects, loss of integrity and loss of satisfaction by those operating within the education system. Added to these is the case of illiterates and non professionals who have infiltrated the system which is technical in nature. Beynon (1997), further indicates that the tenders of

national contractors are given priority to develop their capacity for project application.

Like Elliot (1991), Onwuka & Bongi (1991) opined that contracts can be subcontracted. This is the process of awarding of a contract to another individual to provide service or undertake some jobs which involves a special type of work about which the original contractor lacks adequate knowledge or resources for execution.

These studies however differ from Dopsal (1991) and Lewin (1987). Dopsal proposed that procurement and purchase research contribute to prudent financial management in implementation of education projects through systematic collection, classification and analysis of data as a basis for better decisions. Lewin, pointed out that negotiation is important in contract management of procurement and purchase projects. It is a process of having discussion between a buyer and supplier, with the purpose of coming to agreement on issues pertaining to contract. Although contractors accept terms and conditions of application, they deviate from the agreement in order to make profits. These numerous techniques of contract management however failed to meet the requirements to serve education projects, in that none of them have made adequate arrangements to address the issue of

insincerity of education planners (Mahlick & Damiba, 1993). Since financial management is a technique for successful implementation of education projects, education planners should adopt the proper methods of accountability and transparency to avoid project abandonment and failure.

#### 2.4.5 Education projects evaluation

Project evaluation is the fourth stage in the EPMCT. Magnen, Sequira & Martin (1993) defined monitoring and evaluation as a democratic process of examining values, progress, constraints and achievements of education projects by educational planners. Education projects are monitored and evaluated through the involvement of beneficiaries to guarantee the proper utilization of educational facilities in order to achieve the objectives of education. Thus, evaluation stage in a project management cycle technique begins with project design or management errors detected through observation and experience during monitoring and evaluation (The World Bank, 2002).

The purpose of monitoring and evaluation, which is relevant to the present research, was viewed by Lidiaga, Makwati & Ssewufu (1992), Okeke (1990), Almieda & Diaz (1990), Almieda, Eide, Pitalinabut & Smith (1997) in different dimensions. Lidiaga et al, reported that the purpose of monitoring and evaluation is

systematically to collect and analyse information about the project implementation result. Sharing a similar opinion, Okeke, considered that it is to determine the degree of achievement of objectives, determine problems associated with project planning and implementation, to determine the lessons learned for future projects and reformulation of objectives, policies, strategies and projects. Almieda & Diaz, specified that it is either to detect potential or actual problems in the course of execution in order to apply timely remedies and this is called monitoring or to learn lessons from the project. Almieda et al, holds an opposite stand from Almieda & Diaz, that the purpose of monitoring and evaluation is to judge the activities and results of the action.

Studying past experiences have made educational planners to be aware that the lack of reliable information on the implementation conditions and results of projects was often at the heart of repeated problems and failures. Thus, a small monitoring and evaluation unit involving beneficiaries may be included in the project implementation unit (Fuller, 1990).

Other evaluation studies which are similar to the present research is on management information system and reporting system, which are instruments of project monitoring. Amongst these studies are Thirlwal (1992) and Devarusu (1995), which all

gave explanations to the instruments. Thirlwal, reported that a well designed management information system involving instructions has the following features:

- a. Provide constant feedback on the extent to which project is achieving its goals.
- b. Identifies potential problems at an early stage and propose possible solutions.
- c. Monitors the accessibility of the project to all sectors of the targeted population.
- d. Monitors the efficiency with which the different components are being implemented and suggest improvement.
- e. Evaluate the extent to which the project is able to achieve its general objectives.
- f. Provides guidelines for the planning of future project.

Devarusu, suggested that project monitoring should be facilitated by effective system of reporting. He explained that it provides up to date information on to the operating cost and expected results through beneficiaries. An educational planner reporting system should satisfy instructions through the use of uniform terminology format, comparable to the project budget, standard and method of computation and relevant, reliable and accurate and timely data. Damiba (1993) reasoned that

educational planners should use management information system reporting through the input and output indicators in project monitoring. Thus, to be effective, monitoring must be an integral part of the project implementation. In other words it should be prepared at the same time as the project, with consideration given to beneficiaries, the main indicators to be collected, the collection methods and sources, the person in-charge and the cost of monitoring projects.

Vergara (1980), concluded that project monitoring is an integral project activity that assesses;

1. Use and delivery of project resources (money, staff and materials) in accordance with the approved work plan, budget and time table.
2. Achievement of the intended outputs in a timely and cost-effective manner.
3. Overall efficiency with which the project is implemented.

Ajayi (2003) argued that education projects that do not have an effective monitoring system may suffer some of the following problems;

- a. delays and cost – overruns in project implementation
- b. exclusion or under representation of certain group of the beneficiaries.

- c. problems of quality control.
- d. long delays in detecting problems or conflicts within the projects.

Since monitoring is the process of assessing the efficiency and effectiveness of project implementation, the implication according to Maiyaki (2003) is that:

1. monitoring is a general managerial function that must be the direct responsibility of educational planning.
2. monitoring implies that performance is tracked regularly and corrective action is taken in logical sequence.

Thus, monitoring alerts educational planners to problems or success and assist in diagnosing the sources of any problems or slippage in implementing the intended project schedule. While the monitoring of selected indicators allows for detection of difficulties occurring during application, it is inadequate to appraise the projects overall progress towards its objectives and possible causes of improper utilization (OECD., 1996b).

Project evaluation, which is a concept most closely related to the present study, is defined as a collection of useful information through beneficiaries on the basis of which decisions can be taken about the feasibility, effectiveness and value of an educational facility project (The World Bank Report, 1994). A distinct function

of evaluation in project management cycle technique was discussed by Heyneman (1996) and Almieda et al (1997), to determine the extent to which they relate to the present research. Heyneman, pointed out that evaluation assesses the effects and impact of project performance, focusing on the analysis of the progress made towards the achievement of the project objectives by involving beneficiaries. He explained that it is an essential function which takes place at one point in time and feedback into current project execution and future project planning and formulation. Almieda et al, asserted that evaluation is a key tool for enhancing the management of ongoing education project, improving the preparation of new projects and providing inputs into broader thematic evaluations through beneficiary participation. The World Bank Development Report (2004) agrees that the evaluation of education project has similar goals and process with objectives and their quantitative targets, the strategy, resources and methods that are defined in advance. It is therefore concerned with one or more of the following aspects of project performance – effectiveness, efficiency, relevance, validity of design, unanticipated effects, alternative strategies and sustainability. Since the main purpose of evaluation is to measure the success or failure of implemented projects and identify the reasons for them, it

is not done to punish people or allocate blame, but rather to reflect on efficiency and effectiveness (Rankin, 1995). Evaluation can thus serve to modify and improve implemented project and in the process, benefit future projects.

According to study carried out on evaluation of World Bank projects in Argentina, Brazil and Tarasia by Fuller (1986), the project evaluation takes the form of interim evaluation, terminal evaluation, ex post evaluation, self evaluation and independent evaluation and had not been successful in view of the fact that too many evaluations are conducted on projects at the same time without beneficiary involvement, which does not improve the proper utilization of the educational facilities. However, Almieda & Diaz (1990) discovered ongoing and retrospective evaluation involving institutions as new approaches to project evaluation which brings proper utilization of educational facilities. They showed that ongoing evaluations; compare the results actually achieved by the project at the time of the study with the results foreseen for the same date. While, retrospective evaluation is considered as a final stage in the evaluation process which plays an essential role as experimental basis for the design of future projects and more broadly, as an element in a pragmatic strategy for educational planning.

Van & Eyken (1993), Bamberger & Aziz (1993), Ebrahim & Morin (1998), commented on the process of evaluation. Van & Eyken, (1993) maintained that when education project does not have an effective evaluation system, which involve beneficiaries, potential problems arise such as

- a. continuing an education project that is not producing the intended benefits to schools.
- b. wasting the money of the Federal and State Government by not selecting the most cost effective option for implementing the project.
- c. increasing difficulty in detecting and correcting some of the factors that are reducing the chances for positive impact of projects.

Bamberger & Aziz (1993), reported that although it can assist to manage a project more efficiently and effectively, evaluation cannot address all the problems or challenges without beneficiary participation. Thus, educational planners should not regard evaluation as a panacea or should they regard it simply as a project problem solving exercise. Ebrahim & Morin (1998), pointed out that evaluation is the process of issuing certificates of valuation and store receive vouchers monthly involving school community during project execution to determine progress and make

payments. The certificates include works executed by the contractor, materials on site, materials offsite, works executed by subcontractors, supplied by nominated suppliers. Store receive voucher serve the same purpose with certificate of valuation for supplies of materials.

UNESCO (1997) recommended that it is important to note that project evaluation is a delicate process. This is not necessarily because evaluations attempt to assess the worth of project implemented or not implemented and to suggest ways in which it might be implemented better or differently, but because either directly or indirectly the conclusions drawn have a bearing on the project implemented by educational planners and planning divisions of the Ministries of Education for which they work. More importantly, the nature of evaluation can frequently create tension between the evaluator and the project itself. Thus, even if constructively and sympathetically executed, evaluations are often of greatest benefit or interest when they indicate how processes, methods or objectives of the technique should differ from present practice (Ramaroson, Martin and Sequira, 1994). Yet, such conclusion are precisely those which raise questions about the performance of educational planners or education planning

department responsible for what has been or is currently being done.

#### 2.4.6 Education Projects Sustainability

Project sustainability and maintenance of educational facilities is the last stage in the education project management cycle technique. This concept which is relevant to the present study, was defined by Martins, Sequira & Ramarosan (1993) as long-term continued existence of a project after completion of implementation without outside interference. This involves human and material sustenance by the school community. They further asserted that project has to be sustained by beneficiaries long after establishment. Thus, the continuous existence and utilization of educational facilities can only be achieved through sustainability of maintenance. Education projects have failed to achieve their intended benefits in the past because beneficiaries are not involved in sustainability of maintenance (Martins et al, 1993).

Two relevant studies (Mahlick & Damiba, 1993, Martins & Magnen, 1995) viewed the approaches to project sustainability by educational planners and advisers from different angles. Mahlick & Damiba (1993), proposed that architectural preparations of projects, which require choosing among several options of the preparations, contribute to easy sustainability of maintenance. He

explained that a special attention should be given to construction durability and maintenance. It is often advantageous to design low maintenance buildings since upkeep is neglected because of the chronic shortage of operating fund. Martins & Magnen (1995), making a different point about the approaches to sustainability of maintenance, added school map, location, size of the site based on beneficiary involvement for consideration. He showed that they should also consider the use of construction durability like, should preference be given to durable, low maintenance but costly buildings, or less solid but inexpensive buildings. The two studies recommended that educational planners should use inexpensive and low maintenance buildings and equipment for easy project sustainability.

Martin & Magnen (1995), recommended four strategies for beneficiary involvement in education project sustainability of maintenance as follows:

- (a) training of beneficiaries on the technology of the project.
- (b) generating income for sustainability.
- (c) consolidating knowledge for sustainability.
- (d) reducing costs of sustainability.

These strategies should be adopted by educational planners and technicians in Nigeria to perfect the technique of project

sustainability of maintenance within a school community in order to increase their lifespan for usage in teaching and learning. Thus, it improves the quality of education because of continuous existence of educational facilities.

## **2.5 Participation in the Application of EPMCT**

Participation involves characteristic of interaction, information sharing, smooth communication channels and involvement of end-users (Macy, Peterson & Norton, 1989). It is a means of permitting clients and end-users to take part in the decision-making and implementation process of education project management. The common element in the concept of participation is involvement (Connor, 1992). Participation as further explained by French, Israel & As (1960) is the process of joint decision making process by two or more parties in education project management.

Cotton, Voltrath, Froggatt, Lengnich-Hall & Jennings (1988) summarized the six forms of participation in managing education projects based on five properties of formal-informal, direct-indirect, level of influence, content and short term versus long term. This includes:

- a. Participation in project decisions: This includes participation decision making schemes in which clients and end-users

have a greater influence over decisions focusing on the project itself.

- b. Consultative participation: This refers to situations where participants engage in long term, formal and direct participation, the content of the participative decision-making is focused on the activities of the project.
- c. Short-term participation: This form of participation has a limited duration and may be characterized as formal, direct and concerned with project itself.
- d. Informal participation: This refers to participation which occurs informally through inter-personnel relationships between clients and end-users.
- e. Participants ownership: This can be classified as formal indirect because the participants have the formal right to participate as any stakeholder does, but clients make both daily and strategic decisions.
- f. Representative participation: This is classified as formal, indirect and of medium to low influence. Clients do not participate directly but do so through representatives of council on board.

The performance of the six forms of participation has positive results.

In education project management according to Connor (1992), each end-user may exhibit different forms of participation in decision-making and implementation project management process. At the decision-making process, participation in work decisions, short term participation, long term, consultative participation, representative and informal participation are involved. The implementation process comprise of short term and long term consultative participation, representative and informal participation.

Different forms of participation created by the implementer affect project effectiveness, productivity and quality of projects. The management performance of consultative and short term participation is negative outcome, while informal participation is positive in the provision, utilization and maintenance of educational facilities. End-users use consultative participation, short term participation and informal participation (Leung, 2000). Through the participation of end-users, specific information can be collected in the decision-making process to ensure good quality education projects. Tasks that met end-users needs motivate participation in the project management process. Therefore, the outcomes of participation in education projects management process will be positive.

A participative style (i.e. Joining Style) contrasts with an autocratic style of leadership and is generally more effective in terms of outcomes. Through participative leadership, clients and end-users can get support and encouragement for their efforts and thereby influence the probability that efforts will result to positive outcomes (House, 1990). This is because the greater the clients and end-users participation, the greater the outcomes. As one moves away from the increase of authority and control exercised by a manager, the amount of participation by end-users increases. This means that the standard continuum changes from 'no participation to various degree of consultation' and from consultation to full participation (Sadler, 1991). According to Tannebaum & Schmidt (1992), there are four different styles of project management participation: a telling style, selling style, consulting style and a joining style.

Since end-users can express their wants and ideas through participation, clients can become more understanding of their end-users needs. Charles (1995) asserted that administrators, teachers, students and parents participation in school projects produce positive outcomes. The needs and interests of possible beneficiaries and stakeholders are addressed. As the final users of the facilities, teachers, staff and students should also have a role

in evaluating the school projects, from a functional perspective once completed. They also could be called upon to review and monitor how school buildings are operated and maintained (Lackney, 2008). Maintenance is carried out by staff from within the school who has appropriate training, experience and skills. This includes projects to replace, repair or improve mechanical system or equipment, lightning, plumbing, exterior windows and doors, roofs and elevators. In addition, other projects that include Carpeting and floor tiles, wall surfaces, ceiling tiles, gymnasium floors, bleachers painting, exterior site work and the removal of hazardous materials may exist.

## **2.6 EPMCT Application Performance of Educational Facilities (Provision, Utilization and Maintenance)**

A performance indicator reflects how resources have been utilized to provide, utilize and maintain educational facilities. Therefore productivity must be measured not merely for educating the performance of project management but merely to ensure profitability of the technique. Performance of project management is evaluated in terms of adequate provision, utilization and maintenance of educational facilities (Choudhury, 2005).

### 2.6.1 Provision of Adequate Educational Facilities

Project management performance provide built structures (classrooms, workshops, laboratories, dormitories, among others), furniture, equipment and instructional materials as well as other physical properties to schools. Okeke (1986), defined educational facilities to include the land, site, the buildings, and the equipment of a school which embraces permanent and semi-permanent structures as well as items such as machines, laboratory equipment, chalk-boards and cleaners tools provided through application of EPMCT for teaching and learning. Okeke, further observed that in many schools, laboratories, workshops, classrooms, students hostels, furniture, equipment and offices are substandard because of poor application of EPMCT.

Mackenzie (1995) observed that poor project management contribute to lack of basic equipment, infrastructure and overcrowded classrooms without blackboard, chairs and desks. Textbooks are shared among students without notebook. Academy for Educational Development (AED, 2003) agreed that the poor application of EPMCT creates problems such as low textbook pupil ratio, insufficient manuals and instructional materials, lack of conducive school buildings for learning, which result to using shift

shelters built by rural communities without desks, chairs and tables.

A study on project management performance to provide qualitative educational facilities in secondary schools was conducted from different perspectives. Amongst these studies are Ogusanju (1984), Okeke (1986), Adesina (1990) and Udoh & Akpa (2001) Magnen, Sequira & Martin (1993), which all treat techniques of providing qualitative educational facilities, in line with the approach of the present study. Magnen et al (1993) indicated that educators draw up lists of furniture and equipment needed to teach the curriculum, to furnish the premises and to do administrative work. In this case, the project is implemented through a summary list of type and specialized expertise as required by a school environment which has a tremendous impact on the comfort, safety and performance of the child. Sharing a similar opinion, Okeke (1986), observed that educational buildings and furniture are provided when projects application is completed through the process of fashioning out by professionals like architects and educational planners. They participate in the diagnosis, planning, analysis, research, development and implementation of educational buildings. They also design, cost and implement large scale building projects. Some of the projects

are based on the development of national norms and standards of education buildings and furniture.

These studies contrast those of Ogusanju (1984), Adesina (1990) and Udoh & Akpa (2001) in Nigeria. Ogusanju's stand is that the administrator, architect, medical personnel and the economist should be involve in the construction of a school. While the school administrator is the user of the school plant, architect translate it into architectural designs, while the medical personnel will determine the nature of the buildings and the economist is concerned with the financial aspect of the building. Adesina (1990), study, hold the view that new classroom blocks, staff quarters, laboratories, libraries, boarding houses and school offices, are constructed through tendering for contractors. The contractors erecting the structures are business oriented groups who would want to maximize their profits. If they deviate from specifications in the course of project implementation, they make gain at the detriment of the school. Even when these buildings are put up through contractors, supervision has to be done by the Ministry of Education and Works whose officials has to issue certificate of valuation or completion at various stages before payment is made.

Udoh & Akpa (2001), pointed out that school buildings are designed by architect in the process of project implementation through coordination with the constructor. The architect must ensure that the constructor uses the quality and quantities of materials called for in the drawings and specifications and that all work is done neatly and satisfactory. Udoh & Akpa (2001), further explained that equipping and furnishing a school building is left to the school executive or contractor who knows nothing about teaching and learning process. The business of equipping buildings will not be properly handled until those officials who participate in the building planning realize the fact that even though carefully planned, they cannot function at its greatest efficiency unless it is properly equipped.

Three other relevant studies (Almieda, 1988, Urwick & Janaidu ,1991, The World Bankgroup, 2001 and Ouedraogo, 2003) sought to give different views on the methods of improving the quality of secondary education through the provision of adequate educational facilities. Almieda (1988), reported that education projects implementation will bring about substantial improvements in students achievements through the improvement of physical facilities. Urwick and Janaidu (1991) found that physical facilities like buildings, separate classrooms, student desks, etc

determine the very organisation of teaching/learning activities and these factors do influence learner achievement. The World Bankgroup (2001) agrees that project implementation should focus on increasing the number of classrooms, low cost textbooks and teaching materials, cost effective methods of school construction and improvement of overall education sector management. Ouedraogo (2003), believe that physical facilities for education account for 10-20 percent of educational expenditure, which is provided through project implementation to improve teaching and learning. He explained that adequate physical facilities for education have a positive impact on school attendance and on school success rates. Educational planners should effectively interface with architects and building designers with the aim of application projects to provide learners with the best learning environment that can be created with the available resources.

On the importance of application of EPMCT for providing educational facilities in secondary schools in Nigeria, the views most closely related to the present study are Okeke (1986), Adesina (1990), Aghenta (1993) and Bongi (1998). Projects are managed according to Okeke (1986) to accommodate more and more pupils of school age who enter schools, replace unsafe or

unsuitable facilities with safe and modern facilities and equip them. Other specialized facilities provided are auditoria, food services facilities, students common rooms, administrative and counselling offices and health building. Similarly, Adesina (1990) observed that one potent index for assessing educational standard and quality is the examination of the physical facilities available for learning experiences. Education projects therefore are implemented to adequately provide physical facilities to improve the learning experiences. Thus, the quality of education that our children receive bears direct relevance to the availability or lack there of physical facilities and the overall atmosphere in which this learning takes place. Aghenta (1993) stated that the size of physical facilities for organized learning framework depend on student enrolment and the type depend upon the nature of the institutions and organisations. In this case, the educational planner is costing the various items so that the quantity and prices required now and at some future time can be determined. With this connection, classrooms, laboratories, offices, play and sports and ground are measured, costed and adequately provided for learning (Bongi, 1998).

The overall conclusion and which is being reinforced as new research results, is that while school buildings and furniture do not

teach, soundly built, well maintained and adequately furnished and equipped buildings have a profound positive effect on both participation and achievement rates (Heyneman & Loxley, 1983). Although qualitative secondary education can be delivered through the provision of educational facilities, its adequate provision should be through the techniques of project implementation. Thus, educational planners should utilize such techniques to provide sufficient quantity and quality of educational facilities.

#### 2.6.2 Proper Utilization of Educational Facilities

Evaluation of education projects is an important tool for ascertaining the value or worth of educational facilities. It normally focus on some aspects namely, effective utilization and functioning of educational facilities. This is the determination of the extent to which application of EPMCT objectives have been met. Beynon (1985) is relevant here, because he reported that evaluation of projects has element of decision and judgements base on data and observation, to determine the utilization of information on educational facilities. Although evaluation of projects is the worth of educational facilities, information and alternative approaches used in judging the worth or potential utility, is designed to attain specific objectives. Educational planners sometimes hasten

evaluation of projects out of lobby at the expense of functional performance of the facilities.

A study conducted by American Directorate for Education and Human Resources (ADEHR, 2003) pointed out that project evaluation is expected to produce innovative materials that incorporate effective educational practices to improve student learning. The directorate supported that project evaluation improve the quality of teaching and learning facilities through the enhancement of skills and knowledge of teachers and educational managers. It will increase the availability and use of high quality and functional education materials. These study by ADEHR however, differ from the views of Bongi (1998) and Udoh & Akpa (2001) in Nigeria. Bongi, in his stand, asserted that poor project evaluation will not provide functional classrooms, suitable equipment and supplies for effective teaching and learning. Udoh & Akpa, suggested that it is essential to devote attention to project evaluation for the proper functioning of educational facilities that will be provided in schools. This is the more reason why they put forward a recommendation that school buildings should be made of corrugated, galvanized steel sheets or corrugated asbestos, cement sheets and with roof-trusses and purling made of wood for proper functioning. Educational planners and architects may

sometimes overlook the use of qualitative materials for school construction during evaluation for maximum benefit (Cash, 1994). Thus, school buildings will be dilapidated and non functional for teaching and learning.

In determining the utility status of a classroom facility after projects has been evaluated, the opinion most closely related to the present study, is Udoh & Akpa (2001:310) which reported that:

A classroom today, like an efficient office, is supposed to be physically pleasant, comfortable, stimulating and adaptable to the work of its young tenants. If the children are consistently restless, it is no longer assumed that what they need is a stern talking to. Perhaps, what they need is furniture that fits them, and their work, better. Perhaps they need a less monotonous atmosphere in general. Perhaps they simply need action

Educational planners and architects should therefore evaluate construction of classrooms to function pleasantly in order to create a conducive atmosphere for teaching and learning.

Udoh & Akpa (2001) advised that the existing facilities should be evaluated in terms of making them utilized properly through the following questions;

- i. do existing facilities have learning areas designed to facilitate rather than constrain the desired school programmes?
- ii. can existing facilities be adapted to present and future school programme needs without undue expense?
- iii. are existing facilities in a geographical location which make them reasonably accessible to students from all sections of the community?
- iv. are existing facilities located on sites which can be increased in size without great expense and possible legal action?

Although educational facilities can be made suitable for utilization through project evaluation, beneficiaries in schools may fail to make the best use of them. Thus, project evaluation is meaningless without high utilization factors.

### 2.6.3 Maintenance of Educational Facilities

Education facilities maintenance refers to the repair, replacement and upkeep of the school plant, buildings and laboratory equipment, machineries, furniture, electric fixtures and sources of electricity and water for project sustainability. Ogusanju, (1984), Okeke (1986), Ogbodo (1998) are therefore relevant to the

present study here. Ogusanju (1984) stated that school facilities maintenance is imperative so that they can be very close to the state of originality and reduce the likelihood of repairs or breakdown of school equipment. Okeke (1986), suggested that school facilities maintenance should be regularly carried out. He pointed out that the regularity of maintenance are designed to keep the school facilities operating at its optimal level so as to reduce the breakdown of equipment. Ogbodo (1998), advised that it is therefore important to maintain school facilities all year round through the services of competent and skilled maintenance personnel. It entails that a good orientation on maintenance should be given to people within the school system. Although billions of naira have been spent in the construction of school buildings, purchase of equipment, machineries and furniture to enhance teaching and learning in Nigerian schools, but very little though has been given to their maintenance. Thus, school facilities are usually considered to have expected lifespan, irrespective of the vagaries of weather, natural disasters, the unpredictable wear and tear due to wrong handling.

Adesina (1990) recommended policy on maintenance service which includes the following:

1. The expected lifespan of school facilities must be defined.

2. Maintenance cost must be included in all budgets and such money should be released when the budgets for all other projects is implemented.
3. School managers ((Principals) should be allowed to participate in budgetary process to know the maintenance needs of the school.
4. A guideline on maintenance of new and old buildings should be formulated.
5. The maintenance procedures recommended by manufacturers on equipment should be adhered to strictly.

Nwagwu (2001) study, recommended some principles for developing standard maintenance programme in schools as follows:

1. The primary aim of school facilities maintenance procedure should be the provision of a favourable environment for learning and adequate care for educational facilities.
2. The responsibility of all personnel concerned with maintenance should be clearly defined and job description be developed for all maintenance personnel.
3. The relationship of the educational planner, principal to the maintenance personnel should be clearly delineated and

supervisory responsibility also be clearly defined and communicated appropriately to all concerned.

4. There should be sufficient provision of manpower to ensure the operation of the programme at the desired level of efficiency and adequate provision of necessary services.
5. The entire maintenance programme should be reviewed periodically to identify methods by which efficiency can be improved.
6. All school personnel should be oriented towards recognition of the physical conditions of the total school programme.

Although school maintenance personnel are adequate in schools, they do not follow the guidelines of school maintenance for project sustainability. They are also adequate in carrying out routine checks to detect faults in the facilities such as laboratory equipment, furniture, cracks in walls, windows, door, locks, ceiling and roofs etc (Beynon & Caldarone, 1989). However, they are non-responsive to the needs to effect repairs on the detected faulty facilities. Furthermore, there is no culture of non-replacement of worn out facilities in schools (Arya, 1987).

Olutola (1981) agree that principals and school maintenance personnel in secondary schools are not involved in facility maintenance because of:

- a. Lack of maintenance which create commitment.
- b. Lack of finance to maintain school facilities because government budget formulators prefer to budget for new buildings, equipment, electricity and so forth rather than for maintenance of existing structure where less money will be available for embezzlement and records.
- c. Lack of information on facilities from the school.

To change this nonchalant and lukewarm attitude towards good maintenance culture of the educational facilities, the suggestion of Mujil (2001) is that “a rudimentary approach to proper educational facilities maintenance begins with inculcating respect for school property.”

In educational facilities maintenance, rehabilitation involves the restoration of floors, walls or ceilings of buildings to their original state. Udoh & Akpa (2001) observed that it is a process of face lifting in which split walls, leaking or blown off for further educational use. Although, maintenance of school facilities for sustainability is concerned with keeping grounds, buildings and equipment in their conditions of completeness or efficiency, the rate at which materials and equipment depreciate would vary according to strength and texture of materials, the climate and

carefulness and frequency of use. Thus, Udoh & Akpa (2001) further rightly stated that;

The time it takes for a building to become physically obsolete depends on the quality of the original construction and materials as well as the quality of house keeping and maintenance

Therefore, the maintenance of educational facilities is a strong controlling factor for academic achievement (Makujo, Fagbulu & Nwagu, 2003). The discussion on maintenance of educational facilities so far, highlighted the principles of maintenance for achieving sustainability of education projects. Thus, the school facilities maintenance and operation improves learning by providing a proper environment and saves government thousands of naira over the life of school buildings and other facilities as indicated by (Phillipines, 1992). Since the principal, planning divisions of the ministries of education and central administration of schools are the custodian for school facilities maintenance, it requires commitment and is made a high priority which must be backed each year with adequate funding through adequate number of qualified personnel or staff required for maintenance.

## 2.7 Review of Related Empirical Studies

The review of empirical studies was based on the Assessment of the application of EPMCT by the planning divisions of the Ministries of Education on the management of education projects. The review considered the series of stages in the cycle which, include identifying, preparing, implementing, evaluating and sustaining projects and its productivity indicator of provision, utilization and maintenance of educational facilities.

Obidozie (1998) carried out a comparative study of two national projects in Nigeria to determine the success of implementing the stages of the EPMCT. He used checklist of stages which was listed as project idea, project concept, project identification, feasibility analysis, project planning, implementation, monitoring and evaluation. His findings showed that some stages like project concept and feasibility analysis were not utilized. The methodology of using checklist is similar to the one which was adopted in the present study.

Maiyaki (2003) conducted a study on education projects and the Education Project Management Cycle Technique (EPMCT). He used eight (8) stages of the technique which illustrated the actual fluidity of the cycle. The stages include the identification, preparation and analysis, appraisal, implementation and

supervision, evaluation and reappraising. The study found that the stages of preparation and analysis and reappraisal failed. The study which is similar to that of Obidozie (1998) also yielded almost the same results.

A study was carried out by Pinto and Slevin (1988) on the effectiveness of two education project management techniques on project success. Survey questionnaire was used. The results show that almost half of the respondents reported drawbacks to the techniques they had employed. This study evaluated education project management techniques as on the present study.

A study on identified education projects by project management units under the IIEP was carried out by Martin (1994). He interviewed 27 participants of advanced training on Educational Administration and Planning. The study found that the projects were identified by collecting data, visiting schools and engaging in numerous consultations with schools. Some aspects of the methodology of the study was used by the present study.

Gniark (1995) used a need assessment model (NAM) to identify education projects in secondary schools in Madagascar. He used the assessment model to determine efforts, problems and opportunities in the secondary schools, his findings showed that classrooms, laboratories and workshops were very limited. The

objectives of Gniark study as well as the methodology used differ from Martin (1994) but similar to that of the present study, which is an evaluative study.

Another study was conducted by Castaldi (1994) on two of the unit cost considered in project costing. He computed a correlation coefficient between construction cost of a school and (a) the cost per square foot and (b) cost per student. It was found that the correlation coefficient between cost per square foot and total construction was 0.92 and the correlation coefficient between cost per student and the total construction was 0.71. The cost per square foot was found to be a more accurate predictor of the total cost of an education building project. This conclusion was similar to Beynon (1997) that a cost per place target, worked out for each individual school was the best to approach cost control. Later studies by Oddie (1996) and Hutton & Roston (1981) supported the conclusion.

Heyneman (1996) randomly sampled education projects in twenty-nine high and low income countries, to determine the organisation of the various activities and sub activities in the work plans for project implementation. He used a checklist of activities in a work plan. The result show that work plans could not identify each of the project activity and relate to sub activities separately.

The methodology using checklist of items and the findings were related to the present study.

Lewin & Calliods (2001) carried out a study under IIEP on financing the expansion of secondary education projects in France. The objective of the study was to determine the various sources of financing the projects. The methodology he used was evaluation questionnaire as in the present study. The emphasis was on sources of financing the expansion of secondary education projects as one of the instrument of application. The different sources as found by this study were:

- a. National or state budget and other budgetary sources.
- b. Special taxes and revenue from PTA.
- c. Collective efforts of communities and private sector.
- d. Commercial banks and financial banks.
- e. External aid sources.

A study on relationship between monitoring and evaluation of education projects was conducted by IIEP (1985) to determine their function in the EPMCT. Personal observation was the methodology used. Pearson – product correlation was the statistical instrument used for data analysis. The study concluded that the method of evaluation differ from those of monitoring because the analysis goes deeper and evaluation attaches greater

importance to education projects than monitoring. The methodology used is similar to the one of the present study.

Francais (2001) used a quality assessment model (QAM) to determine the outcomes of project evaluation. His concern was quality characteristic and functioning of classrooms, science laboratories, science equipment and furniture. The QAM emphasis on quality and functioning agree with some objectives of the present study. However, the QAM is limited to handle all the objectives of this study, which is very important in evaluating education projects.

Ojelabi (1981) used 30 secondary schools to carry out another study on results of project sustainability in Oyo State to determine the key issues in project sustainability. Interview was the method adopted for the study. The findings showed that:

- a. Educational facilities were created.
- b. Operation and maintenance of the facilities were carried out.
- c. High level of flow of projected income and productivity of the projects are high.
- d. High degree of school community participation.
- e. Equity in the distribution of projects among the beneficiaries within the school system.

The findings of Ojelabi, was related to the present study.

Aibimi and Jagboro (2002) used questionnaire to evaluate through empirical method to assesses the effects of non-involvement of beneficiaries in sustainability of school construction projects in Nigeria. The findings show that non-involvement of beneficiaries had a frequent effects on sustainability of Sixty – One school building projects studied. The assessment of non-involvement of beneficiaries in project sustainability is similar to the present study.

Leug (2000) used questionnaire to evaluate the degree of participation by end-users in education projects in Hong Kong, Spear-man rank – order correlation was used for analysis. The findings in the study were as follows:

1. End-users did not participate in education project management decisions.
2. End-users were involved in consultative participation in managing education projects.
3. The participation of end-users in managing education projects was short term.
4. The participation of end-users in education projects management was informal.

The use of questionnaire to undertake evaluation study was similar to the present research.

A study was conducted by Cotton et al (1988) to find out the outcomes of participation of beneficiaries in education construction projects in Columbia. Survey questionnaire was the instrument used. The relationship between participation and outcomes was analysed using spearman's correlation coefficient. The findings of the study show that adequate school buildings were outcome of participation by the beneficiaries. This study used questionnaire to assess education construction projects as in the present study.

Of particular significance to this study is a doctoral dissertation on Evaluation of Educational Facilities in Technical Colleges in the North East Zone by Bulama (2001), in which he used a survey design to find out the adequacy and provision of educational facilities. His findings were as follows:

1. Workshops, classrooms and drawing board were inadequate.
2. Tools and equipment in workshops and laboratories were inadequate.
3. Furniture in offices and classrooms were inadequate.
4. Utility service like electricity and water were inadequate.
5. Fans or air conditions were inadequate.

The evaluation of educational facilities was similar to the present study.

A World Bank observational study was carried out in Edo State by Ehiamezor and Associates (1998), to determine the situation analysis of educational facilities provided for teaching and learning and support system. The presentation of the study was to reinforce the assertion that institutions of learning at secondary school level have no adequate educational facilities as a result of poor application of EPMCT. The findings did show that 87.80 percent of the school did not have teaching aids, classrooms and furniture and there was none improvised either. It was observed that even the 12.50 percent that had some form of teaching aids, classrooms and furniture did not have enough to meet their needs. The conclusion of Ehiamezor and Associates agreed with the findings of Bulama (2001).

Ikoya (2008) used survey method to conduct a study on decentralization and centralization of identification of school physical facilities project in Nigeria. The findings reveal that decentralization of identification of the projects enhances the availability, adequacy and functionality of schools physical facilities. Finding from this research provide practical solutions to the problem of physical facilities identification in the Nigerian

school system. The findings of this study show outcome of participation in identification of projects as in Cotton et al (1988).

A study was conducted by Ihuoma (2008) to determine the degree of involvement of stakeholders in the identification of educational facility projects in schools in Nigeria. Survey design was the methodology used. The study concluded that involvement of principals, teachers and students actualize provision, maximum utilization and appropriate management of facilities. This study used degree of involvement of beneficiaries for assessment as in the present study.

Ojo (2006) carried out evaluation study on procurement methods in the implementation of school building projects in Southern Nigeria. Evaluation design was used. Questionnaire was administered in few schools. The finding of the study show that school personnel were not involved in the procurement of project materials and affected project implementation. The use of questionnaire for evaluation study is similar to the present study.

White and Fortune (2002) reported the findings of a survey design to capture the degree of involvement of beneficiaries in the evaluation of school projects in United Kingdom. Questionnaire was used. The results show that most respondents indicate low involvement in the evaluation process. These had consequences

on the utilization of the projects in schools. The use of questionnaire was similar to the present study.

A study was carried out by Tanner (1984) to assess stakeholders involvement in planning and site selection in schools in America. Questionnaire was administered in selected schools. The findings show that stakeholders within the schools system were not involved in planning and site selection of schools. The study recommended that stakeholders should be involved so that planning and site selection will not be politicized.

Philippines Department of Education (2003) carried out a study on utilization factors of educational facilities in secondary schools in Philippines. Expost facto was the research design used. The findings did show that workshops, laboratories, classrooms, drawing board, tools, equipments, furniture, electricity, water supply, fans and air conditions are not utilized. Philippines Department of Education methodology was related to the present study and the proper utilization of educational facilities was recommended.

A study was conducted on the maintenance of secondary school facilities in Midwestern (present Edo and Delta) states by Ogonor & Sanni (2001), to ascertain the type and adequacy of maintenance services as well as personnel involved. Expost facto

school method was used. The findings of the study indicated that school facilities in the schools are neither repaired nor replaced when they breakdown especially in public schools. In view of the findings, the study recommended the need to train school administrators on maintenance culture, adequate funding for maintenance and educate the users of the facilities to handle them with care. The methodology of this study agreed with the Philippines Department of Education (2003).

This study is unique because it seeks to assess the application of EPMCT by the planning divisions of the Ministries of Education in managing education projects in secondary schools through a globally recognized application model (EPMCT). It is also unique because the donor agencies are now trying to apply EPMCT to assist developing countries to manage projects through the adoption of the technique in order to yield good results.

This study is also unique because no previous studies has been carried out on assessment of application of EPMCT in North Eastern Nigeria and it will focused on the performance of the planning divisions of the Ministries of Education to detect their problems and find solutions to the management of education projects. Another area of uniqueness is that the questionnaire and

checklist of educational facilities developed for collection of data was also based on the stages of the EPMCT. The instrument was used for data collection from a heterogeneous population comprising of educational planning specialists and non educational planning specialists from the planning divisions of the Ministries of Education, School Administrators, Teachers and School maintenance personnel from Secondary schools.

## **2.8 Summary of Literature Review**

The core schools of thought from this literature review (Magnen, 1991, Mahlick, Gniark & Ramarosan, 1992, Magnen & Mahlick, 1994) was that the education projects management by educational planners was through application of EPMCT evaluation model which has the following stages:

1. Identify priority education projects through the needs and problems of schools for preparation.
2. Prepare projects through design, feasibility studies, appraisal and negotiation for proper application.
3. Implement projects through costing, work plan, budgeting, accountability and transparency to provide adequate educational facilities for teaching and learning in secondary schools.

4. Evaluate projects to guarantee effective utilization of educational facilities in secondary schools for sustainability.
5. Sustain projects through maintenance of educational facilities in secondary schools for continuous existence and utilization.

Successful project management require strict adherence to these stages and involvement of beneficiaries to provide, utilize and maintain educational facilities. The performance of the educational planners was assessed using the stages of the technique.

In the review of literature therefore, many issues were discussed. The theoretical framework for the study was established based on PMBOK from PMI. Other theories on project management like Business Round- table (1992) and Lackney (2003) was explained and criticized. The literature which reviewed education project management showed that education project was a set of investments and other planned activities aimed at achieving specific objectives within a pre-determined time-frame and budget. Education project management as the process of carrying out task or series of tasks through education project management cycle technique to achieve the objectives of education was discussed (Psacharospoulus & Woodhall, 1985,

Altner & Magnen, 1998, Runner et al, 1998). The literature also defined models and discussed the various evaluation models in project management. Some of the models for evaluating successful project management as discussed are PERT, CPM, WBS, NAT, PS, PEP, PSC, PMP, PCPCT, PCCT, Others are x phase model, traditional waterfall, v-shaped, UNESCO (1981), El-Jack (1988), Nilsson, (1988), Okoro, (1991), Magnen, (1991), Reiss (1992), Lundeberth, (1993), El-Jack, (1998) and Almieda (1999), Managerial model, & CIPP and EPMCT, Meredith (2000), Wideman, (2001), Kerzner (2004), Choudhury (2005), Bogunjoko, (2006).

This review of literature defined assessment of application as a process of measuring outcome and using the results of this measurement to take decisions (ETF, 2006, Baku, 2007). Impact assessment of the application of EPMCT was explained as a means by which output was measured so that managers could fully appreciate the value of what had been achieved while leaders including politicians could see what their policies had achieve (Victoria, 2000, Yijie, 2001). The literature review discussed EPMCT as the most advanced method of managing education projects Warren (1983), Baum & Tolbert (1985) reported that it is the process through which every education project is expected to

pass from identification, preparation to implementation, evaluation and sustainability. These stages were theoretically discussed. Stages of the application of EPMCT from ETF (2002) were also discussed.

This review of literature also discussed that all projects pass through successive procedural stages of the EPMCT. Identification of education projects which is the first stage is based on needs assessment. The needs assessment is conducted on situation analysis, needs, efforts, problems and opportunities of the education sector. Project planning, statement of purpose/objectives and national policies should be considered for identification of education projects (Fuller, 1986, Thierry, 1987, Beynon, 1989, Sequira, 1993, Mahlick, 1993, Igor & Serge, 1994, Magnen & Mahlick, 1994, Ikoya, 2008, Ihuoma, 2008).

It was discovered from the review, that the design of education projects is based on the need, problems or opportunities of beneficiaries identified, which is considered in the process of project preparation. Feasibility studies and appraisal is conducted for project preparation. Appraisal also closes with negotiation between Ministry of Education and Ministry of Finance, between various departments within Ministry of Education and donor agencies. The work plan is also prepared for project application

(Palange & Zanala, 1987, Sequira, 1993, Mahlick, 1993, Heyneman, 1996, Ojo, 2006).

According to the review of literature, the costing of the projects, activities contained in the work plan and keeping track of input – output monitoring should be maintained in implementation of education projects. The process of financial management of education projects is through national budgets, accountability and transparency, contract management, purchase and supplies, store management and internal control through auditing (Dopsal, 1991, UNDP, 1997C, Marques & Lopez, 1998).

Another issue discovered in the literature review is that education project evaluation which takes place through monitoring and final evaluation is responsible for successful education projects management. The projects are monitored to determine implementation problems and review project plan. On going and retrospective evaluation provide completion report of projects and how it affects education and the society (Almieda & Diaz, 1990, Lidiaga et al, 1992, Almieda et al, 1997 , White & Fortune, 2002,).

Education project sustainability was reviewed. An education projects is sustainable if they are utilized by the direct recipients after completion of the project without external assistance (Fuller, 1990, Martins et al, 1993, Martins & Magnen, 1995). The forms

and degree of participation in the management of education projects and its outcomes were discussed in the review (Cotton et al, 1988, Connor, 1992, Leung, 2000, Lackney, 2008). The literature revealed that the management performance of the application of educational facilities projects reflects how resources have been utilized to provide, utilize and maintain the facilities. The performance of the EPMCT is assessed in terms of adequate provision, utilization and maintenance of educational facilities. The literature revealed that application of EPMCT provide adequate educational facilities to improve learning. Thus, school buildings, equipment and furniture are provided (Tanner, 1984, Ogusanju, 1984, Adesina, 1984, Okeke 1986, Udoh & Akpa, 2001, Choudhury, 2005). Through the application of EPMCT, the literature showed that quality school buildings, furniture and equipment will properly function and effectively utilized in the learning process (Beynon 1985, Udoh & Akpa, 2001). These educational facilities are also maintained for continuous existence for learning (Adesina, 1981, Okeke, 1986, Ogbodo, 1998).

The review of empirical works revealed quite a number of studies in the area of EPMCT and its stages of identification, preparation, application, evaluation, sustainability and few in the provision, utilization and maintenance of educational facilities. The

works of Obidozie (1998) and Philippines Department of Education (2003) will be particularly useful. Studies by Leung (2000) and Cotton et al (1988) on participation in education projects is also important. In contrast, very little was found in the literature on assessment of the performance of the planning divisions of the Ministries of Education through the involvement of secondary schools on the application of EPMCT and provision, utilization and maintenance of educational facilities. Gniark (1995) provided only general framework for evaluation of the utilization of education projects with particular emphasis on buildings. Francais (2001) study concentrated on quality assessment model (QAM) to determine the outcomes of project evaluation. Philippines Department of Education (PDE, 2003) explained the utilization of educational facilities. Ojelabi (1981), Ogonor & Sanni (2001) explained the importance of sustainability of maintenance of education facilities projects.

The literature has thus revealed that apart from the technique for managing education projects through EPMCT, no evaluation study has been carried out to assess the performance of the planning divisions of the Ministries of Education through the involvement of secondary schools in applying EPMCT to manage education projects in the schools in North Eastern zone. Studies

earlier referred to above are mostly not based on empirical data and not from North Eastern Nigeria. It has also been observed that applying EPMCT is a method of managing education projects by the planning divisions of the Ministries of Education and is not the same with application performance on the technique and a study of technique cannot replace an application study. This study, therefore, intends to fill the gap pointed out above.

## CHAPTER THREE

### **METHODOLOGY**

This chapter described the research design, area of study, population of the study, sample and sampling technique, instrument for data collection, validation of instrument, reliability of the instrument, method of data collection and method of data analysis.

#### **3.1 Research Design**

The study adopted the ex-post factor survey design. Ex-post factor survey design method collects and analyses pertinent data about population by using questionnaire or checklist or both which is beyond the manipulation of the researcher. The major purpose of ex-post facto survey research is to yield useful preliminary information regarding the possible causes of some events on the basis of which confirmatory studies could be undertaken.

This study used ex-post facto survey process to find that the subjects are already assigned to or classified into the various levels of the variables whose effects are being investigated and cannot be altered. An attempt was made to link some already existing effect or observation to some variables as causative agents. Ex-post facto survey research design was adopted to answer research questions as unambiguously as possible. It was

also used to develop reliable and valid measures to collect data about the variables to produce a useful data. The application analysis which is an evaluation procedure was the main assessment tool in EPMCT. This study was carried out to provide qualitative and quantitative application of the process and results of projects management as per EPMCT application objectives. Thus, the application method was used because of its suitability to this research.

### **3.2 Area of Study**

The geographical area of the study was the North eastern Nigeria. This area consists of six states namely: Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe States. The North eastern Region of Nigeria is the area, which was created in 1967, and bounded between longitudes  $80:35'-14^{\circ}$  ; and Latitudes  $6: 15'-13^{\circ} . 45'N$ . These states used to exist as a single state known as the North-eastern state before it was splitted into various states at different times beginning in 1976. This zone is of importance to the federal government as one of the six geo-political zones in terms of educational facilities project management in secondary schools. The zone has 1880 public secondary schools. There is a potential for providing, utilizing and maintaining educational facilities through

education project management in the secondary schools in North-eastern Nigeria.

### 3.3 Population

The population for this research consisted of Education planning specialists and non educational planning specialists from the planning divisions of the Ministries of Education, School Administrators, Teachers and School Maintenance personnel from all the secondary schools in North Eastern Nigeria. The total population of the study is shown in table below.

Table 1: Number of Educational Planning Specialists, non-educational Planning Specialists, School Administrators, Teachers and School Maintenance Personnel in secondary schools in North Eastern Nigeria.

STATE	EDUCATIONAL PLANNING SPECIALISTS	NON EDUCATIONAL PLANNING SPECIALISTS	Secondary School Administrators	Secondary School Teachers	Secondary School Maintenance Personnel
ADAMAWA	9	6	912	6,435	456
BAUCHI	12	20	702	15,195	356
BORNO	4	15	196	3,443	103
GOMBE	6	15	916	6,130	468
TARABA	5	16	970	810	486
YOBE	1	4	116	2,838	63
<b>TOTAL</b>	<b>37</b>	<b>76</b>	<b>3,812</b>	<b>34,851</b>	<b>1,932</b>

Source: Statistic Units, Ministries of Education of the Six States (2007).

### 3.4 Sample and Sampling Technique

Proportional statistic was used to sample 37 Educational Planning Specialists, 76 non educational Planning Specialists from the planning divisions of the Ministries of Education, 381 School Administrators, 1,743 Secondary School teachers and 193 school maintenance personnel from the 1,880 secondary schools in the Six States of the North eastern zone. One hundred percent (100%) of Educational planning specialists, one hundred percent (100%) of secondary school administrators, ten percent (10%) of Secondary school administrators, five percent (5%) of secondary school teachers and ten percentage (10%) of secondary school maintenance personnel was used to determine the sample. A sample from each State was drawn through simple random sampling using balloting. All the sampled 381 school administrators were used for checklists of educational facilities data. The number of Educational Planning Specialists, non educational planning specialists from planning divisions of the Ministries of Education, School Administrators, Teachers and School maintenance personnel from 1880 secondary schools sampled for the study is shown in table 2 below.

Table 2: A Sample of Educational Planning Specialists, non educational Planning Specialists, School Administrators, Teachers and School Maintenance Personnel for the study.

<b>RESPONDENTS</b>	<b>NO SAMPLED</b>	<b>PERCENTAGE</b>
Educational Planning Specialists	373	100%
Non Educational Planning Specialists	76	100%
School Administrators	381	10%
Teachers	1,743	5%
School Maintenance Personnel	193	10%
<b>Total</b>	<b>2,430</b>	

### **3.5 Instrument for Data Collection**

Two instruments were used for the study. The first one, a researcher developed close structured instrument, the application of Education Project Management Cycle Technique Assessment Questionnaire (IEPMCTAQ) consisting of a five point response scale ranging from “Never involved” “Rarely involved”, to “Occasionally involved”, “frequently involved”, Always involved” was used for data collection. The questionnaire was divided into six sections on which the assessment was based. These include respondents personal data, identification of priority education projects, preparation of feasible education projects, implementation

of education projects, evaluation of proper utilization of educational facilities projects and sustainability of maintenance of education projects (Appendix B). Section A addressed respondents biodata, the remaining sections had 11 items each. An open-ended item was added to elicit every other information that was not captured by the other items. A total of 58 items were developed and the validity and reliability of the instrument was determined. The second instrument was a checklist of educational facilities consisting of thirty-four items (Appendix C). Checklist elicited “available” or “not available” on the educational facilities made available through the application of EPMCT.

### **3.6 Validation of the Instrument**

Four validators who are from the School of Technology and Science Education, Federal University of Technology Yola carried out face validity of the instrument. They assessed in terms of adequacy inter-item unity of the questionnaire to collect the needed data from educational planning specialists and non educational planning specialists from the planning divisions of the Ministries of Education, School Administrators, Teachers and School maintenance personnel from secondary schools. The validators also assessed whether appropriate standards have been used in the questionnaire for the assessment and made

recommendations where necessary. All the suggestions and recommendations of the validators were considered and used in the final preparation of the questionnaire.

### **3.7 Reliability of Instrument**

The reliability of the instruments was determined through a pilot study. For the purpose of pilot testing, 45 respondents comprising 5 educational planning specialists from the Yola inspectorate zone of the Ministry of education, 5 School Administrators and 35 teachers in Yelwa Government Secondary School Yola, Adamawa State, which were not part of the sample, was utilized. The respondents for the pilot study were requested to score the items on a five point response scale. Cronbach alpha was used to determine the reliability by inter-correlating item of the questionnaire (Cronbach, 1951). The overall reliability coefficient was 0.96 (Appendix E).

### **3.8 Method of Data Collection**

The primary data was collected by administering close ended questionnaire with five Likert response scale that ranged from “Never involved” to “Always involved” to the respondents with the help of research assistants. The research assistants who were Examination Officers from NABTEB presented a letter of introduction to the respondents and seeking their cooperation in

filling the questionnaire through the Directors and Principals in the Planning Divisions of the Ministries of Education and Secondary Schools respectively. To the Educational and non educational planning specialists, questionnaire was administered by two research assistants handling three states each and collected back after a completion period of five days. The five days completion period was given to the respondents to enable them have enough time to concentrate in filling all the sections of the questionnaire correctly. To the school administrators, by the same two research assistants handling the secondary schools from three states each and collected back after another completion period of five days. The two research assistants also visited secondary schools in the same three states each to collect data on teachers and were collected back after five days. The same two research assistants collected data from school maintenance personnel in the three states each by administering the questionnaire and collecting them back after 5 days of completion. Checklist of educational facilities were also administered to the school administrators by the research assistants within the same period. The research assistants visited all the secondary schools that was sampled and planning divisions of the Ministries of Education under their jurisdiction to make sure that all the questionnaires and checklists

of educational facilities were returned by explaining areas of difficulty.

### **3.9 Method of Data Analysis**

Descriptive statistical tools (means and standard deviations) were used to analyse the data to answer research questions 1-5 whereas percentage was used to answer research question 6.

The Z-test of independent means and ANOVA were used for testing hypotheses. Z-Test is use to test the difference between two means of a larger sample sizes. Hypotheses 1-2 were tested through Z-Test because data was collected to determine the degree of difference in comparing opinions of school administrators and teachers, educational planning specialists and non educational planning specialists on hypotheses 1-2 of the involvement stages of EPMCT respectively.

Analysis of variance (ANOVA) was used to test hypotheses 3-5. ANOVA is used for testing significant difference of means of responses between and within three or more groups. It determines whether between groups (treatment) variable differs from the within groups (error variable) by what would have been expected by chance. This was used to test the significant difference between and within the means of random and independent samples of Educational planning specialists, non

educational planning specialists, School Administrators, Teachers and school maintenance personnel on hypotheses 3-5 of involvement stages of the EPMCT. Computer data analysis was done using SPSS and Stat, plus.

The decision for answering the research questions was determined by computing the grand means and standard deviations using SPSS windows. The real limits of the five point scale shown below was used to determine the decision point used:

For this study “occasionally involved” with a scale point of 3 has been accepted as being within the range of involved. Therefore, 2.5 being the lower limit of 3 is the decision point.

This means that any grand mean above 2.5 was regarded as high involvement, 2.5 as grand mean indicate moderate involvement while those below 2.5 were regarded as low involvement. Percentage was also used to take a decision on research question six. Any response percentage that was 50 and above shows “Available” and “Not available” educational facilities by the respondents while any above 50 was “Not available”.

The decision taken on testing the hypotheses was based on comparing the calculated values of Z and F with the critical values of Z and F obtained from statistical tables for each hypothesis at .05 level of significance. A null hypothesis was rejected when the

calculated value was greater than the critical value of the statistic. Otherwise the null hypothesis was accepted when the calculated was below the critical value.

## CHAPTER FOUR

### RESULTS AND DISCUSSION

Results of data analysis are hereby presented, and they follow the order in which the research questions and hypotheses were raised in **Chapter One**.

#### 4.1 Presentation of Results

4.1.1 **Research Question 1:** To what level are secondary schools involved in the identification of priority education projects in their schools?

Table 3

Means and standard deviations of opinions of School Administrators and Teachers on the involvement of secondary schools in the identification of priority education projects.

S/N	INVOLVEMENT ACTIVITIES	X <sub>1</sub> N=381		X <sub>2</sub> N=1,743		μ	REMARK
		$\bar{X}_1$	$\sigma_1$	$\bar{X}_2$	$\sigma_2$		
1.	Considering priority projects.	1.99	0.89	1.99	0.87	1.99	low
2.	Collecting documents.	1.80	1.03	2.22	1.02	2.01	low
3.	Contacting the schools.	1.70	0.62	2.04	0.78	1.87	low
4.	Interviewing School Administrators and teachers.	2.84	0.83	2.37	0.94	2.60	high
5.	Considering education policy.	1.80	1.70	2.29	0.85	2.05	low
6.	Considering problems.	2.54	0.92	2.07	1.01	2.31	low
7.	Consulting students.	2.07	0.94	2.44	1.16	2.26	low
8.	Considering population of schools.	2.42	0.54	2.41	0.81	2.42	low
9.	Considering high dropout.	2.25	0.95	2.25	0.75	2.25	low
10.	Dialoguing with schools.	2.21	0.73	2.01	0.88	2.11	low
11.	Considering enrolment.	2.23	0.55	1.66	0.88	1.95	low
Overall mean						2.16	Low involvement

Source: Field work

X<sub>1</sub> for School Administrators.

X<sub>2</sub> for Teachers.

The data in table 3 above shows that the overall mean (2.16) indicate low involvement by both groups of respondents.

This means that secondary schools involvement in the identification of priority education projects was low.

4.1.2 **Research Question 2:** To what level are the planning divisions of the Ministries of Education involved in the preparation of feasible education projects in Secondary Schools?

Table 4  
Means and Standard deviations of opinions of Educational Planning Specialists and Non educational Planning Specialists on the involvement of the planning divisions of the Ministries of Education in the preparation of feasible education projects.

S/N	INVOLVEMENT ACTIVITIES	X <sub>1</sub> N=37		X <sub>2</sub> N=76		μ	REMARK
		$\bar{X}_1$	σ <sub>1</sub>	$\bar{X}_2$	σ <sub>2</sub>		
1.	Preparing project proposals.	3.46	0.50	3.28	0.90	3.37	high
2.	Formulating projects.	2.76	0.85	2.68	1.07	2.72	high
3.	Confirming the selection of preferred projects.	1.87	1.13	3.00	0.93	2.44	low
4.	Conducting educational feasibility study.	3.00	0.99	2.65	1.01	2.82	high
5.	Presenting financial feasibility.	2.78	0.87	2.67	0.97	2.72	high
6.	Presenting feasibility report to Ministry of Finance.	2.49	1.11	2.78	0.93	2.64	high
7.	Presenting feasibility report to Education Trust Fund.	2.16	1.08	2.66	0.88	2.41	low
8.	Negotiating with Ministry of Finance or donor agencies.	2.38	0.75	2.71	1.07	2.55	high
9.	Considering several options.	3.11	0.51	2.62	0.96	2.87	high
10.	Considering desirability and practicability of a projects.	2.30	1.06	2.84	0.97	2.57	high
11.	Presenting cost estimate/ bills of quantities.	3.35	1.37	3.04	1.29	3.19	high
Overall mean						2.75	High involvement

Source: Field Work

X<sub>1</sub> is for Educational Planning Specialists.

X<sub>2</sub> is for Non educational Planning Specialists.

The data in table 4 shows that the overall mean (2.75) of all the items indicate high involvement by both groups of respondents. This shows that planning divisions of the Ministries of Education was highly involved in preparation of feasible projects in secondary schools.

**4.1.3 Research Question 3:** To what level are secondary schools involved in the implementation of education projects in their schools?

Table 5

Means and Standard deviations of opinions of Educational Planning Specialists, Non educational Planning Specialists, School Administrators and Teachers on the involvement of secondary schools in the implementation of education projects.

S/N	INVOLVEMENT ACTIVITIES	X <sub>1</sub> N=37		X <sub>2</sub> N=76		X <sub>3</sub> N=381		X <sub>4</sub> N=1,743		μ	REMARK
		$\bar{X}_1$	σ <sub>1</sub>	$\bar{X}_2$	σ <sub>2</sub>	$\bar{X}_3$	σ <sub>3</sub>	$\bar{X}_4$	σ <sub>4</sub>		
1.	Proper supervision of implementation of educational facilities projects.	2.81	0.90	2.40	1.01	1.50	1.00	1.88	0.99	2.15	Low
2.	Implementation of the provision of educational facilities projects with ministry of works.	2.41	1.00	2.33	1.02	1.54	0.50	1.89	1.02	2.04	Low
3.	Preparation of work plan for implementation of educational facilities projects.	2.84	1.00	2.40	0.94	2.22	1.10	1.80	0.83	2.32	Low
4.	Timely completion of implementation of provision of educational facilities projects.	3.00	0.70	3.01	0.91	2.00	1.02	2.19	0.96	2.55	High
5.	Financing implementation through State and National budgets.	2.62	1.05	2.70	1.05	1.99	1.00	1.53	0.86	2.21	Low
6.	Funding implementation through UNDP, World Bank, UNICEP.	3.03	0.72	2.82	1.02	1.52	0.78	1.90	0.95	2.32	Low
7.	Funding implementation through local communities.	2.84	0.95	2.82	0.97	1.84	0.82	2.03	1.11	2.38	Low
8.	Prudent management of financial resources for implementation.	2.51	1.13	2.61	1.07	2.00	1.01	1.87	0.79	2.25	Low
9.	Awarding implementation to competent contractors.	2.85	1.12	2.84	1.00	2.04	1.08	1.85	0.97	2.40	Low
10.	Implementation of procurement and purchase projects.	2.84	0.97	2.47	1.17	2.04	0.98	2.08	0.98	2.36	Low
11.	Implementation for improving management of schools.	2.89	1.07	2.72	1.23	2.25	1.02	1.51	0.70	2.34	Low
Overall mean										2.30	Low involvement

Source: Field Work

X<sub>1</sub> for Educational Planning Specialists.  
 X<sub>2</sub> for Non educational Planning Specialists.  
 X<sub>3</sub> for School Administrators.  
 X<sub>4</sub> for Teachers.

The data in table 5 shows that the overall mean (2.30) of all items indicate low involvement by the four respondents. This indicates that secondary schools involvement in the implementation of physical education projects in their schools is low.

**4.1.4 Research Question 4:** To what level are secondary schools involved in the evaluation of the utilization of education projects in their schools?

Table 6  
Means and Standard deviations of opinions of Educational Planning Specialists, Non educational Planning Specialists, School Administrators and Teachers on the involvement of secondary schools in the evaluation of the utilization of education projects.

S/ N	INVOLVEMENT ACTIVITIES	X <sub>1</sub> N=37		X <sub>2</sub> N=76		X <sub>3</sub> N=381		X <sub>4</sub> N=1,743		μ	REMARK
		$\bar{X}_1$	$\sigma_1$	$\bar{X}_2$	$\sigma_2$	$\bar{X}_3$	$\sigma_3$	$\bar{X}_4$	$\sigma_4$		
1.	Monitoring through school administrators.	2.38	0.93	3.37	0.60	2.78	0.77	1.77	0.80	2.58	High
2.	Monitoring through management information system.	2.60	1.03	2.59	0.80	3.88	1.38	1.87	0.99	2.74	High
3.	Solving potential or actual problems.	2.68	1.07	2.80	1.06	2.32	1.06	1.79	1.02	2.40	Low
4.	Evaluation through resources utilized and results obtained.	2.73	1.03	2.93	1.02	2.05	0.91	1.50	0.78	2.30	Low
5.	Ongoing evaluation to improve performance of educational facilities.	2.84	0.89	2.92	1.02	2.13	0.88	1.62	0.82	2.38	Low
6.	Evaluation to improve utilization of academic facilities.	2.65	1.92	3.03	1.12	1.83	1.00	1.66	0.80	2.29	High
7.	Evaluation to improve effective utilization of school furniture.	2.87	0.94	3.38	0.76	1.96	0.87	1.22	0.56	2.36	Low
8.	Evaluation to improve utilization of quality textbooks and other teaching materials.	3.03	0.97	3.04	0.79	2.10	0.95	1.65	0.94	2.46	Low
9.	Evaluation to improve utilization of sports facilities.	2.92	0.91	2.68	0.80	2.12	0.95	1.49	0.72	2.30	Low
10.	Retrospective evaluation to improve utilization of administrative facilities.	2.22	0.99	3.07	0.91	2.03	0.94	1.62	0.96	2.23	Low
11.	Retrospective evaluation to improve utilization of school buildings in the schools.	2.78	0.96	3.17	0.79	3.05	0.70	1.83	0.97	2.76	High
Overall mean										2.44	Low involvement

Source: Field Work

$X_1$  for Educational Planning Specialists.

$X_2$  for Non Educational Planning Specialists.

$X_3$  for School Administrators.

$X_4$  for Teachers.

The data in table 6 shows that the overall mean (2.44) of all the eleven items indicate low involvement by the four (4) respondents. Thus, secondary schools involvement in the evaluation of the utilization of education projects was low.

**4.1.5 Research Question 5:** To what level are secondary schools involved in the sustainability of maintenance of education projects.

Table 7  
Means and Standard deviations of opinions of School Administrators, Teachers and School Maintenance Personnel on the involvement of secondary schools in the sustainability of maintenance of education projects.

S/N	INVOLVEMENT ACTIVITIES	N=381		N=1,743		N=193		$\mu$	REMARK
		$\bar{X}_1$	$\sigma_1$	$\bar{X}_2$	$\sigma_2$	$\bar{X}_3$	$\sigma_3$		
1.	Sustainability of maintenance through principals and teachers.	2.42	1.02	1.33	0.52	2.06	1.14	1.94	Low
2.	Collecting low cost buildings.	2.46	1.06	1.52	0.48	1.69	0.79	1.89	Low
3.	Selecting options in Architectural preparations.	1.76	0.97	1.74	0.88	2.02	0.96	1.89	Low
4.	Generating income for principals.	2.11	1.14	1.92	1.05	2.19	1.04	2.07	Low
5.	Regular sustenance through principals.	2.17	0.93	1.17	0.43	2.16	0.94	1.83	Low
6.	Sustenance through qualified personnel.	1.73	0.77	1.83	0.95	1.28	0.57	1.61	Low
7.	Good maintenance programme through principals.	1.87	0.95	1.52	0.54	2.02	0.93	1.80	Low
8.	Providing good classroom environment.	2.02	1.00	1.32	0.52	2.13	1.00	1.82	Low
9.	Consolidating the knowledge of principals and teachers.	2.01	0.94	1.99	1.15	2.00	0.90	2.0	Low
10.	Saving thousands of naira over the life of educational facilities.	2.05	0.94	1.31	0.64	2.13	1.00	1.83	Low
11.	Improving students academic achievement.	1.87	0.96	1.75	0.88	1.81	0.92	1.81	Low
Overall mean								1.87	Low involvement

Source: Field Work

$X_1$  for School Administrators.

$X_2$  for Teachers.

$X_3$  for School Maintenance Personnel.

The data in table 7 shows that the overall mean (1.87) of all the items indicate low involvement by the three groups of respondents. This shows that secondary schools involvement in sustainability of maintenance of physical education projects was low.

**4.1.6 Research Question 6:** To what level has the application of EPMCT led to availability of educational facilities in secondary schools?

Table 8

Percentage of School Administrator's Response to Checklist of Educational Facilities made available through the application of EPMCT Performance in Secondary Schools

FACILITIES	AVAILABLE		NOT AVAILABLE	
	Number	%	Number	%
<b>SITE FACILITIES</b>				
Land	136	37.5	226	62.5
Source of Drinking Water	114	31.6	248	68.4
Drainage	275	76.0	87	24.0
Source of Electricity	143	39.6	219	60.4
Fence	87	23.9	275	76.1
Toilets	57	15.7	305	84.3
<b>ACADEMIC FACILITIES</b>				
Classrooms	101	27.8	261	72.2
Laboratories	187	51.6	175	48.4
Workshops	215	59.3	147	40.7
Library	54	14.9	308	85.1
<b>SPORTS FACILITIES</b>				
Sports Fields	117	32.4	245	67.6
Courts and track	183	50.6	179	49.4
Sport equipment	207	57.3	155	42.7
<b>ANNEX FACILITIES</b>				
School Vans	220	60.7	142	39.3
Students Hostel	126	34.7	236	65.3
Mattresses	261	72.2	101	27.8
Staff Quarters	131	36.2	231	63.8
House Furniture	224	62.0	138	38.0
Dinning Hall	143	39.5	219	60.5
<b>ADMINISTRATIVE FACILITIES</b>				
Administrative Offices	95	26.3	267	73.7
Staff Offices	124	34.2	238	65.8
School Clinics	212	60.0	145	40.0
Examination Halls	181	50	187	50
<b>SCHOOL FURNITURE</b>				
Chairs and Tables for Teachers	220	60.8	142	39.2
Chairs and Tables for Students	127	35.1	235	64.9
Benches and Desks	145	40.0	217	60.0
<b>TEACHING FACILITIES</b>				
Textbooks	219	60.6	143	39.4
Notebooks	275	76.0	87	24.0
Record Books	308	85.1	55	15.2
Rulers	277	76.4	85	23.6
Chalks	59	16.4	303	83.6
Chalkboard	250	69.1	112	30.9
Cardboard	274	75.7	880	24.3
Computers	251	69.5	110	30.5

The data in table 8 shows that most items on the checklist were responded “Not available” by fifty percent and above of the respondents. This means that educational facilities were not made available through the application of EPMCT in Secondary Schools.

**4.1.7 Hypotheses 1:** There is no significant difference between the opinions of School Administrators and Teachers on involvement of secondary schools in the identification of priority education projects.

Table 9

Z – Test difference in the opinions of school administrators and teachers on involvement of secondary schools in the identification of priority education projects in their schools.

	$\bar{X}$	$\sigma$	N	df	Standard Error	Z cal	Z critical	Remark
X <sub>1</sub>	76.20	108.613	381	60	63.128	-4.315	2.000	S
X <sub>2</sub>	348.60	455.407	1743					

X<sub>1</sub> for School Administrators.

X<sub>2</sub> for Teachers.

The data in table 9 shows that the Z-Test calculated (-4.315) was greater than the critical or table Z value. Therefore, this hypotheses which state that there is no significant difference in the opinions of school administrators and teachers on involvement of

secondary schools in the identification of priority education projects has been rejected. The result show significant difference in the opinions of school administrators and teachers on identification as priority educational facilities projects in secondary schools.

**4.1.8 Hypotheses 2:** There is no significant difference between the opinions of Educational Planning Specialists and Non educational Planning Specialists on involvement of the planning divisions of the Ministries of Education in the preparation of feasible education projects in secondary schools.

Table 10

Z – Test difference in the opinions of Educational Planning Specialists and Non educational Planning Specialists on involvement of the planning divisions of the Ministries of Education in the preparation of feasible education projects in secondary schools.

	$\bar{X}$	$\sigma$	N	df	Standard error	Z cal	Z Critical	Remark
X <sub>1</sub>	7.40	5.028	37	97	1.184	-6.606	1.98	S
X <sub>2</sub>	15.22	7.195	76					

X<sub>1</sub> for Educational Planning Specialists.

X<sub>2</sub> for Non educational Planning Specialists.

In Table 10, the Z – calculated was 6.606 while Z critical was 1.98. Since Z – calculated was higher than the Z – critical, the null

hypotheses was rejected. The result of the Z – test showed that there is significant difference between the opinions of Educational Planning Specialists and Non educational Planning Specialists on involvement of the planning divisions of the Ministries of Education in the preparation of feasible education projects in secondary schools.

**4.1.9 Hypotheses 3:** There is no significant difference among the opinions of Educational Planning Specialists, Non educational Planning Specialists, School Administrators and Teachers on involvement of secondary schools in the implementation of education projects in the schools.

Table 11

ANOVA Result comparing the opinions of Educational Planning Specialists, Non educational Planning Specialists, School Administrators and Teachers on involvement of secondary schools in the implementation of education projects.

Source of variations	Df	SS	MS	Fcal.	F crit	Significance
Between groups	3	4,264,361	1,421,453.786			
Within groups	216	1,774,751	54,512.737	9.469	8.54	S
Total	15	6,203,633				

In Table 11, the F calculated was 9.469 while the F critical was 8.54. Since the F calculated was more than F critical, the null

hypotheses was rejected. Thus, the difference between the opinions of the four groups was significant.

A post hoc analysis using Scheffe test was carried out to identify the pair groups in which the difference occurred. The Scheffe test was carried out using the SPSS window.

Table 12 Scheffe Contrasts among pairs of means

<b>Group vs Group</b>	<b>Difference</b>	<b>Test Statistic</b>	<b>Critical value (5)%</b>	<b>Accepted</b>
1 vs 2	-768.000	44.523	0.999	Rejected
1 vs 3	-68.618	44.523	6.500	Rejected
1 vs 4	-341.091	44.523	0.000	Rejected
2 vs 3	-60.818	44.523	0.601	Rejected
2 vs 4	-333.291	44.523	0.000	Rejected
3 vs 4	-272.473	44.523	0.000	Rejected

From the comparison in Table 12, 1 vs 2, 1 vs 3, 1 vs 4, 2 vs 3, 2 vs 4, and 3 vs 4 differ significantly. Since 1 vs 2, 1 vs 3, 1 vs 4, 2 vs 3, 2 vs 4, 3 vs 4 differ significantly, 2, 3 and 4 are the groups showing the source of major difference. This gives us the impetus to conclude that 2 which is non educational planning specialists, 3 which is school administrators and teachers responses tend to show that secondary schools are not highly involved in the implementation of education projects than others. Thus, non

educational planning specialists school administrators and teachers appear to be more concern about the implementation of education projects.

4.1.10 **Hypotheses 4:** There is no significant difference among the opinions of Educational Planning Specialists, Non educational Planning Specialists, School Administrators and teachers on involvement of secondary schools in evaluation of the utilization of education projects in the schools.

Table 13

ANOVA Result comparing the opinions of Educational Planning Specialists, Non educational Planning Specialists, School Administrators and Teachers on involvement of Secondary Schools in evaluation of the utilization of education projects.

Source of variations	Df	SS	MS	Fcal.	F crit	Significance
Between groups	3	4313974	1437991.471	9.537	8.54	S
Within groups	216	11849230	54857.547			
Total	219	16163205				

The F calculated in table 13 showed a value of 9.537 while the F critical was 8.54. Thus, the F calculated was far above the F critical which rejects the null hypotheses. This indicates that there is significant difference between the opinions of the four groups.

In order to identify the pair groups in which the difference occurred, a post hoc analysis using Scheffe test was carried out. The Scheffes test was carried out using the SPSS window.

Table 14 Scheffe Contrasts among pairs of means

<b>Group vs Group</b>	<b>Difference</b>	<b>Test Statistic</b>	<b>Critical value (5%)</b>	<b>Accepted</b>
1 vs 2	-7.800	44.663	0.999	Rejected
1 vs 3	-68.800	44.663	0.500	Rejected
1 vs 4	-343.018	44.663	0.000	Rejected
2 vs 3	-61.000	44.663	0.602	Rejected
2 vs 4	-335.218	44.663	0.000	Rejected
3 vs 4	-274.218	44.663	0.000	Rejected

From the comparison in Table 14, 1 vs 2, 1 vs 3, 1 vs 4, 2 vs 3, 2 vs 4, 3 vs 4 differ significantly, since 1 vs 2, 1 vs 3, 1 vs 4, 2 vs 3, 2 vs 4 and 3 vs 4 differ significantly 2, 3 and 4 are the groups showing the source of major difference. This also gives us the impetus to conclude that 2 which is non educational planning specialists, 3 which is school administrators and 4 which is teachers responses tend to show that secondary schools are not highly involved in the evaluation of the utilization of education projects. Thus, non educational planning specialists, school

administrators and teachers appears to be more concern about the evaluation of utilization of education projects.

**4.1.11 Hypotheses 5:** There is no significant difference among the opinions of School Administrators, Teachers and school maintenance personnel on the involvement of secondary schools in sustainability of the maintenance of education projects in their schools.

Table 15:ANOVA Result in comparing the opinions of School Administrators, Teachers and School Maintenance Personnel on involvement of secondary schools in the sustainability of maintenance of education projects.

Source of variations	Df	SS	MS	Fcal.	F crit	Significance
Between groups	2	3,112,886	1,556,442.988	40.798	19.49	S
Within Groups	162	1220617	75346.783			
Total	164	15319065				

The result of table 15 indicate that an F calculated 40.798 was recorded, while the F critical was 19.49. Since the F calculated was far higher than the F critical, the null hypotheses was rejected. The result has therefore yielded significant differences between the opinions of the three groups.

In order to identify the pair groups in which the difference occurred, a post hoc analysis using Scheffe test was carried out.

The Scheffes test was carried out using the SPSS window.

Table 16 – Scheffe Contrasts among pairs of means

Group vs Group	Difference	Test statistics	Critical value (5%)	Accepted
1 vs 2	-270.745	52.344	0.00	Rejected
1 vs 3	37.600	52.344	0.773	Rejected
2 vs 3	308.345	52.844	0.000	rejected

From the comparison in Table 16, 1 vs 2vs 3, 2vs3 differ significantly. Since 1 vs 2, 1 vs 3, and 2 vs 3 differ significantly, 2 and 3 are the groups showing the source of major difference. This also gives us the impetus to conclude that 2 which is teachers and 3 which is school maintenance personnel tend to show that secondary schools are not involved in the sustainability of maintenance of education projects. Thus teachers and school maintenance personnel appears to be more concern about sustainability of maintenance of education projects.

#### 4.2 Findings of the Study

The following are summaries of findings of the study:

1. The involvement of Secondary schools was low (2.16)in the identification of priority education projects in their schools.

2. The Planning Divisions of the Ministries of Education was highly involved (2.75) in the preparation of feasible education projects in secondary schools.
3. Secondary schools were lowly involved (2.30) in the implementation of education projects.
4. The evaluation of the utilization of education projects show low involvement (2.44) of secondary schools.
5. Secondary schools were lowly involved (1.87) in the sustainability of the maintenance of education projects.
6. The application of EPMCT has not led to availability (50% and above) of educational facilities in secondary schools.
7. There is significant difference (-4.315) between the opinions of School Administrators and teachers on involvement of secondary schools in the identification of priority education projects.
8. Educational Planning Specialists and Non educational Planning Specialists differ significantly (6.606) on involvement of the planning divisions of the Ministries of Education in the preparation of feasible education projects.
9. The opinions of Educational Planning Specialists, Non educational Planning Specialists, School Administrators and Teachers differ significantly (8.469) on the involvement of

secondary schools in the implementation of the provision of education projects.

10. There is significant difference (9.537) among the opinions of Educational Planning Specialists, Non educational Planning Specialists, School Administrators and Teachers on involvement of secondary schools in the evaluation of the utilization of education projects.
11. The opinions of School Administrators, Teachers and school maintenance personnel differ significantly (40.798) on involvement of secondary schools in the sustainability of maintenance of educational facilities projects.

#### **4.3 Discussion of the Findings**

The findings of this study were discussed in relation to the five stages of application performance of EPMCT raised in the purpose of the study. The first stage is identification of priority educational facilities projects. The finding from table 3 revealed that the involvement of secondary schools in the identification of priority education projects was low. The grand mean of the items show low involvement. This findings is not consistent with current observation and opinions of educationists as expressed by literature on the subject. Ikoya (2008) and Beynon (1989) among others indicated that secondary schools are highly involved in the

identification of priority education projects through decentralization of physical facilities projects and involvement of principals, teachers and students. Information gathered from the schools through discussions however tend to support the findings of the study. According to the information gathered, secondary schools are not consulted in order to identify their priority educational facilities even though they know how best priority educational facilities projects can be identified for their everyday use. Wrong identification of priority education projects through low involvement of secondary schools may not serve the purpose for which it was provided in the schools.

The findings from Table 4 shows that the planning divisions of the Ministries of Education are highly involved in the preparation of feasible education projects. The grand mean of the items show high involvement. These finding differ from the assertion of Verspoor (1986), Verspoor (1989) and Reutersward (1990) which asserted that educational planners are not involved in preparation studies, drafting of the project proposal report and detailed technical elaboration of education projects. The two groups were unanimous on high involvement of the planning divisions of the Ministries of Education in preparation of feasible education projects indicating that they are highly involved. Low involvement

of the planners in preparation of educational facilities projects cannot be feasible, practicable and viable. Hence, the need for high involvement.

The findings in table 5 reveal that secondary schools are not highly involved in the implementation of education projects. The grand mean of all the items indicate low involvement. This finding is supported by Tanner (1984), Fuller (1990) and Ojo (2006) that only engineers or consultants are highly involved in the implementation of education projects. The secondary schools who are beneficiaries of the projects are not allowed to provide practical completion certificates. Perhaps, the reason being that government award the implementation of education projects to contractors who will not accept interference from secondary schools in order to do a poor job to make profit. Therefore, the finding that secondary schools are not highly involved in the implementation of their projects is not misleading.

The findings of this study with regard to involvement of secondary schools in the evaluation of the utilization of education projects indicate that secondary schools are not highly involved (Table 6). The grand means of the items show low involvement. Considering the fact that the utilization factor for educational facilities is determined by evaluation and that secondary schools

are the utilizers of the educational facilities, the low involvement of secondary schools in the evaluation suggest that the education projects are not evaluated for utilisation. Of all the stages in the application of the EPMCT, the low involvement of secondary schools in the evaluation of the utilization of educational facilities projects is the most unexpected. This is because the education projects are initiated and completed so that it can be utilized for teaching and learning in secondary schools. Some secondary schools do not utilize the educational facilities because there are not priority needs of the end users. This aspect is ignored by our educationist and facilities planners as depicted by under- utilization of educational facilities projects.

Findings of the study in Table 7 indicate that secondary schools are not highly involved in the sustainability of maintenance of education projects. The grand mean of the items indicate low involvement. This finding is not consistent with the assertion of Cash (1993) that sustenance of maintenance of education projects involve human sustenance from the school community. Thus, the continuous existence and utilization of educational facilities can only be achieved through high involvement of school beneficiaries in sustainability of maintenance. This finding is also supported by the assertion of Martins & Magnen (1995) that education projects

have failed to achieve their intended benefits in the past because school beneficiaries were not highly involved in the sustenance of maintenance of the facilities. The reason deduced from the respondents is that low involvement in sustenance of maintenance of educational facilities in secondary schools is responsible for poor state of the facilities.

Table 8 shows that the application of EPMCT did not make, site facilities like land available in secondary schools. Two hundred and Twenty-Six (226) School Administrators representing (62.5%) did not accept while 136 (37.5%) accepted. This finding reveal that source of drinking water was not made available through the technique in the schools (68.4%). Drainage (76.0%) was available. Fence was not made in secondary schools (76.1%). Another finding from the application of EPMCT performance is whether toilets were available while (84.8%) did not accept that it was done.

Academic facilities like classrooms (72.2%) were not made available for teaching and learning. Though, Ogonor & Sanni (2001) reported that classrooms were available in schools in mid-western state. The finding reflected that (51.6%) laboratories were not available and (48.4%) show that they were adequate in the secondary schools. The application of EPMCT performance in

terms of workshops was successful (59.3%). Although, library is one of the most important facility for instruction, they are not available (85.1%) in schools. The non-availability of library could be a replica of the performance of the students turned out from such schools. As reported by Varghese (1995), the level of the adequacy of school facilities is positively related to pupil academic performance. The application of the technique did not achieve availability of sports facilities like sport fields (67.6%) and (50.2%) of the respondents agree that courts and track were available. Another (57.3%) of the respondents agree that availability of sport equipment was achieved.

Annex facilities like school vans were available in secondary schools (60.7%). The application of EPMCT was successful in terms of students hostel (65.3%). The availability of mattresses was achieved (72.2%). The respondents (63.8%) agreed that staff quarters were not made available. House furniture were available as accepted by the respondents (62.0%). Dining halls through the application of EPMCT was not successful (60.5%). Since administrative facilities like offices were necessary for teaching and learning, (73.7%) of the respondents disagreed that it was available. Staff offices were also not available (65.8%). The application of technique provided, school clinics (60.0%) while

Examination Halls were available with 50% acceptance and 50% rejection from the respondents.

The availability of school furniture in terms of chairs and tables for teachers through the application of EPMCT was achieved (60.8%). Chairs and tables for students were not adequately provided, (64.9%). The application of the cycle to provide Benches and Desks as disagreed by the respondents (60.0%) was not successful. This was supported by the finding of Ehiamentalor & Associates (1998) that 87.80 percent of the schools had no furniture.

The application of EPMCT to provide teaching facilities like textbooks was achieved (60.6%). Note books were available (76.0%). The application of the technique in terms of record books succeeded (76.1%). Rulers were not made available (76.4%). Eighty - Three (83.6) percent of respondents rejected that chalks were supplied in secondary schools but chalkboard were not available (83.6%). The provision, of cardboard was successful (57.6%). Another (69.5%) of the respondents agreed that computers were provided. Invariably, the application of EPMCT did not make educational facilities available in secondary schools because they were not highly involved.

Table 9 shows that the null hypotheses was rejected. This means that the involvement of secondary schools in the identification of priority education projects was very low. Any observed involvement is due to chance. This result differs from the findings of Ramaroson (1992), Cash (1994) and Ihuoma (2000) who found that secondary schools are highly involved in the identification of priority education projects. The result does not also support the findings of Devarusu (1995) and Paul (1997) who found that school community participate in identification of priority education projects in their schools. However, the findings of this study regarding low involvement of secondary schools in identification of education projects is in line with the findings of Baum & Tolbert (1985) and Damiba (1992) who found significant difference on the involvement of secondary schools in identification of education projects. One reason for low involvement of secondary schools in the identification of education projects may be “project approach” to educational facilities where government site projects without determining the priority of the schools through consultation of end users.

Even then, Damiba et al (1992) asserted that identification of priority education do not highly involve beneficiary participation. Therefore, the finding that secondary schools in this study are not

highly involved in the identification of priority educational facilities projects is not misleading.

The findings of hypotheses number 2 and table 10 indicate that there is significant difference in the opinions of educational planning specialists and non educational planning specialists on involvement of the planning divisions of the Ministries of Education in preparation of feasible education projects. This confirms the assertion by Heyeneman & Loxley (1983), Sadler (1991) and Lawal (2003) that Ministry of Education is lowly involved in feasibility and efficiency priority of education projects. It was supported by Beynon & Caldsone (1989) that Planning Specialists are lowly involved in a better dialogue when they follow guidelines which involve functionality, building materials and construction. Some reasons for lowly involving the planning divisions of the Ministries of Education maybe because they are not clients and managers of the projects. Therefore, the finding that the planning divisions of the Ministries of Education is lowly involved in the preparation of feasible education projects is not far from reality.

The significant difference in the opinions of educational planning specialists, non educational planning specialists, school administrators and teachers on involvement of secondary schools in the implementation of education projects, as indicated in the

findings of hypothesis number 3 Table 11 confirms the assertion by Vickery (1984) that secondary schools are not highly involved. He asserted, for example, that Ministry of Education and works are highly involved by providing engineers or consultants to supervise education project to ensure that they achieve project objectives.

The findings of hypotheses 3 Table 11, is also consistent with Martin & Magnen (1995) belief that school beneficiaries are not highly involved in costing project implementation to propose alterations in the standard construction or renovation cost which are multiplied by a distance factor to allow for the distance between the institutions and site materials production or unloading. This must be added to the cost of site development, roads, provision of water, electricity and telephone lines. Thus, it can be concluded that secondary schools are not highly involved in determining the cost of project implementation of educational facilities.

The findings in respect of hypotheses 4 Table 13 that the significant difference exist between the opinions of educational planning specialists, non educational planning specialists, school administrators and teachers on involvement of secondary schools in the evaluation of the utilization of education projects, agreed with the assertions of Almieda et al (1997) and White & Fortune

(2002) who in their individual opinion express that secondary school beneficiaries are not highly involved in evaluation to assess the effects and impact of project performance, focusing on the analysis of the progress made towards the achievement of the utilization of education projects. This assertion was also supported by Almeida & Diaz (1990) and Machenzie (1995) where they discovered that ongoing and retrospective evaluation through low involvement of institutions does not bring proper utilization of education projects. The findings of this study regarding the involvement of secondary schools in evaluation of the utilization of education projects differ from Dancu & Garnon (1994) who asserted that secondary schools are highly involved in the evaluation of the utilization of education projects. One of the reasons perhaps is that many evaluations are conducted on projects at the same time which does not involve secondary schools to improve proper utilization of education projects. The observed low involvement of secondary schools in the evaluation of education projects is by chance.

There is significant difference recorded in the opinions of school administrators, teachers and school maintenance personnel on involvement of secondary schools in the sustainability of maintenance of education projects (hypotheses 5 Table 15) has

confirm the assertion by Urwick & Janaidu (1991) and Aibini & Jagboro (2002) which shows frequent effects of low involvement of schools on sustainability of school construction projects. This also confirms the assertion of Olutola (1989) that principals and school maintenance which create personnel in secondary schools are lowly involved in facility maintenance because maintenance creates commitment, finance to maintain school facilities, information on school facilities from the school and qualified school maintenance personnel. This was not supported by Ogonor & Sanni (2001) that secondary schools are highly involved in the maintenance of educational facilities in their schools. Since secondary schools are the custodian of school facilities maintenance, principals, teachers and school maintenance personnel are suppose to be involved with adequate funding through adequate number of qualified staff required for maintenance.

## CHAPTER FIVE

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

This chapter presents the summary of the study as well as conclusions drawn from the findings of the study.

Recommendations are then made based on the findings, while implications of the study resulting from non-implementation of the recommendations are clearly stated. The chapter is then concluded with recommendations for further study and limitations of the study.

#### **5.1 Summary**

The problem of the study was to assess the involvement of secondary schools in the application of EPMCT by the planning divisions of the Ministries of Education to provide, utilize and maintain educational facilities in schools in North Eastern Nigeria. Educationists in the states of Nigeria have critically examine the inadequate provision, under utilization and poor maintenance of educational facilities through the application of EPMCT. States in Nigeria have not been able to provide, utilize and maintain educational facilities even where there is evidence of funding capital projects. Secondary schools have not been involved in the holistic implementation of complete or selected stages of EPMCT

to adequately provide, utilize and maintain educational facilities in their schools.

The negative effects of inadequate provision, under utilization and poor maintenance of educational facilities are poor teaching and learning, poor performance and production of secondary schools failure . The planning divisions of the Ministries of Education in the Six States of north eastern Nigeria, may involve very few if any of the secondary schools in the application of EPMCT even though they understand how best educational facilities can be provided, utilized and maintained for their every day usage. When educational facilities are not adequately provided, utilized and maintained, conducive environment for teaching and learning will not be achieved.

Educationists indicate that the application of EPMCT through the non involvement of secondary schools has not provided, utilized and maintained educational facilities. The opinion however did not show evidence that empirical data were used to arrive at those conclusions. This study was therefore designed to assess the involvement of secondary schools in the application of EPMCT on the management of educational facilities projects to find out the problems of provision, utilization and maintenance of the facilities so as to proffer solutions.

The study was conducted in Six States in North Eastern Nigeria. The scope of application covered identification, preparation, implementation, evaluation and sustainability of educational facilities projects. Six research questions were asked and five null hypotheses were formulated. Two different instruments were used for data collection. A questionnaire having a five point response scale was constructed by the researcher, while checklist of educational facilities was also used. The lecturers from School of Technology and Science Education validated the questionnaire and a pilot test was carried out on 45 randomly sampled subjects from inspectorate office and Yelwa Government Secondary School, Yola, Adamawa State, which show over role reliability coefficient of 0.96 through Cronbach Alfa.

The population of the study was made up of 40,708 comprising of planning specialists from planning divisions of the Ministries of Education, School Administrators, teachers and school maintenance personnel from 1,880 secondary schools. Thirty-four (37) Educational Planning Specialists, 76 non educational Planning Specialists, 381 School Administrators, 1,743 teachers and 331 school maintenance personnel were sampled through stratified random sampling. The data analysis using grand means, standard deviations and percentages were used to answer

six research questions of the study while Z-test and ANOVA were employed to test hypothesis at 0.05 level of significance.

The findings show that secondary schools were lowly involved in the application of EPMCT in their schools. The planning divisions of the Ministries of Education was highly involved in the preparation of feasible educational facilities projects. The application of EPMCT by the planning divisions of the Ministries of Education has not led to the availability of educational facilities in secondary schools. The study concluded that secondary schools are not highly involved in the application of EPMCT to make educational facilities available in their schools.

The planning divisions of the Ministries of Education was highly involved in preparation of feasible educational facilities projects. The application of EPMCT by the planning divisions of the Ministries of Education therefore has not led to availability of educational facilities in secondary schools. The implication of the study is that the low involvement of secondary schools in the application of EPMCT will not create conducive atmosphere for teaching and learning. Thus, mass secondary school failure and production of half baked graduates. The highly involvement of the planning divisions of the Ministries of Education in preparation of

feasible education projects will lead to viable and practical educational facilities projects which may not be abandoned.

## **5.2 Implications of the Findings**

The adverse effects of the problems identified in this study on teaching and learning have been emphasized. The non-implementation of the recommendations made will therefore, have far reaching implications. Thus, low involvement of secondary schools in the application of EPMCT in managing projects will not provide, utilize and maintain educational facilities, leading to mass failure and production of half baked secondary school graduates.

Unless secondary schools are highly involved in identification of priority education projects, State governments will waste huge sum of money on projects that are not priority to the schools. The ability of the planning divisions of the Ministries of Education to prepare feasible projects will lead to the management of viable and practical projects which may not be abandoned.

Another implication of the findings is that if secondary schools are not highly involved in the application of all the stages of EPMCT, adequate educational facilities for teaching and learning may not be provided, utilized and maintained. They should be in the implementation team so that proper execution of the projects can be done according to specification.

One other very important implication of the finding is that evaluation of the utilization of educational facilities should highly involve secondary schools so that the planning divisions of the Ministries of Education will execute projects which can properly be utilized. Educational facilities that are under utilized will be a waste to the State Secondary Schools.

Another implication of the finding is pertaining sustainability of maintenance of educational facilities. Secondary Schools are highly involved in maintaining educational facilities through qualified personnel to avoid malfunctioning and under utilization of the facilities.

### 5.3 **CONCLUSION**

This study concluded that secondary schools were not highly involved in the application of all the stages of EPMCT to provide, utilize and maintain educational facilities in their schools in North Eastern Zone. The research questions 1, 3, 4 and 5 had low involvement through a cut off grand mean of below 2.5 of response scale on each item of the questionnaire and hypothesis 1,2,3,4,5 were also rejected on 0.05 level of significance. Secondary schools were lowly involved in the sustainability of maintenance of education projects as rejected by hypothesis 5. As end users, secondary schools understand how best to identify, implement,

evaluate and sustain education projects for teaching and learning. They evaluate and sustain educational facilities projects for their usage.

The planning divisions of the Ministries of Education as managers of educational facilities projects is highly involved in all the stages of application of EPMCT especially preparation of feasible education projects effectively. Research question 2 was accepted on cut off grand mean of above 2.5 of response scale on items of the questionnaire and hypothesis 2 was accepted on 0.05 level of significance. The application of EPMCT by the planning divisions of the Ministries of Education has not led to the availability of educational facilities because secondary schools were not highly involved. Fifty (50%) and above of respondents who responded to the majority of checklist of educational facilities as not available in secondary schools was used.

#### **5.4 RECOMMENDATIONS**

The following recommendations which came out of the findings of the study and their implications are as follows:

1. Secondary schools in the north eastern Nigeria should be highly involved through consultation in the identification of priority education projects to avoid the ones that are not a priority to the schools.

2. The planning divisions of the Ministries of Education should be highly involved in preparing project proposals for the preparation of feasible education projects to make them viable and practicable.
3. Secondary schools should be highly involved in the implementation team for implementation of education projects so that it can be executed according to specification.
4. Secondary schools should be highly involved in the monitoring and evaluation team to evaluate utilization of education projects to make them functional and utilized.
5. Secondary schools should be highly involved in sustainability of maintenance of education projects by generating income to principals and teachers for continuous existence and utilization.
6. The planning divisions of the Ministries of Education should highly involve secondary schools in all the stages of EPMCT on the management of education projects to make such facilities available in secondary schools in North Eastern Nigeria.

## 5.5 **Suggestions for further study**

The following topics have been suggested for investigation in order to carry out further studies on implementation of EPMCT.

1. The study should be carried out to cover a wider area preferably the whole of Nigeria.
2. Assessment of the implementation of EPMCT on the management of education projects in tertiary institutions in North Eastern Nigeria.
3. Assessment of the implementation of EPMCT on the management of UBE projects in primary schools in the North Eastern zone.
4. Strategies for implementing EPMCT in the management of education projects in secondary schools in the North Eastern zone.
5. Problems of the implementation of EPMCT in the management of education projects in secondary schools in the North Eastern zone.
6. Funding the implementation of EPMCT on the management of educational facilities projects in secondary schools in the North Eastern zone of Nigeria.

## 5.6 **Limitation of the Study**

This research was subject to limitation of wide coverage of the North eastern zone which took longer time to administer and retrieve the questionnaire from the respondents.

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## APPENDIX A

### Letter to respondents

Department of Science Education  
School of Technology & Science  
Education  
Federal University of Technology,  
Yola,  
Adamawa State, Nigeria.

June 2007.

Dear Respondent,

I am undertaking a research on the application of Education Project Management Cycle Technique on the management of education projects in secondary schools by the planning divisions of the Ministries of Education in North Eastern Nigeria and hereby request your assistance in filling the attached questionnaire to enable the realization of the study objectives.

The information you are providing will be kept very confidential and would be used strictly for the research work. May I please inform you that the success of this research depends very much on your cooperation as you response to each of the questionnaire items.

Thank you.

Yours Sincerely,

**Kabiru Mohammed Badau**

## APPENDIX B

### APPLICATION OF EDUCATION PROJECT MANAGEMENT CYCLE TECHNIQUE ASSESSMENT QUESTIONNAIRE (AEPMCTAQ) FOR ASSESSING THE APPLICATION OF EPMCT BY THE PLANNING DIVISIONS OF THE MINISTRIES OF EDUCATION ON THE MANAGEMENT OF EDUCATION PROJECTS IN SECONDARY SCHOOLS IN NORTH EASTERN NIGERIA

#### **SECTION-A (Bio- data to be completed by all respondents)**

1. Please indicate by ticking ( $\checkmark$ ) in any of the five boxes whether you are an Educational planning specialist ( ) Non Educational planning specialist ( ) Teacher ( ) School maintenance personnel ( ).
2. If you are a teacher indicate whether you hold any administrative position. principal ( ) vice-principal ( ) senior master ( ) Head of department ( )

#### **SECTION – B (To be completed by School Administrators and Teachers) INSTRUCTION**

Please indicate the degree of involvement by ticking ( $\checkmark$ ) any of the columns labelled “NI” to “AI” on the involvement of secondary schools in identification of priority education projects by the planning divisions in their schools. Please note that your response scale will be as follows:-

- NI = Never Involved
- RI = Rarely Involved
- OI = Occasionally Involved
- FI = Frequently Involved
- AI = Always Involved

S/No.	ITEMS	NI	RI	OI	FI	AI
	<b>Identification of priority education projects</b>					
	Secondary Schools are involved by					
3.	Considering priority projects.					
4.	Collecting documents in the schools.					
5.	Contacting the schools.					
6.	Interviewing school administrators and teachers in schools.					
7.	Considering education policy.					
8.	Considering problems of the schools.					
9.	Consulting students.					
10.	Considering population of the schools .					
11.	Considering high rate of drop out .					
12.	Dialoguing with the schools .					
13.	Considering enrolment in the schools .					

**SECTION – C (To be completed by Educational Planning Specialists and Non Educational Planning Specialists)**

Please indicate the degree of involvement by ticking (  $\checkmark$  ) any of the columns labelled “NI” “RI” “OI” “FI” “AI” on involvement of Educational Planning Specialists and Non Educational planning specialists in preparation of feasible education projects by the planning divisions in the secondary schools. Please note that your response scale will be as follows:-

NI = Never Involved

RI = Rarely Involved

OI = Occasionally Involved

FI = Frequently Involved

AI = Always Involved

	<b>Preparation of feasible education Projects</b>	<b>NI</b>	<b>RI</b>	<b>OI</b>	<b>FI</b>	<b>AI</b>
	The planning division of Ministry of Education is involved in:					
14.	Preparing project proposals.					
15.	Formulating projects.					
16.	Confirming the selection of all the preferred projects .					
17.	Conducting educational feasibility study .					
18.	Conducting financial feasibility study .					
19.	Presenting the feasibility report to Ministry of Finance.					
20.	Presenting feasibility report to ETF or other national funding bodies.					
21.	Negotiating with ministry of finance or donor agencies.					
22.	Considering several options to balance cost and effectiveness.					
23.	Considering the desirability and practicability of projects.					
24.	Preparing cost estimates/bills of quantities.					

**SECTION – D (To be completed by Educational Planning Specialists, Non Educational Planning Specialists, School Administrators and Teachers)**

Please indicate the degree of involvement by ticking (√ ) any of the columns labelled “NI” “RI” “OI” “FI” “AI” on the involvement of secondary schools in the implementation of education projects by the planning divisions in the schools. Please note that your response scale will be as follows:-

- NI = Never Involved
- RI = Rarely Involved
- OI = Occasionally Involved
- FI = Frequently Involved
- AI = Always Involved

	<b>Implementation of education projects.</b>	<b>NI</b>	<b>RI</b>	<b>OI</b>	<b>FI</b>	<b>AI</b>
	Secondary Schools are involved in:					
25.	Proper supervision in the schools.					
26.	Implementing with the ministry of Works .					
27.	Preparation of implementation of educational facilities projects.					
28.	Timely completion of educational facilities projects in the schools.					
29.	Financing implementation through state and national budgets in the schools .					
30.	Funding implementation by donor agencies like (UNDP, WORLD BANK, UNICEF) in the schools.					
31.	Funding implementation through local communities (PTA and old boys association) in the schools.					
32.	Prudent Management of financial resources.					
33.	Awarding of implementation to competent contractors.					
34.	Implementation of procurement and purchase projects.					
35.	Implementation to improving the management of the schools					

**SECTION – E (To be completed by Educational Planning Specialists, Non Educational Planning Specialists, School Administrators and Teachers)**

Please indicate the degree of involvement by ticking (√) any of the columns labelled “NI” “RI” “OI” “FI” “AI” on the involvement of secondary schools in the evaluation of the utilization of education projects by the planning divisions in the schools. Please note that your response scale will be as follows:-

- NI = Never Involved
- RI = Rarely Involved
- OI = Occasionally Involved
- FI = Frequently Involved
- AI = Always Involved

	<b>Evaluation of the utilization of education projects.</b>	<b>NI</b>	<b>RI</b>	<b>OI</b>	<b>FI</b>	<b>AI</b>
	Secondary Schools are involved in:					
36.	Monitoring utilization through school Administrators.					
37.	Monitoring utilization through management information system.					
38.	Solving potential or actual problems of utilization.					
39.	Evaluation of resources utilized and results obtained for utilization.					
40.	Ongoing evaluation of the functional performance of equipments.					
41.	Evaluation of the utilization of classroom facilities in the schools.					
42.	Evaluation of the effective utilization of school furniture.					
43.	Evaluation of the utilization of quality textbooks and other teaching materials.					
44.	Evaluation of the utilization of sports facilities.					
45.	Retrospective evaluation of the utilization of office facilities.					
46.	Retrospective evaluation of utilization of school buildings.					

**SECTION – F (To be completed by School Administrators, Teachers and School Maintenance Personnel)**

Please indicate the degree of involvement by ticking (√) any of the columns labelled “NI” “RI” “OI” “FI” “AI” on involvement of secondary schools in the sustainability of maintenance of education projects by the planning divisions in the secondary schools.

Please note that your response scale will be as follows:-

- NI = Never Involved
- RI = Rarely Involved
- OI = Occasionally Involved
- FI = Frequently Involved
- AI = Always Involved

	<b>Sustainability of maintenance of education projects</b>	<b>NI</b>	<b>FI</b>	<b>OI</b>	<b>RI</b>	<b>AI</b>
	Secondary Schools are involved in:					
47.	Sustenance of maintenance through principals and teachers.					
48.	Collecting low cost buildings .					
49.	Selecting options in the architectural preparations.					
50.	Generating income for principals.					
51.	Regular sustenance through principals					
52.	Sustenance through qualified personnel.					
53.	Good maintenance programme through the principals.					
54.	Providing favourable classroom environment.					
55.	Consolidating the knowledge of principals and teachers.					
56.	Saving thousands of naira over the life of educational facilities					
57.	Improving students academic achievement.					

58. Give additional information if different from above.

## APPENDIX C

### CHECKLIST OF EDUCATIONAL FACILITIES AVAILABLE THROUGH THE APPLICATION OF EPMCT IN SECONDARY SCHOOLS (TO BE COMPLETED BY SCHOOL ADMINISTRATORS)

Please tick (√) Available or Not available for availability of educational facilities through the application of EPMCT performance in secondary schools on the checklist.

EDUCATIONAL FACILITIES	AVAILABLE	NOT AVAILABLE
<b>SITE FACILITIES</b>		
Land		
Source of Drinking Water		
Drainage		
Source of Electricity		
Fence		
Toilets		
<b>ACADEMIC FACILITIES</b>		
Classrooms		
Laboratories		
Workshops		
Library		
<b>SPORTS FACILITIES</b>		
Sports Fields		
Courts and track		
Sport Equipment		
<b>ANNEX FACILITIES</b>		
School Vans		
Students Hostel		
Mattresses		
Staff Quarters		
House Furniture		
Dinning Hall		
<b>ADMINISTRATIVE FACILITIES</b>		
Administrative Offices		
Staff Offices		
School Clinics		
Examination Halls		
<b>SCHOOL FURNITURE</b>		
Chairs and Tables for Teachers		
Chairs and Tables for Students		
Benches and Desks		
<b>TEACHING FACILITIES</b>		
Textbooks		
Notebooks		
Record Books		
Rulers		
Chalks		
Chalkboard		
Cardboard		
Computers		

## APPENDIX D

THE FEDERAL UNIVERSITY OF TECHNOLOGY, YOLA  
DEPARTMENT OF SCIENCE EDUCATION

May 25, 2005.

Dear Sir/Madam

### **REQUEST FOR ASSISTANCE TO VALIDATE QUESTIONNAIRE**

I am undertaking a research for Post-graduate programme at the Department of Science Education, Federal University of Technology, Yola. The title of the research is "**The Application of Educational Project Management cycle Technique on the Management of Education Projects in Secondary Schools in North Eastern Nigeria**". The attached is a questionnaire designed to collect data needed for analysis.

As an expert in validation, you are please, requested to:

1. examine the language and clarity of the questionnaire items.
2. assess the appropriateness of the questionnaire to collect the needed information from Educational Planning Specialists and Non Educational Planning Specialists of the Planning divisions of the Ministries of Education, School Administrators, teachers and school maintenance personnel and make suggestions.
3. assess the extent to which the questionnaire items cover the subject matter and make suggestions.
4. determine the adequacy of the Specified Standards for use in the North Eastern States.

Please, write Yes or No in the margin against each item to indicate your agreement or disagreement with the appropriateness of the item.

You are also requested to point out mistakes in the grammar and framing of the language as well as involvement indicated in Education Project Management Cycle technique stages. Any other suggestions that will enable the subjects to respond intelligently will be accepted.

Thank you,

Sincerely,  
**Kabiru Mohammed Badau**