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# Development and Incorporation of Technologies for Operative Execution of Project Based Learning in Colleges of Education in Ogun state, Nigeria

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## Abstract

The study explored the development and incorporation of technology in Colleges of Education as a method for effectively implementing project-based learning in Ogun State's colleges of education. The design was descriptive. This study's population comprised of 1,345 teaching staff from Ogun State's two (2) institutions of education, with 785 males and 560 females. The Sikiru Adetona College of Education, Science, and Technology, Omu-Ijebu and the Federal College of Education, Abeokuta are both educational institutions. The study's sample size was 480 participants, with 242 male and 238 female teaching personnel taken from the community applying a stratified random sampling approach. A questionnaire was utilized to collect statistics, and the test-retest Cronbach's Alpha was used to yield a consistency value of 0.84. To answer research questions, the data was reviewed using mean values. The Z-test was used to test hypotheses with a significance level of 0.05. The findings demonstrated that connecting Colleges of Education's vision with the objectives of comprehensive incorporation of the project. Leaning into the system, providing the appropriate communication networking infrastructures, and adapting curriculum designs to be deliverable through project learning mode are all critical methods to integrating project-based learning into the College system. College administrators should seriously consider the advantages of project-based learning in the college arrangement, with the goal planning to support the integration of learning innovation into the conventional face-to-face teaching and learning strategy to increase scholars' educational knowledges and accomplishments. The significance of the research for teachers and similar Colleges of Education to improve learners learning and motivation, also to educators for quality teaching practices.

**Keywords:** *Projecting, Incorporation, Skills, project-base Knowledge, Colleges of Education.*

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## Introduction

The goal to enhance students' teaching and learning experiences has remained a top priority in policy discussions on how to improve curriculum implementation strategies for quality and sustainability in higher education. To address this, scholars and educationalists have drawn on Greg and Ben's engagement theory to advocate for the diversification of learning approaches, as well as the need for teachers to use activity-based learning methodologies in teaching-learning settings, which outperform the traditional face-to-face lecture method (Ali, 2019). This is congruent with the idea that teaching and learning are so inextricably linked that they may be compared to a coin with two sides; it is thus hard to describe one without addressing the other. The main contrast between them is that while the instructor teaches, the student learns. (Akharazz, 2021).

Al Mulhim (2020) discovered that learning occurs through observation, exercise, skill adaptation, and attitude modification, culminating in behavioural change. This meant that learning extends beyond watching and hearing; it involves physical actions in which students employ their cognitive capabilities in manipulating things to acquire facts and ideas with which to develop and solidify knowledge. This position is congruent with the assumptions of Vygosky's constructivism and Piaget's cognitivism theories of human learning processes, which assert that people construct meaning from objects, actions, and experiences in their surrounds (Lu, 2020). Environments in this context are not limited to the external conditions of learners' surroundings, because learners' internal environments, such as psychosocial and subconscious constructs, heavily influence how individuals reflect on their experiences, held beliefs, and opinions, which governs how they reconcile new experiences with previous ones to construct new knowledge. Keeping this perspective in mind, professors are considered as facilitators of knowledge growth, as opposed to the traditional lecture method, which considers lecturers as knowledge repositories and distributors, (Ekhmimi, 2018).

Although lectures have long been the most popular teaching method in higher education institutions, face-to-face interaction between professors and students is essential. The lecture technique encourages students to sit and listen passively, take notes on major points made by the speaker, provide little or no input during lectures, and expect to recall and regurgitate the information during assessments, (Haruna, 2019). Clearly, this technique does not create an atmosphere in which students are engaged in learning activities that accelerate the development of the psychomotor and cognitive skills that university education is recognised for. As a result, it comes as no surprise that many schools of education have initiated programmes to

complement traditional lecture techniques with technology to enrich students' learning experiences and improve their learning outcomes (Changming, 2020).

To put it another way, the development of Information Communication Technologies (ICTs) has broadened the channels via which teaching and learning may take place without constraint. It has not only allowed educators to deliver instructions to remote students, but it has also raised the need for educators to combine multiple learning techniques and approaches to achieve their educational objectives. E-learning, e-education, distance learning, and e-professionalism are examples of ICT-driven innovations in education, as is Project-Based Learning, which is the integration of technologies into instructional processes to enrich both the instructor's and learners' teaching and learning experiences (Saleh et al, 2020, Muhammad et al, 2023).

Project-Based Learning is a new concept with many different interpretations, ranging from incorporating technologies into traditional face-to-face teaching and learning approaches to using multimedia facilities to sustainably stimulate the learning environment and pique students' interest in participating in classroom activities. Zhang, (2022) description of project-based learning as the combination of many instructional modalities to meet learning goals is consistent with this concept. Similarly, Wardat, (2022) believe that Project-Based Learning is the combination of face-to-face teaching methods and technologies to improve overall instructional quality by increasing students' participation in classroom activities to accelerate their comprehension-pace for maximum understanding.

According to the definitions mentioned above, project-based learning is the use of a variety of educational techniques, ideas, concepts, tactics, models, and technologies to facilitate teaching and learning. Technologies in education may be defined as the application of structured knowledge, ICT tools, and machines to increase the effectiveness of teaching and learning. Live blogs and chatrooms, message boards, discussion platforms, virtual communities, social media tools (such as Facebook, Twitter, YouTube, etc.), synchronous videoconferencing and calls, instant messaging, webinar, applications, online forums, and web-based tutorials using e-devices such as mobile phones, computers, projectors, and other audio-visual gadgets with data. According to Xiaole (2021), project-based learning includes various aspects of e-learning and online learning innovations to enhance the traditional face-to-face teaching style, with the goal of increasing the quality of teaching and learning so that educational experiences are engaging, exciting, and thorough.

The face-to-face component of Project-Based Learning integrates both teacher- and learner-centered methodologies; however, the e-learning and online components of the learning

innovation display synchronous and asynchronous qualities in practice. According to Xialoe (2021), synchronous project-based learning happens when teaching and learning take place online using tools such as webinars, videoconferencing, or other real-time exchanges between students and teachers (Manoj, 2022). Asynchronous project-based learning is when ideas and learning resources (including recorded films, audios, and digitalized e-books) are exchanged and downloaded for offline learning via computers, cellphones, and other devices such as projectors, optical discs, and flash drives. According to Mark (2022), the e-learning component of Project-Based Learning enables students and instructors to develop e-platforms on which professionals, cohort and focus groups, students, and lecturers can interact, share information, exchange scholarly ideas, and challenge theories, ask questions, and receive feedback while on the go. This combination of technology and face-to-face instruction goes beyond making learning exciting and pleasurable because it captures learners' attention and sustainably inspires their participation in classroom activities, resulting in an increase in understanding and knowledge retention rates that would be difficult to achieve with lecture alone (Migdad, 2022, Anulika et al, 2023).

Hamad et al (2022), on the other hand, observed that many studies on project-based learning share a common framework and contextual complexities that frequently inadvertently puncture their findings, some of which include the archetypical characteristics of those studies and, to a lesser extent, an overreliance on circumstantial interpretation of the results. For example, Jina (2022) observed that slow learners learn better when conventional techniques are used, but exceptional students learn quicker when technology is combined with traditional classroom teaching. According to Ruiz (2021), one of the most significant challenges in Project-Based Learning is determining appropriate instructional designs for individual courses, as well as digitising curriculum content and instructional resources in a way that accommodates learners' diverse needs and self-directed learning.

Nonetheless, there are multiple examples of considerable academic progress among students who have been taught through Project-Based Learning (Adams, 2019). Project-based learning is distinguished by its capacity to combine diverse mediums to explicate, emphasise, and analyse concepts and objects, hence improving students' clarity, understanding, and learning outcomes (Chan, 2020). This suggests that project-based learning might be used to overcome the many learning obstacles encountered by many slow learners (Rees, 2019). According to Adedigba (2020), project-based learning allows educators to engage in live discussions with students, connect them to relevant online learning resources, and provide guidance on strategies

for searching and accessing both online and offline materials to deepen disciplinary knowledge and broaden intellectual horizons, resulting in improved academic and career outcomes.

Despite the obvious benefits, Nigerian colleges of education look cautious and uncertain when it comes to incorporating project-based learning into their university system. According to Carrillo (2020), the National Open University of Nigeria (NOUN) study centre in Owerri, Imo State, experienced several challenges when implementing project-based learning. These obstacles included a dearth of computer skills among undergraduates, as well as a scarcity of ICT equipment like as working on computers, projectors, and dependable network access for distant learning. Furthermore, Alshahrani (as reported in Sambo et al, 2020) emphasised the considerable difficulty given by instructors' digital competencies and students' preparedness to engage in long-term independent scholarship within the context of project-based learning. The researcher emphasised that inadequate planning and implementation were important contributors to the approach's shortcomings (Bruno et al, 2022). These findings highlight the critical need of careful preparation for Project-Based Learning prior to its implementation.

Planning entails defining activities ahead of time, as well as developing programmes and a sequence of implementation to reach specified aims and goals. It also entails preparing to mobilise the limited resources required to carry out these programmes. According Okure, (2018), planning is an intentional and purposeful attempt to identify future activities ahead of time, with the goal of defining programmes that will help accomplish desired results. Oluwatuyi, (2020), Ukaigwe (2019) define planning as a decision-making process that includes analysing the situation to determine future actions, developing goal-oriented programmes, breaking them down into tasks, and scheduling these tasks in a logical and cost-effective order to achieve set goals.

The first element of incorporating Project-Based Learning into the university system is to create a Project-Based Learning Guide that is consistent with the institution's vision and purpose statements. This guidance should be simple to understand for members of the university community, as well as consistent with the overarching national goals for university education. The initial managerial duty is critical in the planning process. During this stage, the school leadership should inform the university community and important external stakeholders about the importance and advantages of project-based learning for students, lecturers, and national growth. This awareness generation is critical because it involves the participation of the whole school system and external help to properly design, implement, and integrate project-based learning (Marek, 2021).

According to Mark (2021), the process of school-based planning needs the participation of numerous stakeholders inside the institution. These stakeholders should include educational planners, administrators, curriculum developers, digital content designers, lecturers, digital technologists, web developers, instructional managers, technicians, competent architects, student reps, and other relevant professionals. The goal of this assembly is to discuss and reflect on the integration of technology and face-to-face teaching techniques. The group of planners must be managed by an experienced educational manager with expertise in digital education and administration. This individual will oversee coordinating with committees of specialists who will handle various elements of the planning process, such as fact-finding duties, (Ukaigwe, 2020). According to Flores (2020), these committees act as consultative entities for planners, offering essential data and information to influence debates and decisions. This information is critical in establishing unit costs, operating expenses, and maintenance costs, all of which are required for successful plan execution. Other expenditures to consider include resources for programme monitoring, system maintenance, technical support services, follow-up exercises, performance evaluation activities, and feedback (Alizade, 2019).

Behima (2021) emphasised the need of strategic planning in procuring standardised communications infrastructures, instructional facilities, and equipment to support a project's successful implementation and sustainability. These facilities must fulfil the functional criteria for instructing certain courses in a project-based learning setting. As a result, planners must guarantee that both the staff and the facilities fulfil the required quality and quantity requirements, technological specifications, and accommodate to students' different demands.

In addition, Hafeez (2021) emphasised the need of incorporating engineers and architects in the building design process. Their knowledge is essential when evaluating variables such as student population, space needs, and installations to improve the learning environment's aesthetics, brilliance, safety, and security for both staff and students. To implement such a comprehensive strategy, institutional leadership must give steadfast support from the start. This includes the timely release of budgeted funds to facilitate the procurement and installation of critical infrastructures such as electricity, equipment, and ICT facilities such as internet connectivity, satellite dishes, Wi-Fi, laptops, desktop computers, projectors, televisions, electronic boards, books, and other learning resources (MacLeaod, 2020).

According to Makeeva et al (2020), the implementation of Project-Based Learning in a university necessitates a thorough assessment of the institution's staffing requirements. This assessment should consider the staff's quality and strengths, as well as their competencies and

training needs. Identifying these needs allows the institution to make the required preparations to address concerns linked to staff continuous professional development (CPD). This will guarantee that both current and future employees get the necessary skills in information and communication technologies (ITCs) and pedagogy, which are required for effectively combining diverse forms of learning.

Furthermore, Ngu et al (2021) emphasise the need of collaboration among planners and professionals in website development, software engineering, and digital design. This partnership is critical in developing solutions to digitise instructional content. This allows students to not only view online resources published by their teachers, but also download them using their unique login credentials. Furthermore, the researchers recommend that control managers such as Deans of Faculties and Heads of Departments (HOD) oversee the execution of these plans. These managers may designate personnel to help them supervise implementation in their areas of responsibility. Furthermore, senior managers can plan monthly meetings with middle-level managers to examine progress reports and get input on the acceptance, efficacy, and efficiency of project-based learning (Min Lu et al, 2023).

Revelle (2020) emphasised that the effective deployment of Project-Based Learning in the school system is strongly reliant on the availability of a complete and synchronised student database. This database allows university officials to readily identify and contact with students and parents as needed, as well as record and publish continuous assessment scores on the authorised school website. To accomplish this, it is critical to have dependable technological infrastructures in place, such as a strong communication network, broadband services, computer hardware and peripherals, as well as applications and digital platforms that provide students with access to a variety of educational resources. Furthermore, online learning environments must be properly developed and maintained to ensure the preservation of students' and instructors' privacy, dignity, and right to participate.

**Research Problem**

The conventional method of teaching in Colleges of Education, which involves face-to-face lectures, has faced criticism for its inability to bring about the desired behavioural changes in students, particularly in terms of practical skill development. This lecture-based approach lacks opportunities for meaningful interaction between learners and instructors, leading to a passive learning experience. Moreover, it restricts learners from actively exploring the information presented to them. In contrast to more successful activity-based learning techniques, the lecture

method does not give instructors with the essential reflective space to engage in higher-order thinking and cognition during instruction, limiting the development of practical skills among university graduates. As a result, many graduates lack marketable skills with economic value in the labour market, exposing the conventional face-to-face education method's inability to produce skilled individuals capable of contributing to national growth.

Recognising the limits of the old approach, several colleges of education are striving to use technology into face-to-face instruction. However, these attempts have generally failed owing to several issues, including poor communication networks, a lack of power supply and e-learning facilities, and insufficient digital skills among both instructors and pupils. These issues can be attributable to ineffective planning. As a result, the researchers performed a study to investigate the integration of project-based learning into the university system, using planning as a major instrument to solve these challenges.

**Research Aim and Purposes**

The goal of this study was to examine the techniques for implementing project-based learning into established practices in colleges of education, using organisation as a tool. More specifically, the study aimed to:

1. Identify ideas for better integrating project-based learning into the College of Education framework.
2. Determine how excellent planning might help integrate project-based learning into the College of Education system.

**Research Questions**

1. How might project-based learning be better integrated into the college of education system?
2. How does the planning process help to integrate project-based learning into the College of Education system?

**Research Hypothesis**

$Ho_1$: Is there a statistically insignificant distinction between the average ratings provided by male and female participants regarding the methods of improving the incorporation of Project-Based learning within the College of Education system?

$Ho_2$: Is there a statistically insignificant difference in the average scores given by male and female participants about how planning facilitates the integration of Project-Based Learning within the College of Education system?

**Research Methodology**

To collect data, the researchers used a descriptive survey methodology. This study's target population consisted of 1,345 teachers from two colleges of education in Ogun State. There were 785 males and 560 female teaching personnel. The research comprised two colleges of education: the Sikiru Adetona College of Education and Science in Omu-Ijebu and the Federal College of Education in Abeokuta. The study's sample size was 480 respondents, including 242 male and 238 female teaching staff from the two colleges of education. The respondents were chosen using a random selection method. Purposive sampling was used for selecting the participants for the study. Purposive sampling is a sampling technique where the researcher selects units to be sampled based on their knowledge or experience.

**Instrument & Data Analysis**

To assemble statistics, a questionnaire called the "Planning and Integration of Technologies for Effective Implementation of Project-Based Learning in Colleges of Education Questionnaire" (PITEIPBLCQ) was employed. The questionnaire was verified and designed in a four-point Likert scale style, with response possibilities ranging from Strongly Agree (SA) to Agree (A), Disagree (D), and Strongly Disagree (SD). To ensure validity of the questionnaire, three experts in the field of Technical and vocational education critically examined the face and content validity of the questionnaire items. To determine the reliability of the questionnaire items Cronbach's Alpha was used to establish the extent of consistency of the items. The reliability coefficient yielded 0.84 which was considered appropriate for the questionnaire to be use. The questionnaire consisted of two components. Section A attempted to collect respondents' demographic data, whereas Section B featured 10 questionnaire items meant to elicit responses relevant to the research aims. The acquired data was analysed using mean and mean-set to answer the study objectives. The choice to accept or reject each item was based on a computation in which the scores of 4, 3, 2, and 1 were added and divided by four, yielding a threshold of 2.5. Items scoring $x > 2.50$ were approved, while those scoring less were discarded. The two hypotheses were examined using a Z-test with a significance threshold of 0.05 alpha.

Semi structured interview protocol was the instrument used to collect qualitative data. The interview protocol was used to obtain in depth data on the instructional strategies adopted in the 2 Colleges of Education and understanding, and the strategies that can be employ for mixing Project-Based Learning in 2 Colleges of Education and learning at tertiary institutes in Nigeria. Qualitative data for the study was analysed using thematic (content analysis) with the help of NVIVO version 12. Themes generated from the interview were coded using axial coding. Both face and content validation of the interview protocol were done by experts. To enhance the trustworthiness and credibility of the interview, member check and peer debriefing was used to establish the reliability of the interview protocol. Respondents and colleagues peer debriefed and checked the transcripts to assess the transcription and was later given to the researcher for analysis.

**Research Results**

**Research Question One**

**Table 1: Mean evaluations of male and female teaching staff on strategies to enhance the integration of project-based learning in the College of Education system.**

| | Items | **Staffing means** | | Sets | Comments |
|---|---|---|---|---|---|
| | | **Male** | **female** | | |
| 1 | Associating the College vision with the objectives of fully integrating project-based learning into the system. | 3.10 | **3.12** | **3.11** | **Agreed** |
| 2 | Provision of needed communication and networking infrastructures. | **3.08** | **3.21** | **3.15** | **Agreed** |
| 3 | Modifying curriculum designs to become deliverable through Project-Based learning mode. | **3.20** | **3.12** | **3.16** | **Agreed** |
| 4 | Preparing instructors and students to acquire digital. expertise required to adapt to Project-Based learning surroundings | **3.09** | **3.23** | **3.16** | **Agreed** |

| | | | | | |
|---|---|---|---|---|---|
| 5 | Developing operative data-based of staff and students to enhance functionality of online virtual communities | **2.79** | **3.14** | **3.00** | **Agreed** |
| | **Mean** | **3.05** | **3.16** | **3.11** | |

The statistics in table 1 show unequivocal agreement on all issues, resulting in high grand mean scores of 3.05 and 3.16 for male and female respondents, respectively. The grand mean-set of 3.11 outperforms the criteria mean score of 2.50, indicating that the itemised statements are effective means for encouraging the integration of Project-Based Learning in the College of Education.

**$Ho_1$**

**Table 2: The Z-test examines the disparity in average ratings between male and female teaching staff regarding the methods used to promote the incorporation of Project-Based learning within the College of Education method.**

| s/no | Staffs | N | Mean | SD | df | z-cal | z-crit | Sig level | Remark |
|---|---|---|---|---|---|---|---|---|---|
| **1** | Male | 242 | 3.05 | 0.69 | | | | | |
| | | | | | 588 | 1.76 | ±1.96 | 0.05 | Not Significant ($H_o$ accepted) |
| **2** | Female | 238 | 3.16 | 0.80 | | | | | |

Table 2 shows that at a significance level of 0.05 with 588 degrees of freedom, the computed z-value of 1.76 is less than the crucial z-value of ±1.96. As a result, there is no statistically significant difference in the average ratings of male and female teaching staff for the approaches used to improve the incorporation of Project-Based Learning within College of Education system.

**Research Question Two**

**Table 3 shows the mean evaluations of male and female teaching staff on how planning helps to integrate project-based knowledge into the College of Education system.**

| | Items' Descriptions | Staff Means | Sets | Comments |
|---|---|---|---|---|

| | | Male | female | | |
|---|---|---|---|---|---|
| 6 | Planning makes ensuring that experts' opinions on pertinent project-based learning topics are sought out and considered. | 3.33 | 3.09 | 3.21 | **Agreed** |
| 7 | Planning helps to evolve goal-directed blueprint for Project-based technologies with lecture method. | 3.16 | 3.28 | 3.22 | **Agreed** |
| 8 | The implementation of project-based learning planning guarantees that the acquisition of standardised instructional facilities takes technological efficiency into account. | 3.00 | 2.96 | 2.98 | **Agreed** |
| 9 | Determining the teachers' learning requirements is aided by planning. | 2.89 | 3.13 | 2.86 | **Agreed** |
| 10 | Planning aids in establishing moral guidelines for creating interactive virtual learning environments and communities. | 3.05 | 3.19 | 3.12 | **Agreed** |
| | **Grand Mean** | **3.09** | **3.10** | **3.11** | |

The results are shown in Table 2, which shows that the computed z-value of 1.76 is seen to be lower than the crucial z-value of ±1.96 at a significance level of 0.05 and 588 degrees of freedom. Thus, the average scores of male and female teachers with respect to the strategies used to improve the implementation of project-based learning in the College of Education system do not differ statistically significantly.

**$Ho_2$:**

| No | Teaching Staff | N | Mean | SD | df | z-cal | z-crit | Sig level | Remark |
|---|---|---|---|---|---|---|---|---|---|
| **1** | Male | 242 | 3.09 | 0.87 | | | | | |
| | | | | | 588 | 0.28 | ±1.96 | 0.05 | Not Significant (Ho admitted) |
| **2** | Female | 238 | 3.11 | 0.84 | | | | | |

The results shown in Table 4 show that the computed z-value of 0.28 is less than the crucial z-value of ±1.96 at 588 degrees of freedom and a significance level of 0.05. Therefore, when it

comes to the average ratings of male and female teachers about how well planning works to integrate project-based learning into the College of Education curriculum, there is no statistically significant difference.

**Discussion**

The examination of the statistics presented in table 1 demonstrated that positioning the visualisation of the College of Education with the goal of fully integrating Project-Based learning into its system, providing the necessary communication networking infrastructure, and adapting the curriculum to be deliverable through Project-Based learning are crucial methods for integrating Project-Based learning into the College of Education system, as indicated by the findings. These findings are consistent with Shumeiko (2021) research, which highlighted the importance of sharing the school's objectives about the incorporation of e-learning with important parties including educators, learners, parents, and others. This collaboration enacted a significant function in supporting the school governance and leadership in developing a design for incorporating technology into the instructional delivery process, resulting in successful outcomes and goal achievement.

Furthermore, the scholar attributed the achieved successes to the support received from the school's direction and the collaboration among managers, educators, and other shareholders involved in the planning and implementation process. Diana et al 2021 also noted that the effective implementation of Project-Based learning necessitates the provision of adequate communication infrastructure and equipment that adhere to established standards. This is since the plan's execution may be hampered by the lack of necessary resources like a power source, computers, and a dependable network system like the internet, LAN, and Wi-Fi (Hussein, 2021). Additionally, this study found that one of the ways for integrating Project-Based learning is to support school personnel and students in obtaining digital skills that enable them to successfully engage in a Project-Based learning conditions.

Another approach involves development a functional database of employees and learners to develop the functioning of virtual communities on the internet. Consequently, that there was no discernible difference in the mean scores between respondents who identified as male and female with respect to improving the integration of project-based learning within the College of Education system is not unexpected.

Thus, these results align with the research achieved by Woenrdi et al (2022), who discovered that the process of planning plays a crucial role in coordinating the implementation of e-

learning in educational institutions. This is primarily because planning enables the allocation of necessary funds for preparing educators on how to effectively utilize and integrate software mechanisms into traditional teaching methods. As highlighted by Almazroui (2022), planning ensures that a specific budget is set aside for this purpose. The findings also support the assertions made by Aksela (2019), who emphasized the significance of training in equipping instructors with the digital skills required to enhance instructional designs and create an engaging learning environment using technology. This includes utilizing illustrations to capture students' attention, incorporating interactive learning activities to promote understanding, and fostering a positive learning experience.

Additionally, the study revealed that effective planning is essential for the successful integration of Project-Based Learning (PBL) in the College of Education system. It ensures that the expertise of professionals in relevant areas of PBL is sought and taken into consideration. Furthermore, planning facilitates the development of a goal-oriented blueprint for integrating technology with traditional lecture methods, while also considering the technical efficiency in the procurement of standardized digital instructional resources.

These findings align with the study directed by Alraje (2021), who emphasized the importance of planning in integrating electronic and online learning technologies (particularly, Project-Based learning) with traditional face-to-face teaching techniques. The academics contended that efficient planning enables educational establishments to rearrange their goals and requirements., thereby establishing a foundation for long-term improvement strategies aimed at the sustainable integration of Project-Based learning into the College of Education system. Additionally, highlighted the benefits of planning and implementing Project-Based learning, as it not only facilitates on-the-go learning for university students but also helps them strike a balance between their academic and professional commitments. The limitation to this study on the other hand, challenges in implementing PBL include faculty resistance and readiness, curriculum design and assessment complexities, and time and resource constraints. It is essential to acknowledge and address the challenges in implementing Project Based Learning to maximize its benefits.

**Conclusion and Implications**

After examining the methods by which Project-Based learning can be incorporated into the conventional teaching approaches within the College of Education system, as well as the ways in which planning can facilitate the integration of instructional technologies, this investigation ultimately asserts that preparation plays a crucial role in augmenting the amalgamation of Project-Based education into traditional instruction procedures, thereby leading to improved learning outcomes for students.

**Recommendations**

Based on the results obtained, the subsequent suggestions were put forward:

1. The administrators of the College of Education should consider the benefits of Project-Based learning within the educational framework. They should prioritize preparing to facilitate seamless incorporation of this innovative culture approach with the conventional in-person instruction and learning methods. This integration will ultimately enhance students' learning experiences and academic accomplishments.
2. The managers of educational institutions should equip instructors with the necessary knowledge and skills to effectively utilize information and communication technologies (ICTs) equipment and facilities. They should also modify the application. strategies of the curriculum to ensure the successful integration of Project-Based learning into the College of Education system.

**Suggestions for Future Research**

The results indicated that Project Based Learning engage students in learning. Thus, the findings of this research approve the acceptability of all hypotheses. The results for all hypotheses were significant, indicating that there exists a favourable attitude among students and teachers toward employing the PBL approach in learning. Therefore, future work should consider establishing guidelines for teachers to incorporate the PBL approach in different areas of learning and learning processes. Future efforts should also reflect the opinions of teachers as well as other higher education stakeholders regarding the PBL approach for use in academic environments. It is recommended to explore constraints and facilitating actions in future work, given that different points of view from different regions and cultures of the world will undoubtedly improve the research. Future work may also provide more insights into how to deal with this issue in universities in different educational settings.

There are limitations to this research. However, these limitations were considered an opportunity for others to research further. The limited sampled participants who were selected from 2 Colleges of Education and depending on their busy teaching schedules to answer the questionnaire was a possible reason for limits. Another limitation is to note the accessing the samples institution or interviewing the participants was a challenge that limited the capability of the researchers access more data due to the role of gatekeeper in the context, however, it was an additional information for the findings.

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