

COPING WITH THE AGE OF DIGITALIZATION IN ACADEMICS: THE E-LEARNING SENSIBILITY

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ABSTRACT

Expertise and experience in the development and delivery of media-enabled learning have blossomed and a community of practice has evolved that is quite different from the established communities of conventional learning. The role of teachers has changed from being sole providers and deliverers of the subject matter content to Motivators and Facilitators of learning in the 21st century. Academic values of freedom of access to information, peer-review and knowledge sharing have also blossomed greatly courtesy of application of ICT technologies in teaching and learning. Teachers and learners who must stand competitive in the 21st century labour market must take advantage of learning in collaboration with scholars all over the world using the E-Learning technology. Learning using media-based technologies as well as learners' experience with ICT learning devices has been encouraged world-wide. Learning has become personal, contextual and situated. Teachers are now saddled with the responsibility of motivating learners to learn deeply and properly through engagement with authentic learning tasks accessible to them round the clock through ICT technologies. Learning environment has undergone a paradigm shift from being teacher-centered to student-centered, where the Instructor must take on multiple new roles. E-learning platforms provide facilities for setting deadlines for submission of assignments, giving learners access to learning materials in different formats most appealing to their learning styles. With increased popular access to information and knowledge anywhere and anytime, the relationships between education, society, and technology have become more dynamic than ever. This paper addresses the needs for learners, teachers, the management of institutions of higher learning, and even the government, to respond more sensibly to E-Learning, to jointly build a robust learning environment supportive of effectively realizing predetermined learning outcomes. Furthermore, the paper highlights the tasking implementation challenges of E-Learning.

Keywords: E-Learning, Digitalization, Learner-Centered, Teacher-Centered, ICT

1. INTRODUCTION

The proof of the pudding is in the eating says an adage. The achieved learning outcomes would always justify the success or failure of the adopted instructional method coupled with the choice of the ICT media used for implementing it. There is virtually no educational setting anywhere in the whole world without predetermined learning outcomes. To achieve the set learning outcomes, the learning process of an institution needs to be anchored on a well-chosen learning principle. In essence, the instructional method must be carefully selected to adequately meet the learning styles of the targeted learners by matching it with appropriate ICT media noting that methods and media of learning are directly related to the expected learning outcomes [1]. The constructivist theory that supports asynchronous learning demands that Instructors must grow in responsibility from mere dispensers of knowledge to Instructional Designers, facilitators, and assessors of both grades and teaching methods. As Instructional Designers, emphasis has to be placed on establishing the curriculum, methods and the media through which the content will be effectively delivered. Once the design is in place and executed, the Instructor must then facilitate the communication and direct the learning.

There is a need to establish a communal spirit, which requires much commitment from the Instructor, who must spend quality time reading, assessing, reinforcing, and encouraging the interaction and learning that is happening on the adopted learning platform. For students to be more actively involved and take more responsibility for their own learning, they must in addition to their normal duties as learners, become proficient with the technology required for the course, use new methods of communication with both peers and Instructors, and as well strengthen their interdependency through media-based collaboration with their peers. To learn deeply and properly, there must be an adequate access to the 21st century learning tools and skills. The attributes and characters of learners in the 21st century must also be possessed by every education stakeholder that desires to key into E-Learning. Particularly of interest is the fact that E-Learning has growing visibility and significance in higher education. There is growing size and frequency of dedicated conferences, seminars, workshops, all over the world concerning e-learning; The e-Learning Africa 2014 in Uganda, Mlearn 2006, in Bantt, Alberta in Nov 2006, Mlearn 2005 in Cape Town, in Oct 2005 amongst others are noteworthy. This paper considers the need for both teachers and learners, management of institutions of higher learning, and even the government to wake-up and respond more sensibly to E-Learning, to jointly build a robust E-Learning environment supportive of effectively realizing predetermined learning outcomes.

Furthermore, the paper highlights the tasking implementation challenges of E-Learning. Of course, there are lots of new things to learn. Standard E-Learning principles, procedures and practices have to be adhered to in order to make real headway. Yet, concerted efforts have to be made to ensure that ICT is sufficiently incorporated to meet the specific E-Learning needs of academic institutions (at all levels) in different geo-political parts of the country.

2. LITERATURE REVIEW

The use of electronic devices is consistently increasing and diversifying across every sector of education, and across both the developed and developing worlds. It has obviously moved away from small-scale, short-term trials to larger, more sustained and blended deployment. Information communication technology (ICT) improvement has turned the big world into a small global village [2]. Through the use of ICT, knowledge and information can be transferred and cross-fertilized in real-time. Electronic data communication is becoming the industry standard of transaction media widely used in education, payment of bills, video conferencing, group work collaboration and many more. That without the proper machinery in place, any organisation stands the risk of being left behind.

Though in the country today, there exists a number of initiatives, such as National Policy on Computer Education, National policy on Information Technology and National Information Technology Development Agency (NITDA) to really prove the readiness of the country to incorporate E-Learning into its educational provision, yet the e-learning techniques still mostly adopted by most of the Nigerian institutions are in form of prepared lectures on a CD-ROM that can be played as at when the need arises, which has a limited advantage considering the number of students per computer system in most of this facilities [3]. Again, most of E-Learning resources are not interactive enough as compare with when the lecture is being received in real-time over the internet. The intranet facilities adopted in most schools are not well maintained because of its high cost of running especially in the absence of adequate power supply [4].

The bandwidth shared on various systems at the public cafes is very low hence; a multimedia interactive lecture will not be obtainable because of low bandwidth. The population of students visiting public cafes is enormous and even the facilities are grossly inadequate [5]. Though the statistics is considered very low, some institutions, which include the Federal School of Surveying, Oyo, University of Ibadan and Obafemi Awolowo University (OAU), Ile-Ife among others, have provided functioning facilities for e-learning despite the hindrances being faced by e-learning in Nigeria's academic institutions. Obviously, most of the institutions of higher learning in Nigeria have started building their ICT centres but the nauseating fact is that the focus is mainly to put up an internet facility alone without considering other components that make up an ideal e-learning centre. The ranking of Nigeria by the Economist Intelligence Unit (2008) in which the country was ranked 62 in the comity of nations measured in terms of the ability of a nation's institutions to use ICT to achieve their educational mission and vision particularly showed that the country's stakeholders in education sector need to seek innovative solutions to improve in their use of E-Learning techniques for actualizing set learning goals. [6] According to [7], research findings in E-Learning have clearly shown that most media-based programmes are likely to succeed when it constantly involves the facilitator through e-mail, discussion lists and individualized messages. Research is on availability and utilization of the Internet in Nigerian universities. Even as at today, the number of institutions having functioning Internet services is still very low.

3. FORMS AND VARIATIONS OF E-LEARNING

According to [8], for prospective and effective E-Learning in Nigeria, the government must embark on massive, nation-wide computer literacy program for teachers and learners at all levels through seminars, conferences and workshops. Of course, without acquiring the required knowledge, skills, practical hands-on and technical know-how of what E-Learning really entails, it may never be readily applied for effective educational provision and delivery in the country. In fact, some of the obstacles against the expected E-Learning growth as identified by are that of computer technology illiteracy among all levels of students and obvious reluctance to invest in staff training in the country. In this section, different forms and variations of E-Learning will be discussed.

3.1 Networked Learning

Networked learning involves developing and maintaining connections with people and information, and communicating in such a way so as to support one another's learning [9]. It takes a relational approach, where learning takes place both in relation to others and in relation to learning resources. CSALT, a research group at Lancaster University, UK, associated with the Networked Learning Conference series has defined networked learning as learning in which information and communication technology is used to promote connections: between one learner and other learners, between learners and tutors; between a learning community and its learning resources [10]. According to [11], learning is built around learning communities and interaction, extending access beyond the bounds of time and space, but offering the promise of efficiency and widening access. Networked learning can be practiced in both informal and formal educational settings. In formal settings, the learning achieved through networked communication is formally facilitated, assessed and/or recognised by an educational organisation. In an informal setting, individuals maintain a learning network for their own interests, for learning on-the-job, or for research purposes.

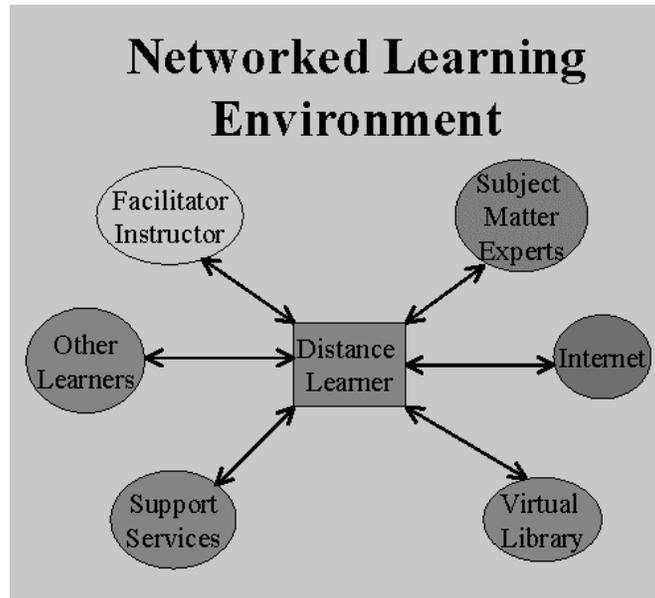


Fig. 1: The Networked Learning Environment
Source: <http://www.unm.edu/~khaled/chart.gif>

Networked learning offers educational institutions more functional efficiency, in that the curriculum can be more tightly managed centrally, or in the case of vocational learning, it can reduce costs to employers and tax payers. Networked learning is particularly beneficial to informal or situated learning [12].

4. VIRTUAL EDUCATION

Virtual education refers to situation in a learning environment where teachers and students are separated by time or space, or both, and the teachers provide course content through the use of methods such as course management applications, multimedia resources, the internet, and videoconferencing. Students receive the content and communicate with the teacher via the same technologies [13].

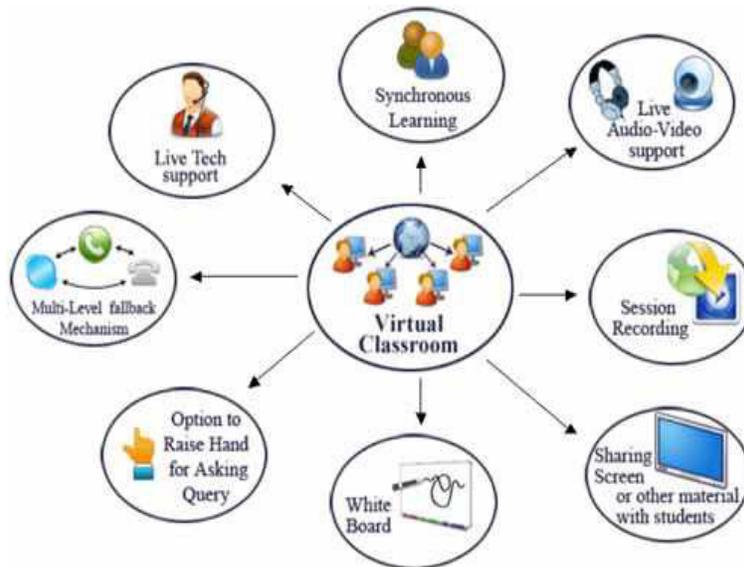


Fig. 2: Virtual Education Components
Source: http://www.timelesslearntech.com/images/virtual_classroom.jpg

4.1 Some Characteristics of Virtual Education

A virtual course of studies is a study program in which all courses, or at least significant portions of the courses, are virtual courses, whether in real-time or self-paced formats. Virtual courses (aka online courses) are courses delivered on the Internet [14]. Virtual is used here to express the fact that the course is not taught in a classroom face-to-face but through some substitute modes that can be associated with classroom teaching. In essence, learners do not have to go to the real class to learn. Virtual schools now occupy a position of significant innovation and responsibility courtesy real-time facilitation using E-Learning technologies.

Instruction Modes for Virtual Education

Many virtual study programs are mainly text based, using HTML, PowerPoint, or PDF documents. Today a wide spectrum of instruction modes is available, which are discussed below:

Virtual Classroom

Virtual Classroom allows live teacher instruction and feedback online that enables real-time voice interaction, whiteboard sharing, and breakout sessions to enhance a student's learning experience. This provides students an opportunity to interact with the teacher as well as classmates by oral and written communication [15].

Virtual Operating Room

Virtual Operating Room gives students a space to learn the basic induction procedure before stepping foot in the real-life operating room.

Hypertext Courses

Hypertext structured course material is used as in a conventional distance education program. However, all material is provided electronically and can be viewed with a browser. Hyperlinks connect text, multimedia parts and exercises.

Video-Based Courses

Video-Based Courses are like face-to-face classroom courses, with a lecturer speaking and PowerPoint slides or online examples used for illustration. Video-streaming technologies are used. Students watch the video by means of freeware or plug-ins.

Audio-Based Courses

Audio-Based Courses are similar but instead of moving pictures only the sound track of the lecturer is provided. Often, the course pages are enhanced with a text transcription of the lecture.

Animated Courses

Animated Courses enriching text-oriented or audio-based course material by animations is generally a good way of making the content and its appearance more interesting. Animations are created using Macromedia Flash or similar technologies.

Web-Supported Textbook Courses

Web-Supported Textbook Courses are based on specific textbooks. Students read and reflect on the chapters by themselves. Review questions, topics for discussion, exercises, case studies, etc. are given chapter-wise on a website and discussed with the lecturer. Class meetings may be held to discuss matters in a chat-room, for example.

Peer-To-Peer Courses

Peer-To-Peer Courses are courses taught on-demand and without a prepared curriculum. This new field of online education emerged in 2007 through new online education platforms.

Social Networking

Using Web 2.0 technologies in virtual classrooms promotes increased social interaction, student-centered instruction and a problem solving curriculum. Students can address a problem that is oriented to a cross curriculum activity. Teachers will act as guides and provide resources, but it is up to the students to collaborate, discuss, review ideas, and present solutions.

5. COMMUNICATION AND INTERACTION

Students in virtual education acquire knowledge in a unidirectional manner (e.g. by studying a video, reading a textbook chapter), this is known as *Asynchronous* instruction. Subsequent discussions of problems, solving exercises, case studies, review questions, etc help the students to understand better what they learned before. This learning is delivered at the students pace, not instructed live by a teacher. Although asynchronous courses are student-driven, teachers are often needed to act as a guide. Therefore teacher facilitators are often available to provide any assistance that may be needed throughout the course. Communication with teacher facilitators is accomplished through discussion boards and email. This communication may be needed at times to better explain a specific topic. Students enrolled in virtual classrooms or synchronous courses still acquire the content via real life instruction. A real teacher in real time delivers virtual classroom instruction. The virtual classroom teacher uses the computer screen as the board delivering instruction by using videos, PowerPoint, or podcasts in conjunction with audio of the teacher's voice. Students enrolled in the virtual classroom have opportunities for immediate teacher feedback and input while logged into class, just as they would in a traditional classroom. Students can also interact with other students via notes, texts, and emoticons [16]. Additionally, many conferencing platforms used by virtual educators allow for students to work in small groups during class time, thus again mirroring the look and feel of a traditional classroom. Electronic media like a discussion forum, chat room, voice mail, e-mail, etc are often employed for communication in both synchronous and asynchronous courses. Homework assignments are normally submitted electronically, for instance, as an attachment to an e-mail or uploaded to the LMS system in a view complete. When help is needed, lecturers, tutors, or fellow students, or a help desk are available, just like in a real university. The difference is that all communication occurs via electronic media. Virtual teachers are encouraged to use technology more in the classroom. They are also motivated to share their ideas and lesson plans with other teachers through wikis, blogs, Facebook, etc.

Communication in the *Synchronous* virtual classroom is a collaborative learning experience. Students are encouraged to interact with peers through web-conferencing technologies. Small-group and whole-group collaboration is a suggested platform for virtual education. Communication can take place in real-time, i.e. during a class session [17]. A small-group session is referred to as a Breakout Room. This is a platform that allows real-time, social interaction between students. Students collectively work on a learning task designed by the virtual classroom Instructor. Individual microphones, whiteboard tools (drawing rights for the group board), and/or notes are ways students communicate with one another during live Breakout Rooms. Outside of the virtual classroom setting collaborative communication may also occur through various technologies; blogs, wikis, and/or multi-media tools.

6. VIRTUAL SCHOOL (AKA CYBERSCHOOL)

A virtual school is an institution that teaches courses entirely or primarily through online methods. Though there are tens of thousands of commercial and non-accredited courses available online, the term Virtual School is generally reserved for accredited schools that teach a full-time (or nearly full-time) course of instruction designed to lead to a degree. Accredited schools must meet rigorous standards as defined by the issuing organization and are designed to insure that students are receiving the highest quality instruction and education. Every country must at least an issuing organization responsible for virtual school accreditation.

In virtual schools, all or a majority of the student s' services are conducted via Internet technology. The virtual schools contrast from the traditional school through the physical media that links administrators, teachers, and students. Many states in the United States have their own virtual school often with a student population numbering in the thousands. Virtual school Instructional models range from fully independent self-paced courses to semester-based virtual teacher facilitated courses. Class sizes range widely with anywhere from 25 students to as many as 200 students in each class section [18]. Students keep in contact with teachers and collaborate with other students through web communication tools provided in the course delivery platforms like Blackboard, Desire2Learn and Moodle. There are also many books and training manuals to aid in the development of such schools and courses. Virtual Schools now exist all around the world. A variation of virtual schools make it possible for students to be completely homeschooled.

Pricing

Virtual schools may be free if the state pays for the courses, otherwise, there will be a course fee to be paid for by the student or parent(s). Most courses will provide electronic materials free of cost, but others require some shopping on the student's part. Textbooks are not required but can be used as an aid for coursework [19].

E-Learning Materials

Some popular materials include Adobe Systems products, Jasc products, and products from Macromedia. Other schools may use Corel products as a cheaper alternative. These products are usually free. Student usually receives the full version of the selected program, with a limited license, usually one (1) year or so. These programs are key in the success of virtual schools, and help them to improve each year. Many schools will also provide a brand new computer for all students in need of one [20]. Some Virtual Schools in the United States provide students with the following materials free of charge: Textbooks, Study Guides, Course Guides, Art Supplies (markers, crayons, construction paper, etc.), Science Kits, a Calculator, an All-in-One Printer, a Laptop Case, a Laptop Charger, a Head Set that is equipped with a microphone, a Bamboo Tablet (by Wacom) and a wireless router.

7. ADVANTAGES AND DISADVANTAGES OF VIRTUAL LEARNING

Advantages

Advocates of virtual learning believe that virtual schools hold advantages including: not being required to attend and travel to face-to-face classes and the integration of digital media into the curricula. Virtual schools also give a student the opportunity to stay in school when traditional brick and mortar schools will no longer accept them. Some reasons for this could be extensive absences due to medical reasons, teen pregnancy, or for other reasons that the school system may deem distracting to the school body [21]. No matter what their social, economic, religious, ethnic or physical or mental differences, virtual education gives all students the same opportunity to reach their full potential.

Disadvantages

Unlike traditional education delivery methods, students at virtual schools sometimes do not directly interact with professors, while at other times it is as frequent as in traditional brick and mortar schools and merely takes on a different form. Hence, virtual education is considered by many to be equivalent to a directed-learning program. Because students do not interact with their instructors or peers face-to-face, lack of socialization is often quoted as a disadvantage by detractors. It has however been recommended that students enrolled in virtual schools be involved in social activities outside school, much like homeschooled children. Another perceived disadvantage to distance learning is the added challenge of staying focused while in the home environment, and many students report that staying on task is the most difficult aspect of learning online [22].

Critics argue that for online education to be taken seriously, online programs must adhere to generally accepted educational standards.

8. COMPUTER-SUPPORTED COLLABORATIVE LEARNING (CSCL)

Computer-Supported Collaborative Learning (CSCL) is a pedagogical approach wherein learning takes place via social interaction using a computer or through the Internet. This kind of learning is characterized by the sharing and construction of knowledge among participants using technology as their primary means of communication or as a common resource. CSCL can be implemented in online and classroom learning environments and can take place synchronously or asynchronously.

Cooperative Learning

Cooperative learning, though different in some ways from collaborative learning, also contributes to the success of teams in CSCL environments. The five elements for effective cooperative groups identified by the work of Johnson and Johnson are:

- ✚ positive interdependence,
- ✚ individual accountability,
- ✚ promotive interaction,
- ✚ social skills,
- ✚ group processing.

Because of the inherent relationship between cooperation and collaboration, understanding of what encourages successful cooperation is essential to CSCL research.

Analysis

Communication Technologies Used In E-Learning

Communication technologies are generally categorized as asynchronous or synchronous. Asynchronous activities use technologies such as blogs, wikis, and discussion boards. The idea here is that participants may engage in the exchange of ideas or information without the dependency of other participants involvement at the same time. Electronic mail (Email) is also asynchronous in that mail can be sent or received without having both the participants' involvement at the same time [23]. Asynchronous learning also gives students the ability to work at their own pace. This is particularly beneficial for students who have health problems. They have the opportunity to complete their work in a low stress environment. Synchronous activities involve the exchange of ideas and information with one or more participants during the same period of time. A face-to-face discussion is an example of synchronous communications. In an E-Learning environment, an example of synchronous communications would be a Skype conversation or a chat room where everyone is online and working collaboratively at the same time. Synchronous activities occur with all participants joining in at once, as with an online chat session or a virtual classroom or meeting. Virtual classrooms and meetings can often use a mix of communication technologies [24]. Participants in a virtual classroom use icons called emoticons to communicate feelings and responses to questions or statements. Students are able to 'write on the board' and even share their desktop, when given rights by the teacher.

The virtual classroom also provides the opportunity for students to receive direct instruction from a qualified teacher in an interactive environment. Students have direct and immediate access to their Instructor for instant feedback and direction. The virtual classroom also provides a structured schedule of classes. Most virtual classroom applications provide a recording feature. Each class is recorded and stored on a server, which allows for instant playback of any class over the course of the school year. This can be extremely useful for students to review material and concepts for an upcoming exam. This also provides students with the opportunity to watch any class that they may have missed, so that they never have to fall behind. It also gives parents the ability to monitor any classroom to insure that they are satisfied with the education their child is receiving [25]. In asynchronous online courses, students proceed at their own pace. If they need to listen to a lecture a second time, or think about a question for awhile, they may do so without fearing that they will hold back the rest of the class. Through online courses, students can earn their diplomas more quickly, or repeat failed courses without the embarrassment of being in a class with younger students. Students also have access to an incredible variety of enrichment courses in online learning, and can participate in college courses, internships, sports, or work and still graduate normally.

9. LEARNING MANAGEMENT SYSTEM (LMS) & LEARNING CONTENT MANAGEMENT SYSTEM (LCMS)

A learning management system (LMS) is software used for delivering, tracking and managing training/education. LMSs range from systems for managing training/educational records to software for distributing courses over the Internet and offering features for online collaboration [26]. A learning content management system (LCMS) is software for authoring, editing and indexing e-learning content (courses, reusable content objects). An LCMS may be solely dedicated to producing and publishing content that is hosted on an LMS, or it can host the content itself. A LMS allows for teachers and administrators to track attendance, time on task, and student progress. LMS also allows for not only teachers and administrators to track these variables but parents and students as well. Parents can log on to the LMS to track grades. Students log on to the LMS to access learning materials, quizzes, and many more.

10. SOME BENEFITS OF E-LEARNING

Cost Effectiveness

E-Learning is more cost effective than traditional learning because less time and money is spent traveling. Since E-Learning can be done in any geographic location and there are no travel expenses, this type of learning is much less costly than doing learning at a traditional institute.

Flexibility

Flexibility is a major benefit of e-learning. e-learning has the advantage of taking class anytime anywhere. Education is available when and where it is needed. E-Learning can be done at the office, at home, on the road, 24 hours a day, and seven days a week. Learners like e-learning because it accommodates different types of learning styles. They have the advantage of learning at their own pace. Students can also learn through a variety of activities that apply to many different learning styles. Learners can fit e-learning into their busy schedule. If they hold a job, they can participate in E-Learning right at their desk. If the learner needs to do the learning at night, then this option is available while in their pajamas and do the learning if they desire [27].

Personalized Learning

E-Learning encourages students to peruse through information by using hyperlinks and sites on the worldwide Web. Learners are able to find information relevant to their personal situations and interest. E-Learning allows selection of learning materials that meet their level of knowledge, interest and what they need to know to perform more effectively in an activity. E-Learning is more focused on the learner and it is more interesting for the learner because it is information that they want to learn. E-Learning is flexible and can be customized to meet the individual needs of the learners.

Develops Knowledge

E-Learning helps develop knowledge of the Internet. This knowledge will help learners throughout their careers. E-Learning encourages students to take personal responsibility for their own learning. When learners succeed, it builds self-knowledge and self-confidence [28].

Disadvantages of E-Learning

- ✚ Unmotivated learners or those with poor study habits may fall behind
- ✚ Lack of familiar structure and routine may take getting used to
- ✚ Students may feel isolated or miss social interaction
- ✚ Instructor may not always be available on demand
- ✚ Slow or unreliable Internet connections can be frustrating
- ✚ Managing learning software can involve a learning curve
- ✚ Some courses such as traditional hands-on courses can be difficult to simulate

To be particularly noted is that knowing E-Learning advantages and disadvantages helps with learning software selection as well as online distance learning programs structure and selection.

11. DISCUSSION

Implementation Challenges Of E-Learning

E-Learning is complex undertaking just like any well organised educational system. It demands the same vigour in planning, implementation and management. E-Learning is particularly more demanding taking cognizance of the extra technological infrastructures required for its implementation and management [29]. E-Learning must not be seen as an easy educational option in that it does not offer a quick fix for shortcomings such as poor performance in teaching and learning, low morale, resources' wastage, etc, that plague the conventional education system. In fact, it requires both strategic and operational planning consistent with the values, mission and goals of an intending educational institution. To effectively implement E-Learning, a campus-based educational organisation must reconsider and review her values, mission and goals of educational provisions in order to adequately accommodate the adoption of E-Learning activities. Specific attention has to be paid to the following challenges while making efforts to implement E-Learning:

Course Design and Development

The more efficient and effective model of course design and development is the team approach, which brings together people with subject matter knowledge and expertise in the development of technology-enhanced learning materials. The various types of expertise and the cost of supporting it across a large organisation must be well identified.

Generating and Managing the Subject Matter Content

In E-Learning, while the teacher may still be the one generating the content, but for it to be made accessible and available to learners, it has to be modified, enhanced, and presented in format amenable to the adopted technology. It is a must that members of academic staff and other stakeholders be trained on instructional design activities [30]. They need to be well-trained in the art of designing and developing self-study materials in alternative media forms.

Technologies and Infrastructures for Driving E-Learning

The adopted technology must be reliable, robust and affordable taking into consideration the available sources of funds. Every stakeholder has to be trained on how to operate the technology. More importantly, a well-implemented E-Learning system must critically address the aspects of students' recruitment and registration; facilitating and supporting learning; assessing learning outcomes; provision of learning feedbacks and finally, evaluation of the impact of E-Learning on the educational provision of the organisation. All these activities are all-encompassing and demanding great effort to accomplish.

12. CONCLUSION

The goal of E-Learning is to improve student learning outcomes and thereby making the educational provision of an academic environment more result-oriented. In the last two decades, the claims of new paradigms of teaching and learning have been a focus for academic researchers in higher education. However, the lack of the major sustainable success anticipated in universities and other educational organisations that opt for online learning is notable. Staff development in adapting course/instructional design and online teaching techniques for E-Learning is critical. Instruction for conventional learning must be re-engineered for E-Learning for deep learning to take place. Students need to be specifically trained on how to learn in an E-Learning environment. Stakeholders in education need to particularly know whether or not a selected E-Learning technique or technology is sustainable, pedagogically sound real learning, relevant for the specific subject domains and learning styles, in a given context and culture. Reviewed literatures have also suggested that, while E-Learning is proving to be innovative and seductive, the factors that most strongly impact on its ultimate success or failure depend on human factors, the balancing of technological ideals and pedagogical imperatives, and the successful management of the interface between human educational systems and technology systems.

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