



Monitoring And Enhancement of Learning Management Systems for Teaching and Learning; A Case Study of Cavendish University Learning Platform (CULP)

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CJSSM

ISSN 2518-8623

Volume 2. Issue 1

pp. 1-12, June 2023

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How to cite this article: Arinaitwe, A. (2023). *Monitoring and enhancement of learning management systems for teaching and learning; a case study of Cavendish university learning platform (CULP)*. *Cavendish Journal of Social Science and Management*, Vol 2.

Abstract

For many universities in Uganda, the Covid-19 outbreak has forced the adoption of learning management systems to enable and enhance online teaching and learning by purchasing the systems and training stakeholders on their use. The study aimed at finding out improved ways to enhance and monitor the use of these systems for teaching and if this is done in its rightful way. Through a review of literature, the study ascertained what parameters universities use to monitor teaching and for how long this is done, primary data was also collected by adopting a mixed research approach. The study found that there are a number of approaches adopted in teaching and learning and these include the Moodle system approach, blended learning approach, block release approach and the hybrid model. Although these exist, CUU has adopted the pedagogical approach which has bred the adoption of the CULP platform, a learning management system for effective teaching and learning. Although CUU does not have a standardized monitoring system, it has adopted parameters through which monitoring of teaching is done. Some of these include developing, updating and uploading content as guided by the curriculum, ensuring assessments and feedback to students are done at set times and dates. CUU therefore needs to come up with guidelines or set system on how best to ensure monitoring and evaluation of teaching and learning.

Key words: Learning management systems, monitoring, teaching, learning

Introduction

Many universities in Uganda have adopted learning management systems as one of the major requirements for teaching and learning. Makerere University Business School (MUBS) has adopted the Moodle Platform, Cavendish University Uganda, the clanEd platform and others to ensure teaching and learning takes place. Guidelines set by the Uganda National Council for Higher Education (UNCHE) proposed rolling out the platforms using qualified teaching and administrative staff who adhere to the Open, Distance and e-learning (ODeL) model. The ODeL model is expected to track teaching, course delivery and learning throughout the semester (Arinaitwe, 2022). The parameters used may not necessarily ascertain that a particular registered student is the one participating. Bwire, Bagarukayo & Muyinda (2020) ascertain that interaction between the student and lecturer can guarantee that there is teaching and learning taking place as well as course completion rates. It is not known to what level, impact and what parameters are used to keep in check student to teacher involvement and knowledge sharing through the platforms used for teaching and learning. Determinants of effectiveness of teaching, if it is done and how it is done in respect to actively engaging students in the process is the motivation of the study. If learning happens, what approaches are adopted to determine if learning happens as well as monitoring mechanisms, (Cavus 2015).

The most recent study by Arinaitwe (2022) states that ever since the adoption of learning management platforms in Uganda, a number of factors were considered in terms of acceptance and their use by both students and staff. It was known that before implementation of the online platforms, training on use as well as availability of compatible devices were done. Devices included laptops, computers, smart phones, tablets and others. Rolling out and implementation of the online platform showed the shift from entirely blended to online teaching and learning. As agreed upon by Mishra & Koehler (2006), this was done through a step by step approach that involved refresher trainings on use of the platform and encourage users through self-regulated learning. Using the platform to teach by learning how to log in and out, using the chat options to discuss content and using the different study materials to teach and learn are some of the ways teaching and learning has been embraced through the learning management platforms.

Previous studies have shown that through the use of the platform, a student can not only be taught but assessed and feedback given. It however is not clear what mechanisms are put in place to monitor the use of the platform to ensure teaching is effective. Although there exists support teams, a database and activities like weekly support services, it is not known if they are clear enough to ensure learning takes place at the appropriate time. It is therefore prudent for the study to find out the appropriate approaches that can be used to monitor teaching and learning on the learning management platforms used.

The study aimed at answering the research question; what is the best way to monitor the quality of teaching using a specified learning management platform? The specific objectives include the following;

- Identify the approaches adopted for teaching through the management learning platforms
- Identify the monitoring processes used for teaching and learning through the online study platforms
- Recommend monitoring and evaluation parameters and requirements for teaching using the online learning platforms

Literature review

Teaching approaches adopted through learning management platforms

The concept of online teaching and learning has focused on the use of electronic means attributed to the advancement of technology over time. Primarily, teaching and learning was acquired through the use of videotapes, CR-ROMs, personal organizers and others. Today, the use of ICTs have fully facilitated teaching and provided significant opportunities to develop highly effective e-learning (Basheka, Lubega & Baguma, 2016).

A great number of learning management systems have been identified based on their ability to enhance online learning. The Moodle system approach that uses the open source software aims at improving the quality of education and ensure the development of teaching aids (Ustinova, Shokaliuk & Pikilnyak, 2019). Using learning analytics to predict students' performance in Moodle further shows that peer interaction and exercises are determined to be significant factors for students' academic achievement in blended learning. Kakasevski, Mihajlov, Arsenovski & Chungurski (2008), highlight that modern Google Analytics tools have been investigated against effective attraction channels for users and bottlenecks detection. Conducted investigation allowed to suggest modern method for effective usage of Google Analytics tools. The method is based on main traffic indicators analysis, as well as deep analysis of goals and their consecutive tweaking, (Valerii et al, 2021).

The role of the teacher in supporting student activities as a strategy or approach in enhancing teaching and learning has gone a long way. It has enhanced the adoption of pedagogical practices and learning technologies thus increasing the adoption of online learning technologies. It has embraced the concept of synchronous or face to face learning as well as asynchronous or text based learning thus making the adoption to online learning faster each year (Mwalumbwe & Mtebe 2017).

The demand for the blended learning approach has been rising due to the merging digital society and environment enabling it. The merger of the traditional face to face with the online learning has bred the blended learning approach. It has been known for its flexibility in expanding the choices of how teaching and learning is done as well as collaboration with the known and unknown. Although blended-learning varies from institution to institution, adoption of a particular form of technology putting into consideration the available resources and infrastructure, institutions cannot merely use the existing blended-learning models without taking into consideration their environments and the perspective for use (Oliver & Trigwell 2005).

The block release model or approach has provided flexible teaching for those who may not have time to attend classes throughout the semester. The approach entails one to attend classes for only the first two weeks and last two weeks of the semester where learning is guided entirely by the teacher. A student interacts with the lecturers through a variety of activities on the learning management platform like group discussions and chat sessions. During the semester, the student does self-paced learning based on the guidelines provided. A student's learning is guided through discussion forums, webinars, online assessments and activities programmed by the teacher. These can be done at a students' convenience. This approach has been known to avoid friction between work and post graduate studies. (Basheka, Lubega & Baguma, 2016).

The hybrid approach or model has been known to use different forms of electronic means to ensure teaching and learning is done. Its concept involves using digital teachers working online with digital students who can access a digital library for studying and a digital database to monitor student progress. Various stakeholders like the community, policy makers and collaborative partners can also participate in working with the digital teachers to impact knowledge in students. A student gets knowledge from teachers and those in the field of study without even meeting any facilitator physically but rather engaging through the learning management system (Basheka, Lubega & Baguma, 2016).

The above named approaches are engrained with a number of teaching methods which include differentiated instruction, lecture-based instruction, technology-based learning, group learning, individual learning and inquiry-based learning. They are expected to create, track, deliver and store educational materials, courses and outcomes to ensure teaching and learning takes place. Abdul (2021) however highlights that the acceptance of the use of a model depends on the attitude, perceived usefulness and usability using a specific technology by the teachers and learners. This is referred to as the Technology Acceptance Model (TAM) whose fundamental goal is to ensure teaching, learning and system acceptance.

Processes used to monitor online teaching and learning

Emphasizing the concept of monitoring teaching and learning in education institutions helps to build a culture of supporting new knowledge in all disciplines. Monitoring has guided institutions to recognize resource constraints that exist in development assistance. Bondarenko (2016) identifies the process approach which is involved with monitoring of the quality of resources in institutions or organizations. The process approach is carried out in three directions: the quality of the project, the quality of the process and the quality of the result of their use. In connection with the multidimensional nature of the quality of online educational resources, it is proposed to carry out quality assessment based on the use of a hierarchical quality model. At the top level of this model, constructed in accordance with the process approach to management of quality, there are directions of quality monitoring. There are evaluation criteria (didactic quality of the project, methodological quality of the project, etc.) at the next level of the hierarchy of the model. They are used to assess the quality of educational resources. The criteria determined by the indicators, in turn measures the properties of the educational resource. The principal possibilities for measuring of the quality of electronic educational resources in the course of monitoring are considered (Bondarenko, 2016).

A project report by the European Commission (2020) highlighted that engagement of ICT in learning alters traditional teacher-student relation and as a result changes in interaction patterns and teaching approaches. Monitoring learning will then be determined through the parameters of collaborative learning, project based learning, self-learning and communication strategies to learning. It will no longer have attendance in class as a parameter for learning.

Step 1: Establish the environment to ensure teaching and learning takes place. This involves making sure that the technology to be used is available along with the learning materials and responsible teachers. The learning content and various activities should be on the learning management system together with the different forms of learning aids like assessment, chats and group forums for discussions.

Step 2: Determine indicators for learning using ICT innovations. These indicators can include but not limited to community participation in projects that involve student participation. These are intended

to contribute to educational research and long life learning. Other indicators involve effective design of curriculum and course content, use of a variety of learning contexts (including guided independent study, project-based learning, collaborative learning, experimentation, etc.) soliciting and using feedback, effective assessment of learning outcomes, well-adapted learning environments and student support services. Others include presentation of topics and assignments on the learning management system or platform for students as well as instructions for guidance (Juliet, John, Proscovia & Malunda, 2018).

Step 3: Training as a form of monitoring knowledge of content among teachers is vital for teaching and learning. Meini et al, (2020) says it is very important for frequent trainings on online teaching because it highlights significant issues that should be embraced while teaching with the aim of avoiding frustration of both teachers and students. Training organized on the basis of teamwork allows teachers to talk about their experience and reflect on the advantages and disadvantages of the current method used for teaching as well as the learning management system.

Step 4: The process of observation as one of the effective ways of monitoring teaching and learning. Periodic observation gives an accurate judgement of scenes experienced in both the physical and online classroom. One is able to observe how classes are providing means of learning through interaction, real time engagement and feedback provision. Informal and formal talks are handled and both students and teachers able to communicate on the subject matter. Laska (2016) suggests that during observation, focus is centered on the following dimensions; the first is on teaching techniques and activities that are developing student learning, so record keeping or note taking is very vital. The second dimension is level of communication between the teacher and student for example, the time taken for a teacher while communicating to a student through discussions, and demonstrations can determine learning parameters. The third dimension involves the flow of conversation from the teacher to the student while teaching is key. Considerations range from if a teacher explains content *visa vie* reading it out to a student, then learning is surely happening. Barbra et al, (2010) adds that monitoring through observation allows the observer to also monitor the lessons taught as a strategy to determine performance of a teacher and review the curriculum of a particular subject. This is known to improve the level of teaching.

Step 5: Management, regulation and assessment of work involves ensuring that a student accesses assignment, notes and other relevant study materials to enable them do their independent work. This work usually has a scheduled time for completion which should be captured by the learning management system and a scheduled time or period in which the work should be finalised and uploaded by the student as well as assessed and feedback given by the teacher. The system also guides the assessment on the number of points or marks a particular number should be awarded. During lecture times, a teacher is expected to engage students by asking questions, encouraging all students to participate and holding student-teacher reviews. This can also help in identifying gaps in their knowledge and understanding. At this stage, mistakes can be avoided because parameters are there to be followed. It is rather easy to monitor completion of particular tasks for both students and teachers. Teachers can easily resolve student issues without having to involve a third party because they have the ability to interact with students on education related issues through the learning management system (Natalia et al 2018).

Research methods and materials to be used

Research approach

The study adopted a mixed methods research approach which included both qualitative and quantitative approaches. The qualitative approach was used to mainly understand the problem from the perspective of the platform users to mainly obtain specific information about their opinions and behaviours. The quantitative approach provided measurable evidence to help in establishing the cause and effect to yield efficient data collection procedures to create the possibility of replication and generalization to a population, to facilitate the comparison of groups, and to provide insight into a breadth of experiences.

The motivation for using both qualitative research and quantitative research comes from the fact that the use of mixed methods provides a better understanding of research problems and complex phenomena than either approach alone. Kothari (2005) says one method alone may not give accurate results while a combination of both methods enhances integrity of findings. Several authors pointed out the advantages of using mixed methods which include participant enrichment, instrument fidelity, treatment integrity, and significance enhancement and triangulation (Kothari, 2005).

Research methods

The methods used included the online survey method using questions that were both closed and open ended. Kothari (2005) terms the questionnaire as the most appropriate instrument due to its ability to collect a large amount of information in a reasonably quick span of time. It is more likely to communicate similar meanings and questions to the respondents. The interview method will be used to collect relevant information as per objectives of the study. Interviews help in collecting opinions of respondents based on the subject matter. Open ended questions were mainly used to produce a variety of answers from respondents. The document review method was used to review existing documents related to the study problem and variables in form of reports, published and unpublished research, journals, electronic journals, websites and databases to gain more information on the study problem. Sekaran, (2009) classifies these documents as secondary sources of data and asserts that this method saves time and reduces the cost of gathering information.

The entire research process was conducted with due respect to ethical considerations in research. The researcher sought consent of the respondents to participate in the study. The researcher was mindful about the respondents' views with utmost confidentiality. In general, a high degree of openness regarding the purpose and the nature of the research was observed by the researcher. The researcher made sure that bias was avoided during the research design, data collection and analysis and interpretation and hence objective research conducted. Proper acknowledgement was done to the authors of the research work. Volunteerism was ensured. No respondent was forced to be part of the study. An assurance of protecting the respondent's dignity was done thus leading to a high response rate.

Reliability of data collection instruments

The study ensured through the instruments that information is reliable and valid. Reliability concerns the extent to which measurements produce consistent results. Validity is the extent to which an instrument measures what it is supposed to measure and performs as it is designed to perform (Carole et al., 2008). Quantitative data analysis was used and according to Sekaran, (2009), data analysis is

the evaluation of data. It is the process of systematically applying statistical and logical techniques to describe, summarize and compare data. Descriptive analyses of frequencies, percentages, means and standard deviations was used. Relationships and variations among variables were determined by using cross tabulations, regressions and one sample T-tests. Qualitative data was categorized under themes and analysed manually by matching content with themes of interest for the study. These themes were got from the responses of those who took part in the interviews. NVivo 12 was used to analyse the data.

Results and findings

The study targeted a total of 4120 CULP users (110 teachers, 10 administrators and 4000 students) of which 80 teachers, 10 administrators and 351 students were sampled using the purposive sampling technique to take part in the study. This gave a response rate of 91% which is considered sufficient to represent the responses from the students and staff members of Cavendish University Uganda (CUU) who use the learning management system, CULP. The questionnaires were administered to students and interviews carried out with selected staff members. This was done to find out the different approaches used by teachers to teach using CULP. Out of the 80 teachers who took part in the study, 73 teachers of who 41 were male and 32 female. For the 351 students who took part in the study, 97% (339) took part in the study 82% (278) were between the ages of (18-28) while 14% (48) were between the ages of (29-39) and 3% (11) were 40 years and above. A total of 1% (2) students handed in incomplete instruments which could not be analyzed.

Approaches adopted for teaching through the management learning platforms

CUU adopted the blended learning teaching methodology where some students are learning face to face and others online in real time. Through the blended learning, the pedagogical approach is adopted. It refers to the methods and practices used by a teacher in the classroom, for example, the teaching style, content delivery and how the teacher assess students and gives them feedback. Using pedagogy approach of teaching, the teacher delivers the curriculum to the class during a set time or weeks. CUU expects this to be done in a space of 14 weeks. CUU has adopted the pedagogical approach which expects the blended method with pedagogical delivery for both the learner and teacher.

The teacher is expected to contribute to the development and upload of content alongside other persons. A developer who is also a lecturer or internal reviewer works alongside with the external consultant to develop content. The content is developed using a guideline from National Council for Higher Education (NCHE) within a scheduled time of 2 weeks. The developed content is sent through to the university internal review team headed by Deputy Vice Chancellor (DVC). The internal review team spends 1 week verifying the content before it is sent through to the external review team. For 1 week, the external review team also verifies the content. It is then sent through to the Distance Learning and Institutional Technology (DLIT) department for uploading on to the CULP. The lecturer teaches the content using the various avenues on the platform that permit student engagement.

The content on the platform is structured on a weekly basis where each week has multiple choice questions instantly assessed by the system as well as essay questions assessed by the teacher. This encourages students to read ahead of weekly work. Other activities include students expected to watch weekly videos specific to the weekly topic. These can be discussed and feedback shared on

what has been studied in that week. The platform also allows midterm assessment, for example, in week 6, students are assessed on what was learnt from weeks 1 to 5. Another continuous assessment is given in week 11 on what is covered from week 6 to 10. All Continuous Assessment Tests (CATs) account for 40% to final score or grade. For the remaining week 12 and 13, studying continues while week 14 is used for exam preparation and revision. The students are expected to cooperate with the teacher in terms of respect in classroom environment whether online or face to face by switching off phones during class times. If a student wants to make a submission, the teacher has to approve. This form of blended learning that enhances the pedagogical approach form of delivery has enabled CUU to improve of content on the CULP and create better avenues to monitor teaching.

Monitoring processes used for teaching through the online study platforms

Monitoring teaching and learning using a learning management system involves keeping watch over, supervising, scrutinizing and systematic checking of specified categories of activities and data. Classroom monitoring (online and face to face) generally scrutinizes if students are present to discuss, understand material and engage with other students and teachers. It also scrutinizes if a teacher administers tests, reviews performance and identifies knowledge gaps for students.

It is assumed that the core of education is the periodically reviewed curriculum. The quality of updated content in the curriculum taught to students is key to promoting meaningful teaching and learning. The study found that although CUU does not have a stipulated monitoring system in place, CUU monitors teaching and learning using more of the following parameters.

CUU provides an environment where experienced practitioners in a specialized field ensure that each course to be taught has a course overview, learning objectives, course content, teaching design, learning support, academic assessment and course evaluation.

The reviewed course is expected to be accredited by the governing body and in this case, National Council for Higher Education (NCHE). It should have content like reading materials, visual aids, revision questions, books and others. The teacher also makes sure that the course has up to date links for video books, audio books and pdf versions of online books. He or she makes sure that the links to these audio and videos are not broken and are accessible.

Frequent trainings for teachers on use of ICTs, the CULP platform for teaching and curriculum design are carried out. This is done to ensure personal preparedness and confidence. Trainings on how to navigate CULP are carried out on an average of once a month and can be more frequent depending on the demand and need. Each training takes 2 hours and contents are on how to use the platform, use of chats, video conferencing module of the platform, how to record lectures and how to upload the recording on the platform after the class has ended. This is done for the benefit of those who want to revise and also those who haven't attended the class.

With CUU, it is the mandate of the DLIT team to monitor teaching on the platform. DLIT team does this by checking if the following are being done at specified times during the course of the semester. A platform user should be able to log in and out of the platform. Checking who logged onto the platform at the time they are supposed to, is one monitoring activity done by the DLIT team. Also checking how many platform users logged into the recommended video conferencing known as google meet, recording the sessions and having them uploaded onto the platform is also done. Monitoring is also done at specified times to check if weekly assignments have been marked and

feedback shared with students. Other activities monitored include if group chats have been held, if teacher uploads a question that students can attempt and later upload answers as scheduled. The use of the mentioned frequent learning probes which involve a teacher using quizzes and questions in and out of class to involve and encourage students to learn help to monitor teaching. A teacher pays close attention to those who answer questions in class and encourage those not responding by directly calling them out. The more frequently it is done, both the teacher and students have highlighted the fact that they gain clarity on the teaching and learning expectations as well as encouragement on teacher-student interaction.

The DLIT team noted that the teachers always assign regular homework as guided by the weekly assignments on the platform and provision of individual feedback on assignments has helped the teacher know what areas to concentrate on to help the student improve and learn. Feedback is provided through verbal discussions with the students. It is also given through writing comments in the submitted work. This has been known to hold students accountable for their work establishing guidelines and expectations for them to follow.

To establish credibility of assessment, the study found that CUU uploads multiple choice questions that are system assessed and essay questions whose responses from students are assessed by the teacher. Feedback to student through system assessed assignments is instant and scheduled for the teacher, for example on a weekly basis.

Recommended monitoring and evaluation parameters and requirements for teaching using the online learning platforms

Although CUU monitors parameters to determine teaching, a monitoring and evaluation system can be adopted to improve the outcome of teaching. The system is expected to ensure that the following parameters are observed.

The process of content development can be shortened by the governing body National Council for Higher Education (NCHE) clears a course and course descriptor or guide. Once cleared, the institution involves an internal reviewer who is supposed to be the teacher for that subject to update the course content. External reviewers who are practitioners or experts in that area are then involved for 1 week to review the content, mode of delivery and then it is uploaded on platform. This is expected to shorten the time of approval.

Content delivery includes teaching where both the lecturer and student are engaged in video conferencing to explain the uploaded content. Another mode can be module based group or individual chats, which involve either a one to one (between lecturer and individual student), or one to many (which involves a lecturer and all students) and discussions on chats. This will ensure that at least all students who have logged onto the platform do not miss out on any discussions. This is compared to when students only chat with lecturer and do not get a collective response from other students as well as the lecturer. This can be done by having trainings preferably three times a semester or once every month. The aim of the trainings is to show how the platform works. Besides the trainings, the weekly clinics whose aim is to solve user problems are held as mandatory for every user.

Although assessments are given, the platform permits a student to make a submission up to 4 times and submission must be through the CULP only. A notification is sent through to the relevant persons to assess a submission and provide feedback, redo work or re-submit. If notifications can widen scope through different social media platforms like WhatsApp, instant messaging other than just the

CULP, this would create efficiency as well as motivate students to learn as supported by Andi, Rusdiana & Asmiati, (2021). If a teacher assesses a student and provides feedback via WhatsApp with discussion method, the student would highlight to the teacher the areas of emphasis for a better understanding of the subject matter. The incorporation of different ICTs and social media platforms is assumed to improve both the teaching and learning process as well as develop educational activities and create opportunities for a teacher to know and influence the strengths and weaknesses of the student and whole class. This can also improve on lecturer attendance, (Andi, Rusdiana & Asmiati, 2021).

The need for an option on the platform where an audit report can be derived from the platform can improve monitoring of teaching. An example is, retrieving a list of lecturers who have accessed the platform should be a click away and a summary is derived via the long process of having many options of retrieving the same information.

The need for information technology infrastructure is important. If users face internet network problems and device related problems, the system dimensions which include infrastructure elements and the quality of the internet infrastructure as well as the level of user information technology literacy could be adopted to enhance the online teaching and learning process. CUU could merge efforts with internet service providers to zero rate the internet while studying using all internet related drives. Once done, monitoring is assumed to be easier.

Conclusion

Quality monitoring of education with the use of learning management systems like the CULP has been designed to assist teachers to adapt themselves to the new era of professional activity in the field of education. The adoption of approaches like the pedagogical approach on the CULP has proven useful in monitoring activities for quality teaching and learning. Processes set to be followed from the development of content, uploading it to the platform and engaging students in a number of activities, assessing them and providing feedback with parameters in place can guarantee quality teaching and learning using diverse ways. It is recommended that the CULP be upgraded to emerging technologies to absorb the different ICTs that embrace globalization and development. The system upgrade from time to time can enhance teaching and learning.

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