

Online Learning Management Tools: Challenges and opportunities

Subject: Research Methodology.

Section: F.

Group No.: 14

1. Introduction:

During this corona epidemic, the online world has helped to improve many sectors. The knowledge management section which originally related to the business sector is now required in the industry, health, or any institute that needs to manage its knowledge. Education is the same case. Computer speed and memory and increase the speed of the Internet behind the inspiration of the online education system. The computer is used as a medium to deliver and share educational materials and face-to-face knowledge can be gained. This makes education available to anyone, any place, and at any time as learner need. If we look, there are many online learning tools available in 2020 that have helped us moved forward. Microsoft Teams, Zoom, Google Classroom, Google Meet are popular among them.

As those tools are supported on all devices that's why students can join from anywhere by any devices. Students get a lot of benefits from these tools in addition to conversations with teachers. It is possible to share files through these tools and there has also features of screen sharing. Despite of many advantages, all the tools still have so many different problems. Many of them have security issues. Such as meetings are not encrypted. There is a possibility of leaking files and recording videos. In the middle of the class, some students use social sites or do games without paying attention to the class. Teachers do not always understand whether students are attentive in the classroom or not. Some of the tools do not have the cloud options. Also, teacher cannot save and share the materials into the tools. When it comes to online classes, there are many kinds of background noise problems. The noise can be caused by a fan, car horn, or even a TV playing in the other room. Moreover, it is often seen that the mic of the students is mystically turned on while the teacher is teaching.

During this corona epidemic, the online world has helped to improve many sectors. Learning and teaching is going on through online system. All school and college's classes are taking through many online learning systems like Microsoft teams, Google meeting, Google Classroom, Zoom etc. This makes the education available to anyone from any place at any time. By these there is no breakage in education system and students can finish their courses in time from staying at home. Because of huge users of those e-learning tools and also a good amount of complain against those tools have some limitations, we have decided to work in this topic to find out problems(challenges) and opportunities of e-learning tools. Most of the users of those tools are claim about assessment or evaluation system. This claim is coming from a huge number student whose are doing online classes in this epidemic. That's why we have tried to find out possible solution of the challenges in this paper.

Our research targets/questions are list down below:

- Challenges of Online Learning Management Tools
- How reliable is evaluating one's performance in online environment by taking online assessment?
- How effective is learning and teaching in online environment?

- Is online learning environment being as much as effective as traditional classroom environment?

This paper tries to look into the major challenges of online learning management Tools. In doing so, the paper examined challenges of current online learning tools and opportunities. The main objective of this research is to find out challenges and their possible solution. Online learning tools will become more accurate in e-learning and get more priority when it will be more user friendly to the students and teachers and also institutions. There has a brief discussion about the online learning management tools and also the system overview of online learning management tools. The paper concludes by propose possible solution and comes on a decision is it good enough or not in higher education.

2. Literature and Review:

Cloud Based Educational Systems and Its Challenges and Opportunities and Issues:

Cloud Computing Environment is actually is a set of many hardware, software, networks, storage, services an interface combines to deliver features of computing as a service. Cloud Computing Environment usually uses the central remote servers to maintain data and applications. Practically Cloud Computing Environment is continuation of Grid computing with independence and smarter tools and technological proclivities. Healthy Cloud Computing helps in sharing of software, hardware, application and other packages with the help of internet tools and wireless media [1]. It has benefits in many fields such as Agriculture, Business and Commerce, Health Care, Tourism, Education and Training sector etc. In Education Systems, it may be applicable in regular education and other education systems including general and vocational(technical) training [2]. This research paper talks about opportunities that provide Cloud Computing Environment; however, the purpose would be challenges and issues in relation to Education, Education Systems and Training program.

Review: Cloud Computing Environment for educational system is great but there is no discussion about any problems of cloud computing.

Online Learner Engagement: Opportunities and Challenges with Using Data Analytics:

The junction between learning analytics and learner involvement. There the authors do this by describing specific challenges of using analytics to support student involvement from three separate points of view: academic considerations, technological issues, and interface design concerns. While involving online learners presents a major challenge to the educational community, the opportunity of online learning environments and new advances in data analytics present many opportunities that can lead to improvements in our ability to fully attract students.

The authors' work specifically highlights the fact that no single tool or system will be able to resolve all of the challenges involved. As a result, tools need to be open, interoperable, and modular. The important field of learning analytics will develop much more quickly when tools and work are shared across organizations and project.

Review: There is no solution of technological Issues.

Learning management System: A review of the research methodology literature in Australia and China

Education is seen as an important medium to promote relationships with countries in the Asia-Pacific region – particularly with Australia's most important economic partner, China [3]. There are many previous studies that have explored the impact of Learning Management Systems (LMSs) on users, through a variety of research designs [4]. However, the variety of research designs used means that the shades of the different approaches, especially in the context of Australia and China are unknown. The purpose of this literature review is to compare the research designs employed by practical studies of LMS usage in Australia and China [5]. This review analyzes the similarities and differences in research methodologies, research approaches and data collection methods commonly used in a selection of current studies from both countries. The results show that Chinese studies apply quantitative methodologies more than Australian studies; collateral research is more common in China than Australia; and that there is a clear preference for surveys in Chinese studies [6]. This review will help the developers of future shared research projects between China and other countries, to construct study designs that are consistent with the identified research strengths.

Review: It is possible that since our review was restricted to specific databases, educational articles from other sources may have been omitted. The inclusion of more databases during the search process could have increased the number of articles that met the search criteria. In addition, the databases used in this review are outside the control of the authors in terms of the publications they have access to, their search algorithms, and their currency.

Learning Management Systems:

The rise of complex communication technologies and mobile devices has enabled a new generation of information consumers to satisfy their demands for knowledge without the need to meet in a physical location. Software sellers, open-source developers, and educational institutions, conscious of this development, have embraced systems that can facilitate the management of courses and engagement with students a long way. The technologies that help the supply of courses over long distances are generally termed learning management systems. Learning management systems can be specified as web- based software platforms that provide an interactive online learning environment and computerize the administration, organization, delivery, and reporting of educational content and learner outcomes.

Review: Many free LMS also offer advanced levels and a big list of available features. The main problem of a free LMS is that they don't have the level of support that some users are accustomed to.

Online based learning - challenges and way forward:

As the University Grants Commission has recently come up with a direction of conducting online classes due to the Coronavirus situation, universities have started on a new journey of adjusting to a new way of teaching [7]. If we look at them, we will find a common practice across-the-board which is the use of Learning Management System. A Learning Management System is a software based single platform, capable of managing all the activities that we have discussed above. The biggest benefit of such system is that it reduces all diversions and keeps both teacher and student focused and

involved on a single place to teach and learn. For example, a good Learning Management System can integrate application like Zoom which is a tool for live class or conference.

Review: In this time Online education is very helpful but there are many types of security issues.

Current Trends and Challenges of Developing and Evaluating Learning Management Systems:

Many Universities recognize the necessity of using Learning Management Systems (LMSs) to increase learners' motivation, encourage interaction, provide feedback and provide support during the learning process [8]. Learning Management Systems are online-based applications that are being used today in e-learning. With the improvement of e-learning idea, Learning Management Systems are gaining interest as a delivering and managing teaching or training learners [9]. In higher education e-learning system provide prosperous learning environment. That's why the investments to Learning Management Systems continue to increase and now there are hundreds of Learning Management Systems items available in marketplace. With the basic changes in e-learning technology, there is a need to take into considerations the current trends and challenges of developing and evaluating Learning Management Systems to benefit students and organizations. There are some factors which have an impact on Learning Management Systems success are personal factors, system factors, organizational factors and supportive factors. The ever-growing number of Learning Management Systems, the paper presents the evaluation process for evaluating and selecting the suitable Learning Management Systems filling the organization requirements. Its success is affected by its characteristics which are system quality, information quality, and service quality. In future Learning Management Systems served students better as it offers them with social bookmarking tools, document sharing applications, social networking applications, timeline tools. Cloud based Learning Management Systems needs to be studied taking into considerations costs, lack of resources, and resistance by users.

Review: There discuss about evaluation of LMS and future possible improvement of LMS but there is no detail discussion about LMS tools that are used by huge number of student and their faced problem or others issues.

Barriers to Participation in Learning Management Systems in Saudi Arabian Universities:

The paper was designed to identify various obstacles that have hampered the adoption of Learning Management System in Saudi Arabian universities. There small obstacles identified include poor Internet access and networking, limited infrastructure to support the Learning Management System, lack of hardware and software to run the Learning Management System, and challenges in English language proficiency. Research shows that there is a need to focus university processes and create a sense of consistency among the universities. Consequently, Learning Management Systems had to be implemented in many learning facilities. The new directions of these software applications included the educational focus on economic goals rather than social goals and discussion of free market competition. If Saudi Arabia aspires to have institutions that perform highly on a global level, then it must invest in skilled human resources, infrastructure, and technology. Learning Management Systems are important tools that can be approved by universities to help Saudi Arabian students have a higher quality educational experience. They can help students in their learning and stay updated on

their coursework. Teacher's work is also made easier, since they can reach out to their students outside of class hours and inform them about the coursework using the system. As this is a new system to students, some who use the Learning Management Systems will experience challenges. Hence, the institution should provide enough training to users. Technical support should also be provided to the students so that they are trained on how to use the system to access information and upload their assignments. This paper has mainly focused on the obstacles to implementing Learning Management Systems. It is clear that university students are willing to accept the Learning Management System, but due to some obstacles, they are not able to implement it.

Review: There mostly discuss about barriers of LMS which faced by Saudi Arabians Students only but there is no discussion about security issues and LMSs tools.

3. System Overview:

The system should be convenient and helpful for everyone. We find many features, problems, and their solutions through the research of these tools. Some common features that we are adding in our system.

- **Video and Audio Conference with chat box:** The system contains video and audio meeting features. Also, users can chat during the meeting. With chat box, people can do a quick chat at any time. In this feature, another helpful part is any type of document can be share.
- **Meeting and message encryption:** In the system meeting is end-to-end encryption to all users. And messages also are encrypted.
- **Create Permanent class Room:** In the system, Admin or teacher can create a classroom for a certain time and the author can add people or remove them.
- **Create Account by different email or phone No.:** Account can be opened with any email or phone number. It is beneficial for all kinds of people.
- **Unique username:** By using a unique username people can be searched or identifying easily.
- **Cloud system and File-sharing:** The system will be able to share files automatically through the cloud. If someone uploads a file to the classroom or chat box, it will be uploaded to the cloud. And the system will take from that classroom or chat box which account will get access to the file. Users will be able to directly access the benefits of the cloud.
- **Use meeting id and password (optional):** Users can generate meeting id and meeting password if they want. With this meeting id and password, anyone can join the meeting without any account.
- **Screen Share:** Screen sharing is very beneficial for everyone. If someone wants to show something on their desktop, it is possible to show it through this screen sharing. It has many roles in the workplace and education.
- **Remote desktop:** If you have to work on another PC, the user will be able to send a request for access to another PC during the meeting.
- **Video recording:** The users will be able to record video or screen during the meeting.
- **Admin Power:** Admin of any classroom can only add and remove users. Also, video recording, screen sharing, and other features can be used by the admin only. Students will also be able to use screen recording and screen sharing features with permission from the admin or teacher.
- **Notices and alert:** Teachers can give notice to students. And the system will alert students. Students will get a notification just before the start of class or exam through the mobile

application. Not only this, if the student does not submit the assignment or homework, but the system will also alert students again and again before the deadline.

- **Assignment and Class test:** Teachers can easily take class tests and give assignments to students. It is possible to add the deadline of the assessment in the system and the students will be able to submit the assessment in the system by looking at the time.
- **Supporting all devices:** The tool will support any device through the browser. Besides, Windows, Android, iOS, and Mac have their applications for these tools.

Despite all these common features we have to face many problems which we have discussed earlier. So that we are adding some unique features which are secure and convenient for all types of users.

- **Recorded videos and files encryption:** There is a possibility of leaking when sharing any important videos or files. For this problem, the admin will be able to encrypt the file and can share the encryption file. Students can simply decrypt the file through the system. But they can't share the files anywhere from the system.
- **Blocking 3rd party screen recorder:** Meeting video can be recorded by any third-party recording application. The system will be able to block the recording of such third-party recording applications.
- **Noise Canceling:** During meetings, there are many kinds of background noise problems. The system will be able to remove all background noises. If noise canceling is a problem for someone, they can turn it off.
- **Tacking system status in Background:** If the system runs in the background during classes or meetings, the system will be able to alert the admin or teacher. In this way, the teachers will be able to understand whether the students are concentrating on any other application or games except the class.

4. Discussion:

The main purpose of this study is making the online learning tools more accurate and user friendly. In the problem statement and our research questionnaires' there we find out some common but important challenges from all the e-learning tools. And in the system overview we write down some extra features what can be added to any tools as possible solutions of the challenges.

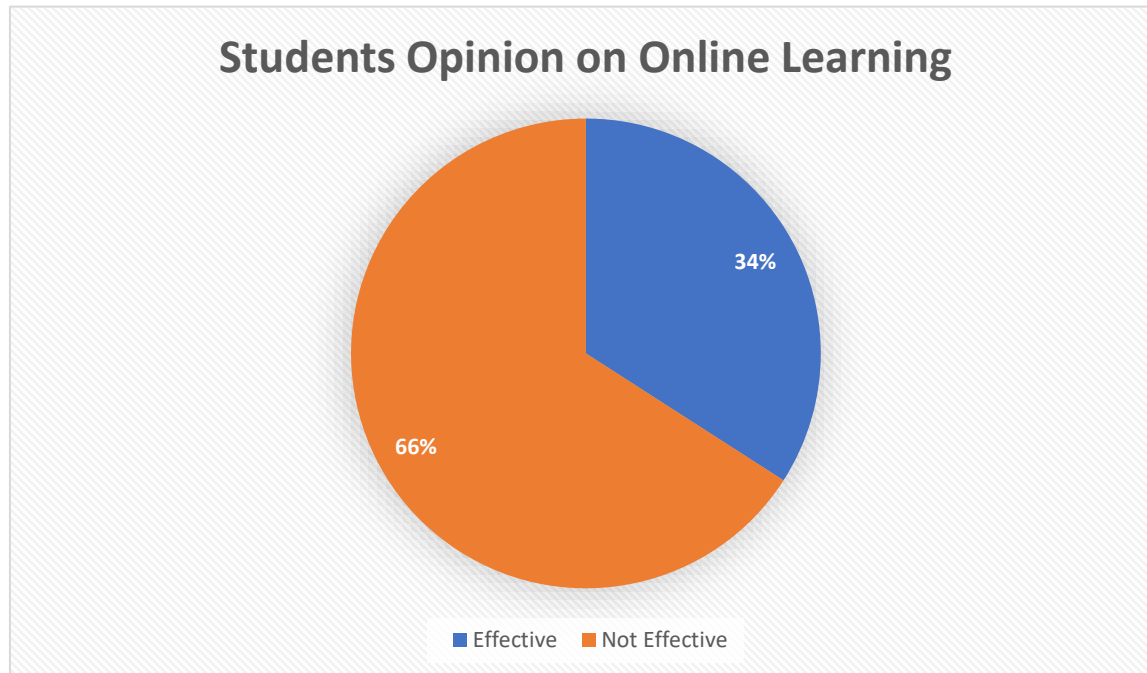
The most important challenge is taking assessment or evaluating. We found that problem in all of the online learning tools. So, tracking system status in background will be effective in taking a fair online assessment. As this system will be able to alert admin or teachers when a student runs another program during assessment time. It will be also effective during class time.

There another big problem is background noise most often come from admin or teacher's side as they giving lecture and this can break the concentration or rhythm. We find out a possible solution of this problem is noise cancelling system. By activate the system, all the background noises will be removed. It will be activated by user manually.

In some online learning tools, there is a video recording option but this is disabled by admin as there is a possibility of leaking the recorded video. For this problem, there we found a possible solution where the admin will be able to encrypt the file and can share the encryption file. Students can simply decrypt the file through the system. But they can't share the files anywhere from the system.

In present time there in online learning tools, video recording option is disabled by admin. As it is off, therefore students are using 3rd party tools to record. And they can share anywhere he/she wants. So, the 3rd party screen recorder blocking system can overcome this challenge. By adding this system in the tools, the system will not allow any 3rd party software to record and it will notify the admin.

Here a pie chart is given bellow to find out student's opinion about the online learning environment,



Though, there we find some possible solution of problems when we studied but still now most of the student's opinion is online learning environment is not as much as effective as traditional classroom environment. We conducted a survey where students from different universities and colleges participated. So, where in pie chart it seems that 66% student's opinion online learning environment is not effective, where 34% opinion is effective.

5. Conclusion:

The main objective of this study is to find out online learning management tools' challenges and its possible solution and opportunities. As we know online learning tools are playing a vital role in our education in this epidemic time. It proves that online learning environment can be a replacement of traditional education environment at any situation. By the help of these online learning tools our classes, exams etc. is going well, not perfectly as much but it just changes our education system in our country during this epidemic. All of these tools have some challenges some common features. So, here we tried to find the possible solutions of the challenges along with common features. And in the discussion we explore the system with new possible features. After that, it could be more user friendly. According to the problems or challenges it could be much better to remove back ground, encrypted recorded video or file sharing, blocking 3rd party recorder, alerting system. There the system will remove background noise thus the students can concentrate during the class time. After using the 3rd party recorder blocker system and encrypted recorded video or file sharing system, teachers can allow recording option in the tools as students can't share those files anywhere from the system. And final and most important is alert system,

this system alert admin or teachers when someone run any other application in the background during the class time or online assessment time. Thus the online evaluation can be more fair by adding this alert system in the online learning management tools. There are still some lacking's in the system, especially when it comes to taking a transparent assessment in online.

This paper has mainly focused on the opportunities and challenges of online learning management tools. Where most of the research that we studied has shown that only about e-learning management system's barrier, challenges of developing and evaluating learning management system. All of those were about e-learning, not about learning tools. The result of this study is, online learning management tools are can be a perfect education platform if the lacking's are overcome. And the system will become more flexible to the students and more transparent to taking assessment. There is also a survey result where students from different universities and colleges participated. The result of the survey is not in favor of online learning management tools. Where most of the students think that online learning environment is not effective as much as traditional education environment. Even then, higher education institutions should consider online learning management tools as a complement to the traditional way of learning.

5. Reference:

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