Lecturers' Uses of Emerging Technologies for Teaching & Learning: A Panacea to Educational Problems in Nigeria

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Abstract

Emerging Technologies refers to those technologies whose development & practical applications are still largely unrealized, though, they are finding new applications in educational sectors. Emerging technologies are often perceived as capable of changing the status quo of teaching & learning as a paradigm shift. Base on this background the paper explores secondary sourced data and online journals. The paper therefore, identified & discusses different forms of emerging technologies for educational uses such as: Augmented Reality; Virtual Reality; Robotics; Adaptive Learning etc. Similarly, it discussed conceptual frame work model around pedagogical alignment that support the used of emerging technologies for learning process such as Technology Acceptance Model (TAM) proposed by Davis. It also highlighted educational advantages & challenges such as: Inadequate infrastructural facilities in school, Gap in skills & competency of users among others. Lastly, conclusions and recommendations were made and some of which are: Ensuring effective internet accessibly; Capacity development to fill skill gaps.

Keywords: *Lecturer, Emerging Technologies, Teaching & Learning*

Introduction

Across the globe, educational sector has been revolutionized with the use of technology in order to enhance effectiveness in teaching and learning process and the fact remains that, the conventional face-to face classroom teaching has been bedevilled with multitudes problems and challenges which ultimately the expected learning outcome is not yielding a more desirable results and as such those multiple challenges including but not limited to obsolete curriculum contents used for instructional process in teaching and learning process at all level of educational practices rigidity of conventional classroom instructional process by teachers and above all the unplanned crisis such as COVID-19 Pandemic that rampaged the world and its aftermath which is so destructive and with its negative consequential impacts on students learning call for a rethink and re-designed of pedagogical and methodological alignment of student –teacher engagement for quick catch up as regards students learning and needs to improve on learning performance since these students are digital native and they have some skill in utilizing most of these 21st Century technologies. (AlFarsi, Tawafak, ElDow, Malik, Jabbar, and Sideiri, 2021; Akçayır, and Akçayır, 2018: Bower, Howe, McCredie, Robinson, and Grover, 2014: Brahim, Khribi, Jemni, and Tlili, 2020)

It has been observed that, there are rapid introduction of new technologies across the globe and it has been witnessed in all field of human endeavor, with no exception to educational

sector. These recent technologies refer to as emerging technologies which will undoubtedly impact nearly every aspect of our daily lives and will likely be continued for years to come. Historically, periods of dramatic technological change were brought about by a single element of new technology. Therefore, emerging technologies are technologies whose development, practical applications, or both are still largely unrealized. These technologies are generally new but also include older technologies finding new applications. Emerging technologies are often perceived as capable of changing the status quo and improved on students/ teachers engagement within and outside classroom setting. Emerging technologies are characterized by radical novelty (in application even if not in origins), relatively fast growth, coherence and prominent impact. In other words, an emerging technology resources were seen a radically novel and relatively fast growing technology characterized by a certain degree of coherence persisting over time and with the potential to exert a considerable impact on the socio-economic domain(s) and educational developmental process at all level. (AlFarsi, Tawafak, ElDow, Malik, Jabbar, and Sideiri, 2021; Akçayır, and Akçayır, 2018: Bower, Howe, McCredie, Robinson, and Grover, 2014: Brahim, Khribi, Jemni, and,Tlili,2020) s

These technologies include a variety of technologies such as educational technology, information technology, nanotechnology, biotechnology, robotics, and artificial intelligence. New technological fields may result from the technological convergence of different systems evolving towards similar goals. Convergence brings previously separate technologies such as voice (and telephony features), data (and productivity applications) and video together so that they share resources and interact with each other, creating new efficiencies. In the history of technology, emerging technologies are contemporary advances and innovation in various fields of technology. Over centuries innovative methods and new technologies are developed and opened up. Some of these technologies are due to theoretical research, and others from commercial research and development. Technological growth includes incremental developments and disruptive technologies. An example of the former was the gradual roll-out of DVD (digital video disc) as a development intended to follow on from the previous optical technology compact disc. By contrast, disruptive technologies are those where a new method replaces the previous technology and makes it redundant, for example, the replacement of horse-drawn carriages by automobiles and other vehicles. An emerging technology is one that is not in 'common' use currently in education, but which has the potential to be more widely adopted to support improvements in learning and teaching. Many of these technologies have been emerging for a number of years. Many continue to evolve at pace and will be in a state of continuous 'emergence. (AlFarsi, Tawafak, ElDow, Malik, Jabbar, and Sideiri, 2021; Akçayır, and Akçayır, 2018: Bower, Howe, McCredie, Robinson, and Grover, 2014: Brahim, Khribi, Jemni, and,Tlili,2020)

Statement of the Problem

Nigerian Educational System have been badly affected as a result of school closure occasioned by Covid-19 Pandemic that rampage the entire globe and this grounded teaching and learning at all level of schooling, except few countries that switch to remote learning that uses one form of technologies or another Thereafter, at the post-covid, educationist, began to advocates for a more swift-switch in the utilizations of technologies for learning in tertiary

institutions in Nigeria seeing the effects of the total closure in all Nigeria schools during pandemic period an unpleasant experience.

Therefore, with this development it was assumed that if Nigeria tertiary institutions were equipped with the needed ICT infrastructure teaching and learning mode would just have been switch this is because the uses of technologies for instructional process does not necessarily demand physical presence of teachers and students before learning could take place more especially the new emerging technologies and this concept emerged hinge on the use of most recent developed technologies for learning and it is referred to as emerging technologies. Emerging Technologies are contemporary advances and innovation in various fields of technology which find relevance in educational domain. Following this development, teachers' of 21st Century are tasked to acquire the necessary pedagogy skills and methodology for effective utilizations of emerging technologies for teaching and learning process

At this level it is critical to identify studies conducted around the use of emerging technologies because available studies have proven that, its uses for teaching and learning becomes imperative in this era of knowledge digitalization where by information, skills acquisition and knowledge are predicated on the fact that learning ought to be students' centred and the role of teacher is facilitation and guidance towards achieving predetermined objectives. This accession finds its root in constructivist learning ideologies which hold the believe that learning should be student-centered, collaborative and active. In this sense, teachers who integrate technology into instruction are likely to hold student-centered constructivist pedagogical beliefs which is a paradigm shift.

The following are some of the research studies conducted around the use of emerging technologies for teaching and learning process and they include: Scout and Mary (2020); Investigated on the Emerging Technologies for Research and Learning: Interviews with Experts. Some of the result findings showcase that currently, the new area is gaining recognitions in the field of research education and learning because teachers and students are embracing one form of these technology or the other in the conducts of their research and for learning support as discussed by the experts. Moreso, Hussaini and Abdul Ghafoor (2020); Carried out a Study of Emerging Technologies and their Impact On Teaching-Learning Process, While, Margarete Grimus (2020); Investigated on the Emerging Technologies: Impacting Learning, Pedagogy and Curriculum Development. They equally shows evidence of acceptability of the recent technologies and its utilizations for learning because these researchers assessed impacts of its uses for educational purposes. Additionally, İsmail İpek, and Rushan Ziatdinov (2017) Investigated on the New Approaches and Emerging Trends in Educational Technology for Learning and Teaching in Academia and Industry: A Special Issue, While, Ke Zhang a, Ayse Begum Aslan b (2021); Conducted a research on AI Technologies for Education: Recent Research & Future Directions. All afore-mentioned are studies around utilization of emerging technologies for learning being conducted else-where but not in the current journal of BOSUN and more so, the article have not been submitted elsewhere for knowledge sharing and publication this justified its publication in your current edition and volume for wide spread knowledge sharing between North-West and North-East thereby bridging the existing gap between north and easthern part. In line with these assumptions, the present research article becomes worthwhile.

Background

Over the years the rate at which technology are use in education is increasing; both the teachers and students are finding creative ways of using technology in education. Technology has changed the way students and teachers collaborate in classroom and outside of the

classroom. It was observed that, new technology for education is emerging, day in day out and it is increasingly becoming commonplace in the recent educational scenario. Leveraging technology in the classroom enhances teaching and learning and it adds a new dimension to the overall learning experience. Learning has already progressed from the traditional textbook-based approach toward a more technology-driven one. The widespread access to technology and the internet through smartphones and computers has transformed the way conventional education system functions. Emerging technologies, like Artificial Intelligence, Big Data analytics, cloud computing, Augmented and Virtual Reality, are already finding their footing in the learning industry. The application of emerging technology trends will lead to a transformation of educational models and completely reimagine the way students approach learning. This is because technological innovations are revolutionizing the education sector changing the way students learn and the potential technological transformations in the days to come. The preference toward courses that combine conventional, face-to-face learning with technological features of online learning environments is increasing. Augmenting the current education system with smart learning methods using mobile apps, tablets, and laptops is gradually becoming the norm. While this doesn't imply that the value of face-to-face instructional components is going to diminish anytime soon, the demand for courses that have incorporated online components is giving rise to blended learning environments. (Vinati Kamani 2019; and Kerehka Rameeh 2013)

Emerging technologies have the potential in making learning interactive and easily accessible for the students. They no longer have to be contained within the confines of the classroom to have an engaging learning experience. The rise of virtual online courses has led to the incorporation of flexibility in the course schedule. Flexible courses that facilitate learning on demand have gradually become a reality. This gives the students the freedom to choose the duration of the course that best suits their preferences instead of having a rigid start and end date with fixed timing. With the gradual shift in the market gig economy toward the education methodologies have to transition from convention toward innovation The creation of education-based mobile apps that harness the power of AI to determine student engagement and learning output is already underway. In August 2019, Google announced the release of the revamped version of its AI-based learning app, Socratic, which allows students to ask questions in the form of voice or picture input. The app then harnesses algorithms to search for relevant answers on the web, helping students to grasp underlying concepts. It also allows students to effectively break down their lessons into smaller bite-sized fragments for micro learning. With the use of technologies like Virtual Reality and Augmented Reality, students are presented with a visually stimulating environment that makes learning a more immersive experience for the students. VR/AR has widespread application in early learning stages as well as advanced learning. Using this technology, students can get immersive and experiential learning from the confines of the classroom. Google is making swift progress in this arena as well. Google expeditions take the students on virtual field trips using AR/VR and mixed reality without them ever having to leave the classroom. Teachers can guide students through collections of 360-degree scenes and 3D objects, making classrooms truly places without boundaries. The technology can also be harnessed by advanced learning, like in the field of medicine. Surgeons and medical professionals in training can visualize the components of the human body by using VR/AR, resulting in an immersive and hands-on learning experience. (Vinati Kamani 2019); and Kerehka Rameeh 2013).

Classification of Emerging Technologies for Teaching and Learning Process

There are numerous forms of technologies that can be use by teachers in order to bring about effectiveness and productive learning, however, these intended technologies to be applied should go a long way to be compatible with teacher's skill and competency in respect to its application and perceived ease of use and usefulness so as to support curriculum delivery either in the school or outside the school system. Though many a times technologies often considered a supplement to classroom instruction. Therefore, emerging technologies can and should complement teaching by enhancing differentiation and engagement which should be a means to an educational end not an end in itself. It is important that the technologies' allure does not obfuscate educational goals but rather to keep learning relevant and meaningful.

But In the view of Eleni and Lanitis (2023) Identified the following Emerging Technologies usable for educational purposes:

- Virtual Reality
- Augmented Reality
- Artificial Intelligence
- Robotics
- Adaptive Learning
- Learning Analytics
- Wearable Technologies
- Machine Learning
- Immersive Classrooms (A classroom that uses a range of technologies to bring a 'real-world' experience to learning.)

Virtual Reality in Education

Virtual reality has been used as an educational tool for numerous subjects it offer immersive and semi-immersive experience regarding virtual reality in smart classroom are: (a) CAVE (Cave automatic virtual environment) and HMDs (Head-mounted displays) and (b) Interactive school desk. CAVE constitutes a room sized pace including several projection walls where the user is able to move freely in the space and experience their body in immediate interaction with virtual scene and HMDs are suitable devices that offer virtual environment to one user every time. Furthermore, there are different VR accessories which can combine with HMDs and CAVEs, such as gloves, suits or controllers which can offer more exciting experience. The application of VR in education changed some of the previous teaching ideas, but also some of the already existing teaching models. Several studies concluded that VR technologies are more likely to influence the motivation and academic performance of students in a positive way. Additionally, there are evidence that VR technologies enhance students' collaborative and communicative skills along with their cognitive and psychomotor skills But more specifically, the technologies can be use by students when they are presented with a visually stimulating environment that makes learning a more immersive experience for the students. VR/AR has widespread application in early learning stages as well as advanced learning. Early learning refers its utilizations at basic education level where more of visualizations are required by the learners a means which aids their knowledge acquisition of facts in a more practical ways for instance in English language teaching (Words formations and or sentence structure) while students at advance level uses it to complements an existing experiences acquired (Chen and Tsai, 2012; Gu, 2017; báñez et al., 2014).

Virtual/augmented/mixed reality in Education

Virtual spaces in a smart classroom resemble real places allowing students to have an immersive experience and create real memories. Moreover, seeing, 'touching' and hearing involve more senses in the learning process and link the learning subjects in multiple ways. Therefore, enriched presentation of the learning material and better visualization, which resembles reality and involves more senses, enhances students' experience and learning becomes sustainable Furthermore, the student's motivation is triggered, situated scaffolding is provided and learning is connected with the student's everyday life through an experiential learning process. AI can be used to create more immersive and interactive learning experiences by tracking student movements and adjusting the virtual environment accordingly. Since a smart classroom is equipped with contemporary visualization technologies, which include interactive whiteboards, projectors, all-screen technology, virtual/augmented reality headsets, cameras, and sensors, students can better visualize the content they are taught, enhancing in that way the learning experience. (Brady, Gerhardt, and Davidson, 2012: Brudy, Holz, Rädle, Wu, Houben, Klokmose, and Marquardt, 2019; Burrack, Thompson, 2021).

Artificial intelligence and its Application in Learning

Artificial intelligence is one of the most discussed topics in the educational industry. Artificial intelligence in education is a significant technology which helps education in a number of ways. Personalized learning is one of the most important area of education that has used artificial intelligence. In personalized learning, AI helps you to find the best course material for you based on your identity, interests and your way of learning. Artificial intelligence replaced the old-fashioned classroom study with a more personalized and student-centered approach. Artificial intelligence can monitor overall performance by identifying the strength and weakness of a learner. It can rank learners based on their performance and give real-time suggestions to improve the overall performance of their studies. Artificial intelligence is very important so as to keep track, report and monitor the performance of the learners. The aim of AIED is to establish AI-powered systems such as virtual pedagogical agents, AI robots and intelligent systems which allow flexible, engaging and personalized learning as well as to automate daily tasks of teaching (e.g. feedback and assessment). AI has been extensively used in education in different forms such as computer programs, humanoid robots, web-based chatbots, and online platforms. Chen et al. (2022) indicate the usefulness of AI in education, which may be used in the form of intelligent tutoring systems for special education, natural language processing, educational robots, performance prediction, discourse analysis, teaching evaluation, learner emotion detection and personalized learning. Educational applications and uses of AI in the classroom setting could be possible with AI-based learning app, Socratic, which allows students to ask questions in the form of voice or picture input. The app then harnesses algorithms to search for relevant answers on the web, helping students to grasp underlying concepts. It also allows students to effectively break down their lessons into smaller bite-sized fragments for micro learning and any other learning content in a given subject (AlFarsi, Tawafak, ElDow, Malik, Jabbar, and Sideiri, 2021; Brady, Gerhardt, and Davidson, 2012: Brudy, Holz, Rädle, Wu, Houben, Klokmose, and Marquardt, 2019; Burrack, Thompson, 2021)

Robotics

Learning about computers, electronics, mechanical engineering, and languages may be interesting with the application and use of robots. It has been demonstrated that when

language acquisition was facilitated by a robot as opposed to audiotapes and books, young children did better on post-learning assessments and displayed greater enthusiasm AI can be used to control and program educational robots that can interact with students and enhance their learning experience. The teacher in smart classroom takes on the role of a facilitator if the robot is the focal point of the learning activity (i.e., used as a teaching tool, as in the case of teaching about robotics). If the robot plays a passive role, the teacher must provide fundamental knowledge (e.g., by using the robot in language classes). In such cases, robotics curriculum implementation and teacher training are crucial. Looking ahead, it is evident that more has to be done to secure teacher support before robots can be completely included into our schools. Teachers were rated less favorably than parents and children in a survey regarding school robots. Teachers need to be reassured that the objective is not to replace them with robots but to give them a teaching tool or aid that can enhance the educational process and inspire students. (Brady, Gerhardt, and Davidson, 2012: Brudy, Holz, Rädle, Wu, Houben, Klokmose, and Marquardt, 2019; Burrack, Thompson, 2021)

Augmented Reality in Education

Augmented reality is an exciting topic that educators need to know. According to Wikipedia, augmented reality defined as "an interactive experience of a real-world environment whereby the objects that reside in the real-world are "augmented" by computer-generated perceptual information, sometimes across multiple sensory modalities. "The use of augmented reality visual content is able to catch student's attention. It ensures you the engagement and interaction of the students in lessons, as they are seeing and experiencing what they are learning. The use augmented reality to learn abstract and complex concepts because it helps students to visually see complex 3D models rather than imagining it in mind. Anatomy 4D, Elements 4D, Aug That are some of the most popular and useful augmented reality apps that students and teachers can use for effective learning. There are different types of augmented display devices in a smart class that include tablets, smartphones, smartboards and different software which enables the creation of augmented scenarios such as Aurasana, Layar, Augment and Aumentaty. Oculus Quest, Microsoft HoloLens and Windows Mixed Reality are AR headsets/glasses utilized as augmented display devices. AR in smart classrooms can be used in the following forms: Enlarged book, Virtual models of specific complicated structures eg subjects in sciences (Chemistry and Biology), Educational games for the classroom, Virtual models which produce sounds, Magic eyeglasses, Magic mirrors, Magic doors and windows, Navigation support and Cooperative space. Chamba-Eras and Aguilar (2017) state that AR is recommended to compensate various deficiencies that might occur in a smart classroom such as difficulties in doing complicated and dangerous experiments, carrying out actual experiments due to equipment costs, and unavailability of appropriate facilities. Furthermore, the study from Stanford University has shown that students who learn with AR technology demonstrate greater knowledge retention and improved problem-solving skills. Therefore, the importance of Augmented Reality technology in education has led to its implementation in various topics. (Chamba-Eras and Aguilar, 2017; Eleni and Lanitis, 2023)

Adaptive Learning

Adaptive learning is a new way of learning that adapts to the learner's needs and preferences. It uses AI to personalize the learning experience for each individual, making it more engaging and effective. In adaptive learning, the software adjusts both the pace and content of the lessons based on how well the student is doing. It ensures that he never feels bored or lost. It encourages him to progress at a comfortable rate and to track his progress so that he can see where he needs to focus his efforts next. One of the most popular forms of adaptive learning

is ramification. It uses game design principles to motivate students to learn. For example, the tasks in a lesson can be turned into games that are played for points or rewards, or lessons can be designed so that incorrect answers lead to negative consequences, such as losing points or privileges. Adaptive learning is already being used in many schools around the world, and its popularity is only going to increase in 2022. It has the potential to revolutionize how students learn by making it easier for them to absorb information (Brady, Gerhardt, and Davidson, 2012: Brudy, Holz, Rädle, Wu, Houben, Klokmose, and Marquardt, 2019; Burrack, Thompson, 2021).

Machine Learning: It is a part of AI that enables self-learning from data and then applies that learning without human intervention. Machine Learning is used in many real-life scenarios such as online fraud detection, traffic prediction, automatic language translation, Email spam filtering and many more. Eleni & Lanitis (2023).

The afore discussed emerging technologies identified above are not exhaustible however, at this juncture it is important to note that, these technologies are currently coming on board some of them have started being in used for educational purposes while some are emerging. Nevertheless, the paramount goal and objective of advocating for their uses are for the following reasons:

- That, the current dispensation and the type of schools and students we have were already exposes to various form of technologies in handy and they might have been using it for other means than educational purposes. The only thing now is to encourage them and tailor the use for teaching and learning process with the support of their teachers.
- That, teachers are already familiar with most of these technologies because of current globalization of technology in education all they need is improve on their capacity, skill and competency for effective integration and usage of the available ones into teaching and learning.
- Emerging technologies allowed for individualization & personalization of learning a paradigm shift that current learning theory supported.
- These technologies as an advantage of any-where, any-time and any place learning opportunity for old and the young.

Conceptual Framework Supporting use of Emerging Technology

In the view of Miles and Huberman (1994) explained that a conceptual framework may be an illustration or presented in a narrative form. That, conceptual framework should include the key factors, variables, or specific topic of study. Hence, the researcher will present his conceptual framework both in narratives and illustrative form. Fore mostly, it is worthwhile to note that the conceptual framework for this study is adapted from the diffusion of innovation theory by Roger (1985) and Technology Acceptance Model (TAM) proposed by Davis, Baggozi and Warshaw (1989) which is a popular modern theory for understanding acceptance of information technology system. Educational innovations are likely to be positively diffused if the adopters see the innovation as: having an advantage over other innovations; compatible with current practices; not complex to use; producing observable outcomes. This is something that can be examined before adoption. The technology acceptance model (TAM) is similar to theory of diffusion in the sense that it places emphasis on psychological predilection and social influences. Thus, beliefs, attitudes and intentions are important factors in the adopting of technologies (Bagozzi and Warshow, 1992; Bates et al.

2007). TAM is based on identifying the relationship between two main determinants: perceived usefulness (PU) and perceived ease of use (PEOU); the user's attitude (ATT), intentions (BI) and actual computer acceptance and usage behaviour (Bagozzi and Warshow, 1992; Bates et al. 2007; & Rogers, 1995). In this view of the following the below model and its components elements illustrates this:

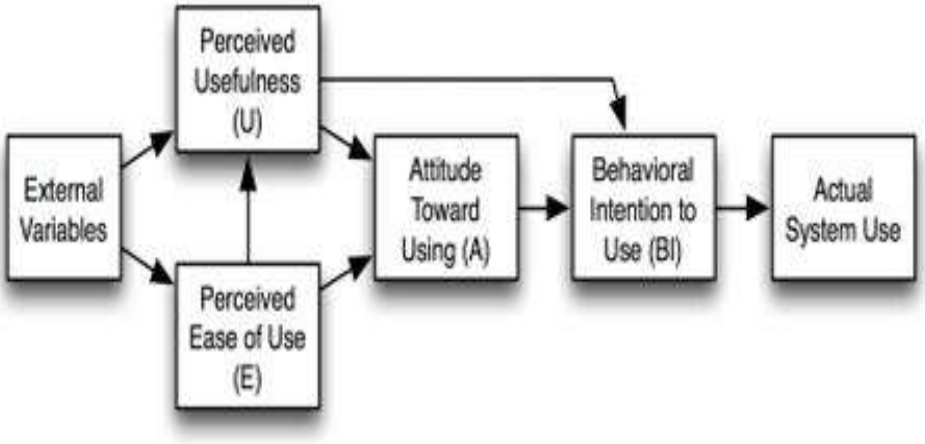

Figure 1. Technology Acceptance Model. First Modified Version Adapted from "User Acceptance of Computer Technology: A Comparison of Two Theoretical Models," by Davis, Bagozzi, and. Warshaw, 1989, Management Science, 35(8), p. 985.

The above conceptual model which was a synthesis of different scholars' views and opinion as regards the use and acceptance of an innovative idea in teaching and learning with particular application and use of technological devices. Hence, in order to make an elaborates justifications for these interrelated structural elements it is worthwhile, to identify them one after the other as thus:

External Variables: External variables are technology tools available for educators to use, and for a particular technology for a specific purpose in the classroom (example, emerging technology).

Perceived Ease of Use (PEU): Implied that the selected or the chosen technology for teaching and learning (Emerging technology) can easily be handle and manipulated by teacher for achieving an instructional goals and objectives.

Perceived Usefulness (PU): That, the said technology after satisfied been skillfully handle and utilized by the teacher in question, the same technology stands maximum significant usage for learning of which not a-been applied the instructional objectives will partly or not achieved at all.

Attitude Toward Using (ATU): Meaning individual's attitude is critical in using any technology for learning purposes. This is so because, positive attitude formation leads toward acceptance and its usage while negative attitude leads to rejection of technology.

Behavioral Intention to Use (BIU): Here it implies positive attitude is an influential determinant that correlates with behavioural intention of using any form of technologies for learning.

Actual System Use (ASU): The implementation level of the use of technology for teaching and learning process is at this juncture when an individual (Teacher) became convinced of its justification and relevance for using them to bring about efficiency in learning.

Educational Advantages of the use of Emerging Technologies for Learning

There are multiple advantages of the use of emerging technologies for teachers and students but majorly, the following are identified as thus:

- Emerging technologies are especially helpful in allowing teachers and students to generate, share, and save academic work. Programs such as the Google Suite for Education, Edmodo, and Showbie may have different features, but they offer communication and collaboration affordances that not only support a paperless classroom, but also empower students to be responsible and independent learners.
- With current and emerging technologies, educators have the freedom to select and mix-and-match digital tools to meet student needs and instructional goals. A critical evaluation of a particular device, site, or program will help educators discern how and when to integrate the technology.
- Emerging technologies are changing the way students learn and have the potential to address the challenges of online learning, increase access and equity in education, and improve the quality of learning experiences1. Some emerging technologies in education include personalized and adaptive learning, artificial intelligence, virtual and augmented reality, blockchain, gamification, microlearning, mobile learning, collaborative learning, adaptive assessments, social learning, and open educational resources
- E-Tech also include an easy teaching experience. The teachers can tutor the students from distance or communicate easily outside the classroom. This enhances their ability to give instructions, improve the learning of students, and help them get better academic scores
- They enabled the teachers to engage with new methods of teaching that is attention-grabbing for the students and allow for an enriched learning environment where they can attend to students separately.
- Engage the students physically and virtually through AR/VR technologies and multimedia content respectively. Help students develop practical learning skills by infusing immersive and cognitive exercises in the class.
- Provide instant resources to students, which helped them enhance the performance of academic papers and help grab the interests of students and ensure higher retention.
- Meet the unique requirements of students with special abilities with the help of personalized learning tools.

Challenges and Barriers Militating Around the Effective use of Emerging Technologies:

It was an established fact that, while many colleges and universities are interested in using more technologies to support student learning, however, there some impediments and barriers that can affect effective utilization and these can include the following

- Lack of awareness and inadequate deployment capabilities by the teacher in regards to the needed emerging technologies for learning purposes because of the newness of the technologies
- Gaps in skill and competency in handling these emerging technological tool for teaching and learning
- Weakness of internet connection and internet speed in many of our higher institution of learning and most probably, high prices for a good internet connectivity

- Many online instruments, platforms, and websites crashed when an unexpectedly high number of clients connected to them.
- Unethical behaviour, physical health concerns, and data privacy issues.

Conclusion

These new technologies will be an increasing part of all educators' professional environments. One aspect is technology-enhanced programs. It is a growing part of the education needed for today's and tomorrow's students and workers. The infusion of this brings a greater benefit and value to students and educators alike.

Recommendations

The following recommendations were made for a more applications and uses of emerging technologies learning:

- Educational stakeholders should create awareness through workshops and seminar for teachers on the rationale to embrace technology use in this modern era of globalization and ensure schools deployed the needed emerging technologies for learning
- Capacity development training should be organized for teachers in order to bridge the gaps in skill and competency in handling those emerging technological tool for teaching and learning
- Institution of learning should ensure and endeavour provision of strong internet connection in an affordable prices for a good internet connectivity
- Ensuring adequate plan is put in place against online instruments, platforms, and websites crashed when unexpectedly it happens
- Teachers and administrators should guide against unethical behavior, physical health concerns, and data privacy issues.

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