



Resources Availability and Utilization of Artificial Intelligence in Blendspace for Effective Lesson Delivery in Secondary Schools in Akwa Ibom North East Senatorial District

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Abstract: *The study was aimed at determining the extent of the influence of resources availability and utilization of artificial intelligence (AI) in blended learning for effective lesson delivery in Secondary School in Akwa Ibom North East Senatorial District. To achieve this purpose, three specific purposes, three research questions and three null hypotheses were formulated. The descriptive survey research design was used and it was carried out in Akwa Ibom North East Senatorial District. The population of the study comprised of 3,723 teachers (1,387 males and 2,336 females) in all the 86 pupils Schools in Akwa Ibom North Senatorial District. The sample size for this study consisted of 350 teachers made up of 135 male and 215 female teachers. The sample sizes were selected using multi-stage cluster sampling technique. The instrument for this study was a researcher developed 15 item questionnaire captioned Resources Availability and Utilization of Artificial Intelligence in Blended-Learning Questionnaire (RAUAIBQ). The instrument was subjected to face validation by two research experts from the Faculty of Education, University of Uyo. The internal consistency reliability of the instruments obtained was .88 using Cronbach Alpha technique. The questionnaire was administered on the respondents by the research with the help of four research assistants. Mean was used to answer the three research questions while the independent t-test was used to test the three null hypotheses at 0.05 level of significance. The findings indicated that the three null hypotheses were retained. Based on the findings of the study, it was concluded that resources availability greatly influences the utilization of Ai in blendspace for lesson delivery in Secondary Schools in Akwa Ibom North East Senatorial District. The research are therefore recommended that Akwa Ibom State Secondary Education Board should endeavour to intensify efforts by providing instructional materials and equipped manpower as well as providing internet facilities for utilization of Ai for Blended-Learning in effective lesson delivery.*

Keywords: *Blendspace, artificial intelligence, lesson, delivery*

Introduction

The 21st Century learning situation is quite different from the earlier learning setting. Hitherto, the learning process was characterised with physical contact, where the instructor met with the learner in a particular place. Conversely, the learning situation have become so dynamic and sophisticated in all dimension.

Increasingly, the introduction of Internet facilities has made learning more interesting and accessible. Etim and Okon (2018) asserted that, the potential impact of Internet facilities on learning is the vision that enables learning anywhere, anytime and anyhow”. Nonetheless, to have maximum utilization and benefits of Ai technologies in the present learning setting, it requires resources. The ability to pull the resources together and align these resources for effective lesson delivery which could enhance efficiency in learning. The sharp demands for resources in the modern-day learning situation plays a vital role in the actualization of effective lesson delivery, as well as making the lesson content rich and accessible. Ekong and Essien (2015) Observed that, appropriate instructional (materials) resources would support, enrich the school curriculum and encourage learning, educational and recreational development of students.

The resources needed varies from materials, manpower and Internet facilities, which are needed for used in blendspace for learning. Interestingly, (www.Blendspace.com 2015) reported that over 10,000 schools are using Blendspace as the earliest way to create and deliver digital lesson that adapt to student’s needs.

Many studies have identified the role of Artificial Intelligence (AI) as a direct mediator to help control flexibility and autonomy of students in blended learning. The advancement of Ai technologies has promoted effective interactions with students and facilitate the learning process, in a setting where the needed resources are well organized. Adiguzel and et.al (2023) noted that Ai programs and applications have flourish empirical research and their effects has been conducted across diverse domains, including education. Yeonjeong and Min (2024) stressed the role of AI in Blended-Learning approaches in new subject matter as; pedagogical agents and robotic, direct mediator and learning analytics.

Blended-Learning is the collaboration between in class or face-to-face education with online and other course components. Yeonjeong and Min (2022) defined blended- learning as a combination of multiple instructional approaches in various dimensions to find the optimal teaching and learning approach.

Blendspaces are special assets which can be sampled in AnimGraps that allow for blending of animations based on values of two inputs (www.blendspace.com 2015). Simple blending between two animations based on a single input can be performed using one of the Standard Blend nodes available in Amination Blueprints. Blendspaces provide a means of doing more complex blending between multiple values. (elearningindustry.com, 2015) Crunchbase (2016) asserted that, the goal of Blend spaces is to reduce the need for creating individual, hard-coded needs to perform

blending, based on specific properties or condition by allowing the animator or programmer to specify the inputs, the animation and how the inputs are used to blend between animations virtually any type of blending can be performed using the generic Blendspace.

Kwasu and EmaEma (2015) posited that, animation is discovered to be very important in the teaching process. Animation in teaching and learning combat boredom, having the capacity of activating the senses, of sight, hearing and in the case of concrete objects, the sense of touch. Animation provides learners higher interactive activities establishing concrete basis for conceptual thinking where more than a single sense of perception is experienced.

Blended space provides a learning environment that will help learners to be more effective. The application of Blended Space in teaching and learning also depends on the teachers' knowledge on the principles and practice guiding its application, the characteristics of the learners and the objectives of the lesson. WWW.flearningstudio (2015) asserted that, using animation for educational purposes is an up rising trend. WWW.td.org.insights (2016) postulated that, animations that have a cognitive purpose can facilitate learning because they provide more and different information than static graphics. Connie (2015) stated types of animation that can be used for instructional purposes, which include; (1) 2-D animation: creating the illusion of motion by the rapid display of a sequence of static images or frames that minimally differ from one another (2) 3-D animation: creating the illusion of moving objects rendered from 3-D wireframes. Based on mathematics algorithms, the objects can be rotated and moved over time. (3) Motion graphics: moving graphical elements and text across the screen. (4) Transformation: animations that depict changes without movement, such as color transformations (5) Stop-motion animation: photographs of an object shown in a quick sequence to create the illusion of movement. Blended-Learning offers several advantages over traditional classroom learning, including flexibility, increase students engagement, and personalized learning. Yeonjeong and Min (202) posited that, to fully realize its potential, classrooms must be equipped with the right technology and tools.

Effective lesson delivery using blended space depends on the availability of resources. The instructor or teacher will utilize the resources and makes the lesson benefiting and articulating for the learner's interest. Resources include; material resources, manpower and Information and Communication Technology (ICT) resources. The resources may be seen as anything that may enhance effective lesson delivery.

Ibok and Igiri (2022) asserted that instructional resources include anything that may be an object for study, photocopies, microphone, work object, slides, film script, films loops, CDs, DVDs, radio, TV, material of any such, models, specimen, realises as well as individual example, experts in certain field, object in the communication, any instructional materials object, living and non-living are all accompany teaching aid for teachers in classroom.

Ekong, Akpan, mbuk and Etim (2013) pointed out that the development useful skills would be reinforced by appropriate selection and utilization of instructional (materials) resources. Material resources plays a vital position in blendspace method of lesson delivery.

The National policy on Education (2013) section 8 sub section 127 page (37) highlighted the goal to achieve, which included that; each state/FCT and local government shall establish

teacher's resource centre where the teachers meet for discussion, investigations, study workshops, short courses and conferences, these centre shall also used for the development and testing of teaching materials.

Etok, Udom, Anana and Amah (2022) added that instructional materials are any quantifiable materials used by teachers to complement teaching and learning in schools; they are tools that teachers employ in transmitting knowledge, for example, environmental resources, printed materials which could be text books, charts, picture, equipments among others are also parts of materials resource.

In the context of these study, materials resource will include television, other viewing screen, projectors and other electronics gadget. These materials if not available and utilized may affect the use of blendspace in lesson delivery. A part from the visual aids materials resource, audio aids material resource is imperative, it makes teaching flexible, interesting and captivating.

Manpower is another resource that may influence the utilization of blendspace in lesson delivery in secundar school in Akwa Ibom North East Senatorial District. Having the right person with technical knowledge and skills to assimilate will impact positively on effective utilization of blendspace. Adiele (2017) defined manpower as the total supply of personnel available or engaged for specific job.

Akpabio (2022) Opined that, manpower remains a good mechanism in the implementation of security education as subject in secondary school, it therefore depicts that manpower will control other resources and makes them work effectively to actualize educational goals and objectives.

George and Adetokun (2017) noted that, the perception that manpower is regarded as the most significant assets needed which is also the main instrument for promoting service delivery. Peretomode (2012) agreed that human resources (manpower) are perceived as the most vital of all the resources that are at the disposal of educational enterprise.

Etim and Okon (2018) defined internet as a connection of separate but inter-connected networks that are accessed daily by millions of people to obtain information, disseminate and communicate with others. Jegede (2013) suggests the use of Information and Communion Technology (ICT) in the process of teaching and learning as it's adoption will promote education interaction between students and teacher and will promote teaching and learning. Apagu and Wakili (2015) defined ICT as electronic or computerizes devices, assisted by human and interactive materials that can be used for a wide range of teaching and learning as well as for personal use. Ikwuanusi, Nwoke and Uzoma (2016) stressed that, Information and Communication Technologies (ICTs) helps to develop skills as it provides effective training programmes. The author, further stated that ICT has the capacity for stimulation, mode-building and interactive adaption and its usage applies not only to sciences and language but also to other professional courses.

Etim and Okon (2018) posited that, the potential of ICT to take some of the challenges facing education and thereby impact on development, has led many Countries to invest heavily in ICT, placing it at the centre of their development strategies. The ICT is the hub of learning the

global view and as well exposed the learner to new ideas and concepts that are relevance to almost all professions.

The manpower in the context are male and female teachers who are engaged to handle different subject areas such as English Language, Mathematics and Sciences, Humanities Business Studies, Technologies and Civic Education, which could be easily taught and impacted on students through blendspace application. These male and female (teacher) have their individual differences. This disparity may probably influence the use of blendspace in lesson delivery. Hence, it becomes necessary to examine the extent to which resources availability influence blendspace by both gender in effective lesson delivery. Despite the immense benefits of blendspace in lesson delivery, it seems that teachers and managers of schools, especially in Akwa Ibom North East Senatorial District have failed to embrace this modern digital device (blendspace) for effective lesson delivery, which may be as a result of insufficient materials, manpower and Information and Communication Technology resources in Secondary schools in Akwa Ibom North East Senatorial District. Upon this background, it becomes pertinent to investigate the extent to which resources availability influence blend utilization of blendspace for effective lesson delivery in Akwa Ibom North East Senatorial District.

Kofi and Otu (2020) believed that people who are interested in the development and progress of the educational system and the society at large must think more seriously about teacher education in terms of ICT integration into teachers' curriculum.

Similarly, Etim and Okon (2018) agreed that ICT is seen as a way to promote educational change, improve the skills of learners and prepare them for global economy and the information society.

In this background, the researcher view Internet facilities as a factor that could have positive influence on the practicability of utilization Ai in blended-learning. The improvement in Internet facilities and International Network Connection could boost the use of blending learning as a model for lesson delivery but where the Internet facilities and Internet Connections is lacking, the use of blendspace becomes inactive and malfunctioning. Therefore, this work is a pragmatic attempt to investigate the level of the teacher's awareness on the use of blendspace in lesson delivery, availability of resources to be used in the actual operation of blending teaching in Akwa Ibom North West Senatorial District.

The purpose of the study is to determine the influence of resources availability and utilization Ai on blended learning for effective lesson delivery in Secondary School in Akwa Ibom North East Senatorial District. The study sought to achieve the following objective; (1) To determine the influence of instructional materials resources on and utilization of Ai in Blended-Learning for effective lesson delivery in Secondary Schools in Akwa Ibom East Senatorial District. (2) TO determine the influence of manpower resources on utilization of Ai in Blended-Learning for effective lesson delivery in Secondary Schools in Akwa Ibom North Earth Senatorial District. (3) To determine the influence of Internet facilities on blendspace for effective lesson delivery in Secondary Schools in Akwa Ibom North East Senatorial District.

The findings of the study will be of immense benefits to teachers, students and education stakeholders. The result of the finding would help to improve teaching and learning using blendspace application. Government and Non-government organization would see the need to assist in provision of teaching aids like white board, television screen, speakers and other electronics appliances that could be used for audio transmission which is core of the material resources needed for blended learning situation. The finding would also encourage the education stakeholders to see the need to send more people for training on the way to handle AI and practical base training on blendspace lesson delivery. Through the study, service providers would see the need to improve on their internet services by mounting more mast to cover a wider range for steady network for internet services. This study would be useful to any person who intends to carry out research in related area of this study.

This study sought to answer the following research questions

1. What is the influence of materials resources availability and utilization of AI on blended learning for effective lesson delivery in secondary schools in Akwa Ibom North East Senatorial District.
2. What is the influence of manpower resources availability and utilization of AI on blended learning for effective lesson delivery in Secondary Schools in Akwa Ibom North East Senatorial District.
3. What is the influence of Internet facilities and utilization of AI on blended learning for effective lesson delivery in Secondary Schools in Akwa Ibom North East Senatorial District.

The following null hypotheses were formulated and tested at 0.05 level of Significance.

HO₁ There is no significant difference in the mean responses of male and female teachers to which instruction material resources availability and utilization of AI on influence of blended learning for effective lesson delivery in Secondary Schools in Akwa Ibom North East Senatorial District.

HO₂ There is no significant difference in the mean response of male and female teachers to which manpower resources availability and utilization of AI influences blended learning for effective lesson delivery in Secondary Schools in Akwa Ibom North East Senatorial District.

HO₃ There is no significant difference in the mean response of male and female teachers to which Internet facilities availability and utilization of AI influence blended learning for effective lesson delivery in Akwa Ibom North East Senatorial District.

Methodology

Descriptive survey was used in this study. According to Usoro (2018) descriptive research is used to answer descriptive research questions. This design was considered suitable since information on resource availability and utilization of blend space was sought from teachers of Secondary Schools using questionnaire.

This study was conducted among public Secondary Schools in Akwa Ibom North-East Senatorial District. Akwa Ibom North-East Senatorial District has nine Local Government Areas namely; Etinan, Ibesikpo Asutan, Ibiono Ibom, Itu, Nsit Atai, Nsit Ibom, Nsit Ubium and Uyo.

The area was chosen for the study because of its vibrant Senior Secondary Schools with considerable teacher and students' population.

The population of this study comprised all the 3723 teachers (1387 males and 2336 females) in all the 86 public Secondary Schools in Akwa Ibom North East Senatorial District (State Secondary Education Board, Uyo, 2022).

The sample size for this study consisted of 350 teachers made up of 135 males and 215 female teachers of Secondary Schools in Akwa Ibom North East Senatorial District. The sample size was determined statistically using the sampling method of Kveijce and Morgan (1970).

Multi-stage cluster sampling technique was used to select the sample for this study. The study areas was divided into nine clusters based on the Local Government Areas. The first stage of the sampling procedure entails the random selection of seven out of the nine Local Government Areas in the study area. In the Second stage five schools were randomly selected from each of the seven Local Government Areas giving a total of 35 Secondary Schools. Finally, random sampling (balloting) was used to select 10 teachers from each of the 35 Secondary Schools.

The instrument for this study was a researcher-developed questionnaire captioned "Resource Availability and Utilization of Blendspace Questionnaire (RAUBQ). The instrument was divided into two sections A and B section. A sought information on respondent's demographic details while section B contained 15 structured items covering all the clusters of the independent sub variables namely; Materials, manpower and ICT resources. Each cluster contained five items. The internal consistency of the instrument was determined using Cronbach's Alpha reliability method. The researcher administered the instrument to the respondents with the help of four research assistants. Mean and standard deviation were used in answering the three research questions while the three null hypotheses formulated to guide the study were tested with independent t-test at 0.05 level of significance.

In answering the research questions, the degree of influence was determined based on the upper and lower limit as indicated below; Very strong influence of four (4) points has lower limit 3.5 and upper limit of 4.00, strong influence of three (3) point carried lower limit of 2.50 and upper limit 3.49, weak influence of two (2) points carried lower limit of 1.50 and upper limit of 2.49, also very weak influence of one (1) point carried lower limit of 1.00 and upper limit 1.49.

For testing the null hypotheses, when the calculated probability value (p) is less than or equal to the stipulated alpha level (0.05), the null hypotheses were rejected in favour of the alternative one. However, when the calculated probability level is greater than the alpha level, value of 0.5, the null hypotheses is retained. Source of the information used in the study were duly acknowledged using references in order to avoid plagiarism. There was no falsification of information, data or result of the study.

Result

The results and discussion of finding is been summarized below;

Research Question 1: what is the influence of materials resources availability and utilization of AI on blended learning for effective lesson delivery in Secondary schools in Akwa Ibom North East Senatorial District.

Table 1: Influence of materials resources availability and utilization of AI on blended learning for effective lesson delivery

	\bar{X}	SD	Remarks
1. It expands the students' knowledge of subject areas	2.65	0.58	MI
2. It improves skills for blended learning	2.75	0.59	MI
3. It builds confidence in the lesson delivery	2.96	0.57	MI
4. It transfers authentic idea on the subject	3.08	0.69	MI
5. It builds concentration in lesson delivery	2.89	0.62	MI

MI = Moderate Influence

Source: Field survey 2024

In the result the mean responses on all the five items as well as the cluster mean fell within the range 2.50 and 3.49. This result indicate that majority of the teachers agreed that instructional materials have moderate influence on the utilization of AI on Blended-Learning for lesson delivery in Schools in Akwa Ibom North East Senatorial District.

Research Question 2: what is the Influence of manpower on utilization of AI on blended learning on lesson delivery in Akwa Ibom East Senatorial District?

Table 2: Mean responses on the extent of influence of manpower and utilization AI on blended learning for lesson delivery in Secondary Schools

	\bar{X}	SD	Remarks
1. It coordinates the lesson setting	2.99	0.67	MI
2. It improves effective classroom management	3.11	0.75	MI
3. It ensures lesson content is rich	3.02	0.79	MI
4. It gives current and relevant knowledge	3.03	0.75	MI
5. It uses range of teaching strategies	3.07	0.74	MI

MI= Moderate Influence

Source: Field survey 2024

The mean resources on the five items as well as the cluster mean fell within the range of 2.50 and 3.49. This result indicate that majority of the teachers agreed that manpower have a moderate influence on utilization AI on blended- learning for lesson delivery in Scondary schools.

Research Question 3: What is the mean responses of the extent of influence of ICT on utilization of blendspace in lesson delivery in Secondary Schools in Akwa Ibom North East Senatorial District.

Table 3: Mean responses of the extent of influence of ICT on utilization of blendspace in lesson delivery in Secondary Schools

S/N	ICT would influence teachers job performance In the following ways	\bar{X}	SD	Remark
1.	It improves communication	2.91	065	MI
2.	It enhances internet connection	3.00	070	MI

3. It makes teaching digital	2.98	0.62	MI
4. It encourages information search	2.93	0.60	MI
5. It makes teaching knowledge based	2.90	0.72	MI

MI = Moderate Influence

Source: Field survey 2024

This result indicates that majority of the teachers agreed that ICT has moderate influence on utilization of AI on Blended-Learning for lesson delivery in Secondary Schools in Akwa Ibom North East. The mean responses on the five items as well as the cluster mean fell within the range 2.50 and 3.49.

Based on the findings of the study, it is concluded that resources availability could greatly influence the utilization of AI on blended learning for lesson delivery in Secondary Schools in Akwa Ibom North East Senatorial District. Thus, provision of this resources by the government and educational stake-holders could lead to great improvement in lesson delivery using blendspace.

The findings of this study have a number of educational implications for teachers principals, government and Ministries, departments and agencies responsible for the management of Secondary Schools in Akwa Ibom North East Senatorial District. The implication of the findings to teachers is that, it would enable them to know the influence of the various resources that could impact the utilization of AI on Blended-Learning. The principal will see the need to provide various instructional materials, train manpower and provide ICT link for utilization of blendspace for lesson delivery. The implication for the owners and managers of schools, especially the Akwa Ibom State Secondary Education Board is that the result of this study will enable them to see the need to connect internet facilities and train manpower to professionalize in ICT for effective lesson delivery using AI to reduce work load on teachers especially when using blendspace. The study will therefore help the government to see the need of organizing and sponsoring teachers on the use of AI in Blended-Learning, the training could be either locally or oversea in order to acquire knowledge, as well enlighten the teachers on the present developments in method of lesson delivery.

The following recommendations are based on the findings of the study.

1. Ministry of education should enshrine Blended-Learning in its curriculum.
2. The Akwa Ibom State Secondary Education should endeavour to intensify effort by providing instructional materials to enable teachers to utilize AI on blended learning in lesson delivery.
3. The Akwa Ibom State Secondary Education should employ capable and computer professionals for them to also train other teachers on computer and internet services.
4. The Akwa Ibom State Secondary Education should ensure that there are internet facilities in all the Secondary Schools in the State.

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