

Acceptance of Cloud Storage Features in a Learning Management System: A Technology Acceptance Model (TAM) Study Among University Students

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Abstract: This study examines the acceptance of Cloud Storage features within the Learning Management System (LMS) used by students of Mahatma Gandhi Central University during online learning. Using a descriptive quantitative design, data were collected from 300 students through a questionnaire based on the Technology Acceptance Model (TAM). The findings show that students frequently accessed the LMS, with 37% using it several times a week and 23.2% several times a day. TAM results indicate high levels across all components: Perceived Ease of Use (M = 4.15), Perceived Usefulness (M = 4.08), Attitude Toward Using Technology (M = 4.03), Behavioral Intention to Use (M = 3.98), and Actual Technology Use (M = 3.86). Students reported very high ease in accessing and storing data and high satisfaction in using LMS Cloud Storage for assignments and materials. Overall, LMS integrated with Cloud Storage is considered easy, beneficial, and effective in supporting online learning.

Keywords: Cloud Storage, Learning Management System, Model (TAM), online learning, student acceptance, digital technology

1. Introduction

Current technological developments provide convenience for users in handling every task that must be completed. All areas of life are certainly impacted by advances in science and technology. This implies faster, easier, and more efficient completion of work when the technology used is connected to the internet network (Betz et al., 2023). The COVID-19 pandemic condition has also affected the learning process; by utilizing advancements in Science and Technology (S&T), the learning process is conducted online using various supporting application facilities. Online learning is related to the use of digital technology for the learning process, such as gadgets, laptops, and the internet (Saikat et al., 2022).

Online learning applications become an easy means for learning without requiring much time and effort. Furthermore, online learning is able to develop language skills and self-learning or self-study. The implementation of online learning at the higher education level provides evidence that the use of existing technology is an adjustment to the impact of S&T development. Information technology is the solution for online lecture activities through information media (Fernández-Batanero et al., 2022). The high level of digital technology use among students indicates their readiness in implementing digital technology-based learning processes.



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Online learning can improve student learning outcomes. The online learning occurring today is implemented using e-learning facilities determined by universities to achieve educational goals (Kedia & Mishra, 2023). The presentation in using e-learning facilities can form a more active, creative, and interesting lecture pattern to implement, even though not face-to-face directly. E-learning innovation provides an overview to make learning adaptive, increase learner interaction with others (collaborative learning), and change the role of lecturers. E-learning is able to enhance student-centered learning (Marsevani, 2022).

Online learning demands that students can utilize learning resources and lecture information quickly and easily, and whenever they can access them. Without access limitations in the student learning process, this provides them with the opportunity to manage the obtained information well. One advantage of online learning includes the e-moderating feature, which is the learning process using internet facilities without being limited by place, distance, and time of implementation. Another advantage is that the learning system provides students with facilities to access structured teaching materials to facilitate the learning process. Another benefit is that students do not need to come to class; with the help of the internet, they can follow the learning process anytime and anywhere. Finally, both educators and learners can use teaching materials anywhere and anytime because they are stored in the system (Gherheş et al., 2021).

However, regardless of the activities in the learning process, online learning can be effectively implemented if it involves teachers, school principals, students, and parents. One activity in the online learning process is that learners at the higher education level are not only passive in receiving information from educators but also active in observing, doing, and demonstrating from the given learning objectives (Ang et al., 2021), (Mohammed et al., 2024). Learners receive teaching material in the form of electronic document files virtualized in various digital formats. These digital materials are more interesting and dynamic, thus motivating learners further in the learning process. Materials can be in the form of PowerPoint, video, audio, simulation, PDF, e-book, links connected to Google features (Haleem et al., 2022).

By utilizing the facilities and features available in online learning applications, learners can access learning materials anywhere and anytime without being limited by distance and time, even completing them within the specified time frame. The forms of online learning can include readings, simulations and practices, educational games, presentations, assignments and task submissions, quizzes, animations, and many more. The ability to access digital technology and an understanding of managing teaching materials and assignments electronically become one of the determining factors for success in learning. A person's skill in operating technology provides advantages, including being able to complete tasks more quickly (Parveen & Ramzan, 2024). Learners in the online learning process at the higher education level utilize various applications and digital media to support the completion of tasks given by educators.

Based on previous research results (Kumera et al., 2024), it shows that one factor influencing the relationship between technology and performance is the level of utilization of a technology. This explains that increased technology use affects student performance in fulfilling lecture assignments during online learning. Furthermore, the technology already used by students that influences performance is the factor of task-technology fit. Fit in assignments means the technology provides facilities that ease the completion of lecture tasks being carried out. Learning Management System (LMS) is software intended for administrative, reporting, assignment, recording, and teaching material creation purposes in online learning using the internet network (Turnbull et al., 2022), (Ramesh et al., 2022).

One facility that can be used by learners at the higher education level to support the management of electronic teaching materials and supporting assignment files is cloud storage (Kiryakova, 2017), (Tayyeh et al, 2025). Cloud Storage applications are the latest technological trends that can contribute to students in the implementation of online learning. Cloud Storage applications can make it easier for students to obtain information and store all types of electronic document files, such as assignments, that can be accessed quickly and easily. Additionally, Cloud Storage is used in the learning process because it is cost-effective for students and university staff. The way Cloud Storage works is actually integrated and transparent in its use, a service that has end-users for easy access anytime and anywhere only with desktop and mobile devices.

Some advantages of Cloud Storage can provide services for educators and learners at the higher education level. The capabilities of Cloud Storage include collaborating in sharing information, editing, processing, and creating extensive information with other users within the academic scope. Cloud Storage can provide services for higher education in terms of: ease of use for personal users (Islam et al., 2017), facilitating teaching and learning community interaction activities, not requiring data file backups while sharing through cloud storage, and being able to provide robust means. Additionally, Cloud Storage can also facilitate an online learning environment, personal portfolios, and web-based self-service (Al-Zoube et al., 2010), (Kadhim et al, 2023).

Some benefits of using Cloud Storage that can be obtained by learners include: availability of online applications everywhere, flexibility to create a structured learning environment; supporting mobile learning and scalability. Other benefits include self-directed learning, cost reduction, accessibility, no need for other infrastructure, supporting the go green concept, and being user-friendly and easy to understand (Culduz, 2024), (Kadhim et al, 2024). From another perspective, students will develop their personalities and be trained in the importance of collaboration awareness. However, despite these tremendous benefits, there are still many issues when Cloud Storage is implemented in education, including: lack of awareness among educators about the many benefits of cloud computing when applied in education, limitations in hardware owned such as computers or gadgets, still insufficient quality of learning resources in the use of cloud computing, and incomplete management mechanisms in its implementation.

Mahatma Gandhi Central University certainly conducted online learning during the COVID-19 pandemic. Many students used the internet and social media to support virtually conducted learning activities. An interesting phenomenon was shown by the fulfillment of given assignments and the e-learning facilities followed during online learning through the use of digital technology. The skills and understanding of higher education students are not far from the use of mobile learning as their learning tool. Electronic documents such as teaching media, teaching materials, and electronic files in student assignments were certainly widely used during online learning. Students of Mahatma Gandhi Central University are certainly familiar with Cloud Storage in their learning activities. This is demonstrated by the utilization of data sharing, editing, and creation using one type of Cloud Storage. The use of the learning management system (LMS) as cloud storage for students participating in digital-based learning at Mahatma Gandhi Central University is the subject of this study's research problem. Examining how well students at Mahatma Gandhi Central University use the LMS as cloud storage is the primary goal of this research.

Research Method A descriptive quantitative research strategy was employed to carry out the research. The findings of the survey were documented using quantitative data, which included presenting and tabulating results of frequencies and data averages. Also, qualitative discussion served to describe, interpret, and summarize the data in light of the

quantitative data findings. The research population was students of Mahatma Gandhi Central University (MGCU), Motihari, Bihar, India who participated in online lectures using the Learning Management System. Sampling in this research involved 300 students from various study programs and various student cohorts at MGCU. The number of male respondents was 96, while female respondents were 204. Random sampling was conducted in selecting the research sample. The random sampling referred to means the researcher distributed the questionnaire via a Google Form link to students randomly, ranging from the 2023 cohort to the 2019 cohort. Students from various cohorts also came from different study programs and faculties at MGCU.

Measuring the level of acceptance and use of Cloud Storage within the Learning Management System used the Technology Acceptance Model (TAM). TAM is used to understand user acceptance of computer technology. This theory provides a formulation of a person's behavior as a function of behavioral goals. In this case, the theory aims that students' interest and behavior in using the Learning Management System, which has Cloud Storage features such as a place to access learning materials, assignments, stored discussion forums, and stored learning recordings within the e-learning container. TAM can improve a person's performance and make it easier for users to complete their work. Furthermore, TAM describes users' habits in using information and technology based on trust, interest, attitude, and prevailing habits. Several indicators in the TAM model consist of: Perceived Ease of Use, Perceived Usefulness, Attitude toward Using, Behavioral Intention to Use, Actual Use. Thus, the researcher elaborated on five indicators for creating the research questionnaire: Perceived Ease of Use, Perceived Usefulness, Attitude toward Using, Attitude Toward Using Technology, and Actual Technology Use.

The questionnaire method for data collection was conducted with closed-ended questions. The questionnaire was administered online via Google Form to all students from various cohorts 2019-2023. There were 26 questions divided into 3 parts. The first part contained demographic identity information of the respondents. In the second part, students were given questions to answer about the use of Cloud Storage in LMS by providing rating answers on a scale of 1 to 5. The Likert scale as the measurement in the conducted survey consisted of Strongly Agree (SS) scale 5, Agree (S) scale 4, Neutral (N) scale 3, Disagree (TS) scale 2, and Strongly Disagree (STS).The following presents the Likert scale in Table 1.

Table 1. Likert Scale

| Statement | Scale |
|------------------------|-------|
| Strongly Agree (SA) | 5 |
| Agree (A) | 4 |
| Neutral (N) | 3 |
| Disagree (D) | 2 |
| Strongly Disagree (SD) | 1 |

Through the provided Google Form link, in the third section, students were asked to choose one answer regarding the frequency of using cloud storage in the LMS. The answers requested in sections 2 and 3 used a five-point Likert scale ranging from 1 to 5.

- 4.20 - 5.00 = Very High
- 3.40 - 4.19 = High
- 2.60 - 3.39 = Moderate
- 1.80 - 2.59 = Low
- 1.00 - 1.79 = Very Low

The questionnaire was created using Google Form and distributed via a link that was shared randomly with students from various study programs. Students could fill in answers according to their actual situation and select answer alternatives on a scale of 1 to 5 regarding their use of Cloud Storage in the LMS during online learning.

The data analysis technique in this research used descriptive statistics to measure the level of acceptance and use of Cloud Storage in the Learning Management System (LMS) through Mean and Standard Deviation (SD).

Results

Based on the data distributed to all students of MGCU, 300 responses were collected. The following data in Table 2 shows the profile information of respondents who filled out the research questionnaire.

Table 2. Respondents Profile Characteristics (n=300)

| Item | Category | Frequency (%) |
|---------------|----------|---------------|
| Gender | Male | 96 (32.0%) |
| | Female | 204 (68.0%) |
| Age | 17–20 | 185 (61.7%) |
| | 21–25 | 113 (37.7%) |
| | Above 25 | 2 (0.6%) |
| Cohort | 2023 | 80 (26.7%) |
| | 2022 | 40 (13.3%) |

| | | |
|----------------|------------|-------------|
| | 2021 | 76 (25.3%) |
| | 2020 | 78 (26.0%) |
| | 2019 | 26 (8.7%) |
| Faculty | FTTE | 152 (50.7%) |
| | FEB | 86 (28.7%) |
| | FAB | 14 (4.7%) |
| | Psychology | 13 (4.3%) |
| | FIT | 5 (1.7%) |
| | FSM | 1 (0.3%) |
| | FMHS | 13 (4.3%) |
| | FEES | 4 (1.3%) |
| | FB | 11 (3.7%) |

Based on the demographic information of this research, the results show a diverse distribution among the university’s respondents. The survey indicates that the number of respondents was dominated by females, accounting for 68% (204 students), while male respondents represented 32% (96 students). The age range of participants varied from 17 to above 25 years, classified as 17–20 years at 61.7% (185 students), 21–25 years at 37.7% (113 students), and above 25 years at 0.6% (2 students). Furthermore, students from multiple cohorts—2019, 2020, 2021, 2022, and 2023—participated in this research. Respondents also represented various study programs, including the Faculty of Teacher Training and Education (FTTE) at 50.7% (152 students), the Faculty of Economics and Business (FEB) at 28.7% (86 students), the Faculty of Agriculture and Business (FAB) at 4.7% (14 students), the Faculty of Psychology at 4.3% (13 students), the Faculty of Information Technology (FIT) at 1.7% (5 students), the Faculty of Science and Mathematics (FSM) at 0.3% (1 student), the Faculty of Medicine and Health Sciences (FMHS) at 4.3% (13 students), the Faculty of Engineering and Electrical Studies (FEES) at 1.3% (4 students), and the Faculty of Biology (FB) at 3.7% (11 students). The frequency of Learning Management System usage by MGCU students can be seen in the following figure 1.

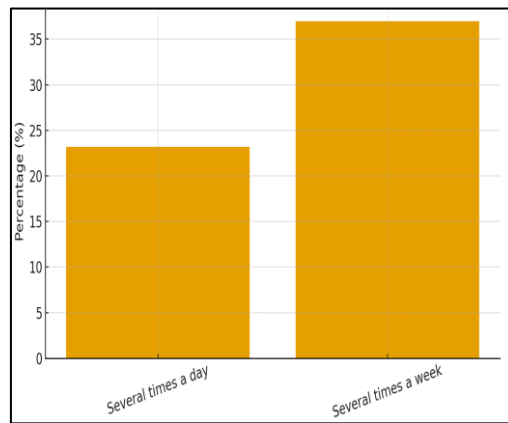


Figure 1. Frequency of LMS Usage

Based on Figure 1, the use of Cloud Storage within the LMS by students is shown through six answer choices. The results of LMS access by students indicate that the majority of students access the LMS several times a week at 37%. Students with an access frequency of several times a day also show a rate of 23.2%. Accessing the LMS several times a month accounts for 22%, while other, less frequent access rates by students include once a day at 8.4%, less than once a month at 6.8%, and once a month at 2.4%. Thus, this indicates that students frequently use Cloud Storage within the Learning Management System (LMS) during online learning.

The use of Cloud Storage within the Learning Management System (LMS) by students in online learning can be shown from the processed data in Table 3 as follows:

Table 3. Level of Cloud Storage Usage in LMS Measured Based on the Technology Acceptance Model (TAM)

| Category | Mean | Std. Deviation | Level |
|-------------------------------------|------|----------------|-------|
| 1. Perceived Ease of Use | 4.15 | 0.85 | High |
| 2. Perceived Usefulness | 4.08 | 0.83 | High |
| 3. Attitude Toward Using Technology | 4.03 | 0.84 | High |
| 4. Behavioral Intention to Use | 3.98 | 0.87 | High |
| 5. Actual Technology Use | 3.86 | 0.88 | High |

Based on Table 3, the mean and standard deviation results for Cloud Storage usage in the LMS lead to the conclusion that ease of using the LMS (perceived ease of use) has the highest mean score of 4.15, while actual technology use has the lowest mean score of 3.86. Overall, the use of the Learning Management System during students' online learning process provides ease of use, perceived usefulness, attitude toward using, behavioral intention to use, and actual technology use, all rated as high. The following is an illustration of the level of usage and utilization of Cloud Storage in the LMS based on TAM measurement:

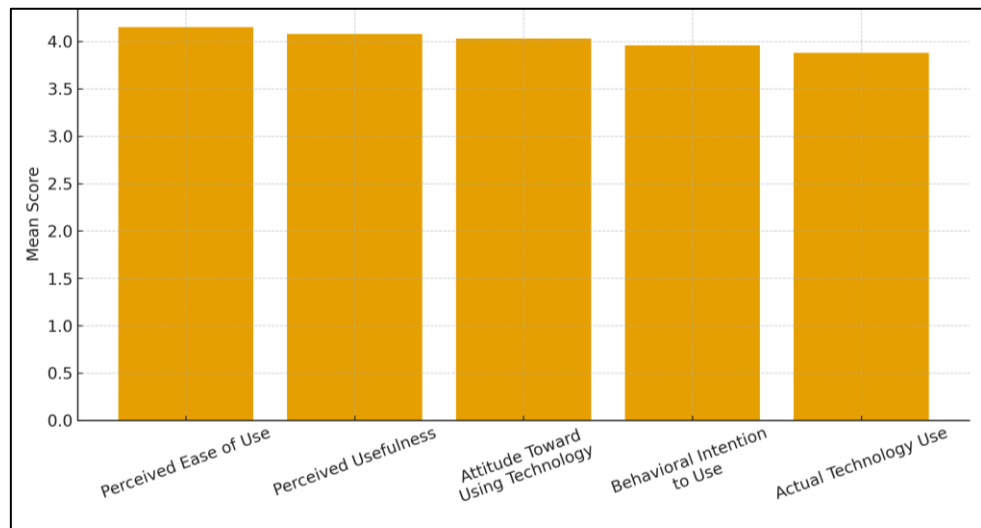


Figure 2. Level of Usage and Utilization of Cloud Storage in LMS Based on Technology Acceptance Model (TAM) Measurement

In addition to the overall usage, Cloud Storage utilization in the LMS can be described for each component as described below.

1. Ease of Using Cloud Storage in LMS

To determine the usage behavior of Cloud Storage in the LMS for the "Perceived Ease of Use" component, it was elaborated through five analyzed indicators. A description of the measurement results for these indicators is presented in Table 4.

Table 4. Description of the Level of Perceived Ease of Using Cloud Storage in LMS

| Perceived Ease of Use | Mean | St Dev. | Level |
|--|------|---------|-----------|
| 1. Ease of learning how to access or store data (assignments, materials, discussions, etc.) in the LMS | 4.27 | 0.81 | Very High |
| 2. Ease of using the LMS to access or store data (assignments, materials, discussions, etc.) | 4.28 | 0.77 | Very High |
| 3. Ease for me to complete lecture activities stored in each of its features | 4.22 | 0.79 | Very High |
| 4. Ease of interacting with lecturers and other students through features where interactions are stored (discussions, chat, assignments, etc.) | 3.86 | 0.94 | High |

| | | | |
|---|-------------|-------------|------|
| 5. Ease and flexibility in storing data (uploaded assignment files, materials, discussion results, reflections, attendance, etc.) when used in lectures | 4.12 | 0.82 | High |
| Total | 4.15 | 0.84 | High |

Based on Table 4, the total mean for students' use of cloud storage in the LMS under the Perceived Ease of Use category is 4.15, falling into the High category. The highest mean score is from the indicator "Ease of using the LMS to access or store data (assignments, materials, discussions, etc.)" at 4.28. Meanwhile, the lowest score is on the indicator item "Ease of interacting with lecturers and other students through features where interactions are stored (discussions, chat, assignments, etc.)" with a score of 3.86.

2. Usefulness of Cloud Storage in LMS

To determine the usage behavior of Cloud Storage in the LMS for the "Perceived Usefulness" component, it was elaborated through five analyzed indicators. A description of the measurement results for these indicators is presented in Table 5.

Table 5. Description of the Level of Perception of Usefulness in Using Cloud Storage in the LMS

| Indicators of Perception of Usefulness (Perception of Usefulness) | Mean | St Dev. | Cate-gory |
|---|-------------|-------------|-------------|
| 1. The benefit of storing data (uploaded assignment files, materials, discussion results, reflections, attendance, etc.) in the LMS can improve lecture performance. | 4.04 | 0.85 | High |
| 2. The benefit of using data storage (uploaded assignment files, materials, discussion results, reflections, attendance, etc.) in the LMS can address information needs during lecture activities. | 4.13 | 0.80 | High |
| 3. The benefit of storing data (uploaded assignment files, materials, discussion results, reflections, attendance, etc.) in the LMS can increase my efficiency. | 4.04 | 0.85 | High |
| 4. The benefit of storing data (uploaded assignment files, materials, discussion results, reflections, attendance, etc.) in the LMS can simplify my work in the lecture process. | 4.08 | 0.86 | High |
| 5. The benefit of storing data (uploaded assignment files, materials, discussion results, reflections, attendance, etc.) in the LMS can increase the effectiveness of my work in the lecture process. | 4.10 | 0.79 | High |
| Total | 4.08 | 0.83 | High |

Based on Table 5, the total average score for the use of Cloud Storage in the LMS on the "Perceived usefulness" variable is 4.08. The question item, "The benefit of using data storage (uploaded assignment

files, materials, discussion results, reflections, attendance, etc.) in the LMS can address information needs during lecture activities," has the highest score at 4.13. The question item with the lowest score of 4.04 is indicated by the question, "The benefit of storing data (uploaded assignment files, materials, discussion results, reflections, attendance, etc.) in the LMS can increase my efficiency."

Overall, the total average score for the perceived usefulness category is 4.08, which means that the benefits of using Cloud Storage in terms of perceived usefulness fall into the High category. Thus, the Learning Management System can assist in the implementation of online learning for students during the COVID-19 pandemic.

3. Attitude Toward Using Cloud Storage in the LMS

To determine the Usage Behavior of Cloud Storage in the LMS in the section "Attitude Toward Using Technology," it is elaborated through four analysed indicators. The measurement results from these four indicators are presented in Table 6.

Table 6. Description of the Level of Attitude in Use (Attitude Toward Using Technology) in Using Cloud Storage in the LMS

| Indicators of Attitude Toward Using Technology (Attitude Toward Using Technology) | Mean | St Dev. | Category |
|--|-------------|-------------|-------------|
| 1. The attitude that the data storage feature (uploaded assignment files, materials, discussion results, reflections, attendance, etc.) in the LMS is very good and acceptable. | 4.17 | 0.74 | High |
| 2. The attitude of not feeling bored when using the data storage feature (uploaded assignment files, materials, discussion results, reflections, attendance, etc.) in the campus LMS. | 3.86 | 0.90 | High |
| 3. The attitude of enjoying the use of the data storage feature (uploaded assignment files, materials, discussion results, reflections, attendance, etc.) in lectures. | 4.06 | 0.85 | High |
| 4. The attitude of feeling comfortable and happy using the data storage feature (uploaded assignment files, materials, discussion results, reflections, attendance, etc.) in the campus LMS. | 4.02 | 0.86 | High |
| Total | 4.03 | 0.84 | High |

Based on Table 6, the highest score is found in the indicator item "The attitude that the data storage feature (uploaded assignment files, materials, discussion results, reflections, attendance, etc.) in the LMS is very good and acceptable" with a score of 4.17. Additionally, the lowest score is found in the indicator

"The attitude of not feeling bored when using the data storage feature (uploaded assignment files, materials, discussion results, reflections, attendance, etc.) in the campus LMS" with a value of 3.86. This indicates a need for varied LMS features, particularly the Cloud Storage component, to enable students to use them with enthusiasm. Overall, the total average for the variable/dimension Attitude Toward Using Technology is 4.03, which means it falls into the High category.

4. Behavioral Intention to Use Cloud Storage in the LMS

To determine the Behavioral Intention to Use Cloud Storage in the LMS in the section "Behavioral Intention to Use," it is elaborated through four analyzed indicators. A description of the indicator measurement is presented in Table 7.

Table 7. Description of the Level of Behavioral Intention in Use in Using Cloud Storage in the LMS

| Indicators of Behavioral Intention in Use (Behavioral Intention To Use) | Mean | St Dev. | Category |
|---|------|---------|-------------|
| 1. Intention to use the LMS during lectures because it has a data storage feature (uploading assignments, accessing materials, discussion results, reflections, attendance, etc.). | 4.03 | 0.87 | High |
| 2. Intention to use F-Learn through its data storage feature (uploading assignments, accessing materials, discussion results, reflections, attendance, etc.) in the next semester and make it the primary choice. | 4.05 | 0.84 | High |
| 3. Intention to access the data storage feature (uploading assignments, accessing materials, discussion results, reflections, attendance, etc.) in the LMS to fulfill course assignments. | 3.98 | 0.86 | High |
| 4. Intention to encourage other students to access the LMS through the data storage feature (uploaded assignment files, materials, discussion results, reflections, attendance, etc.) to complete course assignments. | 3.79 | 0.94 | High |
| Total | 3.98 | 0.87 | High |

Based on Table 7, the overall total average for the variable/dimension Behavioral Intention To Use in Using Cloud Storage in the LMS is 3.98, which falls into the High category. The highest value in technology use intention is 4.03 for the indicator "Intention to use the LMS during lectures because it has a data storage feature (uploading assignments, accessing materials, discussion results, reflections, attendance, etc.)." Meanwhile, the lowest value is for the indicator "Intention to encourage other students to access the LMS through the data storage feature (uploaded assignment files, materials, discussion results, reflections, attendance, etc.) to complete course assignments." Thus, it can be demonstrated that in using the LMS, students are less enthusiastic about encouraging other students.

5. Actual Technology Use of Cloud Storage in the LMS (Actual Technology Use)

To determine the Use of Cloud Storage in the LMS in the section Actual Technology Use (Actual Technology Use), it is elaborated through four analyzed indicators. A descriptive measurement of the indicators is presented in Table 8.

Table 8. Description of the Level of Actual Use (Actual Technology Use) in Using Cloud Storage in the LMS

| Indicators of Actual Technology Use (Actual Technology Use) | Mean | St Dev. | Category |
|---|-------------|-------------|-------------|
| 1. Behavior of using the LMS through the data storage feature (uploaded assignment files, materials, discussion results, reflections, attendance, etc.) to support lectures. | 3.86 | 0.90 | High |
| 2. Behavior of spending a long time using the LMS through the data storage feature (uploaded assignment files, materials, discussion results, reflections, attendance, etc.). | 3.68 | 1.00 | High |
| 3. Behavior of using and having experience operating the LMS (which contains the data storage feature for uploaded assignment files, materials, discussion results, reflections, attendance, etc.) during lectures. | 3.91 | 0.82 | High |
| 4. Satisfaction in accessing and using the LMS through the data storage feature (uploaded assignment files, materials, discussion results, reflections, attendance, etc.) to support studies. | 4.06 | 0.77 | High |
| Total | 3.86 | 0.88 | High |

Based on Table 8, the total average score obtained is 3.86, falling into the High category for actual technology use, specifically within the Learning Management System during the online learning process. The highest score for a question item is found in the indicator "Satisfaction in accessing and using the LMS through the data storage feature (uploaded assignment files, materials, discussion results, reflections, attendance, etc.) to support studies" with an average score of 4.06. Meanwhile, students on average responded with the lowest score on the indicator for the behavior of spending a long time using the LMS, with a score of 3.68.

Discussion:

Based on the research results obtained from the student questionnaire, it can be shown that the different categories yielded varying outcomes. The first category, as shown in Table 3 regarding Perceived Ease of Use, indicates that students agree that cloud storage within the LMS is easy to use during online learning throughout the COVID-19 pandemic. Furthermore, in Table 4, the detailed breakdown of the Perceived Ease of Use category reveals that what students feel most strongly is the ease of using the

LMS to access or store data, including assignments, materials, discussions, and so forth. The storage of assignment data on this online learning platform facilitates student access anytime and anywhere without requiring face-to-face meetings with the course instructors. The advantages gained from using e-learning in studies include ease of accessibility, flexible shared scheduling with students, and adaptable work arrangements (Culduz, 2024).

Based on the results obtained in Table 3, the category of Perceived Usefulness of using Cloud Storage in the LMS shows a high rating. The benefits students derive from this LMS include the storage of assignment files and course materials, which can enhance their performance, meet informational needs during both lecture activities and outside of class. Additionally, other benefits obtained by students include simplifying their work in the lecture process and improving effectiveness and efficiency in their studies. Thus, the implementation of cloud computing technology (cloud storage) for students to store learning materials in a computerized manner, aligned with the content provided by instructors, can effectively and efficiently support the learning system. Moreover, e-learning as a form of digital learning technology provides opportunities for students to engage in communication and exploration with other learners in a virtual classroom (Grover & Nandal, 2024).

The next category, Attitude Toward Using Technology in Using Cloud Storage in the LMS, as shown in Table 3, demonstrates high results. This is supported by Table 6, where several student attitudes indicated that features such as data storage for uploaded files, materials provided by lecturers, discussion forums, learning reflection forms, and attendance within the LMS are acceptable to students. Furthermore, students also enjoy using the LMS features during lectures and feel comfortable and pleased with the use of Cloud Storage in the LMS. Although the average score was lowest for the item regarding students not feeling bored when using Cloud Storage in the LMS, it still signifies student agreement. Students' attitudes toward using technology have proven to be positive, consistent with findings from research conducted by (Ayanwale et al., 2024; Govea et al., 2023; Grover & Nandal, 2024).

The total average for the Behavioral Intention to Use LMS category is 3.98. Consequently, the data results show that students feel the need to use Cloud Storage in the LMS during lectures because it has lecture data storage features, which is the highest-rated indicator. In contrast, the lowest-rated statement item pertains to students' efforts to encourage other students to access the LMS to complete course assignments. Although this value is lower, the conclusion for this category remains that students agree they have a behavioral intention to use Cloud Storage in the LMS during online learning. When compared to the lowest values from the Perceived Ease of Use and Perceived Usefulness categories, the average score for Behavioral Intention to Use Cloud Storage in the LMS is the lowest at 3.79. Thus, students are still at the stage of using the LMS as an e-learning tool that is primarily appealing for their own use and have not yet reached the stage of motivating other students to use the LMS. However,

overall, the statements in the behavioral intention to use the LMS category play a positive role for both students and lecturers conducting online lectures (Ayanwale et al., 2024).

The final category provides evidence that the total average score of 3.86 indicates that students are capable of actually using the LMS in fulfilling their course assignments. The highest score suggests that students feel satisfied using the LMS through data storage features to support their studies. Cloud-based data storage features can be demonstrated in collaborative activities between lecturers and students, such as sharing links, editing, processing, and electronic repositories within the learning process (Kiryakova, 2017; Kumera et al., 2024; Turnbull et al., 2022). The lowest average score in this category is indicated by the statement that students spend a long time using the LMS. Although its average score falls into the high category, it is, on the other hand, the lowest average among the five categories presented. Additionally, students consistently use the LMS during lectures in online learning. Cloud Storage in the LMS provides services for students to access learning resources, both software and hardware, ensures security for data privacy, and collaborative learning becomes crucial in distance education. Furthermore, Cloud Storage in the LMS offers a digital learning environment, personal portfolios, and web-based self-directed learning options for students. Therefore, the provision of ICT in learning is closely and positively linked to the adoption and use of Cloud Storage. Moreover, Cloud Storage offers numerous benefits, including the availability of online applications for communication and resource use, flexibility in learning environments requiring specific skills, and support for mobile learning. Students can review and complete any shortcomings in uploaded assignments according to the learning provided by the lecturer. Simultaneously, Cloud Computing provides a network communication platform for interaction between lecturers and students for discussion forums and assignment uploads (Ali, 2019).

Conclusion:

Cloud Storage within the Learning Management System is widely accepted as part of the online learning process. Students believe that using an LMS with data storage features is simple. Students benefit from using Cloud Storage in the LMS, which can improve lecture performance and efficiency while also simplifying their work. Overall, students believe the LMS is acceptable and easy to use, with features for storing assignments, discussions with lecturers, attendance records, and much more. As a result, students are interested in using an LMS integrated with Cloud Storage because it simplifies the learning process, provides benefits, and can be used as a tool for both self-directed and collaborative learning in practice.

Suggestions:

This research has limitations in quantitative descriptive analysis; thus, more in-depth and accurate study and discussion are required through other analytical techniques regarding the use and acceptance of the Learning Management System.

Recommendations:

1. Expanding Cloud Infrastructure: Universities should continue investing in and expanding cloud storage capacities within their LMS to accommodate students' growing needs for storing large files and academic projects.
2. Optimizing Mobile Access: Given that "Perceived Ease of Use" was a key driver of acceptance, it is recommended to enhance the mobile application interfaces of the LMS to ensure seamless file synchronization and access from any device.
3. Promoting Collaborative Features: Instructors should be encouraged to design assignments that utilize "cloud-based collaboration," allowing students to co-edit and share documents instantly via the system, thereby increasing "Perceived Usefulness"

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