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Article

Improving Instructional Delivery Using Blended Learning in College of Education: Lecturers' Perspective

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Received: 6 May 2025; **Revised:** 30 June 2025; **Accepted:** 7 July 2025; **Published:** 21 July 2025

Abstract: The paper ascertained the perspective of lecturers in improving instructional delivery using blended learning in College of Education in South-South and South East Nigeria. Two specific purposes guided the study. They were further developed into two research questions and two hypotheses. The paper adopted a descriptive survey design. The population of the study comprised 425 business education lecturers in College of Education, in South-South and South East Nigeria. The entire population of 425 lecturers was used as a sample for this study. The instrument for data collection was questionnaire and interview schedules. The instrument was validated and tested for internal consistency using Cronbach Alpha reliability coefficient. The coefficient obtained was 0.83. Out of 425 copies of the questionnaire administered, only 321 representing 93% was retrieved and used for data analysis. Mean and standard deviation was used to answer the research questions and t- test statistic to test the hypotheses at 0.05 level of significance. Results indicate that training of personnel and provision of facilities are necessary in using blended learning to improve instructional delivery. Also, gender was not significant in the perception of lecturers in both training needs and provision of facilities to improve instructional delivery using blended learning. It was concluded that effective training and provision of the right facilities to support blended learning will help to improve instructional delivery in tertiary institutions. It was recommended that adequate training should be given to educators to enable them to use blended learning in improving teaching and learning.

Keywords: Perspective; Lecturers; Improving; Instructional Delivery; Blended Learning

1. Introduction

The advent of technology has revolutionized the education sector, prompting a paradigm shift in instructional delivery methods. Okoli, and Ikpat state that instructional delivery has been under series of modifications since the advent of Information and Communication Technology (ICT) [1]. Particularly, with the need to shape classrooms to match the 21st-century job demands, the use of technology has become compulsory for teachers to incorporate into the classroom. Instructional delivery refers to the process of presenting educational content to students, encompassing the methods, strategies, and techniques employed by educators to facilitate learning [1]. In this study, it is regarded as the pedagogical activity the teacher carries out in order to promote learning in a classroom setting. Effective instructional delivery is crucial in ensuring that students achieve their academic goals and acquire the necessary knowledge, skills, and competencies. It is also a core responsibility of a teacher in any academic setting.

According to Ormrod [2], teachers play a vital role in instructional delivery, serving as facilitators, mentors, and guides who create an environment conducive to learning. Teachers are essential in instructional delivery, as they design and implement instructional strategies, assess student learning, and provide feedback [3]. Instructions are delivered to the learners based on selected objectives in the curriculum content. Without the content, instructions may be delivered in the traditional way but not in a formal setting like the classroom. In this paper, instructional delivery is in regard to what takes place in the formal classroom setting. They must also create a supportive learning environment that fosters engagement, motivation, and academic achievement.

The practice of instructional delivery involves the use of different instructional strategies by the teacher, such as blending learning to interact with students, the subject content, and to support students' engagement. However, none of these strategies is the best; the teacher must be able to appropriately select them to meet the learning needs of the students. To this end, Warren, Reilly, Herdan, and Lin stressed that instructional delivery must be based on stated objectives of the lesson [4]. Thus, appropriate instructional strategies that meet the realization of the objectives must be used. Where necessary, it is good to use a combination of instructional methods that will produce blended learning effect. As noted by Freiberg and Driscoll [5], teachers' instructional delivery methods can significantly impact student learning outcomes, making it essential for educators to employ effective teaching strategies.

One innovative approach gaining prominence is blended learning. Blended learning, which combines traditional face-to-face instruction with online learning, has emerged as a promising approach to improving instructional delivery [6]. Blended learning is a term used to represent both teaching and learning processes that combine online learning with in-class learning. Blended learning is a combination of various teaching delivery methods. Previous works defined blended learning as a student-centred, self-paced, flexible, and multi-model approach to learning [6, 7]. According to Garrison and Kanuka [6], blended learning is a mixture of physical classroom activities supported by online technology and further develops into an integration of learning activities between students and instructors. Blended learning is a learning encounter in which face-to-face or traditional teacher-learner instruction is combined with technology-mediated instruction [8–10]. Blended learning may be in the form of a flipped classroom where students learn content online by watching videos, lectures, usually at home and homework is done in class with teachers and students discussing and solving questions [6]. It has various models which include rotation model, flex model, self-blend model and enriched-virtual model.

In educational institutions, the application of blended learning entails the use of a whole range of technologies involved in information processing and electronic communication such as computers, internet, e-mail, computer software, satellite, mobile communication gadgets and other allied electronic devices for dissemination of knowledge and information. According to Eze et al. [11], the gains derivable from the utilization of these facilities and technologies in teaching and learning are innumerable. It focuses on the use of ICT in teaching and learning and requires that instructors or teachers have a clear understanding of the tools used in creating the content and developing components of online courses. This includes knowledge of pedagogical design, process analysis design as well as development and implementation of these designs in the classroom. According to Rovai [12], blended learning offers a flexible and effective way to enhance learning outcomes, increase student engagement, and promote academic achievement. The adoption of online and offline learning experiences in blended learning could cater to diverse learning styles and needs. It will make an attractive option for educators. The use of blended learning to improve instructional delivery in Colleges of Education offers a flexible and effective way to enhance learning outcomes. According to Alammary [13], blended learning can enhance student engagement and motivation, leading to improved learning outcomes. It can improve instructional delivery by providing students with flexibility and autonomy in their learning process. According to Alammary [13], leveraging the strengths of both online and offline learning environments, educators can create more effective, engaging, and personalized learning experiences for their students. It allows lecturers to tailor his/her instruction to meet the diverse needs of students. According to Garrison and Kanuka, blended learning provides a flexible and scalable approach to learning, enabling students to learn more effectively [6]. The online components of blended learning can be designed to accommodate different learning styles, paces, and preferences, allowing students to access course materials, participate in discussions, and complete assignments at their own convenience. It fosters increased engagement and interaction among students and instructors. Dziuban et al. note that blended learning promotes critical thinking, problem-solving, and communication skills through online discussions, group projects, and collaborative activities [14]. It can be used to

reinforce key concepts, provide feedback, and facilitate hands-on activities.

Furthermore, blended learning can lead to increased access to education for students who have barriers in traditional classroom settings. According to Rovai, blended learning can accommodate students with disabilities, those living in remote areas, or those with conflicting schedules [14]. This approach can also help to reduce costs associated with commuting and accommodation. In addition, blended learning provides opportunities for data-driven instruction. Utilization of blended learning management systems helps to track student progress, engagement, and performance, enabling educators to identify areas where students need additional support [15]. This data can be used to inform instruction, adjust teaching strategies, and provide targeted interventions. Blended learning has the potential to transform instructional delivery in higher education. It will create more effective, engaging, and personalized learning experiences for students and success. According to Boelens et al. [16], blended learning enables students to learn at their own pace and according to their individual needs, which can lead to improved student satisfaction and reduced dropout rates. Blended learning can also improve instructional delivery by enabling lecturers to track student progress and provide timely feedback. According to Ifenthaler and Yau [17], learning analytics and data tracking can help lecturers identify areas where students need additional support, enabling them to provide targeted interventions and improve student learning outcomes. Furthermore, blended learning can improve instructional delivery by promoting student-centered learning and collaboration. According to Meanset al. [18], blended learning can facilitate collaborative learning and problem-solving among students, leading to improved critical thinking and creativity skills.

Effective implementation of blended learning requires both teacher training and appropriate facilities. Schutte et al. noted that teachers need training on integrating online and face-to-face learning, utilizing various digital tools, and adapting their teaching strategies [19]. Essential facilities include a robust learning management system (LMS), reliable technology infrastructure (hardware and software), and suitable physical learning spaces for both online and in-person activities. To effectively implement blended learning, lecturers require training in several areas. Platonova argued that one of the major problems facing successful application of blended learning in colleges of education is the incompetence of the lecturers to utilize the ICT infrastructure to impart the required knowledge to the students [20]. Most lecturers are not trained with modern office equipment and technologies and thus still depend only on traditional methods for delivering their lessons to students even when learning topics are suitable for e-learning approach. Over time, educators have predominantly delivered instructions using only the conventional teaching method due to a lack of training on how to utilize blended learning. According to Rasheed, Kamsin and Abudullah [21], to avoid this, lecturers need training on how to design, blended courses that integrate online and offline learning experiences. This training includes how to create online content, design assessments, and facilitate online discussions. Additionally, lecturers require training on how to use digital tools and platforms to support blended learning [22]. This includes learning how to use learning management systems, multimedia tools, and online collaboration platforms. Furthermore, lecturers need training on how to assess student learning and provide feedback in a blended learning environment [23]. This includes developing skills in creating online assessments, providing timely feedback, and using data analytics to inform instruction.

To support blended learning, institutions need to provide several facilities. Scholars have identified limited availability of infrastructure, notably telecommunication networks and services as the bane of BLM implementation in the Nigerian educational system [11,24]. Report by Organisation for Economic Co-operation and Development in Peña-López emphasized the need for adequate infrastructure – equipping schools with more and better ICT resources as a critical element in the successful implementation of blended learning in schools [25]. Zhu, Berri, & Zhang noted that basic infrastructures in school buildings, furniture, books, libraries, and computer laboratories, which require substantial computers and internet resources, are needed in a blended learning environment [26]. Adequate classrooms are still a big challenge, which may make blending education and technology in most colleges of education in Nigeria difficult. Equally allied to the challenge of inadequate infrastructure is the inability of the Nigerian Government to provide stable and reliable power supply to power ICT infrastructure and hardware such as servers, computers, data centres, switches, hubs and routers, and other equipment. Yetano Roche et al. noted that, despite Nigeria's position as Africa's largest economy [27], it is on record that 77 million Nigerians or 40% of the population have no access to affordable, reliable, and sustainable electricity. The situation is so bad in Nigeria that no part of the country can boast of 24 hours a day power supply. According to Dabbagh and Kitsantas [28], institutions need to provide a learning management system (LMS) that can support blended learning. The LMS allows

lecturers to create and manage online courses, track student progress, and facilitate online discussions. Additionally, institutions need to provide access to digital resources, such as e-books, articles, and multimedia materials [29]. This can include subscription-based services, open educational resources, and digital libraries. Furthermore, institutions need to provide technical support to lecturers and students to ensure that they can effectively use digital tools and platforms [30]. This can include providing online tutorials, help desks, and technical support staff.

Blended learning has been found to improve learning [31]. According to Jayanthi [32], blended learning helps to improve learning in the following ways: reduced isolation creates more opportunities for collaboration, improved time efficiency and role-differentiation. According to Poon [33], blended learning as an instructional approach benefits students and institutions in all places. It facilitates improved learning outcomes, access flexibility, a sense of community, the effective use of resources, and student satisfaction. Similarly, Utami found that blended learning model contributed more to the students' achievement [34]. Unfortunately, blended learning has not been adapted in the College of Education in South-South and South Eastern Nigeria for teaching and learning. Emergency learning situations, such as those occasioned by the COVID-19 pandemic, suggested that institutions of learning should have an alternative to the traditional classroom teaching and learning. It is imperative, therefore, that colleges of education need to arm themselves with blended learning to be able to compete favourably with other institutions that are going digital. They will be training needs for staff and students, as well as the provision of adequate, suitable facilities for this objective to be achieved in colleges of education. Gender has been contested by many researchers to be a variable that determines the effectiveness in blended learning. For instance, a study conducted by Khader found a significant difference in gender in favour of males [31]. Also, Kintu et al. found that male learners performed slightly better (M = 62.5) than their female counterparts (M = 61.1) [35]. Thus, there will be a need for empirical investigation on gender in this study to ascertain this assertion. The Report of World Bank's World Development which focuses on school education provides a stark picture of lack of attention to the professional development of teachers in the areas of technology-mediated teaching and learning. Based on a study carried out in India and African countries, the report notes that evidence suggests that long-term teacher mentoring and coaching can result in 'sizable learning effects.' Despite the emphasis placed on teachers' professional training and infrastructure facilities that facilitate the adoption of BL in education globally, it seems that Nigerian colleges of education, especially in the south and southeast, remain discounted from this global momentum. The situation in colleges of education in South and South East is such that most teachers are not prepared for the BL experience due to lack of training and the Federal Government appears not to be strategic enough in their quest to provide teachers and administrators the professional training that will make them knowledgeable of current trends and approaches that support student learning [36]. It is based on this premise that the researchers are motivated to ascertain the perspective of lecturers in improving instructional delivery using blended learning in College of Education in South-South and South East Nigeria.

2. Statement of the Problem

The quality of instructional delivery in Colleges of Education has become a pressing concern, given the pivotal role these institutions play in shaping the next generation of educators. Instructional delivery is the nucleus in the teaching profession. The approaches a teacher delivers his/her instruction to meet the needs of students and the instructional objectives are a major concern for every well-meaning individual, organization and the government at all levels. Teaching, as observed, is more challenging in today's global-dynamic world. The teacher is expected to go the extra mile to ensure that instructions are not just delivered but also meet the objectives to which the instructions were stated. Unfortunately, most teachers heavily rely on physical contact with students in the classroom to impart knowledge. However, learning extends beyond the classroom. The learner cannot become a global citizen if restricted to classroom teaching and learning. Therefore, the teacher must blend face-to-face and online learning as a way to improve instructional delivery and to meet the various needs of the learners.

Despite the potential benefits of technology-enhanced learning, many Colleges of Education still rely heavily only on the classroom setting, which may not be sufficient to meet the diverse needs of modern students. The integration of blended learning, which combines traditional instruction with online learning, has been proposed as a potential solution to this challenge. However, the successful implementation of blended learning in Colleges of Education is hindered by several factors, including inadequate technological infrastructure, lack of lecturer training, and limited access to digital resources. Moreover, the specific training needs of lecturers in the use of blended

learning to improve instructional delivery have not been adequately addressed, leading to a gap in the effective integration of technology in teaching and learning. Furthermore, the facilities required to support blended learning, such as learning management systems and technical support, are often inadequate or lacking, which can impede the successful implementation of blended learning. It is also worrisome that blended learning has not been given the needed attention among scholars, especially in the Federal College of Education in South-Eastern Nigeria. Hence, a study in this area became necessary.

3. Purpose of the Study

The main purpose of the study was to ascertain the perspective of lecturers in improving instructional delivery using blended learning in College of Education in South-South and South East Nigeria. Specifically, the study sought to determine:

1. The training needs in the use of blended learning to improve instructional delivery among lecturers in College of Education in South-South and South East Nigeria.
2. The facilities to be provided to support blended learning and improve instructional delivery in College of Education in South-South and South East Nigeria.

4. Research Questions

The following research questions were formulated for the study:

1. What is the perception of lecturers on the training needs in the use of blended learning to improve instructional delivery in Colleges of Education in South-South and South East Nigeria?
2. What is the perception of lecturers on the facilities to be provided to support blended learning in College of Education in South-South and South East Nigeria?

5. Hypotheses

The following null hypotheses guided the study and were tested at 0.05 alpha level of significance:

1. There is no significant difference in the perception of male and female lecturers on the training needs in the use of blended learning to improve instructional delivery in College of Education.
2. There is no significant difference in the perception of lecturers on the facilities to be provided to support blended learning in College of Education as a result of age (35yrs and below, and above 35yrs).

6. Methodology

The study adopted a descriptive survey design. The study was conducted in 24 departments in public and private colleges of education in South-South and South-Eastern Nigeria. The population of the study comprised 425 business education lecturers in colleges of education in South-South and South-Eastern Nigeria. The entire population of 425 lecturers in colleges of education was used as sample for this study. The instrument for data collection was a questionnaire and interview schedules to get the data from the lecturers. Questionnaires were considered due to their capability of collecting huge data within a short period of time. The two instruments were subjected to content validity where subject experts in Business Education and Measurement and Evaluation reviewed them before they were administered to ensure that they measure the intended need. These specialists vetted the items in terms of sentence structure and adequacy, as well as item clarity and suitability of the instrument for data analysis. The views and suggestions of these experts aided the researcher in correcting and modifying the items to produce the final draft of the instrument. The questionnaire contains 16 items and was structured on a point rating scale of Strongly Agree (SA); Agree (A); Disagree (D); Strongly Disagree (SD) with values of 4, 3, 2 and 1, respectively. The instrument was administered to thirty (30) lecturers in tertiary institutions in the North East and tested for internal consistency using Cronbach Alpha reliability coefficient. The coefficient obtained was 0.83. Interviews were booked in advance through the Deans and Heads of the faculty of each school. After the interview was conducted, the lecturers were given questionnaires to fill. The questionnaires were then picked the same day and sought for

completeness before moving to the next school. Out of 425 copies of the questionnaire administered, only 321 representing 93% was retrieved and used for data analysis. Analysis of data was done using mean and standard deviation to answer the research questions and t- test statistic to test the hypotheses at 0.05 level of significance. For any of the null hypothesis to be accepted, the significant value was greater than the 0.05 level of significant value, otherwise it was rejected.

7. Results

The results in this paper were presented in Tables according to the research questions and hypotheses.

Research Questions: What is the perception of lecturers on the training needs in the use of blended learning to improve instructional delivery in Colleges of Education in South-South and South East Nigeria?

The descriptive analysis of the perception of lecturers on the training needs of lecturers in the use of blended learning to improve instructional delivery is presented in **Table 1**.

Table 1. Perception of Lecturers on the Training Needs of Lecturers in the Use of Blended Learning to Improve Instructional Delivery.

S/N	Training Needs of lecturers	$\bar{X}$	SD	Decision
1	Training on how to design courses that integrate online and offline learning experiences	3.61	0.49	SA
2	Training on how to use learning management to create, manage online courses	3.55	0.51	SA
3	Training on how to create engaging in interactive online content, such as videos, simulations and multimedia materials	3.51	0.50	SA
4	Training on how to facilitate online discussions to encourage student engagement in online learning environment	3.51	0.57	SA
5	Training on how to assess student learning in blended learning environments	3.48	0.50	A
6	Training on how to manage online presence, including creating a professional online presence using social media to support teaching and learning	3.59	0.51	SA
7	Training on how to troubleshoot common technical issues that may arise in blended learning	3.54	0.50	SA
8	Training on how to effectively integrate technology to support student-centered learning	3.59	0.52	SA
	Grand Mean	**3.54**	**0.51**	**SA**

Note: SA = Strongly Agree; A = Agree.

Table 1 shows a grand mean of 3.54 indicating that lecturers in colleges of education agreed on the training needs of lecturers in the use of blended learning to improve instructional delivery. Item-by-item analysis in Table 1 shows that business educators agreed on all the items 1–8, with mean scores for all the items ranging between 3.48 and 3.61, which means that all of them are training needs of lecturers in the use of blended learning to improve instructional delivery. The standard deviations of 0.49 to 0.57 showed homogeneity in lecturers' responses, indicating greater consensus of opinion.

Research Question 2: What is the perception of lecturers on the facilities to be provided to support blended learning in College of Education in South-South and South East Nigeria?

The descriptive analysis of the perception of lecturers on the facilities to be provided to support blended learning is presented in **Table 2**.

Table 2. Perception of Lecturers on the Facilities to be provided to Support Blended learning.

S/N	Facilities to be Provided to Support Blended Learning	$\bar{X}$	SD	Decision
9	Online Learning Management System (LMS)	3.43	0.53	A
10	Computers/Laptops	3.64	0.48	SA
11	Technical support staff	3.57	0.51	SA
12	Smartphones	3.55	0.53	SA
13	Multimedia equipment like cameras, microphones	3.61	0.50	SA
14	Projectors	3.71	0.45	SA
15	High-speed Internet connectivity	3.60	0.49	SA
16	Virtual classroom tools like video conferencing software	3.48	0.54	SA
	Grand Mean	**3.57**	**0.50**	**SA**

Note: SA = Strongly Agree; A = Agree.

Table 2 shows a grand mean of 3.57 indicating that lecturers in colleges of education agreed on the facilities to be provided to support blended learning to improve instructional delivery. Item-by-item analysis in **Table 2** shows that lecturers agreed on all the items 9–16, with mean scores for all the items ranging between 3.43 and 3.64,

which means that all of them are facilities to be provided to support blended learning in the College of Education to improve instructional delivery. The standard deviations of 0.49 to 0.53 showed homogeneity in lecturers' responses, indicating greater consensus of opinion.

8. Hypotheses

Hypothesis 1. *There is no significant difference in the perception of male and female lecturers on the training needs in the use of blended learning to improve instructional delivery in the College of Education in South-South and South-Eastern Nigeria.*

The t-test analysis of male and female lecturers on the training needs in the use of blended learning to improve instructional delivery is presented in **Table 3**.

Table 3. T-Test Results of Male and Female Lecturers on the Training Needs in the Use of Blended Learning to Improve Instructional Delivery.

Item	Gender	N = 120	Mean	Std.	t-cal	t-crit	Df	Decision
1	Male Female	188	3.62 3.58	0.48 0.49	0.45	1.98	319	Accept
2	Male Female	133	3.55 3.54	0.52 0.50	0.14	1.98	319	Accept
3	Male Female	188	3.54 3.47	0.50 0.50	0.66	1.98	319	Accept
4	Male Female	133	3.52 3.50	0.55 0.61	0.25	1.98	319	Accept
5	Male Female	188	3.51 3.43	0.50 0.50	0.81	1.98	319	Accept
6	Male Female	133	3.63 3.52	0.48 0.54	1.24	1.98	319	Accept
7	Male Female	188	3.55 3.52	0.50 0.50	0.37	1.98	319	Accept
8	Male Female	133	3.62 3.54	0.51 0.54	0.84	1.98	319	Accept
	Grand Mean				**0.59**			**Accept**

In **Table 3**, all the items were accepted because their respective calculated t-values were less than the critical t-value. More so, the grand mean of the calculated-t value 0.59 was also less than the critical-t value of 1.98. The null hypothesis 1 was accepted. This implies that there is no significant difference in the perception of male and female lecturers on the training needs in the use of blended learning to improve instructional delivery in College of Education, in South-South and South East Nigeria.

Hypothesis 2. *There is no significant difference in the perception of lecturers on the facilities to be provided to support blended learning in the College of Education as a result of age (35 yrs and below, and above 35 yrs).*

The t-test analysis of male and female lecturers on the facilities to be provided to support blended learning is presented in **Table 4**.

Table 4. T-Test Results of Lecturers on the Facilities to be Provided to Support Blended Learning Based on Age.

Item	Age	N = 321	Mean	Std.	t-cal	t-crit	Df	Decision
9	35yrs below above 35yrs	66 255	3.47 3.37	0.50 0.56	0.98	1.98	319	Accept
10	35yrs below above 35yrs	66 255	3.69 3.56	0.46 0.50	1.47	1.98	319	Accept
11	35yrs below above 35yrs	66 255	3.63 3.47	0.48 0.54	1.68	1.98	319	Accept
12	35yrs below above 35yrs	66 255	3.59 3.50	0.52 0.54	0.98	1.98	319	Accept
13	35yrs below above 35yrs	66 255	3.66 3.54	0.47 0.54	1.33	1.98	319	Accept
14	35yrs below above 35yrs	66 255	3.70 3.72	0.45 0.44	0.24	1.98	319	Accept

Table 4. *Cont.*

Item	Age	N = 321	Mean	Std.	t-cal	t-crit	Df	Decision
15	35yrs below above 35yrs	66 255	3.62 3.56	0.48 0.50	0.68	1.98	319	Accept
16	35yrs below above 35yrs	66 255	3.52 3.41	0.55 0.53	1.08	1.98	319	Accept
	Grand Mean				**1.05**			**Accept**

In **Table 4**, all the items were accepted because their respective calculated t-values were less than the critical t-value. In addition, the grand mean of the calculated-t value 1.05 was less than the critical-t value of 1.98. The null hypothesis 2 was accepted. This indicates that there is no significant difference in the perception of lecturers on the facilities to be provided to support blended learning in the College of Education as a result of age (35 yrs and below, and above 35 yrs).

9. Discussion

The analysed data on the training needs in the use of blended learning to improve instructional delivery in Colleges of Education, in South-South and South East Nigeria, indicated that the respondents have a strong positive perception that there is a need for training in the use of blended learning to improve instructional delivery. These training needs include: how to design courses that integrate online and offline learning experiences; how to use learning management to create, manage online courses; how to create engaging and interactive online content, such as videos, simulations and multimedia materials; how to facilitate online discussions to encourage student engagement in online learning environment; how to assess student learning in blended learning environments; how to manage online presence, including creating a professional online presence using social media to support teaching and learning; how to troubleshoot common technical issues that may arise in blended learning and training on how to effectively integrate technology to support student-centered learning. The researchers believe that the results are so because blended learning involves technologies that require certain skills to function effectively. The lack of basic training by educators and students will prevent the use of emerging technologies for effective teaching and learning. Adequate training should be given to staff and students to improve their skills; only then can they participate effectively in blended learning. The finding is supported by the view of Eze et al, who stated that lecturers need training on how to design blended courses that integrate online and offline learning experiences [11]. This includes developing skills in creating online content, designing assessments, and facilitating online discussions. Additionally, the finding is in consonance with the findings of Koehler & Mishra who found that lecturers require training on how to use digital tools and platforms to support blended learning [12]. This includes learning how to use learning management systems, multimedia tools, and online collaboration platforms.

Furthermore, the finding is in agreement with Gikandi et al. who noted that lecturers need training on how to assess student learning and provide feedback in a blended learning environment [13]. This includes developing skills in creating online assessments, providing timely feedback, and using data analytics to inform instruction. By providing lecturers with training and support in these areas, institutions can ensure that they are equipped to effectively implement blended learning and improve instructional delivery.

In addition, data analysis revealed that there is no significant difference in the perception of male and female lecturers on the training needs in the use of blended learning to improve instructional delivery in the College of Education in South-South and South East Nigeria. This suggests that training needs in blended learning are of importance to male educators as well as females alike. The finding agrees with Kintu et al. that training provides educators (male or female) with the learning experiences in using technology to increase their capacity to create "compelling learning activities that improve learning and teaching, assessment, and instructional practices," and teacher preparation programs that "develop a teaching force skilled in online and blended instruction" [23]. By extension, the success of educators in the use of blended learning to improve instructional delivery largely depends on how well they are prepared for their roles within a changing and challenging system.

Data analysed to ascertain the perception of lecturers on the facilities to be provided to support blended learning revealed that the respondents have a strong positive perception of the following facilities: Computers/Laptops; iPads; Notebooks; Smart phones; Digital cameras; Projectors; Internet and Online Learning Management System

(LMS). The findings suggest that learning facilities are very critical. Blended learning is made possible with the use of hardware and software facilities which must be provided for its functionality. The finding is in agreement with Dabbagh and Kitsant as who suggested that institutions need to provide a learning management system (LMS) that can support blended learning [14]. The LMS should allow lecturers to create and manage online courses, track student progress, and facilitate online discussions. Additionally, the finding is in consonance with Bonk who noted that institutions need to provide access to digital resources, such as e-books, articles, and multimedia materials [15]. This can include subscription-based services, open educational resources, and digital libraries. Furthermore, the findings of the study are in support of Boelens et al who noted that institutions need to provide technical support to lecturers and students to ensure that they can effectively use digital tools and platforms [16]. This can include providing online tutorials, help desks, and technical support staff.

10. Limitations of the Study

The study's sample size may not be representative of the entire population of Colleges of Education in Nigeria, which could limit the generalizability of the findings. The study relies on self-reported data from lecturers and students, which may be subject to biases and may not accurately, reflect their actual experiences with blended learning. The study's findings may be influenced by contextual factors specific to the institutions and participants involved, which could limit their applicability to other settings. The methodology may not capture the full complexity of blended learning in Colleges of Education, potentially overlooking important aspects or nuances. The study focuses on specific aspects of blended learning, and its findings may not be applicable to other areas or contexts. The study's findings may become outdated due to the rapidly evolving nature of technology and blended learning practices. The researchers' own biases and assumptions may have influenced the study's design, data collection, and interpretation. Finally, the findings are dependent on the honesty and accuracy of participant responses, which may be influenced by various factors, such as social desirability bias.

11. Conclusions

This study examined the perspective of lecturers in improving instructional delivery using blended learning in College of Education in South-South and South East Nigeria. Based on the findings, it was concluded that blended learning has the potential to improve instructional delivery in Colleges of Education, offering a flexible and effective way to enhance learning outcomes. By understanding the training needs and facilities required to support blended learning, institutions can harness the potential of this approach to create a more engaging and effective learning environment for students. It has become imperative that the teacher must blend face-to-face and online learning as a way to improve instructional delivery that will meet the various needs of the learners. The blending of traditional face-to-face and online learning with the objective of optimizing the learning outcome and cost of program delivery is essential. More so, the training of personnel and the provision of necessary facilities to support blended learning would be instrumental in improving learning and in making learners become digital citizens. Based on the conclusion, the researchers recommended that lecturers in College of Education should be given adequate training to be able to utilize blended learning in improving teaching and learning. Again, school management in College of Education should provide necessary facilities for the smooth integration and use of blended learning to improve teaching and learning. Institutions should invest in adequate technological infrastructure to support blended learning. Institutions should regularly monitor and evaluate the effectiveness of blended learning, making adjustments as needed.

Author Contributions

Conceptualization, M.A.A., K.O.I. and V.E.O.; methodology, K.O.I.; software, K.O.I.; validation, M.A.A., K.O.I. and V.E.O.; formal analysis, K.O.I.; investigation, V.E.O.; resources, M.A.A., K.O.I. and O.V.E.; data curation, M.A.A.; writing—original draft preparation, M.A.A.; writing—review and editing, M.A.A., K.O.I.; visualization, M.A.A.; supervision, K.O.I.; project administration, M.A.A. and V.E.O.; funding acquisition, M.A.A., K.O.I. and V.E.O. All authors have read and agreed to the published version of the manuscript.

Funding

This work received no external funding.

Institutional Review Board Statement

The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Review Board of the Business Education Department, Ebonyi State University, Abakaliki, Nigeria (protocol code 425 and date of approval 10/15/2024).

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

This paper was drawn from a PhD in Business Education seminar work and it is not available in the public domain.

Acknowledgments

The authors would like to express their sincere gratitude to the Prof. Noye Azih and the entire lecturers in department of Business Education, Ebonyi State University, Abakaliki that contributed to the success of this research. We appreciate the participants and respondents who provided valuable insights and data for this research. Their contributions are greatly appreciated. We would also like to thank the reviewers and editors for their valuable feedback and suggestions, which significantly improved the quality of this article.

Conflicts of Interest

The authors declare no conflict of interest.

References

1. Okoli, C.I.; Ikpat, N.H. Level of application of blended learning pedagogical design by business educators in tertiary institutions in Anambra State. *NAU J. Technol. Vocational Educ.* **2021**, *6*, 200–207.
2. Ormrod, J.E. *Human Learning*, 7th ed.; Pearson: Upper Saddle River, NJ, USA, 2017.
3. Shulman, L.S. Those who understand: Knowledge growth in teaching. *Educ. Res.* **1986**, *15*, 4–14.
4. Warren, L.; Reilly, D.; Herdan, A.; et al. Self-efficacy, performance and the role of blended learning. *J. Appl. Res. High. Educ.* **2021**, *13*(1), 98–111.
5. Freiberg, H.J.; Driscoll, A. *Universal Teaching Strategies*, 5th ed.; Allyn & Bacon: Boston, MA, USA, 2015.
6. Garrison, D.R.; Kanuka, H. Blended learning: Uncovering its transformative potential in higher education. *Internet High. Educ.* **2004**, *7*(2), 95–105. [CrossRef]
7. Hashim, N.; Hamidon, Z. Blended Learning in Technical and Vocational Education and Training (TVET) Training Institute. *Int. J. Acad. Res. Prog. Educ. Dev.* **2022**, *11*, 837–860.
8. Bupo, G.O. Effects of blended learning approach on business education students' academic achievement and retention in financial accounting in universities in Rivers State. Ph.D. Dissertation, Nnamdi Azikiwe University, Awka, Nigeria, November 2019.
9. Lalima, K.; Dangwal, K.L. Blended learning: An Innovative Approach. *Univ. J. Educ. Res.* **2017**, *5*, 129–136. [CrossRef]
10. Noni, S.N.; Abdullah, H.A.; Ismail, N. Satisfaction in blended learning among polytechnic students. *Man India* **2017**, *97*, 217–226.
11. Eze, S.C.; Chinedu-Eze, V.C.; Bello, A.O. The utilisation of e-learning facilities in the educational delivery system of Nigeria: a study of M-University. *Int. J. Educ. Technol. High. Educ.* **2018**, *15*, 34.
12. Rovai, A.P. Building sense of community at a distance. *Int. Rev. Res. Open Distrib. Learn.* **2002**, *3*, 1–16.
13. Alammary, A. Blended learning models for introductory programming courses: A systematic review. *PLoS ONE* **2019**, *14*, e0221765. [CrossRef]
14. Dziuban, C.D.; Hartman, J.L.; Moskal, P.D. Blended learning. *EDUCAUSE Cent. Appl. Res. Bull.* **2004**, *2004*(7), 1–12.

15. Means, B.; Toyama, Y.; Murphy, R.; et al. Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies; ED-04-CO-0040 Task 0006, U.S. Department of Education: Washington, DC, USA, September 2010.
16. Boelens, R.; De Wever, B.; Voet, M. Four key challenges to the design of blended learning: A systematic literature review. *Educ. Res. Rev.* **2017**, *22*, 1–18. [CrossRef]
17. Ifenthaler, D.; Yau, J.Y. Utilizing learning analytics to support study success in higher education: A systematic review. *Educ. Technol. Res. Dev.* **2020**, *68*, 1961–1984.
18. Means, B.; Neisler, J. Teaching and learning in the time of COVID: The student perspective. *Online Learn.* **2021**, *25*(1), 8–27.
19. Schutte, N.; Cronje, A.; Mokoena, M.; et al. Academic staff perceptions of a blended learning approach in a selected higher education institution. *Int. J. Manag. Appl. Sci.* **2017**, *3*, 12–17.
20. Platonova, R.I.; Orekhovskaya, N.A.; Dautova, S. B.; et al. Blended learning in higher education: Diversifying models and practical recommendations for researchers. *Front. Educ.* **2022**, 7, 957199. [CrossRef]
21. Rasheed, R.A.; Kamsin, A.; Abdullah, N.A. Challenges in the online component of blended learning: A systematic review. *Comput. Educ.* **2020**, *144*, 103701. [CrossRef]
22. Koehler, M.J.; Mishra, P. What is technological pedagogical content knowledge? *Contemp. Issues Technol. Teach. Educ.* **2009**, *9*(1), 60–70.
23. Gikandi, J.W.; Morrow, D.; Davis, N.E. Online formative assessment in higher education: A review of the literature. *Comput. Educ.* **2011**, *57*, 2333–2351. [CrossRef]
24. Olelewe, C.J. Challenges Facing Effective Utilisation of Blended Learning Model in Teacher Education Programmes in Nigeria. In *Proceedings of the 10th Annual National Conference of Qualitative Education in Nigeria (ASSEQEN)*, Benue State University, Makurdi, Nigeria, 12–16 May 2014; pp. 1–14.
25. Peña-López, I. *Innovating Education and Educating for Innovation. The Power of Digital Technologies and Skills*. OECD Publishing: Paris, France. [CrossRef]
26. Zhu, M.; Berri, S.; Zhang, K. Effective instructional strategies and technology use in blended learning: A case study. *Educ. Inf. Technol.* **2021**, *26*, 6143–6161.
27. Yetano Roche, M.; Verolme, H.; Agbaegbu, C.; et al. Achieving Sustainable Development Goals in Nigeria's power sector: Assessment of transition pathways. *Clim. Policy* **2020**, *20*, 846–865.
28. Dabbagh, N.; Kitsantas, A. Personal learning environments, social media, and self-regulated learning: A natural formula for connecting formal and informal learning. *Internet High. Educ.* **2012**, *15*, 3–8.
29. Bonk, C.J. *The World Is Open: How Web Technology Is Revolutionizing Education*; Jossey-Bass: San Francisco, CA, USA, 2009.
30. Bates, A.W. *Teaching in a Digital Age: Guidelines for Designing Teaching and Learning*; Tony Bates Associates Ltd.: Vancouver, BC, Canada, 2015.
31. Khader, N.S.K. Theeffectiveness of blended learning in improving students' achievement in third grade's science in Bani Kenana. *J. Educ. Pract.* **2016**, *7*(35), 109–116.
32. Jayanthi, R. A study about blended learning: Its importance and concept. *Int. J. Sci. Dev. Res.* **2019**, *4*(4), 387–397.
33. Poon, J. Blended learning: An institutional approach for enhancing students' learning experiences. *J. Online Learn. Teach.* **2013**, *9*, 271–288.
34. Utami, I.S. The Effectiveness of Blended Learning as an Instructional Model in Vocational High School. *J. Educ. Sci. Technol.* **2018**, *4*(1), 74–83.
35. Kintu, M.J.; Zhu, C.; Kagambe, E. Blended learning effectiveness: The relationship between student characteristics and learning outcomes. *Int'l J. Educ. Tech. Higher Educ.* **2017**, *14*, 1–20. [CrossRef]
36. Chiroma, A.S.; Yaduma, P.S. Shifting paradigms of continuous professional development through blended learning and e-enabled platforms for 21st century teaching and learning. *Educ. Sustain. Soc. (ESS)* **2019**, *2*, 12–15.
37. Shaun, M.; Edward, P. Defining an effective approach to blended learning in higher education: A systematic review. *Australas. J. Educ. Tec.* **2023**, *39*(2), 98–114.