



## Tertiary Education Project Management in University of Benin, Nigeria: Potentials for Artificial Intelligence Infusion

KATE OGHENERUNA IDEHEN, MONDAY IMUETINYAN IMAKPOKPOMWAN  
University of Benin, Benin City, Nigeria

**Abstract.** The purpose of this research was to investigate tertiary education project management with artificial intelligence with the view of revolutionalising its processes in Nigerian universities. The phenomenon was investigated in the University of Benin, Benin City. Three research questions were raised that guided the study, descriptive survey research design of the ex-post-facto type was adopted, the population comprised all the faculties and institutes in the university. All the faculties and institutes were sampled to ensure adequate coverage. The instrument used was a checklist titled Project Initiated and Executed Checklist (PIEC). Data collected were analysed with the use of descriptive statistics. Findings revealed that the number of education projects initiated in University of Benin between 2020 to 2024 was fifteen (15). Some of the projects have been completed while others are still on-going, nine (9) of the initiated projects were executed within the time frame in the university between 2020 to 2024. Also, six of the education projects are yet to be completed. The study concluded that 60% of education projects were completed within the time frame while 40% are still on going in University of Benin. The study recommended that all education projects should be executed within the stipulated time frame to avoid cost overrun and wastages since resources are limited. In addition, project managers should investigate any other factors that can improve on execution of education projects within the time frame.

**Keywords:** Revolutionalising, Tertiary Education, Project, Management, Artificial Intelligence.

### 1. Introduction

Tertiary education is that level of education after secondary education which comprises of universities, colleges of education, polytechnics, monotronics, specialized education among others. It serves as an instrument for national growth, human capital development, entrepreneurship, skills and knowledge acquisition. Tertiary education also prepares the individual for social and cultural development because its recipient may be involved in social cohesion, cultural enrichment, public health, research and innovation which certainly will bring about economic development, poverty reduction and increase in employment opportunities for the development of nations.

The goals of tertiary education as stated in the National Policy of Education (2013) is to contribute to national development by training high level manpower, intellectual capacity of individuals that will help them to understand and appreciate their local and external environment. In addition, to promote technological advancement through research and teaching. It encourages civic engagement, political awareness, reduction in poverty and inequality in the society.

To achieve these goals efficiently and effectively, tertiary education requires projects and systematic management. Through policies, plans and programmes, government aimed to achieve its goals for education. Hence it institutes projects to actualize its goals for education within a stipulated period of time. UNESCO (2010) classified education projects into physical projects, curriculum and textbooks projects, training projects and management projects. According to UNESCO (2010) Physical projects includes infrastructural construction, equipment and

materials. Curriculum and textbooks projects include the production and procurement of books, school manuals, teachers guide, education aids, curriculum and textbook development and pilot projects. On the other hand, training projects includes training the trainers and teachers which includes pre-service, in-service and mentorship, while management projects in education includes capacity building in general management of systems of education, development of education information management systems and the like.

A project can be seen as a commitment that involves investment of human and material resources, fiscal and time towards attainment of goals within a limited time with the aims to benefit both economic and non-economic now or later under certain uncertainties (Nwadiani 2010). In his contribution, Enaigbe (2021) defined a project as an important and carefully planned piece of work that is intended to build or produce something new or to deal with a problem. An education project is intended to resolve an issue in the field of education. For instance, a building project involving an ultra-modern hostel accommodation for students would be aimed at providing students with accommodation as a result of increase in enrollment. All these activities involve investment with time limit to complete and are usually situated in a specific location. A project is also seen as a series of tasks that has a definite beginning and end, that requires expenditure of resources that must be completed in order to achieve the goals and objectives that were stated. It is capital investment using resources to provide and develop facilities for the provision of goods and services which involves planning, financing, organizing, implementation and evaluation.

Education project management involves systematic planning process that uses scarce resources within a specified time with the aim of providing some economic returns in future. Hence, it is capital intensive when completed would ultimately provide goods and services to the satisfaction of end users. These variables have to be considered by the project management team to avoid project overrun and ensures project feasibility and viability. Imakpokpomwan (2021) stated that management is the deliberate efforts made towards the provision and utilization of human, physical and fiscal materials for the actualization of stated goals within set time frame. For education project to be implemented all the needed resources must be made available and the time frame must be stated otherwise the project may become an abandon one or project overrun in terms of cost and time. Badau (2017) postulated that education project management as the planning, organising, directing and

controlling of tasks with the rare resources of knowledge and people to attain stated result in the education system. In like manner, Imakpokpomwan (2024) defined education project management as the application of management processes, procedures and principles in resolving certain temporary task designed to serve some identified specific needs in education sector. Certainly, education projects require sustainability hence the maintenance of the procured project must be planned along other variables at the conception stage. This also involves managing and utilization of the scarce resources bearing in mind the cost and benefit, time resources, risk and uncertainty that surrounds a project in order to prolong its life span. The goal is to complete a project for the services of education for a long time.

In Nigeria, many uncompleted projects dots the landscape of the education. For example, Amzat (2018) investigated Universal Basic Education (UBE) projects in four states in Nigeria discovered that some school projects were not completed, although the actual project cost had been settled. This scenario needs a revolutionalising for project initiated for education to serve its purposes. Revolutionalising education project management requires a dramatic and radical change that could influence the way projects are executed. It requires a change that could impact on the institution's belief, attitude and ways of executing education project especially in tertiary institutions. A call for a fundamental change in the way of thinking, mindset, paradigm shift and innovation in application of technology in executing education projects. The shift should be capable of changing the types and ways technology can ensure project execution on time but must not lose focus on scope, quality, time and cost effectiveness. Revolutionizing tertiary education project call for radical reduction in project cost overrun and abandonment of school projects. Imakpokpomwan (2024) discussed the project overrun which is either cost overrun or time overrun. It's a factor of inability to complete the project as schedule. Ikechuchwu & Emoh (2017) reported in their study that cost overrun will result to wastage of educational resources and also in projection execution as well in tertiary education. Education project may suffer if it is not benefiting from strong monitoring and evaluation processes. An emerging technology that could be handy in minimizing the contemporary issues in education project management is Artificial Intelligence (AI). It refers to simulation of human intelligence into machines that are programme to think and learn like humans. It has the potential to transform education project through effective implementation, monitoring and evaluation for efficiency in the education system.

Artificial intelligence has been described as capable of revolutionizing industries including education (Fellicetti, et al, 2024, Feng & Qinglun, 2024, Savio & Ali, 2023). Project management in education could benefit from the advent of the AI in many ways. According to Ruiz, 2020, artificial intelligence could function in project human resources classification, in project management as well as assisting the application for maintenance schedule and operations. It is expected to also assist in the area of forecasting and optimization (Savio & Ali, 2003). in developed world where AI has been deplored to the service of education, there are positive influence on the way things are done for the improvement in educational services.

### 1.1 Statement of the Problem

The major function of tertiary education is to train, up-skills and develop the human resources of the nation to a higher manpower level so that the beneficiaries could obtain valuable knowledge, values, skills, techniques and innovation to execute their works efficiently. To achieve this goal, a lot of education projects have to been completed as scheduled. Are there education projects being initiated at the University of Benin in spite of the tight economy of the nation in recent times, could it be real that some of the projects in a federal university like the University of Benin may have not be completed on schedule? To what extent are project initiated at the University of Benin completed within the actual time frame. Could it be true that project overrun may be happening inspite of the tight budget which education institution operates on. What could be responsible for this? This study therefore is to investigate if there is a need to deploy Artificial intelligence in tertiary education project management in Nigeria.

### 1.2 Research Questions

- What education projects were initiated between 2020-2024 in University of Benin, Benin City?

- To what extent are the initiated projects executed within the time frame in the University of Benin, Benin City?
- What proportion of initiated education project exceeded schedule during the period in University of Benin, Benin City?

### 1.3 Purpose of the Study

The main purpose of the study was to investigate tertiary education project management in University of Benin, Nigeria and its potentials for artificial intelligence infusion. Specifically, the study:

- analyzed the education projects that were initiated between 2020-2024 in University of Benin, Benin City.
- determined the extent to which the initiated projects were executed within the time frame in the university.
- found out the proportion of initiated education project that exceeded the schedule during the period in the university.

## 2. Methodology

The study is a descriptive survey research design. The population comprised all the building infrastructure projects initiated for faculties, institutes and administrative units and departments between 2020 and 2024 scheduled to be completed within the period in the University of Benin, Benin City. They were purposively sampled because of its small size to ensure adequate coverage of the investigation subject matter. The instrument used for data collection was a checklist titled Project Initiated and Executed Checklist (PIEC). The content validity was done by showing the instrument to three experts in Educational Planning. Reliability of the instrument was not carried out because the instrument was a checklist which normally does not need a reliability test. The instrument was administered to Physical Planning Division of the University by the researchers and the data collected were analysed using descriptive statistics such as ratio, percentage and a range of 70% as high, 50%-60% moderate high and 50% below low. Data analysis

**Research Question 1:** What education projects were initiated between 2020 and 2024 and scheduled to be completed within the period in University of Benin, Benin City?

**Table 1:** Projects Initiated in University of Benin between 2020 to 2024

S/N	Name of project	Initiation Date	Completion Date	Remark
1	College of Medical Sciences	Jan-2020	Dec-2024	On-going
2	Faculty of Agriculture office complex	Nov-2020	Dec-2022	Completed
3	Optometry building phase I	Nov-2021	Jun-2022	Completed
4	Medical lecture hall	Oct-2021	Oct-2023	Completed
5	Perimeter fence site A & B phase I	Dec-2021	Feb-2022	Completed
6	Medical Science office block	Nov-2022	May-2023	Completed
7	Perimeter fence site A & B Phase II	Dec-2021	Feb-2022	Completed
8	Optometry building phase II	Nov-2022	May-2023	On-going
9	Institute of child health building	Feb-2023	Oct-2023	On-going
10	Medical student hall	Feb-2023	Sep-2023	Completed
11	Clinical equipment in Medical lab	Dec-2022	Jan-2024	Completed
12	Equipment for Engineering	Sep-2023	Jan-2024	Completed
13	Toilet conveniences at bus stop pack main gate.	Nov-2022	Apr-2023	On-going
14	Internal audit building	Sep-2023	Sep-2024	On-going
15	Perimeter fence site A & B Phase III	Sep-2023	Jul-2025	On-going

*Source: Physical Planning Division, University of Benin.*

Table 1 shows that a total number of fifteen education projects were initiated in the University of Benin between 2020 to 2024. They were spread across academic and administrative buildings in faculties, institutes and halls of residence in the university.

**Research Question 2:** To what extent are the initiated projects were executed within the time frame in the University of Benin, Benin City?

**Table 2:** Initiated projects executed within scheduled time frame in the University of Benin.

S/N	Name of project	Initiation Date	Scheduled Completion Date	Remark
1	Faculty of Agriculture office complex	Nov-2020	Dec-2022	Completed
2	Medical lecture hall	Oct-2021	Oct-2023	Completed
3	Perimeter fence site B	Dec-2022	Feb-2022	Completed
4	Medical Science office block	Nov-2022	May-2023	Completed
5	Perimeter fence site A & B	Dec-2021	Feb-2022	Completed
6	Medical student hall	Feb-2023	Sep-2023	Completed
7	Clinical equipment in Medical lab	Dec-2022	Jan-2024	Completed
8	Provision and installation of equipment for Engineering faculty	Sep-2023	Jan-2024	Completed
9	Toilet conveniences at bus stop pack	Nov-2022	Apr-2023	Completed

*Source: Authors calculation based on sources from Physical Planning Division.*

Table 2 indicated that nine (9) of the initiated projects were executed within the scheduled time frame in the university between 2020 to 2024. Thus, 60% of the initiated projects were executed within the time frame, which is moderately high.

**Research Question 3:** What proportion of initiated education project exceeded schedule during the period in University of Benin, Benin City?

**Table 3:** On-going Projects in the University between 2020 to 2024

S/N	Name of project	Initiation Date	Completion Date	Remark
1	College of Medical Sciences Block 24	Jan-2020	Dec-2024	On-going
2	Optometry building phase I	Nov-2021	Jun-2022	On-going
3	Optometry building phase II	Nov-2022	May-2023	On-going
4	Institute of child health building	Feb-2023	Oct-2023	On-going
5	Internal audit building	Sep-2023	Sep-2024	On-going
6	Perimeter fence site A & B	Sep-2023	Jul-2025	On-going

*Source: Authors calculation based on sources from Physical Planning Division*

The data in Table 3 revealed the number education projects ought to have completed between 2020-2024 but yet to be completed in the university. Of the fifteen (15) initiated projects expected to be completed within the period could not be completed. There are six (6) of such projects, thus leading to a proportion of 40% that was not completed on scheduled which is also considered low.

### 3. Discussion of Findings

Findings in research question one indicated the education building projects that were initiated in University of Benin between 2020 to 2024. The finding of this study has shown that some of the projects were completed while others were on-going. This finding is in line with Amzat (2018) who investigated Universal Basic Education (UBE) and found out that some school projects were not completed, although the cost of the project had been settled. In this case, the project owners may not be the problems since funds were said to be released as expected. Other factors including inflation, time, material, policy, legal issues or human resources may negatively affect the completion of the project. In any case, it could lead to project overrun or even abandonment. In as much as the project was not completed as scheduled to service the intended users, it amounted to wastage which should be avoided to barest minimum. Here comes the opportunity to introduce Artificial intelligence to assist the project's completion.

Findings in research question two established that nine (9) of the initiated projects were completed while the remaining ones are on-going. Though none of the project can be said to be abandoned at this stage, it could happen if for a long-time contractor does not move in to complete the work. Ikechuckwu and Emoh (2017) argued that projects not completed on schedule could result in wastage of scarce resources as well as project overrun, if not abandoned. From the findings, 60% completion is not encouraging enough because millions of Naira sunk into the uncompleted projects are not productively contributing to the growth of the national economy since they are idea and hence serving no end users.

Research question 3 revealed that the proportion of the education projects yet to be completed is 40%. A ratio of 3:2 success to failure rate is not good enough for a growing tertiary institution whose teaming population carve for the project.

### 4. Potentials application of Artificial Intelligence in Education Project Management in Nigeria

Kamalov, et, al (2023) argued that Artificial Intelligence could assist in providing customer service and supports for other tasks. The potential application of Artificial intelligence in education project management is still at its infancy stage. In all aspect of project management, from the initiation, Planning, Execution, Monitoring and Controlling, and Closing stages, artificial intelligence can be applied to transform its operation for success. Bento, et al (2022) deduced from a research work that artificial intelligence could be applied in project integration, project scope management, project time management, project cost management, project quality management, project resource management, project communication management, project risk management, project procurement management, project stakeholders' management.

Project management in education organisation is a recent addition to the courses of educational management/administration. In order to promote its study, student would be motivated to embrace all available avenue to study it. Artificial intelligence is one such agency that could promote the learning of education project management in educational institutions. According to Kamalov et, al (2023), the potential application of AI in education includes personalised learning, intelligence tutoring systems, automation of assessment and teachers-students collaboration. Courses in Education Project Management can be promoted with the application of AI even for inclusiveness.

Big data and machine learning are recent addition to the knowledge economy and the learning industry. Artificial intelligence is known to be enhancing their adaptation to many sectors and education project management is not isolated. It could be used for policy marking and monitory education projects by utilizing the most effective artificial intelligence tools

### 5. Conclusion

Based on the findings of this study, it was concluded that 60% of education projects were completed within the time frame while 40% were not completed on schedule in the University of Benin between 2020 to 2024. This study buttresses the fact that for every project to succeed all the needed factors must be put in place. The failure to do so could delay project completion. There is the need to deploy artificial intelligence to analyse data in order to assist in

identifying the cause/s of the failure as well as to arrest the situation in any other projects henceforth.

## 6. Recommendations

From the findings of this study, the researcher recommended that all education projects should be executed within the stipulated time frame to avoid cost overrun and wastages since resources are limited. In addition, project managers should be conversant with Artificial Intelligence and capable of exploring its usage in order to improve the execution of education projects within the time frame. Artificial intelligence should be deployed from the project conception stage to alert stake-holders on areas of risk and possible cause of a failure for all concerned to plan out how to avoid the pitfalls. If completed project must be durable, artificial intelligence should be explored to programme scheduled maintenance. Upon failure to do so as expected, Artificial Intelligence should raise the alarm that the building project is in danger for all human elements and materials to be safeguarded.

## References

- Amzat, A. (2018). How contractors fleece government in Universal Basic Education School Project contracts. *The Guardian*. May 1, 2018
- Badau, K., M. (2017). *Project Management in Education: Tools and Techniques*. Mauritius: Laplabert Academy Publishers.
- Benta, S., Pereira, L., Goncalves, R. Dias, A. (2022). Artificial Intelligence in Project Management: Systematic Literature Review. *Int. Journal of Technology, Intelligence and Planning* 13(2) 143-163.
- Brent, S., (2024) The top eight benefits of higher Education for our society. <https://umb.edu>.
- Enaigbe, P., (2021) *Project management in Education*. Educational Management Digest. Benin City. Ambik Press.
- Feng, T., & Qinglun, L., (2024). Artificial intelligence in educational management: Opportunities, challenges and Solutions. *Frontiers in Business, Economics and Management* 16(3) 49 - 54.
- Imakpokpomwan, M., I. (2021). *Project Management in Education*. Educational Management Digest, Benin City. Ambik press.
- Imakpokpomwan, M., I. (2024). managing education projects in Nigeria: Conceptualization and Contemporary Issues. *National Open University of Nigeria Journal of Education (NOUNJE)* Vol 10 183-198.
- Kamalov, F. Calonge, D., S. & Gurrib, I. (2023). New Era of Artificial Intelligence in Education: Towards a sustainable multifaceted revolution. *Sustainability*. <https://doi.org/103390/su151612451>.
- Nwadiani, M., (2011) *Economics dimension of Educational Planning in Nigeria. Theory and Practice*. Benin City. Monose Almagamates.
- Kamalov, F., Savio, R., D. & Ali, J., M. (2023). artificial intelligence in project management and its future. *Saudi Journal of Engineering and Technology*. 8 (10): 244-248. <https://saudijournals.com>
- Ruiz, J. G. Torres, J. M. & Crespo R. G. (2020). The Application of Artificial Intelligence in Project Management research: A Review. *International Journal of Interactive Multimedia and Artificial Intelligence*
- UNESCO-IIEP (2010). *A guidebook of planning education in emergencies and reconstruction*. International Institute for educational planning. Paris. [www.iiep.unesco.org](http://www.iiep.unesco.org)