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Exploring the Learning Design on Learning Management System for Online Learning: A Case Study in Higher Education

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Abstract: E-learning has become a popular tool among 21st-century learners as the importance of lifelong learning has grown. However, most teachers find converting teaching and learning from face-to-face to online learning difficult. Current e-learning theories and practices are neither straightforward nor consistent, implying that this solution is implemented irregularly, arbitrarily, and with various degrees of success. Therefore, this study aims to discuss the Exploring the Learning Design on Learning Management System for Online Learning: A Case Study in Higher Education. This research's specific purposes are to determine how higher education teachers design their courses using LMS in an online teaching context. This research applied a qualitative approach with a case study to explore the implementation of the teaching approaches, methods, or strategies. Using purposive sampling, two lecturers who have been nominated in Online Learning System (SPADA) Award 2021 online were invited to participate as the subjects in this research. The data were gathered through interviews with open-ended questions developed by the researchers in data collection. The findings of this research show that the learning design on LMS basically can be done by stating the learning objectives. The well-defined learning objective plays vital roles since it determines the selection of activity and the learning content. Selecting learning activity, as the next phase, can be done by presenting blend materials such as text, audio, and interactive video. Providing a low-risk exercise after presenting the material is also important since it provides practice opportunities for students. The last phase is assessing the student's performance. This activity, obviously, aims to evaluate the learning objective. So, the type of assessment, whether summative or formative, should be selected based on the learning objectives. It is important also to note that assessment may go hand-in-hand with its feedback, and the findings show that LMS enables us to apply immediate feedback for the students.

Keywords: Higher Education, LMS, Learning Design, Online Learning.

INTRODUCTION

E-learning has become a popular tool among 21st-century learners as the importance of lifelong learning has grown. According to Kasworm (2011), e-learning allows students greater flexibility in studying and accessing resources based on their requirements and more interactive tools that allow for easy access to information and student input. To address a variety of learning demands, some universities have included e-learning into their curriculum (Turney et al., 2009). However, most teachers find converting higher education teaching and learning from face-to-face to online learning to be rather tough. The lack of clarity and consistency in current e-learning theories and practices suggests that this approach is applied inconsistently, arbitrarily, and to varying degrees of success. Despite the passion and dedication of academics and professors, there is still a great deal of apathy, doubt, and skepticism among students when it comes to e-learning (Chapman et al., 2010). Regarding such programs, the new crucial concerns confronting academics and higher education institutions are pedagogical (how to design) and technological (how to deliver). (Turbill, 2015).

The web has fueled the expansion of learning management systems in the education

industry, coupled with the increased usage of digital technologies among students (Cavus, 2015; Cheng, 2012). LMS provides learning institutions, from basic to tertiary levels, with a cost-effective alternative for learning delivery and features like content management and learner administration. Learners can use the LMS to access learning resources, take online quizzes, and more at a time and place that is convenient for them (Poulova et al., 2015). The LMS's main strength is that it uses the internet to provide online collaboration tools like blogs, forums, and Wikis to help students study outside of traditional classrooms (Alfadly, 2013). Even though the LMS is useful for learning delivery, course providers must better understand what makes it a useful learning support tool (Cheng, 2012).

The development of e-learning or online education in Indonesia is now promising. Currently, many colleges are developing learning innovations based on information and communication technologies. With the Kemdikbudristek Learning Management System (SPADA) and the Student-Centered e-Learning Environment, the development of e-learning is becoming more obvious. As a result, teaching and learning can be done more digitally and remotely. To develop innovative programs and encourage the learning process in universities to continue to exist during the pandemic, LLDikti Region IX carried out the Online Learning System (SPADA) Award 2021 program in Makassar, on the 22nd December 2021. This activity is a form of support for lecturers at universities and appreciation for higher institutions and lecturers who have started to get used to starting online learning.

LMS is rapidly being utilized by learning institutions to facilitate learning delivery in face-to-face, blended, and online learning environments (Chipps et al., 2015; Islam & Azad, 2015a; Walker et al., 2016). It is increasing at a compound annual rate of 24.7 percent from 2016. A global LMS market is expected to be USD 15.72 billion in 2021 as a cost-effective solution for large-scale dissemination of learning materials, coupled with increased usage of digital technologies (Marketsandmarkets.com, 2016).

In E-learning, a Learning Management System (LMS) is a piece of software that aids learning process. According to Ellis (2009) in the book A Field Guide to Learning Management System, The Learning Management System (LMS) is a software that automates the administration, tracking, and reporting of training events. The basic goals of a learning management system (LMS) are to make learning more independent and allow LMS users to register, save, manage, publish learning over the web and print documents available through the LMS. It provides flexibility for users to create and manage knowledge following the aims and learning objectives. Two types of LMS are (1) Proprietary LMS such as: Blackboard, Apex Learning, SAP Enterprise Learning, Intralearn, Saba Software, and others; (2) Open Source LMS such as: Moodle, Dokeos, Sakai, A Tutor, Claroline, ILIAS, and others (Cavus & Zabadi, 2014). In this research, the researcher will not determine any particular kinds of LMS to investigate since the focus of the study is to reveal how the teachers utilize or deliver the course by using such e-learning tools. Learning management systems are now widely used to deliver learning experiences and monitor student progress toward state and federal goals. LMSs appear to offer excellent promise for tracking student progress in outcomes-based educational programs and teacher and staff professional development at the higher education level.

Zaharias (2016) stated that, in recent studies, approximately half of respondents stated that they want to change their current LMS because of user experience difficulties. However, the great bulk of existing literature focuses solely on LMS capabilities related to teaching and learning process administration and management. Another research was conducted by Alfadly (2013) to evaluate the efficiency of the LMS at AOU, Kuwait as a communication tool in the E-learning system and to find the best-automated solution possible. This study found that most AOU Kuwait students welcome the LMS system at their university. LMSs, however, have failed for a variety of reasons, including expensive technical costs, bad choices, competition, and the lack of suitable (or any) business strategy, particularly market assessments of customer demand.

Islam & Azad (2015b) compare how educators and students see LMS. According to the statistics, students have a higher positive attitude toward the LMS than educators. The study, however, includes several flaws that could be exploited in future studies. First, the study was conducted in a single Finnish language utilizing a single LMS. It was proposed that future research be performed in a variety of settings to

obtain more generalizable results. Second, differences in context between educators and students may play a role in the reported perceptual disparities. Because of this disparity in use contexts, the authors urged for more research in various settings to confirm this study's findings. Ivanović et al. (2018), in their paper, presented different approaches, experiences, and perspectives of using technologies in higher education institutions. Their experience with various technology-enhanced learning resources and frameworks has revealed that educational procedures must be modernized and improved. Nonetheless, research focusing on how technology is employed in the educational process is critical. Because the development of various technology instruments for education is accelerating, they feel that a concept or pedagogical approach appropriate for the academic environment and online teaching should be developed.

Therefore, this study will focus on exploring the learning design on learning management system for online learning in higher education. This research's specific purpose is to determine how higher education teachers design the learning experience in Learning Management System for online teaching. As the need for online teaching practices grows significantly, this research's findings are expected to contribute to the educational fields, whether for individual or institutional needs. It is also expected to create a pedagogical approach that suits both face-to-face and online teaching contexts.

METHODS

This research focuses on a qualitative approach with a case study method as qualitative techniques may be useful to flush out new perspectives (Valentine & Kopcha, 2013). Using purposive sampling, several lecturers who were nominated as Innovative Lecturer in terms of The Best Online Learning Design in SPADA Award conducted by LLDIKTI Sultanbatara IX were invited to participate as informants in this research. Researchers handpicked the cases to be included in the survey based on their judgment of their typicality in purposeful sampling. In this way, they establish a sample that is adequate for their particular needs (Cohen et al., 2013). As its name suggests, the sample was selected for a specific reason.

In data collection, the data were gathered through semi-structured interview with open-ended questions developed by the researchers which asked participants to describe their teaching design using Learning Management System within online teaching environment. The interview also gathered data about participants' online and face-to-face teaching history and experiences, current teaching workloads and class. Observation and documentation towards the learning system design will also be applied to support the main data. For data analysis technique, the author adopted the framework developed by Miles et al. (2018) to describe the major phases of data analysis: data collection, data reduction, data display, and conclusion drawing and verification. The data were analyzed through Nvivo, a Qualitative Data Analysis software produced by QSR International. It gives the researcher more time to discover tendencies, recognizes themes, derives conclusions, and visualize the data's themes (AlYahmady & Al Abri, 2013). In this phase, the researchers classified the data into nodes or themes based on the theory. Then, the data were displayed and interpreted to reveal the LMS learning design of the research subjects.

RESULTS AND DISCUSSION

Learning Management System is rapidly being utilized by learning institutions to facilitate learning delivery in face-to-face, blended, and online learning environments. At the higher education level, It seems that LMSs have considerable promise for monitoring student success in educational programs with outcomes. and faculty and staff professional development. However, the majority of teachers find it challenging to transition higher education teaching and learning from face-to-face to online learning. With relation to such programs, the new crucial concerns confronting academics and higher education institutions are pedagogical (how to design) and technological (how to provide). Therefore, this study focuses on exploring the learning experience design on learning management system for online learning in higher education. The findings are displayed in the following table and discussed as follows:.

Table 1. Learning Design on LMS

Stating Learning Objective	Specific and measurable (Bloom's Taxonomy)
	Based on the learning plan
	Stated in every topic/unit
Selecting Learning Activity	Selected based on Learning Objectives
	Blend Content (Text/Audio/Video/Interactive Content/ Learning resource link, etc)
	Low-Risk Practice (Exercise/Discussion)
Assessing Performance	Selected based on Learning Objectives
	Summative
	Formative
	Immediate feedback

Learning objectives, learning activities, and assessments are the three key considerations learning management system designers need to make to create an effective learning experience. The "Magic Triangle" of learning is thought to exist here. An explicit statement of what a student should be able to perform after completing the course or lesson, for instance, must be included in the learning objective. The activities that are selected for the course will be based on this learning aim. The learning objective and learning activities will also influence the sorts of assessments and their level of difficulty. Effective learning can happen if these three factors are in harmony.

Formulating Learning Objectives

What students should understand or be able to do by the end of the course that they weren't able to before is defined by a learning objective, which also establishes boundaries. They serve as a mechanism to specify the expected course outcomes in terms of the information or skills that the learner will acquire as a result of the instruction given. The ability to measure a learning objective's accomplishment is its most crucial component. The researchers investigated how the lecturers (the research subjects) design their learning experience for students on LMS, and the answers were shown as follows:

Lect1:
In one meeting, there is one topic. At the beginning, there was a title, for example, "Offering Help". After the title, there is a description about the purpose of learning the topic, in other words, we give information about the goal or student learning achievement. For example, they can at least identify or explain what Offering Help is. By explaining the Learning Objectives, the students know what competence they should achieve, and what is the minimum target that I must master in following this learning process. Besides, it also helps us to determine what kind of activity and assessment suitable for the students.

***Lect2*:**
What needs to be determined is the Course Description, the learning outcomes that refer to the Learning Plan, and Learning Material Topics. Each topic studied contains learning outcomes that students need to achieve at the end of the lesson along with a description of the learning activity plan. The point is we need to provide clear instructions on what to achieve, and how to achieve it.

Based on the interview findings, both lecturers stated the first thing to determine is the learning objectives. These learning objectives should be stated at the beginning of the course design along with the course description or course overview; topics to be learned, activities to do, and assessment types during the course. Every topic in the course (in each meeting) should also have its own learning outcomes. In that way, the students will be aware of what competence they will achieve after learning the materials, and the teachers are able to choose

activities and assessments appropriate for the learning design.

For higher educational teachers, determining learning outcomes are based on the Semester Learning Plan (RPS). The following represents the information of how the informant determine learning objectives:

> **Lect1:**
> *To determine the learning objective, at campus it's called a semester learning plan, so it's a basic reference. So far, I have taken as a reference learning achievement or learning objectives from the learning design or RPS.*

As previously stated, the higher educational teachers plan their teaching in a form of semester learning plan which will be attached to the course overview in LMS. It consists of the description of the subject, the objectives, activities, and assessments of each meeting. There are numerous explicit verbs and best practices for creating learning objectives and applying them appropriately in instructional design models and theories. They are regarded as essential to the learning process because they influence all subsequent choices in instructional design. So, what matter is about how to formulate a good learning objective. When we have a clear focus, both teacher and learners can easily get there, and also they will know how to get there. Well-defined and articulated learning objectives are important because they: 1) give students a distinct goal to concentrate their learning efforts on, 2) direct our testing and assessment procedures, and 3) help us choose the instructional materials and activities.

Learning objectives that are well-written should involve measurable, observable behavior. Although "learning" and "understanding" are commendable educational objectives, they are ambiguous, and cannot be seen or measured. As Spector (2015) stated, the response of the learner to the stimulus should also directly observable and serves as an indicator of learning.

Instead, the learning objectives should include more specific language that the student will be able to demonstrate after taking the course. While such language, including words like “apply,” “analyze,” and “evaluate,” are derived from instructional design blueprint Bloom’s Taxonomy, they need to be mapped to the material presented.

A hierarchical classification system for the various degrees of complexity in the learning process is called Bloom's Taxonomy. The three fundamental categories in the paradigm for categorizing learning objectives are cognitive, affective, and psychomotor (Bloom, 1956). The most popular paradigm for developing learning objectives during instructional design is the cognitive model. The goal is to think of learning objectives in terms of behavior so that they may be clearly defined and assessed in relation to the knowledge and abilities that the learner gains and how that knowledge and skill leads to improved behavior (or performance) (Bloom et al., 1956). The model is designed to demonstrate how students can advance through structured stages of complexity in their depth of understanding and level of proficiency in a particular subject or practice.

In order to make learning measurable, instructional designers on LMS can use Bloom's Taxonomy to assess a learner's current level of understanding, design training specifically aimed at advancing them to the next level, and frame learning objectives, activities, and assessments around the verbs that Bloom provides.

Selecting Learning Activities

All the course materials used to implement the learning experience are referred to as learning activities. They are activities that instructional designers plan and develop throughout the course design and which students perform or make use of while learning. Types of learning activities can range from video, audio, gamification, animation, and simulation, to more traditional activities such as lecturing and reading. In this research, the researchers asked the common activity features on LMS the lecturers frequently used. The result as follows:

> ***Lect1****:*
> *Usually the most common one is the first share link. I share links to materials from other sources. Second, share/attached files because there is a module or e-book (pdf) that I want to share with students, then the page file, which I use to share or embedded the video, and finally the Attendant List. Another is a discussion (forum discussion), usually I bring up a topic or case, then they discuss it in the group/forum.*

It can be seen from the result of the interview from the first subject that the lecturer presenting the learning content in a form of video. This can be done by utilizing 'Page' feature in LMS. The lecturers could create their own video, or take it from other resource, and embed it into LMS content. The lecturer also shares the link that leads the students to other learning resources. In addition, the 'Forum' feature enables the lecturer to conduct discussion asynchronously. The next finding from the second subject can be seen as follows:

Lect2:
The material provided is generally in the form of reading text, which is then accompanied by an explanatory video related to the material. The selection of various materials such as in the form of text and video is important so that students can better understand the material provided. Students can study according to their individual learning styles and interests. The point is we facilitate students with different learning resources. I usually use the h5p feature on the LMS to present material in the form of videos. This feature allows us to create interactive videos.

The interview findings from the second research subject show that the lecturer provide the materials in text form (reading text). This can be done by attaching the text to the 'Page' feature on LMS. In addition to attaching text as learning materials, the lecturer also provides video explanation to enhance the students' comprehension towards the materials. Moreover, the lecturer can create interactive videos by using 'h5p' feature on LMS. This feature enables the teacher/lecturer to modify the video into interactive content by inserting various quizzes into the video. Attaching text and video as the learning content aims to facilitate students with various learning content or resource. In that way, the students can learn the material based on their learning style and interest.

Another finding related to the selected activity on LMS is about giving exercise. The result from interview can be seen as follows:

Lect1:
For each topic in Learning Management System I designed, I usually provide quizzes related to the previous learning materials, so that the students may recall them and be ready to move on to the next materials. The students also seem motivated when I use quiz during synchronous learning process, and at the end of the class.

The results show that the lecturer can provide exercise related to the previous material. This activity aims to connect the student's prior knowledge with the new knowledge to be learned. Instead of presenting the material directly, the lecturers need to prepare the students to acquire the new information. When associations are made between new knowledge and information that already exists in long-term memory, new information is encoded into long-term memory from the standpoint of cognitive information processing. This is in line with the Gagne's Principle of instructional design (Gagné et al., 2005). Gagne advises us to encourage pupils to recall their existing knowledge prior to introducing new teaching material. It makes it simpler for the learner to absorb new information into their long-term memory by assisting them in bringing existing knowledge into their working memory.

The finding also implies that the lecturer uses quiz during the learning process (after presenting the materials). It means that the lecture provides practice opportunities for students. This is also in line with Gagne's 'Elicit Performance' principle. According to Gagné et al. (2005), practice gives the student a chance to try with their new information and skills. They can progressively encode new information into long-term memory by applying the new knowledge or abilities frequently. We may offer practice chances through LMS activity elements in the form of multiple-choice questions, completion task, drag-and-drop activities, scenario-based questions, and much more.

Based on the statements above, it shows that the teacher provides the students opportunities to get or to explore more resources. In addition to understanding how people learn and the tools and resources that might help learning, educational technologists also need to know how to conduct a variety of tasks to make learning support practical and efficient (Hartley et al., 2010). A wide range of representation formats have emerged alongside the growth of information on the Internet. According to the chronology of educational technology, text, images, audio, and video predominated in the nineteenth century and the first half of the twentieth century. In some instances, this can

include converting a trustworthy text-based resource into a visual format. In some circumstances, it could be necessary to add assistance for chat rooms and discussion boards.

Designing learning experience may also consider social constructivism from Lev Vygotsky. Social and cultural contact, co-construction of knowledge (students can learn from one another), and participation in the learning process are some of the features that the social constructivist theory emphasizes (Vygotsky, 1987). The LMS features such as 'chat' and 'forum' enable the lecturers to apply this constructivism theory in online learning environment. Every learning designer should keep the influence of constructivism on teaching in mind, which means They ought to concentrate on the design of the learning scenario. The educator should create multidimensional learning scenarios so that students may comprehend concepts from several angles and then hone their problem-solving, decision-making, and innovative skills.

Assessing Performance

The last stage of the learning process is the assessment. Learning evaluations may include tests, quizzes, or graded simulations of scenarios encountered in the real world. They serve as a means of determining whether the learning aim was achieved, making them the third point in the "Magic Triangle" of instructional design. Moreover, they're an important part of the cognitive "action and reflection" processes needed for learning to take place effectively. The results about interview related to assessment as follows:

> ***Lect1****:*
> *The first is Assignment in the form of file attachments or direct submission. I give assignments to students, then they work on them, then they upload their assignments. In giving assignments, I usually set a due time or time limit for them to complete or complete their tasks. After they complete the given task, I check, give feedback and score. The response I give is usually to show where their shortcomings are in completing the task and provide instructions so that they know where the error lies, and they can do better in the future.*

> ***Lect2:***
> *In each meeting or topic there is usually some kind of quiz. Giving quizzes or assignments is part of the assessment to ascertain whether students have learned the material provided, and to evaluate the extent to which students understand the material provided. At the end of the learning activities, I ask students to make a summary of the material they have learned.*

Based on the results stated above, both the subjects assess the student's performance by giving quiz or assignment. This can be done by utilizing 'Quiz' and 'Assignment' equipped in LMS. Quiz feature provides us with various types of assessment such as multiple-choice, completion, true-false, matching text and image, and so forth. While assessing students by means uploading assignment file and submitting direct online written answer can be done through 'assignment' feature. All these kinds of assessment are performed to ensure that the students have learnt the given learning materials and to evaluate the extent to which students understand the materials. In short, it aims to provide the lecturers or any learning designers information whether the learning objective has been reached by the students. So, it is important to remember that the selection of the assessment types will depend on what the learning objective states.

This involves giving the participants a graded assessment to determine how much they acquired in terms of new knowledge or abilities. The assessment results are useful for learners because they can use them to determine how well they comprehend new information or skills; conversely, this information is useful for lecturers because it allows them to modify their instructional approach as necessary based on the participants' performance.

Based on the statement above, it seems that giving assessing students' performance can be used in LMS to promote students' knowledge from the previous meeting, and to assess their understanding towards the new information. Besides, it also gives the lecturers information what aspect from the materials needs reinforcing before continuing to the next lesson, and what aspect from the learning design needs adjusting based on the participant performance.

When dealing with assessment, it speaks of both formative and summative evaluation.

Summative evaluation often measures outcomes on a grading scale (8 out of 10 is regarded as a "pass"). This approach is frequently criticized for being too arbitrary and unsophisticated to accurately assess the success of the learners or the value of the training materials. However, with good pre- and post-testing, these drawbacks can be reduced. In addition, this type of assessment in LMS enables us to provide immediate (auto) feedback on the student's performance.

While the use of summative assessment is effective to promote the student's motivation, instead of looking for concrete results at the end of a course, formative assessment aims to measure the learning process. It can be more qualitative, offer distinctive insights, and examine a person's learning experience with a "larger picture" mindset.

In addition, since providing feedback is a crucial component of any instructional eLearning experience, we should give thorough justifications for each incorrect and correct response. It is best to give this feedback once the student completes the assignment or responds to the question. Fortunately, this types of assessment in LMS enables us to provide immediate (auto) feedback on the students' performance. So, it is important to note that assessing performance can, or should go hand-in-hand with providing immediate feedback on students' performance. Khadjooi et al. (2011) stated that the learner can improve on the evaluation or the performance by adjusting their mental models and cognitive abilities as needed by taking in relevant feedback.

Pedagogical Aspects on LMS Design

Instructional strategies are closely linked with the type of thing to be learned. A procedural activity carried out by the teacher is best learnt by showing and doing. Such a task could be learned using a method that combines modeling and demonstration of the task with student performance and on-the-spot feedback. A variation could be breaking the task down into subtasks and using a part-task approach.

Huang et al., (2019) propose Pedagogical aspects which are useful to make learning meaningful. The first, Drill and practice which is appropriate for learning verbal information that for whatever reason must be committed to memory. The second is Tutorial instruction, which appropriate for learning simple procedures or how to navigate within a particular software system. Exploratory instruction is appropriate for promoting understanding about phenomena new to the learner. Another is Interactive simulation—appropriate for promoting critical reasoning about dynamic, complex systems. Socratic questioning—appropriate for helping a learner link something new and seemingly unfamiliar to something already understood. The last is Lecture, which is appropriate for introducing a new topic and creating some motivation and an appropriate foundation for that topic.

Designing Learning Program could also take Skinner's (1965) Operant Conditioning Program Instruction as consideration. It is a method of presenting new subject matters for students in a graded sequence of controlled steps. The materials are organized into small frames and little steps in accordance with programmed instruction, and each frame has its own objectives. Through certain teaching techniques, learners may succeed in their objectives. The activity is completed independently by each student at their own pace. After each step, we can assess their understanding by having them respond to a test question. They are then immediately shown the correct answer or given additional information (Campbell, 2001). Instruction is self-paced, and learners are required to be active by completing exercises and tests and proceeding based on feedback from the instruction. All of these pedagogical aspects can be integrated into the way we teach by using educational technology such as Learning Management System since this platform provides us instructional features to do so. The LMS itself enable us to provide students clear instruction, various learning content such as attaching text, breaking down materials into small frame and sequences, embedding video explanation or simulation, asking provoking question in a forum discussion, giving various types of assessment along with auto or immediate feedback.

CONCLUSIONS

From the findings of the research, the researchers concluded that relevant learning theories need considering when creating learning design on LMS such as behaviorism, cognitivism, constructivism. As a course is being planned, common tasks to be completed include designing and arranging learning activities,

choosing and organizing materials, generating instructional units, and choosing formative and summative evaluations. Learning objective plays a vital role when designing learning experience for learners since it determines the activity, and the assessment for students' performance. The lecturers can adjust their teaching pedagogy by utilizing LMS since it can cover various learning activities. These learning activities can be provided in form of presenting blend materials such as text, audio, interactive video, and other learning resources. In terms of assessment, the lecturers can give students various types of exercises or assignment along with immediate feedback. In short, all these activities can be adjusted into our learning activity design through Learning Management System.

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REFERENCES

Alfadly, A. (2013). The Efficiency of the "Learning Management System (LMS)" in AOU, Kuwait, as a Communication Tool in an E- learning system. *International Journal of Educational Management*, *27*(2), 157–169. https://doi.org/10.1108/09513541311297577

AlYahmady, H. H., & Al Abri, S. S. (2013). Using Nvivo for Data Analysis in Qualitative Research. *International Interdisciplinary Journal of Education*, *2*(2), 181–186. https://doi.org/10.12816/0002914

Bloom, B. S. (1956). Taxonomy of educational objectives: The classification of educational goals. *Cognitive Domain*.

Bloom, B. S., Engelhart, M. D., Furst, E. J., Hill, W. H., & Krathwohl, D. R. (1956). Handbook I: cognitive domain. *New York: David McKay*.

Campbell, N. (2001). Columbia Encyclopedia 6th edition. *Reference Reviews*.

Cavus, N. (2015). Distance learning and learning management systems. *Procedia-Social and Behavioral Sciences*, *191*, 872–877.

Cavus, N., & Zabadi, T. (2014). A Comparison of Open Source Learning Management Systems. *Procedia-Social and Behavioral Sciences*, *143*, 521–526.

Chapman, L., Masters, J., & Pedulla, J. (2010). Do Digital Divisions Still Persist in Schools? Access to Technology and Technical Skills of Teachers in High Needs Schools in the United States of America. *Journal of Education for Teaching*, *36*(2), 239–249.

Cheng, Y. (2012). Effects of quality antecedents on e- learning acceptance. *Internet Research*, *22*(3), 361–390. https://doi.org/10.1108/10662241211235699

Chipps, J., Kerr, J., Brysiewicz, P., & Walters, F. (2015). A survey of university students' perceptions of learning management systems in a low-resource setting using a technology acceptance model. *CIN: Computers, Informatics, Nursing*, *33*(2), 71–77.

Cohen, L., Lawrence, M., & Morrison, K. (2013). Research Methods in Education. In *Research Methods in Education*. Routledge. https://doi.org/10.4324/9780203720967

Ellis, R. K. (2009). Field Guide to Learning Management Systems. *ASTD Learning Circuits*, 1–8.

Gagné, R. M., Wager, W. W., Golas, K., & Keller, J. M. (2005). *Principles of Instructional Design* (5th editio). Thomson/Wadsworth. https://books.google.co.id/books?id=DxgiAQAAIAAJ

Hartley, R., Kinshuk, Koper, R., Okamoto, T., & Spector, J. M. (2010). The education and training of learning technologists: A competences approach. *Journal of Educational Technology & Society*, *13*(2), 206–216. https://www.jstor.org/stable/jeductechsoci.13.2.206

Huang, R., Spector, J. M., & Yang, J. (2019). *Educational Technology a Primer for the 21st century* (1st ed.). Springer. https://doi.org/https://doi.org/10.1007/978-981-13-6643-7

Islam, A. K. M. N., & Azad, N. (2015a). Satisfaction and continuance with a learning management system: Comparing perceptions of educators and students. *The International Journal of Information and Learning Technology*.

Islam, A. K. M. N., & Azad, N. (2015b). Satisfaction and Continuance with a Learning Management System. *The International Journal of Information and Learning Technology*, *32*(2), 109–123. https://doi.org/10.1108/ijilt-09-2014-0020

Ivanović, M., Milićević, A. K., Aleksić, V., Bratić, B., & Mandić, M. (2018). Experiences and Perspectives of Technology-Enhanced Learning and Teaching in Higher Education - Serbian Case. *Procedia Computer Science*, *126*, 1351–1359. https://doi.org/10.1016/j.procS.2018.08.086

Kasworm, C. (2011). The Influence of the Knowledge Society: Trends in Adult Higher Education. *The Journal of Continuing Higher Education*, *59*(2), 104–107. https://doi.org/https://doi.org/10.1080/07377363.2011.568830

Khadjooi, K., Rostami, K., & Ishaq, S. (2011). How to Use Gagne's Model of Instructional Design in Teaching Psychomotor Skills. *Gastroenterology and Hepatology from Bed to Bench*, *4*(3), 116–119. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4017416/

Marketsandmarkets.com. (2016). *Learning Management System (LMS) Market by Component (Solutions and Services), Delivery Mode (Distance Learning, Instructor-led Training, and Blended Learning), Deployment, User Type (Academic and Corporate), and Region - Global Forecast to 2026*. https://www.marketsandmarkets.com/Market-Reports/learning-management-systems-market-1266.html

Miles, M. B., Huberman, A. M., & Saldaña, J. (2018). *Qualitative Data Analysis: A Methods Sourcebook* (The Fourth). SAGE Publications.

Poulova, P., Simonova, I., & Manenova, M. (2015). Which one, or another? Comparative Analysis of Selected LMS. *Procedia-Social and Behavioral Sciences*, *186*, 1302–1308. https://doi.org/https://doi.org/10.1016/j.sbspro.2015.04.052

Skinner, B. F. (1965). *Science and Human Behavior* (Issue 92904). Simon and Schuster.

Spector, J. M. (2015). *Foundations of Educational Technology: Integrative Approaches and Interdisciplinary Perspectives* (2nd ed.). Routledge. https://doi.org/10.4324/9781315764269

Turbill, J. (2015). Transformation of Traditional Face-to-Face Teaching to Mobile Teaching and Learning: Pedagogical Perspectives. *Handbook of Mobile Teaching and Learning*, 221–233. https://doi.org/10.1007/978-3-642-54146-9_54

Turney, C. S. M., Robinson, D., Lee, M., & Soutar, A. (2009). Using Technology to Direct Learning in Higher Education: The way forward? *Active Learning in Higher Education*, *10*(1), 71–83. https://doi.org/https://doi.org/10.1177/1469787408100196

Valentine, K. D., & Kopcha, T. J. (2013). Conducting Educational Design Research. In *Educational Media International* (Vol. 50, Issue 3). https://doi.org/10.1080/09523987.2013.843832

Vygotsky, L. S. (1987). *The Collected Works of LS Vygotsky: Problems of the Theory and History of Psychology* (Vol. 3). Springer Science & Business Media.

Walker, D. S., Lindner, J. R., Murphrey, T. P., & Dooley, K. (2016). Learning management system usage. *Quarterly Review of Distance Education*, *17*(2), 41–50.

Zaharias, P., & Pappas, C. (2016). Quality Management of Learning Management Systems: A User Experience Perspective. *Current Issues in Emerging ELearning*, *3*(1), 60–83. http://scholarworks.umb.edu/ciee/vol3/iss1/5

Rauf et al (2023). **Jurnal Ilmiah Profesi Pendidikan,** 8 (1): 1 – 10
DOI: https://doi.org/10.29303/jipp.v8i1.1075