The Influence of Virtual Learning Environment on Students' Performance

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ABSTRACT

There have been some nexus reports between lecture attendance and student academic performance. However, the effect of a student use of a virtual learning environment (VLE) on their academic performance is not an area which has been the subject of extensive research, but is likely of much interest to both the student and the lecturer who develop resources to virtual learning environment. VLE is an integrated environment where student can enroll for classes, accept a complete course, take test as well as interact with the course lectures and classmates. The VLE implement specific modules for routine administrative functions. However, it is imperative to note that VLE provides interface not for only course registration alone but grade management and administrative reports. In this paper, we will be reviewing how the VLE can improve student performance; secondary and tertiary institution and as well as the problems and preferably way of how the VLE can be accessed offline.

Keywords: Virtual Learning Environment, Module, Extensive Research

1. INTRODUCTION

Learning is the part of human existence. Each day of a man's life, he learns new things to survive in a changing world. This is an informal learning in that as man interacts with his environment at any stage in time, he learns new things. But in a formal learning situation, learning starts at home in a cradle format, continues in the school, college, universities, workplace (Singh, 2011). "Learning is breaking out of the narrow boxes that it was trapped in during the 20th century: teachers' professionalism, reflection and ingenuity are leading learning to places genuinely exciting to this new generation of connected young school students and their teachers too". In effect, virtual learning environments (VLE) are making students not to be confined to a particular building, or restricted to any single location or moment". The school learning environment offers opportunities for teachers and students to come together for institutional teaching/learning process. In this learning process, various technological gadgets are employed to facilitate the process. Such advanced technologies include internet, e-mail, website, mobile phone, ipod etc (Mangal and Mangal, 2009). These advanced technologies are variable tools for rendering valuable assistance and good alternative to traditional method of education.

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This alternative could be in form of virtual classroom. Virtual Learning Environments (VLE) has recently emerged as an important topic in education theory and practice (Weller, 2007). In theory, a well-maintained VLE should enable students of all learning styles to receive the best possible education, in a way that they may not be in an exclusively lecture-based environment where the lectures tend to be focused on auditory learners only those who learn best by listening (Williams & Fardon 2005, Vigentini, 2009). Empirical evidence suggests that the use of a Virtual Learning Environment (VLE) has an impact on student achievement, encourages independent learning and increases students' motivation to learn (JISC, 2008). A student's experience in the classroom or lecture theatre depends on how well the teaching style fits with their individual learning style. The same issues exist with virtual systems and a variety of resources is needed in order to provide adequately for all learning styles.
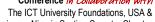
Many higher education institutions are increasingly fragmented and lacking in cohesion or unity (Whitworth, 2005) and regard VLEs as a way to help them overcome the problems introduced by the national increase in the number of students coming to university and the higher workload that this entails for lecturing and support staff (Richardson, 2001). There is, however, a danger that, if the resources available online are too comprehensive, students could cease attending lectures (Bromage, 2003), preferring instead to access lectures materials online and to carry out their studies from the comfort of their homes (Boyle et al, 2008). It can, therefore, be said that there are three types of VLE – those with too much information, which discourage students from attending lectures, those with too little, rendering the VLE largely useless, and those with just enough to allow students to reinforce their work in lectures and to gain a broader understanding of the subject (Ofsted Report, 2009).

The modern system of using internet in teaching and learning is receiving great attention the world over. The use is phasing out the traditional method of teaching which is limited to chalk and talk system of teaching and learning (Olibie, Ezoem and Ekene, 2014). The students are like the raw materials in education production while the teachers are the producing machines. The teachers wound send out the materials to the students to learn for character transformation with the necessary instructions to be applied in the process.

The following are the merits accruable from the virtual classroom:
- It provides the learners the flexibility of getting the learning experiences at the time, place and rate of assimilation.
- Virtual classroom can help in good class organization. The operational documents, assignments, class notes and other related information in the internet can be readily categorized for easy accessibility for the teachers and students. The information posted on the internet could be easily revised and updated for more effective teaching and learning.
- Virtual classroom provides the learners with the opportunity of gaining learning experiences 24 hours of every 7 week days without tampering with the learners leisure time.
- The system has the capability of employing the services of most experienced personnel in different areas of need which is not possible in traditional classroom setting.
- Another educational value is the intellectual and social partnership created by the technology of virtual classroom. Students in their use of technological equipments cultivate the habit of leadership role in relation to other students (Husu, 2000). The implication is that the technology used increases group cohesion and mutual support more especially inn remote classrooms. Besides the virtual classroom enables the students to develop a range of communicative skills that enable them perform creditably in class.

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- Cost effectiveness is a great advantage. Virtual classroom saves money, time and transport for students. The students who are motivated could work on their own at their home environment without wasting time and money to travel to school.
- The teacher equally enjoys the teaching because everything is digital and these works in general are sent through e-mail typed. The teacher can easily re-use his materials and can easily get materials elsewhere.
- The system can prove quite advantageous to the students in various ways with regard to its on-line features. It will help in admission, information about the courses and academic activities, assignments and projects, tests and evaluation, grading and results, faculty available for interaction, guidance and needed help, information about the commencement of the public examinations, merit schemes, entry in a vocational and professional streams etc

Despite the merits of virtual classrooms as listed above, there are some demerits associated with it. They include the following:

- Flexibility of the system: The flexibility of the system to the learners as they go about their studies with ease and convenience, comforts and adjustment of the space and timings to suit them could be abused. When they are young in age and immature to handle responsibilities to build up their career, they play away their time and fall short of expectation in the long run.
- Poor quality of organization and the poor quality of study materials with low quality of teaching staff make virtual classroom unacceptable in quality educational pursuit. The staff inefficiency and low productivity will adversely affect the students enrolled in the system which will affect the overall assessment of the virtual classroom.
- Training problem of personnel: In a virtual classroom, professional training is very essential. University professions who are not trained in computer and internet functions should not operate effectively. Consequently, the professors should undergo training because the more conversant they are with the online services, the more efficient the teaching strategy and curriculum would be.
- The virtual classroom is not providing real classroom experiment such as teacher student face-to-face interactions. The warmth of teacher-student relationship is absent in virtual classroom.
- Students at times generate problems for themselves by enrolling on online classes without an e-mail address or account with an internet service. This means that they cannot assess information for virtual classroom consumption. Consequently, they cannot achieve their objectives of effective learning.
- Effective participation in virtual classroom requires 'robust hardware and a broad band internet connection'. Some classrooms or computer labs may not have computers that meet the minimum or recommended specification for optimal use of virtual world (Stacy & Liz, 2008).

Virtual Learning Environment (Literature review)
This literature review outlines the background and development of VLEs to support teaching and learning. It starts with a brief historical background followed by general positive and then negative impacts of VLE use.

Historical background on the use and development of VLEs
It is difficult to define exactly how long VLEs have been in use. The UK's Open University has been utilizing computers for learning since the 1970s but it was in 2000 that the commercial computer based VLE 'Blackboard' was patented. By 2010 Blackboard software was used by over 3700 educational institutions in more than 60 countries (Blackboard, 2011). One of the most popular VLE, 'Moodle', was introduced in 2001, (Ofsted, 2009).

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It was originally developed to help educators create online courses with a focus on interaction and collaborative construction of content (Ofsted, 2009) and by 2011, Moodle had a user base in 212 countries with 49,365 active sites in more than 75 languages (Moodle, 2011). In the UK within the post-compulsory sector in 2008-9, 92% of further education colleges had a virtual learning environment; the figure having risen from 58% in 2003-04 (Sero, 2009). As a result of the UK Government 2005 strategy paper *Harnessing Technology – transforming learning and children's services*, which emphasized institutions and learning providers making more effective use of technology (Becta, 2010), Ofsted reported on a sample of 34 schools investigating the impact of VLEs on students' learning (Becta, 2009).

The reports were published between September 2005 and December 2007 and concluded that just over half of the schools surveyed were positive about the impact of VLEs on learning and teaching. In contrast, during the same period 58 colleges out of 281 inspected by Ofsted had a VLE and of those three quarters suggested that the use of VLEs were helping learners (Becta, 2009). In a further report by Ofsted (2009) found frequently that the VLE was still primarily used as a repository for teaching materials and sometimes utilized for assignment uploading with limited use of interactive functions. Less than a quarter of the colleges were using the VLE to support independent learning, however, those that did were confident that technology had contributed to creative teaching providing learners' with access to relevant content; and giving flexibility to delivery. Colleges were less sure about impacts on learner attainment, progression and retention (National Institute of Adult Continuing Education (NIACE), 2009).

Consequently, the advent of Information and Communication Technology (ICT) gave rise to the institution of virtual classroom or virtual world. Information and communications technology has rapidly covered the whole nations of the world, improving the technological awareness of students and various individuals in their pursuit to acquire diverse knowledge to harness their professional dreams. With this explosive awareness of technological knowledge, the higher education environment is expected to expand focus on meeting students' expectations with more attention in widening the students' greater involvement in ICT. It is through this ICT that students could develop the lifelong learning skills that would enable them cope with emergencies of new subject disciplines and increased utilization of technology in learning. The potentials of ICT in molding students for greater achievements cannot be overemphasized. Through ICT, innovative learning approaches such as virtual learning is already being widely explored both in traditional and non-traditional educational settings all over the nations. For this course, Crawford and Kirby (2008) noted, the utilization of relevant virtual learning has never been more important and should therefore be a significant element of this generation's approach to education, socializing and normalizing.

2. VIRTUAL LEARNING ENVIRONMENT SOFTWARE

There are various VLE software use across the world to enhance education. Some are open source software while most need to be paid for. But mostly deployed via the cloud and the platforms they work on are Windows, MAC and Linux systems. Among of which the few VLE software's are

2.1 SAP Litmos
SAP Litmos is a cloud-based continuous learning platform that unifies learning management, the extended enterprise, prepackaged content and a content management system to meet organizations' training needs. SAP Litmos is SSAE 16 SOC 1 Type 2 and SOC 2 Type 2 certified. The platform's open API architecture and

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prepackaged connectors enable organizations to connect SAP Litmos to their ecosystem. The user interface is consistent across devices, which helps organizations to engage their mobile workforce.

SAP Litmos provides an interface where trainers can directly import content into the application, as well as build courses, assign courses and track the progress of learners. The application is AICC, SCORM, xAPI and Section 508 compliant. Supported Operating System(s): Mac OS, Web browser (OS agnostic), Windows 8

2.2 PiiQ by Cornerstone

PiiQ by Cornerstone, formerly Cornerstone Growth Edition, is a cloud-based employee performance and learning management system that helps businesses to streamline their employee performance review process and prioritize learning for employees. Businesses can create goals, track employee performance and align individual goal to business objectives. With PiiQ Learning, employees can browse through the available training courses, enroll in learning programs according to their need and keep a track of their progress. Managers can also assign and set priority and deadlines for courses, as well as make certain programs mandatory for employees. The system also offers customized development plans and learning content to help develop and retain talent. Supported Operating System(s): Web browser (OS agnostic), Windows 10

2.3 Docebo

Docebo is a cloud-based LMS solution to provide training programs for employees, partners and customers. Docebo serves various industries including IT, technology, retail, consulting, education, healthcare, manufacturing, energy, oil and gas. Docebo various features and applications can be enabled or disabled based on the company's needs. Users can deliver content, manage training, track certifications and reward learners through the platform. Privacy settings allow users to grant specific permissions while protecting different customers. It provides unlimited storage, courses, bandwidth and admins. The system can be integrated with third-party applications as well. Supported Operating System(s): Mac OS, Web browser (OS agnostic), Windows 10

2.4 Moodle

Moodle is a cloud-based learning management solution that provides businesses and educational institutions with tools to design customizable training courses. It comes with a centralized dashboard, which enables users to track course completion and monitor students' progress using predictive analytics. Key features of Moodle include data backup, contact management, activity tracking and in-built calendar. Students can utilize the messaging functionality to resolve queries related to ongoing courses, streamlining communications across the organization. Additionally, it offers mobile applications for Android and iOS devices, enabling students to receive notifications of upcoming events and access offline courses. Supported Operating System(s): Web browser (OS agnostic)

2.5 Microsoft Teams

Microsoft Teams is called hub for teamwork in Office 365. All team conversations, files, meetings, and apps live together in a single shared workspace, and you can take it with you on your favorite mobile device. Microsoft Team is fast rising in the education section now as it can be used to disseminate information for any level ranging from primary to secondary and tertiary institution. However, it give the student the opportunity to download any shared document. Below are the features of Microsoft Team over other VLE applications.

- Easily manage your team's projects with file editing and sharing on the go
- Connect face-to-face with HD audio and video, and join meetings from almost anywhere
- Chat privately or in groups, and communicate with the entire team in dedicated channels
- Mention individual team members, or the whole team at once, to get your colleagues' attention

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- Focus on what matters most by saving important conversations and customizing your notifications
- Search your chats and team conversations to quickly find what you needGet the enterprise-level security and compliance you expect from Office 365

This app requires a paid Office 365 commercial subscription, or a free or trial subscription of Microsoft Teams

3. COMMON FEATURES OF VIRTUAL CLASSROOM SOFTWARE

Virtual classroom software can be used by educators as well as trainers at organizations with a large geographical reach, in order to bring learning to students wherever they are located while reducing travel costs to zero. Buyers should expect to find the following functionality in their new system:

Audio-video streaming	Instructors can interact directly, in real time, with groups of learners or individuals via streaming audio and video.
Interactive whiteboards	Virtual whiteboards allow instructors to share information with students, and include the ability to add real-time annotations, text and highlighting. Learners can also be given access, so they can share their video stream or desktop with the class.
Chat	Learners and instructors can interact via personal or group chat, rather than sit passively listening to lectures. Questions can be addressed directly in real time, and instructors can conduct quick tests.
Recording	Instructors can record classes for playback by absent students. They can also use the audio-video recording functionality to prepare introductions to lessons.
Breakout rooms	Instructors can break classes into smaller groups via virtual breakout rooms, where learners can collaborate to solve problems. Breakout rooms have their own chat, whiteboard and document-sharing capabilities.
Media streaming	Enables instructors to play audio/video files using a built-in media player.
Attendance reporting	Instructors can monitor attendance and send out notifications about upcoming classes to learners.
Polling	Enables instructors to conduct quizzes and surveys during class, then assess learner comprehension by viewing the results in chart form.
Desktop and file sharing	Instructors can share their desktop as well as multiple file types (PDFs, Word documents etc.) with learners during class.

4. BENEFITS OF VIRTUAL CLASSROOM SOFTWARE

Organizations that use these systems are able to:
- Provide students with the flexibility of following and completing courses at their own pace.
- Deliver education and training to students who are currently employed or whose scheduling commitments prevent them from attending in-person classes.
- Expand the reach of their education to anywhere on the globe, so long as students have access to the Internet.
- Reduce travel costs for instructors and learners to zero.

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4.1 General positive impacts of VLE

The acceptability of VLE in most institution now cannot be overemphasized. Most secondary schools and tertiary student across Nigeria and all over the world uses software collaboration tool that enables students' and teachers to communicate online to develop their understanding and analytical skills. (Scardamalia & Bereiter 1996) says Students performed significantly better on standardized tests in reading, language and vocabulary and on measures of depth of understanding, multiple perspectives and independent thought than students who did not use the software. The study concluded that VLEs maximize student reflection and encourage progressive thought, and independent thinking.

In research conducted, it was observed that during this pandemic period where most schools are shut down and students are on the lockdown, various secondary schools in Lagos such as Greenspring school (Lekki), Chrisland College (idimu), Taqwa College (Ifako) among others and higher institution University of Lagos, Babcock University, Covenant University to mention few; uses VLE most especially to give lectures online with lecture notes are been posted. Assignments are given with stipulated submission time and grade assigned according based on performance. During this period we find out that the necessity to be active learners when using a VLE has increase students enthusiasm, confidence and capacity. Students created their own knowledge through collaborative experiences with peers in other locations providing an opportunity to develop skills and competencies.

In 2008, as a result of the UK Government's 2005 strategy paper, Ofsted evaluated the development of VLEs in a sample of educational settings. This resulted in an Ofsted publication Virtual learning environments: an evaluation of their development in a sample of educational settings (Ofsted, 2009). Ofsted visited 41 providers, including 18 colleges, six primary and two secondary schools. Inspectors found that in all the environments the concept of VLEs was relatively new; colleges were making the most use and primary schools the least. In the best practice VLEs were found to enhance learning particularly via the opportunity for reinforcement and to enable students to 'catch up' on missed material. Over three quarters of the VLEs examined had elements that were good, but subject use and coverage within institutions was variable (Ofsted, 2009).

Little use was made of interactive tools such as forums and other discussion facilities. Success with the use of VLEs appeared to be linked to the enthusiasm of individual teachers to use technology (Ofsted, 2009). Ofsted identified that access to broadband internet from a student's home and staff training / development time were key factors in the effectiveness of VLEs. As a result of the survey Ofsted recommended that VLEs be used to enhance learning and should not be used as just storage or communication facilities. They suggested that VLE specific quality assurance strategies and self-assessment should be formalized in institutions in order to assess impact and improve effectiveness (Ofsted, 2009).

4.2 General negative impacts of VLEs

Crook, (2000); Seabolt & Arends, (2000) and Muirhead, (2001), all express the view that web-based instruction does not allow for the social and emotional interaction that takes place in traditional classrooms. In 2001 Piccoli, Ahmad, & Ives compared, using a longitudinal experimental design, classes taught using VLEs with traditional teacher-led classes. They found no significant differences in learning performance between the environments. However, the participants in the VLE group reported being less satisfied with the learning process. Robertson and Klotz (2002) agree and assert that students in an online learning environment lack

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the opportunity and benefits of structured dialogue and the sense of community created in a traditional on-site classroom environment.

5. CONCLUSION

VLEs have a range of research reported positive impacts form various contexts. They can; promote reflection, accommodate the needs of students, increase enthusiasm and confidence, improve readiness to learn, and broadly improve course assessment performance. Virtual classroom is based on Information and Communication Technology. Tertiary institution should integrate virtual learning effectively into their systems because the world is becoming more technologically inclined. That was why most IT professionals called the new technological trend an e-driven world. This e-driven world has brought unimaginable changes in all aspects of life. Consequently, students should be well equipped through virtual learning to provide them with the necessary experiences for personal growth and development.

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