RESEARCH ARTICLE

A Critical Analysis of Learner Management System Using Structuration Theory Application

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Abstract: The use of Learning Management System in Higher Education Institutions have generated a lot of debate in the research. Not only in terms of enhancing students-learning capabilities but also in terms of its usability. However, challenges arise when communication between teachers and learners through the use of Learning Management System (LMS) is not facilitated as it should. The objective of this study is to critically analyze the Learner Management System using structuration theory to understand the relationship between lecturers when using LMS. Engaging a qualitative approach, existing literatures around LMS were used to address the research problem. Structuration Theory was used as a theoretical lens to analyze the data from selected literature. Findings and recommendations of this study has been elaborated and presented.

Keywords: *Information Systems (IS), Learning Management System (LMS), Structuration Theory (ST), Student Performance (SP).*

Introduction

The use of digital devices such as smart phones as well as laptops endorse the suitable method on teaching learning as it warrants that the learning process quality can be simplified easily through online learning to allow getting resources as well as information available on the Internet [1]. Nowadays institutions are moving from a model such as closed model and teacher-centred classroom to more open models that are focused more on students.

These models enable teachers to shift from them being the holder of knowledge to mentor learning, to have an ability to manage diverse discourses and performs. According to [2], employees that are not informed or knowledgeable with the new products and services on the market, they pose risk to the organisation and their colleagues or students.

Which at the end stimulates the student intellectual capacities on how they treat information which entails online learning, hybrid learning and collaborative models [3]. According to [4], online learning environments provides supplementary learning experiences whereby learners are able to interact, collaborate as well as taking ownership of their learning at the comfort of their time.

Technology has brought with it innovations including in the area of learning where it has been used to support the delivery and enhancement of the education and learning process [5]. The use of information and communication technology in the field of education through the facilitation of web-based platforms is known as e-learning [6]. Thus, web-based learning platforms have emerged and adopted in the institutions of higher learning culminating in a variety of learner management systems (LMS) such as Blackboard and WebCT [7]. The processes that educators apply in delivery and assessment of their courses are then automated and managed through LMS [8].

Literature Review

Information Systems

[9] describes information systems (IS) as combination of information technology uses and human activity upon a set of approved

practices usually used to support management as well as operation.

An electronic IS comprises of software, hardware, telecommunications, procedures, databases and people design to transform data into valuable information. Thus, data and information are amassed, stored, manipulated and distributed as a set of interconnected components within the information system [10].

Furthermore to support management activities there are several IS support system. It ranges from Management Information Systems, Transaction Processing Systems, Decision Support Systems and Executive Information Systems [11]. This research focuses on the latter, MIS. MIs are valuable tools that can assist organization in reaching high levels of automation. Educational institutions make use of MIS, called E-learning to supervise and revolutionize the learning process. According to [12] learning management system (LMS) is a software application used to assist in the learning process in E-learning.

Learning Management System

Learning Management System is one of the environment that meet a set of features for creating and structuring of courses in the distance. There are other environments such are: Moodle, Tel Educ, Black Board, WebCT, Tool book, Top Class Server, used for creating and managing these online courses. LMS offers flexibility to users by enabling them to create and accomplish learning in accord with the aims and learning objectives [12].

In most universities nowadays LMSs is becoming an integral component of the educational systems, in hybrid approaches the interest is increasing that blends in class and online activities. [13] posit that "LMS has a variety of applications and tools that motivate universities around the world to encourage faculty members to utilize them for teaching and learning practices and to assist them to track students' activities in more manageable manner, allowing collaboration, involvement, and interaction".

The centralisation and streamlined administration as well teaching and learning management through e-learning is the principal objective of LMS [14]. LMS covers the overall process of distance learning

administration such as tutors, possessing interface and student teachers. LMS assists lecturers with the sharing of lecture content, assigning assignments to students, take multiple-choice tests to revise knowledge which increases interaction with students [15].

The use of LMS in the process of learning is credited with allowing students to manage their learning process and offer a self-regularized environment thus providing an individualized learning process [5];[16]. It has also enabled an efficient way of delivering learning regardless of ones' location, leading to increased flexibility in access to learner material [17].

However, challenges associated with LMS include decreased interaction between students and lectures leading to procrastination in studying and increased chances of quitting studies [16]. In many developing countries LMS has been implemented successfully. LMS helps instructors save time, improve instruction quality and increase job productivity [18]. [19] further alludes that LMS have positive effects on student interaction, motivation, skills, performance and achievement.

Student Performance

The adoption of LMS contributes to improving the student learning experience as well as teaching skills of lectures [15]. Technology has always aided in enhancing the easiest of tasks, such as the improvement of the traditional learning process [20]. The expected feedback of the study was that students complains would be linked to technical and infrastructure issues, but the findings shows that students are complaining about how LMS has been used in teaching and learning, which is consider as a problem for quality control of universities [21].

The findings shows a considerable support for the importance of task technology-fit, showing important influence on the impact of LMS on student learning, but only have a weak impact on outcomes in term of student performance [22]. Therefore, the radical change by lecturers as well as students regarding communication style and content delivery is required to ensure that teaching continues the same way as if lessons are offered face to face [23]. Readiness plays a

vital role in adopting or implementing technological tool in order to simplify how things are done.

Student performance refers to academic achievement. The motivation of learning, the health and the performance of a student are linked with the achievement emotions such as pride, enjoyment of learning, boredom, shame or anxiety [24]. Emotions that are openly linked with achievement activities or outcomes are defined as achievement emotions [25].

Structuration Theory

It is evident that the concept of structuration theory has without any doubt generated a lot of debate within the research arena for decades [26]. Proposed by Antony Giddens, structuration theory aims to explain how the individual contributes to the reproduction of the social system [27]. It encompasses and constructs society as neither independent of human activities nor their product but rather the interdependence of structure and agency that are derived through space and time [28]. It is therefore adequate to affirm that Giddens' structuration theory focuses on reflexivity as constitutive of human action as structuration transforms both actions and structures over time by providing them with reconstructed meaning [29].

One of the central element that make structuration theory so exceptional is its relationship between agency and structure. According to Savitri and Iskandar (2018) agents are the concrete people in the continuous flow of conduct and world events. As per [28], the concept of agency is based on the belief that individuals are perpetrators of events and that there is always choice.

This implies human-conscious having the capabilities to make a decision or act upon it (ibid.). Structure on the other hand refers to the rules and resources which are created and entrench a recursive social practice leading to what is called the Duality of structure. [30] added that through the Duality of Structure, which is considered as one of the elements most used when applying structuration theory, structures shape people's practices, but it is also people's practices that constitute (and reproduce) structures. In this view of things, human agency and structure, far from being opposed, in fact presuppose each other enabling the intertwined relationship between agency and structure.

Research Methodology

The study applied a qualitative approach. Qualitative research is a form of social action that focuses on the way of people interpret as well as making sense of their experiences to understand the social reality of individuals [31]. It is oriented or headed for analysing concrete cases in their temporal and local particularity and starting from people's expressions and activities in their local context [32]. As argued by [33], "the primary characteristics of qualitative research include: the focus on understanding peoples' experience with intent to convey experiences into meaning.

In order to address the main objective of this paper, an interpretivist approach was employed. "Interpretivism is more concerned with in depth variables and factors related a context, it considers humans as different from physical phenomena as they create further depth in meanings with the assumption that human beings cannot be explored in a similar way to physical phenomena" [34]. This is because qualitative studies have mostly encompassing value on the human, interpretative aspects furthermore, facts and values are not distinct, and findings are influenced by the researcher's perspective and values [35].

As such applying an interpretive approach in qualitative research would be justified since the purpose of qualitative studies aimed at understanding attitude, behaviour and opinions and beliefs of individual about a phenomenon [36]. Therefore, taking into consideration that the purpose of the paper is to analyse the learner management system using structuration theory as a theoretical lens from a qualitative perspective, choosing an interpretivism approach would be justified.

Data was collecting using a desktop research technique. Desktop research is a generally accepted data collection technique that is used to collect data from published secondary data [37]. The results emanating from the use of this technique are based on the collection and analysis on data collected from academic publications. Desktop research increases the validity and trustworthiness of a study by enabling the researcher to setup

searching criteria for publications, such as publication year, title and any criteria relevant to the study being conducted, thus enhancing the objectives of the study [38].

Hence, this study has used peer reviewed paper and white paper for analysis which were collected from, IEEE and Google Scholar. The readiness of journals as well as peer review practices in diverse fields of science have previously resulted in significantly varying acceptance rate levels [39]. For the purpose of this study, papers collected are in the areas of learning management system, student performance, information systems and structuration theory. These are papers which are published between 2010 and 2021, as the researcher wanted to do a deeper analysis as to what has transpired in this area of research for the past eight years.

Through the application of duality of

structure, ST tackles the orthodox view that social system are produced by structure or agent. Indeed, the duality of structure states that agent and structure both create the social system. In this regard, while agent interacts with structure and is constrained by it, structure also get affected by agent [40]. This research will make use of the duality of structure as a lens to guide the analysis of data. The theory focuses on the production and reproduction of agents' actions in the dualistic sense of things, within a social systems [41]. According to [42], they refer agents as individuals who have the capacity to act independently and able to make their own decisions.

Data Analysis and Findings

The duality of structure is presented in the diagram below. This diagram signifies the dimensions of the dual relationship between agent and structure.
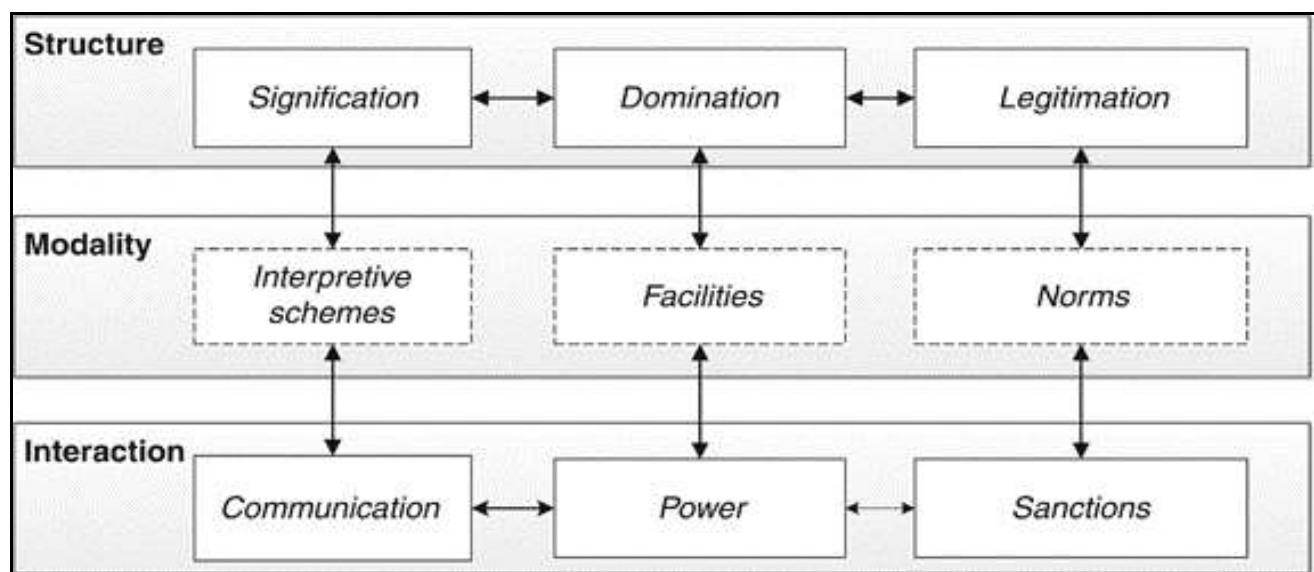

Figure 1: Dimensions of the duality of structure (Giddens, 1984)

Agents/Agency and Structure

The two main tenets from a ST perspective are agents and structure. Agents are technical (relates to technologies) and non-technical (relates to people and process). Structure is rules and resources in the organisation. Similar to educational management, the management of e-learning also comprises of components of planning, organisation, coordination and control of space, time, financial resources, human resources and information in a way that would not fall out of pedagogical principles [43].

Agent and structure form a mutually, interdependent constitutive relationship named as duality of structure [44]. Thought there are other components in ST, duality of structure is the mainstay component of ST [45].

Structure constitutes three dimensions, signification (is about importance), domination (is about power) and legitimation (is about rules and norms). As lens to guide data analysis, duality of structure can be employed vertical linking signification to domination and domination to legitimation or

horizontally connecting signification to interpretive scheme, and interpretive scheme to communication. This study used the horizontal linkage.

Signification

In today's world LMS is helping learning institutions with easy access to training, giving exams and issuing of certifications in an automated platform. Technology has made it easy that you can even attach anything like images, video and voice clips at easy without spending lot of money to do that, just having access to computers or phone and have internet access. However, when using LMS, one need to keep up to date with technology [46].

LMS simplifies the learning process and procedures to make it more responsive to the client's specific needs and wants. "The effective implementation of this LMS is important to improve the quality of learning, access to education and training, provide cost-effectiveness and reduce the cost of education" [47].

Train of staff, giving classroom lectures that takes time if everyone has to gather in one place is no longer necessary with LMS, this is done automatically via online platforms or virtually [48]. However, it needs commitment and skills of the instructor for this process to effective and successful not so much dependent on technology but on how the instructor makes use of the technology [49]. LMS is very intuitive and easy to use [49]. An LMS helps you to organize your learning, cuts on the time needed to create courses and distribute your courses to your colleagues [48].

Interpretive Schemes

LMS is helping learning institutions with easy access to training, giving exams and issuing of certifications in an automated platform. According to [50], research proves that LMS is the most popular medium for conducting e-learning in many higher educational institutions (99% of educational institutions, 85% of teachers and 83% of students had adopted LMS in the USA). Students use LMS as a tool to collaborative learning, submit assignments, writing exams and communications to lecturers [43].

Lecturers use this tool for communication and management of the courses as well as to share information with students [51].

Communication

Due to disruptions like Covid-19, to be to be relevant to situations where students can no longer be together or physically be on campus, LMS becomes the solution to enable teaching to continue. According to [52] "on-campus learning increasingly involves less face-to-face interaction with a teacher, while distance learning designers do their very best to ensure that distributed students have both direct and technology-mediated contact with both teachers and other students".

LMS have also been widely promoted and used by learning institutions to promote self-learning for students, allow easier access to academic resources without the restriction of time and space [53]. To the institutions, LMS enables them to provide academic resources to a wider audience. It also plays a role to the learning of the students thus producing favorable results for the institutions. "Significant student data can be extracted from learner analytics and help educational policy makers to improve student engagement" [8]. LMS makes learning accessible, flexible and convenient for students thus making it easy for students to acquire education [54]. To the students, LMS is significant as it simplifies the learning process by providing an enabling environment for the learning process through flexibility and convenience.

According to [8], LMS automates the administration of the learning process such as course content, student record and the actual learning process. Through LMS, educators are provided with technological tools to upload course content, manage student records and even manage student marks. To the educators, LMS is a significant learner management tool to provide an automated platform for managing the learning process and its administration.

Power

Institutions are increasingly spending huge amount of money to install and maintain LMS [55]. LMS is a resource, a software system used by higher education to enforce and improve learning, through management of administrative tasks, active learning and

higher student involvement in e-learning [56]; [57]. In a standardized fashion, learning contents, educators and student are connected through it. Moreover, LMS controls and manages users, instructors, facilities and a range of activities such as courses, Learning materials, learning progress, facilities learning events, generating reports, student learning path and performance tracking [48]; [56]. Therefore, in light of all this, LMS is becoming more and more prominent in higher education, hence why several organizations are investing in it to reap the reward and benefits that they counterparts have had in other parts of the world [55].

Facilities

Through allocation of resources such as LMS, structure can power over actors. Individual power is defined by resources assigned by actors. Structure of domination is created when resources are legitimized [58]. [57] defines these legitimized resources as facilities

A higher education is rife with several challenges which are driving the transformation of the industry. Indeed, state support reduction, technological advancement and changes, increasing amount of enrolment have led institutions to look for cost effective solutions and resources such as LMS [56];[57]. Although initially used for online learning, LMS are also being used to supplement face to face learning [55]. Therefore, teachers can improve their offerings while students can learn at their own pace, in an age where contact and interaction between is being all the more being reduced [57].

To enact power, realize wanted or envisioned outcome facilities can be used [59]. Actors will employ facilities, represented by the LMS to exercise power through enforcing learning by managing and administering users, courses, educations and administrative tasks [57]. According to [60], compliance and Domination are enacted through the rapport of Power. "Morever, it is through the allocation of resources that domination is applied" [60];[61]. Furthermore, control and power over people and object is exerted through resources (in this context LMS).

Domination

Higher education institutions have been spearheading the implementation of LMS as part of cost-saving measures and to control the learning and teaching process [56]. It is therefore in the interest of higher education institutions to direct and motivate for the use of LMS in the institutions. It also enables teachers to control the learning process by facilitating administrative tasks such as access control, provision of content and user administration. According to [62] "LMS (learning management system): Software that automates the administration of training events.

The LMS registers users, tracks courses in a catalogue, and records data from learners; it also provides reports to management. An LMS is typically designed to handle courses by multiple publishers and providers. It usually doesn't include its own authoring capabilities; instead, it focuses on managing courses created by a variety of other sources". The educators use LMS to monitor and control the learning process for example by keeping the attendance register and directing the uploading of all course assignments and tests through the LMS platforms.

Legitimation

For policy makers LMS may offer operational benefits such as integration with other management systems like financial or student records, or some strategic opportunities" [8]. The advances brought about by technology in the education sector, has led higher education institutions to drive the adoption and use of LMS tools as part of their learning and teaching strategy [57]. Institutions have also created and enacted policies and strategies which will guide the use of LMS [55].

Teachers have driven the legitimation of LMS through what [63] call, a triggering of events, such as creating discussion forums and interactions which in turn guides the use of LMS, thus shaping the learning process and requiring students to use LMS in order to access educational content. The interactive features the LMS tools provides have been exploited by the students partly to enhance communication between the teacher

and the students and promote collaboration between the students which creates a collaborative environment [63];[56]. Social media platforms such as Facebook have also been employed as LMS tools, thus enabling the students to take charge of their environment and use it to share learning materials, create blogs and discussion forums [64]. Students have increasingly become technology savvy which makes the features and functions provided by LMS more appealing to them which in turn drives their demand for LMS in institutions in which they are enrolled in [56].

Norms and Sanctions

Subsequent to the previous section, it is believed that norms perceived as the sets of values, belief or moral codes help identifying what can be sanctioned in human interaction, which iteratively produce structures of legitimation [65]. As such in the context of LMS, [56] found that having feature like competency and performance management tools, governance on how students should you LMS in order the know

what to do when accessing it, are elements considered as an important factor that would enhance learning performance. Furthermore, having plagiarism feature has been found crucial when it comes to address matter of LMS and student performance, through assessing the validity and reliability of the assignments submitted by students using LMS [66].

This feature has been found particularly importance for validating the integrity of the work submitted; making sure that it is not someone else's work, therefore to fewer dilemmas from a plagiarism perspective. If Sanction is the result or the manifestation of an evaluative judgement [67], in the context of the study, lecturer would have better control when marking students assignments [56].

A Critical analysis of Learner Management System using ST application
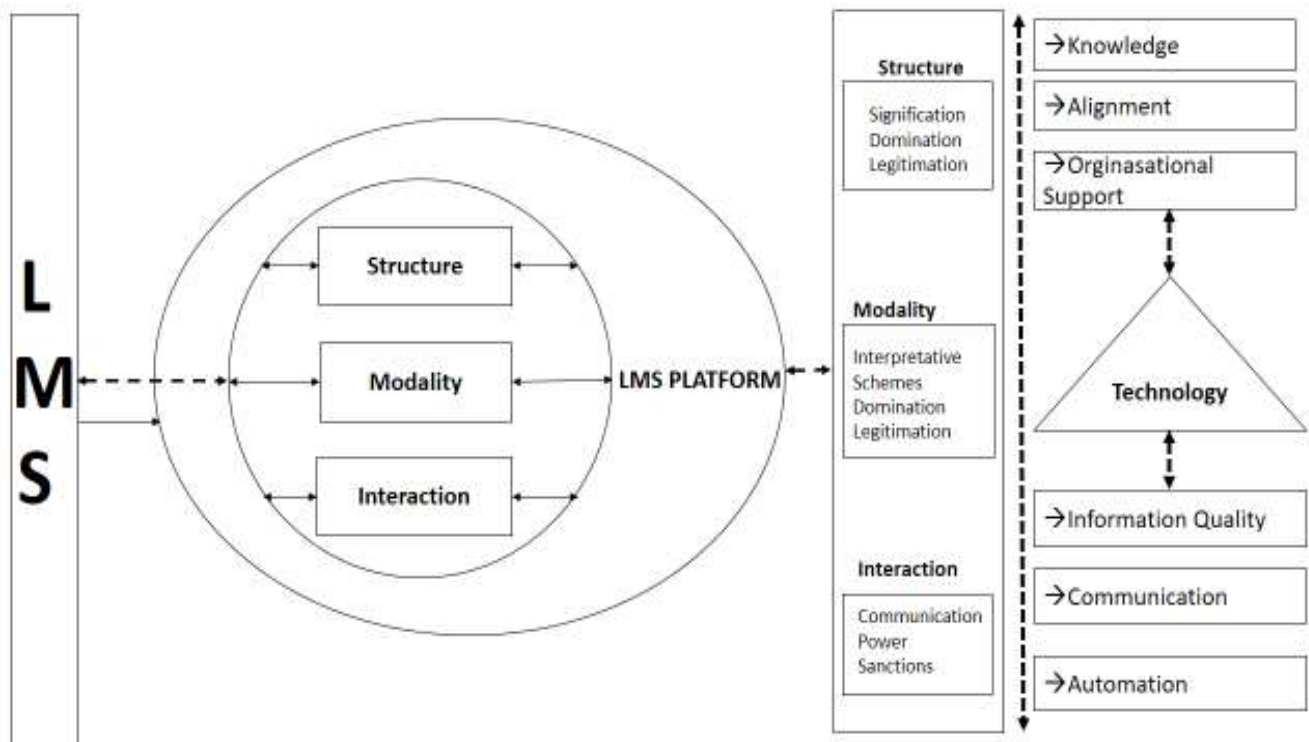
Findings

When applying ST principles to address matters of LMS at higher educational institutions, it can be understood that using LMS drives and enables easy access to information. This is done by providing studying materials such as course contents,

assignments and other important contents needed for the students. Moreover, communication between lecturers and students is achieved much easier as lecturers can be able to promote self-learning for students, allow easier access to academic resources without the restriction of time and space, thus, communicate and

share information pertinent to student more effectively. Furthermore, LMS has been found to offer technological features believe to be more suitable as a resource. And because it is a mainly software-based, realising full potential of LMS is dependent of the latest technology applied to it. Therefore, having improved features such as technological tools to upload course content, manage student records and even manage student marks for instance an automated platform for managing the learning process and its administration, which is all dependent on effective and up-to-date technology.

LMS has been found particularly useful when integrated with other system environment making therefore, LMS more user-friendly for students. Finally, entrenching sets of normative tools such as policing and procedures, plagiarism, performance management features help the validation and integrity of the content, information shared from lecturers to students or even amongst students themselves more effective. This is considering that such endeavors are done through adequate rules of conducts, policies and other documents are considered and applied when using LMS.

Conclusion

The use of ICT in the education sector has brought with it many benefits such as the culmination of a variety of learner management systems (LMS). These have been credited with providing an efficient way of delivering learning whilst enabling the automation and administration of the learning environment through these technological tools which can have a positive influence on student performance.

The use of structuration theory in the study helps to critically examine and explain the relationship between those affected by LMS such as institutions, students and teachers. The stakeholders in the education sector will have a better understanding as to how their actions influence the use of LMS and how an efficient use of these technological tools are beneficial to student performance and the management of the learning and teaching process.

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