

# FACTORS ASSOCIATED WITH THE ADOPTION OF MOBILE-BLENDED LEARNING TO DEVELOP CRITICAL THINKING SKILLS IN NIGERIAN BUSINESS EDUCATION UNDERGRADUATE STUDENTS

\*<sup>1</sup>AUGUSTINE AGBI, <sup>2</sup>SUPANEE SENGSRI

<sup>1(a)</sup>Department of Office Technology & Management, School of Business Studies, Edo State Polytechnic,  
Usen

P. M. B. 1104, Benin City, Nigeria.

<sup>1(b)</sup>Department of Educational Technology & Communications, Faculty of Education,  
Naresuan University, Phitsanulok 65000 Thailand

<sup>2</sup>Department of Educational Technology & Communications, Faculty of Education,  
Naresuan University, Phitsanulok 65000 Thailand.

\*Correspondent author's email: [agbicity2003@yahoo.co.uk](mailto:agbicity2003@yahoo.co.uk)

## ABSTRACT

The standard of the Nigerian educational system has continued to witness a decline over the years at all levels, contributing to the high rate of unemployment among graduates in the country. Jobs in the 21<sup>st</sup> century require employees' abilities to analyse, evaluate, and synthesize knowledge to creatively solve problems and these abilities are increasingly necessary for survival in the modern world. Mobile-blended learning allows sufficient time during its face-to-face components to effectively engage learners with problem-solving tasks that encourage their cognitive development, rather than exposing them to learning experiences that are fraught with a repetitive accumulation of facts and knowledge only. The main objective of this study was to investigate the factors associated with the effective adoption of mobile-blended learning for critical thinking enhancement. A cross-sectional study that used survey and documentary research was conducted among 120 business educators from three states of the thirty-six states of Nigeria. A validated self-administered questionnaire was used to collect data, which were analysed using multiple regression method. The study revealed that teachers' participation in the process of deciding to adopt innovation, competency, mobile instructional content, and mobile-blended learning orientation were significantly associated with effective adoption. This suggests that when adopting a mobile-blended learning approach, the focus should be centred on teachers' participation and competency as well as mobile content and orientation.

**Keywords:** *Mobile-Blended Learning, Critical Thinking Skills, Problem-Solving*

## 1. INTRODUCTION

The need to adapt to business job requirements in the 21<sup>st</sup> century has become paramount as business educators continue to struggle to get the attention of today's children into a learning mode that will better equip them. This is because the focus on 21<sup>st</sup>-century skills is on what individuals can accomplish with their abilities to analyse, evaluate, and synthesize information to solve problems. Most university

teachers globally utilize the lecture method in their professional practice, which is a teaching/learning approach where instructional materials are delivered straight to the students [1, 2]. This method is the predominant practice among university teachers in Nigeria. Though this approach can be useful when delivering voluminous learning content to students [3], it is less effective in the enhancement of cognitive skills to confront real-life challenges [4]. It could be an effective approach when teaching facts and

knowledge. On the other hand, a mobile-blended learning strategy allows an opportunity to actively engage the students to exercise their minds to apply their gained knowledge to resolve unfamiliar problems, resulting in the development of their cognitive skills.

The lecturing approach may not facilitate learning beyond knowledge and comprehension of Bloom's taxonomy of learning and it may not specifically an effective method for enhancing the acquisition of practicable skills and knowledge [5,4]. Furthermore, it does not adequately cater for the individual needs of students, which results in the difficulty of sustaining learners' focus on a protracted lecture session. Unlike the lecture method, which is passive and teacher-centred, mobile-blended learning is an active and student-centred strategy that allows students to exercise critical thinking abilities [6], reflect on their gained knowledge [1], and synthesize information to solve problems [7]. Mobile-blended learning, as an active learning environment is preferable to lecturing when cognitive development and problem-solving skills, as well as enhancing learners' attitudes are the objectives of instructional design [2]. Cognitive development requires that learning should not just be a repetitive accumulation of facts and knowledge, but demands deep conceptual change and reconceptualization to support life-long learning.

Business-related jobs in a knowledge-based society, increasingly require employees with critical thinking abilities to analyse information for solving problems creatively [8]. Today's children, unlike the former generations grow up with rapidly changing technologies that make them less receptive to the traditional mode of learning [9].

Recently, the Nigerian National Bureau of Statistics revealed, in its latest report, that the unemployment rate in the country has drastically increased from 23.1% in the third quarter of 2018 to 27.1% at the end of the second quarter of 2020 [10]. The report further indicated that out of 116,871,186 that is the economically active population (15-64 years), 80,291,894 are unemployed during the period under review. Out of these unemployment figures, about 2.9 million have graduate and post-graduate degrees. This

disturbing revelation shows that the prevailing teaching/learning approaches in the country's higher education sub-system may not effectively be preparing the students for the expectations of the employers. The current business education teaching/learning processes lack the potential to sufficiently empower the graduates for their expected roles in contributing to the sustainable development of the country [11].

Therefore, there is a need to integrate these facilities into their learning activities to equip them with lifelong learning skills. These technological facilities encourage active learning processes that are necessary to better prepare the 21<sup>st</sup>-century learners for their future roles in a society that expects the best from everyone. The capacity to engage in critical thinking that enables an individual to proffer solutions to challenges in real-world contexts is better than equipping them with only specific knowledge of a set of concepts [12]. According to constructivists, cognitive development demands that learning should not just be a mechanistic or repetitive accumulation of facts and knowledge, but also demands deep conceptual change and reconceptualization, to support lifelong learning. In an environment where education is student-centred, learning is considered as knowledge constructing activities where learners collaboratively obtain, reorganize, and use the information acquired for analysing and problem-solving.

The need to integrate technology, especially mobile learning tools in education to facilitate students' interactivity and collaboration, culminates in the building and development of their abilities to analyse and reconceptualize knowledge to solve real-life problems. Mobile-blended learning is considered important because there is an increasing rate of mobile device ownership in several countries, including Nigeria, which is now higher than 100% due to many people owning more than one [13, 14]. There is a monumental rise in the use of mobile devices by tertiary education students and teachers in recent times [15]. Nigeria has 196,039,869 active mobile lines as of June 2020 and with a teledensity of 102.88 [16]. Despite the pervasiveness of these devices among higher education teachers and students in Nigeria, they are not utilized as teaching and learning tools.

Owing to the lack of these skills, research revealed that a significant number of business education graduates, like their counterparts from other academic disciplines, in Nigeria, find it extremely difficult to secure job opportunities, even where such offers exist [17]. This is blamed for the low integration of technology in the education sector as being responsible for the mismatch between the training received in schools, and the knowledge/skills expected by employers [18]. It is against this background, that this study seeks to investigate the factors that facilitate the adoption of mobile-blended learning as a strategy to develop critical thinking skills in Nigerian business education undergraduates. When mobile-blended learning is effectively implemented, teachers acquire a greater amount of class time for the development of their student's critical thinking skills, for real-life problem solving [19, 20]. The aim of education in this digital era is to expose students to more active learning, which facilitates their collaborative problem-solving abilities, culminating in equipping them with the realities of the world of work.

## 2. LITERATURE REVIEW

### 2.1 Blended learning

A close observation revealed that educational settings that once only supported face-to-face learning, are evolving rapidly into environments that now accommodate technology-mediated learning. The focus of this practice is to promote interaction and collaborative efforts to achieve higher results in human endeavours [21]. As students work collectively and share ideas on their learning activities, such a collaborative and interactive context facilitates the development of their creative thinking which better equip them for effective participation in the knowledge-based society.

As technology develops, distance learning is being used to facilitate interactive and constructivist (collaborative) learning by taking advantage of online communication, leading to the practice of studying anywhere in the world. Blended learning is a combination of two-generational models, that incorporates the traditional face-to-face classroom system and an online learning platform [22], which employs a mix of asynchronous and synchronous

interactions [23]. Online experiences offer valuable tools that supplement or replace aspects of face-to-face traditional lectures and textbook-based approach to teaching and learning. Participating in lectures usually involves memorizing and the recalling of information, which are lower levels of Bloom's taxonomy of learning [24], while on the other hand, engaging in real-time problem-solving tasks during class, enables students to synthesize and apply knowledge through reflection and reconceptualization of ideas. A course-design embedded with in-class collaborative problem-solving activities improves learners' cognitive abilities and reduces the achievement gap between them [25]. The major focus of educational institutions over the years has been the development of cognitive skills and contraction of the achievement gap between learners, and the adoption of an approach that will facilitate the accomplishment of this vision cannot be over-emphasized.

The increasing utilization and availability of digital learning facilities have led to increased deployment of ICT-mediated instructional elements into the conventional learning environment. This practice allows educators, who leverage the potential of blended learning, to help their students acquire the information and terms associated with the course before class starts, which provides them adequate time to carry out real-life problem-solving tasks that engage their cognitive processes [26]. As teacher delivers mobile instructional materials in an appropriate format (video, text, image, or a combination of formats) with a user-friendly platform for students to study, adequate time becomes available to them during the face-to-face session to apply the content to problem-solving activities that promote their cognitive development. This type of learning does not imply a mere combination of the two models but involves an appropriate blend to achieve specific learning objectives by taking advantage of the two environments (online and face-to-face contexts). The face-to-face component of blended learning is where students actively collaborate and interact with instructional content with the focus of gleaning information to solve problems, while the teacher plays the role of a facilitator. This is based on the ethic that learning is more effective when learners are encouraged to analyse, evaluate, and reorganize information to solve real-life problems.

This method affords teachers adequate class time for collaborative problem-solving activities, demonstrations, question and answer sessions, and other engaging tasks, that lead the students to a greater depth of understanding. It is a pedagogical approach that provides teachers with the opportunity to invert the classroom and homework activities [27], which allows them more time to tutor their students [28]. There is a resounding interest in the utilization of blended learning, particularly in higher education [29]. Research has shown that blended learning with collaborative problem-solving activities demonstrated favourable effects on the development of students' cognitive processes [30].

Since mobile technology allows students to watch, pause, and repeat the online learning materials on their devices, they are encouraged to gain an understanding of the instructional content before class [26]. This affords the teachers sufficient time to engage them in collaborative problem-solving tasks which promotes their critical thinking skills. In a blended learning environment, teachers can concentrate on the application of knowledge of higher-order learning, instead of lower-level thinking activities, which offers the opportunity to identify mistakes and reinforce critical and creative thinking as well as effective communication [31].

When students receive learning materials to study via mobile devices before class, it ensures a more collaborative and engaging environment in the classroom, enabling them to evaluate and reconceptualize the content for problem-solving in real-life contexts. In higher learning institutions, students appreciate the opportunities of flexibility and improved access to learning materials offered by this technology, which results in greater academic achievements due to the improved interaction and collaboration with both their peers and lecturers [28]. This calls for a paradigm shift from approaches that encourage memorization to a strategy that strengthens students' abilities to evaluate and reconceptualize instructional content for problem-solving. This will also equip them with the ability to work as a team.

## 2.2 Mobile learning

As Information and Communication Technology (ICT) evolves, the devices become smaller and more mobile with stunning features, from desktop computers to laptops and other

mobile devices such as Personal Digital Assistants PDAs, iPads, and smartphones. The mobility of technology in the last two decades has resulted in the emergence of mobile learning that has given rise to a new dynamic of studying in different settings. Mobile learning is the type of studying that takes place using portable devices like Personal Digital Assistants (PDAs) computer tablets and smartphones [13]. It is the deployment of pervasive handheld electronic devices to enhance, support, and expand access to teaching/learning activities. It is technology-mediated learning that is powered by mobile technology to make learning occur anywhere and anytime.

Owing to the portability of mobile devices, they permit users to access various services and platforms, including educational materials anywhere and anytime [32]. They have the potential of assisting students to access online educational materials, review and share them, collaborate with other learners, and develop rich media content that can be helpful to both teachers and learners. Mobile learning presents learners with the experiences that may not be obtainable in their immediate environment and at the same time equip them with the necessary ICT consciousness and skills that are essential to actively participate in the modern world.

With the aid of mobile devices, the compulsory requirement for students to be physically present in a particular location at a specific time for learning is eliminated as they can access instructional materials, interact with teachers or other students as well as anyone else to meet their quest for knowledge anywhere and anytime [33]. According to them, the use of this technology in education leads to a more intimate relationship between the teacher and their students, enhancing their interaction which results in a more participatory learning experience. Their portability and functionality offer learners the option to use their free time for learning rather than deferring their desire to learn pending when they get to a library or have access to a computer. In a mobile learning scenario, students are expected to exercise self-efficacy and regulative skills, while the teachers who are experts in their various fields, should be responsive to their interactions on the platform.

## 2.3 Business education

Business education as an academic discipline is offered in institutions of higher learning in Nigeria with options in office technology and management, and accounting. These two options are to enable students to gain the appropriate skills for them to participate adequately in the world of work. The programme is designed to equip individuals with the appropriate skills, knowledge, and attitudes, that will empower them to function effectively either in educational institutions or other sectors. It is designed to equip students with the required pedagogical and business competencies required for teaching business knowledge, concepts, skills, and attitudes [34].

The objectives of business education include to: prepare individuals for office career, competencies for entrepreneurship; provide a good blend of business understanding and information and communication technology; enable individuals to impart these attributes to learners [35]. It is the aspect of educational training that empowers an individual with adequate knowledge, concepts, understanding, skills, and attitudes in business activities for usage in careers as an administrator, teacher, or manager in the business world [36]. The focus is to equip learners with knowledge, skills, and attitude that will enable them to effectively train others, proficiently manipulate office technologies and information systems. It is a discipline that promotes work ethic and the preparation of individuals for skilled jobs, through the development of their problem-solving skills. It is an aspect of vocational education training that is designed to facilitate the acquisition of appropriate knowledge, skills, capabilities, and the overall competences, that enable an individual to be self-reliant, contribute to sustainable economic growth, and ultimately eradicate poverty.

Despite these laudable objectives, the programme has not achieved its desired outcomes in the country, as most of the graduates have continually failed to match their skills with the expectations of their potential employers [18]. This is a result of a lack of technological skills on the part of the teachers and poor content, among others. Most of the teachers do not possess the pedagogical skills to deploy technology into their practice [34]. This has made it difficult for them to shift from the traditional approach to technology-mediated learning, which will effectively equip the students for their future roles

in society. Also, computer education is not integrated into the business teacher education curricula. This makes it difficult for both the teachers and their students to utilize ICT facilities as teaching and learning tools. To address these challenges, ICT training should be embedded in business teacher education to make the programme responsive to today's reality. Also, the teachers should be exposed to comprehensive ICT training which will empower them to integrate the utilization of the facilities into their professional practice.

#### 2.4 Development of critical thinking

Learning experiences that emphasize analysis, evaluation, and synthesis of information help to develop skills for problem-solving through interpretation, creativity, and generalization. These learning experiences promote reproductive thinking rather than productive reasoning. Critical thinking ability is a level that is beyond the memorization of information or quoting facts back to an individual in the same manner as they were previously expressed [37]. It is the use of critical and creative thought that enables an individual to solve complex problems through analysis, evaluation, and synthesis of knowledge [26]. Critical thinking is observed when an individual receives and stores new knowledge while interrelating and applying such information to address unfamiliar situations. Individuals can resolve a complex through logical thinking process that allows them to interpret, evaluate, and manipulate previous experiences to confront present life challenges.

The constructivist theory emphasized that students are required to be exposed to learning experiences that inspire and empower them to construct their knowledge and promote their thinking skills. As educators struggle to shift from traditional approaches to more effective teaching/learning processes, most educational stakeholders believe that learners are not just holders but also builders of knowledge, and Piaget believed that reflection leads to higher-order knowledge by permitting the resolution of elements of lower-level knowledge [38]. In an environment where education is student-centred, learning is considered as knowledge constructing activities where learners collaboratively obtain, reorganize, and use the information acquired for analysing and solving the problem. Interaction and collaboration are important in the process of developing students' critical thinking. They need

interaction and reflection on what they were previously exposed to, and what they are currently experiencing.

Engaging in social interaction with peers in real-world contexts has the potential of facilitating learners' ability to reflect on previous exposure and views. Such social interactions promote the development of students' critical thinking abilities that enables them to effectively transfer their knowledge across courses and apply it to unfamiliar situations. Collaboration enables students to interact among themselves by exchanging views and ideas to effectively discover new knowledge to accomplish their objectives. It allows them the opportunity to work as a team with interdependence, and assist others to accomplish specific targets [19]. Interactive and collaborative environments empower learners to exercise their minds to find solutions to problems and develop higher-order tendencies, as they respond to their peer's questions and remarks.

### 3. METHODOLOGY

This research fused a documentary approach with a cross-sectional survey. The former was employed to analyse and synthesize literature relevant to the objective of the study. The latter, on the other hand, was used to capture the responses of the participants as they relate to the factors that could influence the adoption of mobile-blended learning to enhance the critical thinking skills of business education undergraduate students in Nigeria. During the search for relevant materials for the study, articles that have their focal point on implementation of blended and critical thinking skills development were selected, analysed, and synthesized. As the study is focused on business education undergraduate students, the sample was restricted to only business educators, who teach in the universities and colleges of education in three states in Nigeria. [39, 40] stated that sample sizes larger than 30 and less than 500 are proper and adequate for most research. Therefore, a sample of 120 business education teachers was drawn from both universities and colleges in three states in the country. A questionnaire was employed to collect data, and its validity and reliability was ascertained by experts in both educational technology and business education fields. The

instrument was a 5-point Likert scale, for the participants to indicate their degree of agreement or disagreement with the factors that are associated with the effective adoption of mobile-blended learning, to develop critical thinking abilities in Nigerian business education undergraduate students. The responses from the survey were analysed using SPSS version 25. Multiple regression was used to identify the factors associated with the successful adoption of mobile-blended learning.

### 4. RESULTS

**Table 1: Sociodemographic characteristics of the respondents**

Variables	N	Percentages
<b>Gender</b>		
<i>Male</i>	67	55.8
<i>Females</i>	53	44.2
<b>Total</b>	<b>120</b>	<b>100%</b>
<b>Highest Qualification</b>		
<i>Bachelor</i>	19	15.8
<i>Masters</i>	58	48.3
<i>PhD</i>	43	35.8
<b>Total</b>	<b>120</b>	<b>99.9*</b>
<b>Teaching experience</b>		
<10 years	34	28.3
10-19 years	38	31.7
20-30 years	29	24.2
>30 years	19	15.8
<b>Total</b>	<b>120</b>	<b>100</b>

\*One of the respondents did not indicate his present highest qualification in the questionnaire.

Out of the 120 respondents that duly completed and returned the copies of the questionnaire, 67 (55.8%) were male while 53 (44.2%) were female. 19 (15.8%) of them at the time of this study had bachelor degrees as their highest qualification, while 58 (48.3%) had master degrees and 43 (35.8%) had doctoral degrees. In relation to the duration of their teaching career, 34 of them (28.3%) had spent less than 10 years in the profession, 38 representing (31.7%) have spent 10 to 19 years, while 29 (24.2%) and 19 (15.8%) have spent between 20 to 30 years and above 30, respectively.

**Table 2: Multiple regression of factors associated with mobile-blended and inquiry-based learning to develop critical thinking skills (n = 120)**

Variables	Beta	SE	P-value
Participation of teachers in the process of making a decision on innovation	0.29	0.27	0.012
Mobile-blended learning competency	0.26	0.25	0.006
Mobile instructional content	0.45	0.25	< 0.001
Mobile-Blended Learning Orientation Programme	0.28	0.17	0.013

Table 2 above shows, there was a significant relationship between the participation of teachers in the process of making a decision to adopt mobile-blended learning, to foster critical thinking in undergraduate students of business education. As the table shows, for a unit change of teachers' participation in the process of making a decision on the adoption of the innovation, there is a corresponding significant increase in the enhancement of critical thinking skills in the students (P-value of 0.012). Mobile-blended learning competency, as shown in Table 2 above, was significantly associated with critical thinking skills enhancement, using the mobile-blended approach. For a unit change of mobile-blended-learning competency, there is a corresponding increase in the critical thinking abilities of undergraduate students of business education, resulting in a P-value of 0.006. From the table above, the mobile-blended learning content was linked to the development of critical thinking abilities by using the mobile-blended learning approach. There is a corresponding increase in critical thinking skills, resulting from every unit change of mobile-blended learning content, with a P-value <0.001. As can be seen from table 2, the mobile-blended learning orientation programme was significantly associated with the development of critical thinking. For a unit change of the

orientation programme, there is a corresponding increase in the development of critical thinking, with a P-value of 0.013.

## 5. DISCUSSION

This section presents a discussion of the results.

Teachers' participation in the process of making a decision to introduce innovation in schools, was found to be associated with effective implementation of mobile-blended learning to enhance the critical thinking skills of business education undergraduate students. As teachers are afforded the opportunity to participate in the educational decision-making process, they feel empowered and motivated to willingly implement the decisions in their professional practice, as well as assume ownership and readily defend such a decision [41, 42]. Teachers' participation in the decision-making process in schools to introduce innovation, not only leads to improved communication among them and the management, but also promotes the quality of such decisions [41]. As they are the custodians of teaching/learning process and implementers of school activities, their involvement in decision making ensures valid and feasible decisions are made, as well as better implementation, resulting in improved students' achievement [43]. Since teachers' inclusion in the process of decision making is very essential for the improvement and overall transformation of school activities, the management should create opportunities to encourage their participation [44]. Their involvement in the process of decision making will enable the management to glean information on the possible barriers of implementation and find ways to swiftly eliminate them. It becomes easy for them to embrace the innovation since they are part of the process from when the decision is was conceived to the stage of implementation. This enables them to make their various contributions towards the successful adoption. Unlike where they are side-lined in the process of arriving at such a decision, the management may not have accurate information about their needs in relation to the innovation, and this may result in the poor decision and ultimately ineffective implementation. Similarly, their exclusion could generate the feeling of coercion

and the unreadiness to defend and take ownership of the decision leading to nonattainment of the objectives effectively.

The study found that mobile-blended learning competence was an influencer for the development of critical thinking skills. The teachers' ability to manage both the online and face-to-face components of this method, is to achieve an appropriate blend that will facilitate the achievement of the desired outcome. Teachers' technological skills and ability to adopt the appropriate blend to achieve the expected outcomes are crucial for an effective blended learning environment [20, 29, 27]. In addition, teacher development training programmes should equip them with blended learning instructional design, pedagogy, learning management system usage and assessment, if they are to succeed in the mobile-blended learning environment [45, 46]. Teacher's skills and attitudes are essential to appropriately guide students in a mobile-blended learning context, direct and keep them on track towards achieving their goals [29, 20]. When teachers possess the appropriate skills to adopt the mobile-blended learning approach, the learners' achievement is guaranteed. This finding is not surprising because a mere combination of online and face-to-face contexts does not constitute blended learning approach. The teachers require the abilities to accomplish an appropriate blend of both settings to achieve the desired outcome. If they lack the proper skills to integrate both contexts with the view to achieving the objectives of the instructional design, the aim of the strategy is defeated.

Mobile instructional content was found to be significantly associated with the development of critical thinking in students, which has been confirmed by many scholars [20, 47-49]. The design and delivery of instructional content for mobile learning is significantly different from those of other learning contexts [20]. The design of mobile learning materials should take advantage of the multimedia offered by the devices and delivered to students in chunks, because of the small screen size associated with the devices. The online content should not overwhelm the students [47, 20], and when possible, video format should be used, because these types of learning materials are most effective for blended learning [20, 48]. This facilitates the learners to be better prepared for face-to face interaction when they study online

[20]. Teachers' online presence needs to be regular and interactive to promote students' understanding of the online contents. Since mobile content is the foundation of classroom activities, which is the blend, the content should complement face-to-face sessions of blended learning, and should also be available to students synchronously and asynchronously [48]. It enables collaboration of peers when it is synchronous, while it can be accessed to consolidate learning on asynchronous mode. In addition, the content should be delivered to the learners via a user-friendly platform. Ease of use and functionality of the online learning platform significantly affects learners' achievement in blended learning [20]. When learners are satisfied with the functionality of the learning management system, they gain more from blended learning [49]. The online learning content, quality of the technology, as well as how it is used in blended learning have a relationship with the learners' satisfaction and achievement. The design and delivery of mobile content are significantly associated with students' achievement in blended learning because the online content, as the foundation of the blend, is what the learners analyse, evaluate and synthesize to solve problems in the face-to-face session. If the content is not properly designed and delivered, this could hinder the students' understanding, culminating in their lack of insufficient information to tackle real-life problem solving in the class sessions.

This study found that the mobile-blended learning orientation programme is associated with successful implementation. A robust orientation programme prior to the introduction of mobile-blended learning, offers an opportunity to introduce the users (teachers and students) to their various roles, and appropriate hardware/software sensitization. [50] Carried out a study to examine the effect of an orientation programme on the adoption of blended learning among nursing students, and claimed that the programme enhanced their communication skills and clinical practices of the students that participated in the orientation. An orientation programme helps to promote students learning outcomes and the attainment of institutional goals [52]. He stressed that induction and other factors, rather than dependence on technology alone result in a blend that leads to the achievement of the desired results. Orientation served as an avenue to introduce the students to the hardware and



software that led to improved functionality of the students in the innovation. Orientation managed by an instructional technology director is very useful, as it provides an opportunity to setup the devices, support students to setup their accounts, expose the students to the acceptable use policy of the school and guidelines on the use of some apps selected by the teachers [51]. As the innovation is being implemented, the teachers and students that later join, also require a robust blended learning orientation programme, to ease their anxieties and enhance their confidence in the environment. Mobile-blended learning orientation, among others, provides a forum to explain to the users how and where they can seek support for effective participation, and the incentives for the teachers that will motivate them to embrace and be dedicated to the innovation. The absence of orientation before the adoption may not provide the teachers and their students with the needed confidence as well as information on how and where they can seek various forms of support required for the successful implementation of the strategy. This could lead to anxieties as they may not have any other opportunity to access clarification on issues bothering their minds before taking part in the innovation. In addition, the management would miss the chance of accessing their readiness and communicating to them its willingness/reassurance to encourage them in the innovation.

## 6. CONCLUSION

Any teaching strategy that emphasizes only the repetitive accumulation of facts and knowledge, lacks the capability to adequately prepare any individual for the expectation of modern society. Effective education demands deep conceptual change and reconceptualization of information as well as the utilization of technological tools, in order to support lifelong learning. This is the result of the evolution of societal needs. Previous generational needs were met by empowering the learners with traditional educational strategies. However, these erstwhile approaches cannot guarantee today's learners the requisite abilities to contribute to the development of the 21<sup>st</sup>-century. This demand by organizations expects educational institutions to regularly engage in creative and innovative strategies, to better equip their learners to adequately

participate and contribute to the development of the ever-changing world.

Since every organization values collaborative, creative, adaptable, and communication skills, that can be deployed within a workforce, because such skills encourage innovation that leads to effectiveness and efficiency of operations (UK Design Council, 2010), therefore, educational institutions must reinvent their strategies to encourage active learning, in order to equip learners with these abilities. Any learning methods that emphasize the role of teachers and students as knowledge providers and receptors, respectively, do not encourage the development of these skills in the students.

Studies have emphasized that a blended learning strategy has the potential to develop these abilities as it not only encourages active learning but also allows teachers adequate class time to expose students to learning tasks that facilitate the development of these skills. In addition, when problem-solving tasks are embedded in mobile-blended learning, it enables students to solve work-related problems through analysis, evaluation, and synthesis using their learned knowledge.

## 7. LIMITATIONS AND FUTURE RESEARCH

While the researchers carefully adhered to the methodology of this study, it has some limitations. At the time the instrument was administered, most of the schools used were about writing end of semester examination. This led to the difficulty in retrieving a larger number of the instrument. Secondly, the study was restricted to only business educators in Nigeria. There is a need for further research that will cover more university teachers in other academic disciplines with larger samples.

## REFERENCES

- [1] Kay, R. MacDonald, T. & DiGiuseppe, M. (2018). A comparison of lecture-based, active, and flipped classroom teaching approaches in higher education. *Journal of Computing in Higher Education* 31, pp. 449–471.

- [2] Davis, K. & Minife, J. R. (2013). Ensuring gen y students come prepared for class; then leveraging active-learning techniques to most effectively engage them. *American Journal of Business and Management*, Vol. 2 No. 1, pp. 13–19.
- [3] Brown, S. & Race, P. (2005). *Lecturing: A practical guide*. Sterling, VA: Routledge.
- [4] Charlton, B. G. (2006). Lectures are such an effective teaching method because they exploit evolved human psychology to improve learning. *Medical Hypotheses*, Vol. 67 No.6, pp. 1261–1265.
- [5] Bligh, D. (2000). *What’s the use of lectures?* (5th ed.). San Francisco, CA: Jossey-Bass.
- [6] Lambert, C. (2012). Twilight of the lecture. *Harvard Magazine*, March–April. Available at: <http://harvardmagazine.com/2012/03/twilight-of-the-lecture> Accessed 1st October 2018.
- [7] Frydenberg, M. (2013). Flipping Excel. *Information Systems. Education Journal*, Vol. 11 No. 1, 63.
- [8] Rimini, M. & Spiezia, V. (2016). Skills for a digital world: Background report 2016 Ministerial Meeting on the digital economy. Paris: OECD.
- [9] Roehl, A., Reddy, S. L. & Shannon, G. J. (2013). The flipped classroom: an opportunity to engage millennial students through active learning strategies. *Journal of Family and Consumer Sciences*, Vol. 105 No. 2, pp. 44–49.
- [10] Oyekanmi, S. (2020) Nigeria’s unemployment rate jumps to 27.1% as at 2020 Q2. Available at: <https://nairametrics.com/2020/08/14/breaking-nigeria-unemployment-rate-jumps-to-27-1/> Accessed 21<sup>st</sup> August 2020.
- [11] Allen, J. E. (2020). Challenges and prospect of vocational technical education and training in tertiary institutions in south-south, Nigeria. *Vocational and Technical Education Journal*, Vol. 2 No. 1, pp. 273–278.
- [12] Brierton, S., Wilson, E., Kistler, M., Flowers, J. & David, J. (2016). A comparison of higher order thinking skills demonstrated in synchronous and asynchronous online college discussion posts. *NACTA Journal*, Vol. 60 No. 1, pp. 14–21.
- [13] Wishart, J. M. (2018). Ethical considerations in the incorporation of mobile and ubiquitous technologies into teaching and learning in educational contexts. DOI: 10.1007/978-981-10-6144-8\_5. Available at: <https://www.researchgate.net/publication/321150203>. Accessed February 14<sup>th</sup>, 2019).
- [14] Uther, M. (2019). Mobile Learning—Trends and Practices. *Educ. Sci.*, Vol. 9, 33; doi:10.3390/educsci9010033. Available at: [www.mdpi.com/journal/education](http://www.mdpi.com/journal/education). Accessed February 15<sup>th</sup>, 2019.
- [15] Mojaye, E. M. (2015). Mobile phone usage among Nigerian university students and its impact of teaching and learning. *Global Journal of Arts Humanities and Social Sciences* Vol.3 No.1, pp.29-38.
- [16] Nigerian communications commission (2020). Subscriber statistics. Available at: <https://www.ncc.gov.ng/statistics-reports/subscriber-data> Accessed 16th August, 2020.
- [17] O’Nwachukwu, C. I. (2017). Determinants of the Rate of Unemployment in Nigeria. *International Journal of Information Research and Review* Vol. 4 No. 1, pp.3593-3595.
- [18] Quadri, R. F. & Abiodun, O. S. (2017). Evaluation of ICT literacy skills among students of federal polytechnic Offa, Kwara State, Nigeria: a review of related literatures. *SCIREA Journal of Energy*, Vol. 2 No. 2, pp. 27-41.
- [19] Fu, Q.-K. & Hwang, G.-J. (2018). Trends in mobile technology-supported collaborative learning: A systematic review of journal publications from 2007 to 2016. *Computers & Education*, 119, pp. 129–143.
- [20] Jantakoon, T. & Piriyaasurawong, P. (2018). Flipped classroom instructional model with mobile learning based on constructivist learning theory to enhance critical thinking (FCMOC MODEL). *Journal of Theoretical and Applied Information Technology*, Vol. 96 No. 16, pp. 5607-5614.
- [21] Cocquyt, C., Diep, A. N., Zhu, C., De Greef, M. & Vanwing, T. (2018) Contribution of social-constructivist and andragogical principles in blended learning to adult’s social inclusion and social capital. *Andragoške studije*, 1, pp. 47–78.
- [22] Han, F. & Ellis, R. A. (2019). Identifying consistent patterns of quality learning discussions in blended learning. *The Internet and Higher Education*, 40, pp. 12-19.

- [23] Wu, J., Tennyson, R. D. & Hsia, T. L. (2010). A study of student satisfaction in a blended e-learning system environment. *Computer & Education*, 55, pp. 155–164.
- [24] Bloom, B., Englehart, M. D., Furst, E. J., Hill, W. H., & Krathwohl, D. R. (1956). Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain. New York, NY: David McKay.
- [25] Stockwell, E. R., Stockwell, M., Cennamo, M. & Jang, E. (2015). Blended Learning Improves Science Education. *Cell*, Vol. 162 No. 5, pp. 933-936. Elsevier Inc.
- [26] Lee, K.-Y. & Lai, Y.-C. (2017). Facilitating higher-order thinking with the flipped classroom model: a student teacher's experience in Hong Kong secondary school. *Research and Practice in Technology Enhanced Learning*, Vol. 12 No. 8, pp. 1-14.
- [27] Du, S., Fu, Z. & Wang, Y. (2014). The Flipped Classroom—Advantages and Challenges. International Conference on Economic Management and Trade Cooperation, 17-20. doi:10.2991/emtc-14.2014.3
- [28] Alsowat, H. (2016). An EFL flipped classroom teaching model: effects on English Language higher-order thinking skills, student engagement and satisfaction. *Journal of Education and Practice*, Vol. 7 No. 9, pp. 108-121.
- [29] Bergmann, J. & Sams, A. (2014). Flipped Learning: Gateway to Student Engagement. Washington DC: International Society for Technology in Education.
- [30] Long, T., Cummins, J. & Waugh, M. (2017). Use of the Flipped Classroom Instructional Model in Higher Education: Instructors' Perspectives. *Journal of Computing in Higher Education*, Vol. 29 No. 2, pp. 79-200.
- [31] Nederveld, A. & Berge, Z. L. (2015). Flipped learning in the workplace. *J Work Learn*, Vol. 27 No. 2, pp. 162–172.
- [32] Lepp, A., Barkley, J. E. & Karpinski, A. C. (2014). The relationship between cell phone use, academic performance, anxiety and satisfaction with life in college students. *Computer in Human Behavior* 31, pp. 343-350.
- [33] Ferreira, M. J., Moreira, F., Pereira, C. S. & Durão, N. (2015). The role of technologies in the teaching/learning process improvement in Portugal. In *Proceedings of ICERI Conference 16th-18th November*, Seville, Spain, pp 4600-4610. Available at: [http://repositorio.uportu.pt/xmlui/bitstream/handle/11328/1352/ICERI\\_2015\\_2150\\_vFinal.pdf?sequence=1](http://repositorio.uportu.pt/xmlui/bitstream/handle/11328/1352/ICERI_2015_2150_vFinal.pdf?sequence=1). Accessed February 5<sup>th</sup>, 2020.
- [34] Jimoh-Kadiri, S. O. & Bupo, G. O. (2011). Challenges facing e-learning in teaching business education courses: Strategies for improvement. *Orient Journal of Education*, Vol. 6 No. 1 &2), pp. 163-169.
- [35] Edokpolor, J. E. & Egbri, J.N. (2017). Business education in Nigeria for value re-orientation: a strategic approach for poverty alleviation and national development. *Journal of Educational Research and Review*, Vol. 5 No.3, pp. 41-48.
- [36] Amesi, J. (2018). Quality assurance in business education programmes and skill acquisition among business education students in tertiary institutions in Rivers State. *Nigerian Journal of Business Education*, Vol. 5 No.1, pp. 64-78.
- [37] Thomas, A. & Thorne, G. (2009). How to Increase Higher Order Thinking. Los Angeles: Center for Development and Learning.
- [38] Mattar, J. (2018). Constructivism and connectivism in education technology: Active, situated, authentic, experiential, and anchored learning. *Revista Iberoamericana de Educación a Distancia*, Vol. 21 No. 2, pp. 201-217
- [39] Roscoe, J. T. (1975). Fundamental research statistics for the behavioral sciences. New York: Holt, Rinehart and Winston.
- [40] Sekaran, U. (2003). Research methods for business: A skill building approach. John Wiley & Sons.
- [41] Somech A. (2010). Participative Decision Making in School: A Mediating–Moderating Outcomes Analytical Framework for Understanding School and Teacher. Available at: [www.eaq.sagepub.com/content/46/2/174](http://www.eaq.sagepub.com/content/46/2/174) Accessed 2<sup>nd</sup> December, 2019.
- [42] Gelaye, E. (2019). The relationship between teachers' participation in decision making and their job satisfaction in preparatory schools of Arada Subcity, Addis Ababa. Available at: <http://213.55.95.56/bitstream/handle/123456789/18988/Eshetu%20Gelaye.pdf?sequence=1&isAllowed=y> Accessed 23<sup>rd</sup> April, 2020.

- [43] Gemechu, D. (2014). The practices of teachers' involvement in decision-making in government secondary schools of Jimma town. Available at: <https://core.ac.uk/download/pdf/29136341.pdf> Accessed 2<sup>nd</sup> June, 2020.
- [44] Reichert M. & Mouza C. (2018). Teacher practices during Year 4 of a one-to-one mobile learning initiative. *Journal of Computer Assisted Learning*. 34, pp. 762–774.
- [45] Arney, L. (2015). *Go blended! A handbook for blending technology in schools*. San Francisco, CA: Jossey-Bass.
- [46] Pulham, E., & Graham, C. R. (2018). Comparing K-12 online and blended teaching competencies: a literature review. *Distance Education*, Vol. 39 No. 3, pp. 411–432.
- [47] Lo, C. K., & Hew, K. F. (2017). A critical review of flipped classroom challenges in K-12 education: Possible solutions and recommendations for future research. *Research and Practice in Technology Enhanced Learning*, Vol. 12 No. 1.
- [48] Keskin, S. & Yurdugül, H. (2019). Factors Affecting Students' Preferences for Online and Blended Learning: Motivational vs. Cognitive. *European Journal of Open, Distance and e-Learning*, Vol. 22. No. 2, pp. 72 – 86.
- [49] Goyal, E., & Tambe, S. (2015). Effectiveness of Moodle-enabled blended learning in private Indian Business School teaching NICHE programs. *The Online Journal of New Horizons in Education*, Vol. 5 No. 2, pp. 14–22.
- [50] Nestel, D., Ng, A., Gray, K., Hill, R., Villanueva, E., Kotsanas, G., Oaten, A. & Browne, C. (2010). Evaluation of mobile learning: Students' experiences in a new rural-based medical school. *BMC Medical Education*, 10:57. Available at: <https://link.springer.com/content/pdf/10.1186/1472-6920-10-57.pdf>
- [51] Antwi, E. A., Tampah-Naah C. & Buame J. A. (2019). Exploring blended training scheme to improve employee training outcomes: an assessment of orientation training programmes in university for development studies. *UDS International Journal of Development*, Vol. 6 No. 3, pp. 75-85.
- [52] Washington P. (2009). *Employee orientation; Exploring blended learning strategies to improve learner outcomes and meet organisational goals*. Las Vegas: UNLV University Libraries. University of Nevada.