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Online-based Learning Management System in the Industrial Revolution 4.0 Era: Reality in Islamic Higher Education

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ABSTRAK

Dampak perkembangan revolusi industri 4.0 dengan sistem siber fisik dan internet di bidang pendidikan adalah berkembangnya pengajaran berbasis komputer yang kemudian merambat pada perkembangan pembelajaran online dan penggunaan media e-learning. Dengan sistem gabungan, pembelajaran jarak jauh terjadi dalam sistem pengelolaan pembelajaran dengan platform pendampingan berbasis web dan media sosial yang merupakan hasil perkembangan Industri 4.0 selama abad ke-21. Tujuan utama dari penelitian ini adalah untuk menganalisis dan membandingkan persepsi mahasiswa dalam mengimplementasikan delapan platform penerapan Learning Management System berbasis online di tingkat perguruan tinggi. Kemudian, penelitian ini mengaitkan persepsi siswa dalam penerapan manajemen pembelajaran berbasis online dengan mengacu pada tiga aspek penilaian; aspek belajar mengajar, aspek kompetensi dosen, dan aspek infrastruktur. Pendekatan kuantitatif dengan desain survei telah dipilih. Teknik pengambilan sampel adalah purposive sampling dan melibatkan 147 responden. Hasil menyimpulkan bahwa platform Zoom, Google Classroom dan Whatsapp merupakan media pembelajaran jarak jauh yang paling sering digunakan dan juga disukai oleh siswa. Saat ini belum banyak dosen yang menggunakan Moodle karena tidak cukup waktu untuk mempelajari cara menggunakan Moodle dan menyiapkan semua sumber daya untuk mendesain pembelajaran yang diinginkan, padahal banyak platform alternatif yang lebih mudah dipelajari dan digunakan dalam waktu singkat. Survei terhadap tiga aspek dari dare learning telah disepakati secara detail dan hasilnya memberikan kesimpulan positif terkait pelaksanaan pembelajaran berbasis online dalam 4 tahun terakhir.

ABSTRACT

The impact of the industrial revolution 4.0 developments with physical and internet cyber systems in the education sector is the development of computer-based teaching which then propagates to the development of online learning and the use of e-learning media. With a combined system, distance learning occurs in a learning management system with web-based assistance platforms and social media which is the result of the development of Industry 4.0 during the 21st century. The main objective of this research is to analyze and compare student perceptions in implementing eight platforms of implementing an online-based Learning Management System at the tertiary level. Then, this study links students' perceptions in implementing online-based learning management with reference to three aspects of assessment; teaching and learning aspects, lecturer competency aspects, and infrastructure aspects. A quantitative approach with a survey design has been chosen. Sampling technique was purposive sampling and involved 147 respondents. The results concluded that the Zoom, Google Classroom and Whatsapp platforms were the most frequently used distance learning media and were also liked by students. Currently, not many lecturers use Moodle because there is not enough time to learn how to use Moodle and prepare all the resources to design the desired learning, while there are many alternative platforms that are easier to learn and use in a short time. The survey on the three aspects of daring learning has been agreed in detail and the results provide positive conclusions regarding the implementation of online-based learning in the past 4 years.

1. INTRODUCTION

Industry 4.0 offers systems that utilize electronic media such as computers that are integrated with internet networks (Lampropoulos et al., 2019; Roll, 2021). In the field of education, Electronic-based Learning is a learning model that utilizes the Information and Communication Technology (ICT) system, namely a technology system that provides information on effective learning media and communication tools to support the independent learning process of a learner with a long-distance scheme and can be coached directly by teacher (Das, 2019; Gómez-García et al., 2020). Various kinds of media platforms can be used by educational facilitators to support the implementation of virtual learning, such as virtualized teaching materials through the Google Classroom Platform

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(Yunus & Syafi'i, 2020), Zoom Meeting (Suhery, 2020), Moodle (Prasetya, 2021), Youtube (Amira & Amri, 2022), Blogging website (Mahmudah & Drajati, 2017) and other electronic-based learning so that it looks attractive and more dynamic. The use of online applications that are familiar to teacher and students can motivate them to participate in the learning process because they are ready and know how to use those applications (Aliyyah et al., 2020; Famularsih, 2020; Singh & Thurman, 2019). This statement is supported by previous research where the use of WhatsApp and the provision of free internet data packages to access the platform to students have made communication between teachers and students more flexible and dynamic and showed a positive response from these students. Based on the information obtained, learning via online can be designed by utilizing social media where the most used social media for learning today are Facebook and Instagram and Whatsapp as a medium of communication (Kumar & Nanda, 2019; Yulando et al., 2019).

The results of research observations show that online learning using certain platforms connects students with learning resources such as students can access campus databases, communicate via electronics, and access online libraries, then it is concluded that through online platforms, teachers and students can communicate, interact or collaborate online directly (Chin et al., 2021; Wang & Liu, 2020). However, the challenges of online learning are the availability of internet services which are sometimes unstable and students admit that it is difficult to take part in online learning because not all regions have strong internet as previously researched (Abdurrahmansyah et al., 2022; Baloran, 2020). Even if the network is available, the signal they get is very weak so that there is interference in communicating over long distances such as delays in capturing sound waves. The impact is reducing the effectiveness of learning, such as being hampered in getting clear information from the online learning process and delays in submitting assignments, so it's not surprising that many students prefer face-to-face classes (Alawamleh et al., 2022; Qekaj-Thaqi & Thaqi, 2021). In addition, not all institutions provide free internet package facilities so that students state that to take part in online learning, they spend the cost of purchasing internet data quota which is burdensome if calculated within a month.

An interview with the students gave the result that using video conferencing facilities in an electronic application such as Zoom really spent much internet quota, while messaging applications (whatsapp) do not require a lot of internet quota. However, in blended learning studies, the use of Zoom and WhatsApp is still chosen as an alternative because it is proven to increase student motivation in learning online (Irmada, F., & Yatri, 2021; Susilawati & Supriyatno, 2020). If reviewed, the intent of the campaign to use electronic technological media in education in the past four years is a solution to the Covid-19 problem which has forced many parties to reduce direct social interaction, including having to do learning from home (Lase et al., 2022; MZ & Syafi'i, 2021). The use of web-based platforms and social media is appropriate in the industrial era 4.0 where there are physical cyber systems and the internet with important features, namely machines, devices, sensors, humans as users, and internet access to communicate (Jeong, 2016; Nurohman & Suyoso, 2014). The results of the previous study say that the application of an electronic learning management system as one of the learning facilities in schools greatly impacts student achievement and it is recommended that this system be implemented in the teaching-learning process in a smooth, orderly and effective manner in order to achieve the learning objectives that have been arranged in the curriculum (Ainon & Rosmaizura, 2018).

In addition, Designing media technology for learning known as the E-Learning Management System also had a great acceptance from university students who regularly spent time watching lecture videos, viewing course information, reading postings in the academic forum (Boholano, 2017; Sarker et al., 2019). On the other hand, media can be developed based on the needs of students and certain criteria that refer to developing climate, conditions, and learning areas because considering this aspect can avoid gaps between the learning curriculum that is formed and the conditions that occur in students (Maqsood & Chiasson, 2021; Widada & Herawaty, 2017). In this Industry 4.0 era, media is categorized into two forms, namely electronic and non-electronic media. The results of experimental research state that the effectiveness and success in achieving learning targets is much higher using interactive electronic media than non-electronic or conventional media (Lase, 2019; Septianto & Hasan, 2017). In the Learning Management System, electronic media is linked to cyber and internet systems resulting in many online platforms that can be used freely by educators who combine face-to-face and online teaching and then this method is known as hybrid teaching. or blended learning (Rasheed et al., 2020; Sarker et al., 2019).

The use of electronic-based learning actually began to be used massively when the Covid-19 pandemic occurred in Indonesia and government regulations made by the Minister of Education and Culture of the Republic of Indonesia at that time, namely policies that regulated learning and teaching activities during a pandemic had to be carried out remotely. Since the government implemented online learning, lecturers stated that student enthusiasm has decreased if online learning facilities and technological literacy are not fulfilled (Peper et al., 2021; Winarno et al., 2022). In addition, studies show that many students have difficulty focusing and staying present when taking online classes. The closest example is the use of the Zoom platform which has proven to be quite effective as an online learning facility with several drawbacks that follow. It takes a lot of effort and creative power to change this bad impression, such as preparing online learning by using an attractive and easy-to-access platform (Heri Suryaman et al., 2020; Irmada, F., & Yatri, 2021).

Online learning discourse in tertiary institutions can also become a permanent system that continues to be used even though the Covid-19 pandemic has been declared over and returns to normal conditions. However, in line with the preliminary study, observations made by researchers found that some students were still passive and often late when participating in electronic-based learning processes and many of them did not even submit assignments through online platforms. This shows the impression of not being ready to implement online-based learning. Therefore, this research is considered important to be carried out to find out students' perspectives on the implementation of online platforms that are often used by lecturers in teaching and what their opinions are on the learning process, lecturer competence in designing online classes and the facilities provided during the learning.

This study aims to analyze the reality of online-based learning at Islamic tertiary institutions in the city of Jambi and the limitations of this study are to focus on the perspectives of students who study English education who learn through online devices. The research objectives include student perceptions of the implementation of eight platforms from implementing an online-based Learning Management System in the learning process in Islamic tertiary institutions. Then, researchers also analyzed students' perceptions of the implementation of online-based learning management in the industry 4.0 era which was seen from three aspects of assessment, namely the teaching and learning aspect, the lecturer competency aspect, and the infrastructure aspect. This research is important to do as learning evaluation data within the scope of tertiary institutions and to find gaps in the online learning process so that policies can be determined by avoiding bad tendencies in the learning process.

2. METHOD

A quantitative approach with a survey design is as a research method which was chosen based on intent consideration (Rea & Parker, 2014; Vagias, 2006). The population of this survey research was all students in the English Education Study Program at Islamic universities in Jambi City. The sampling technique was by using purposive sampling. Respondent criteria were students who had passed the distance learning study period within four years from 2019 to 2022. Respondents must also have experience using the types of online platforms presented in the learning process by lecturers. These types of online platform are platforms that are generally known and have many users, so a research is needed to determine perceptions of using those online platforms. The samples were taken based on the proportion of students from two Islamic universities in Jambi City, namely the State Islamic University with a total of 117 respondents and a Private Islamic University with a total of 30 respondents. The total respondents in this study were 147 spread across several semester levels.

This study used data collection technique with the help of questionnaires. The type of the used questionnaire was a Likert-scale questionnaire. Then, the assessed aspects were adapted from previous studies (Bagata, 2020; Saman, 2021). The questionnaire was distributed to all students studying English education at the Islamic University in Jambi Province. The taken data were classified into four data groups as show in Table 1.

Table 1. Indicator of Assessment

No.	Indicator of Assessment	Total Statement
1	The used Platforms of Learning Management System Implementation.	3 Items
2	Aspects of Learning and Teaching	5 Items
3	Aspects of Lecturer Competence	6 Items
4	Aspects of Facilities and Infrastructure	5 Items
	Total	**19 Items**

Table 2. Level of Agreement

Level of Agreement	Measurement
Strongly Agree Agree	High
Neutral	Medium
Disagree Strongly Disagree	Low

Research data were analyzed by applying descriptive analysis. The value of each statement given is calculated as a percentage to find out the highest level of statement and student perceptions of online learning based on the Learning Management System in the Industry 4.0 era. Statements regarding online-based platform usage surveys were seen based on the frequency of answers from each individual respondent, for example how many students learned using the Zoom Platform in the previous semester or year. While statements using the Likert Scale were seen from the highest and lowest presentations and the tendency of the answers from the total respondents as show in Table 2.

3. RESULT AND DISCUSSION

Result

In process of collecting data, students as respondents must confirm at what level/semester they are running the lecture period fully online or partially online. In this question item, students can answer more than one option if it is a fact in the field that they have taken online lectures for more than one semester. The options available are the first semester to the eleventh semester. In general, students must complete courses for four years or eight semesters, but students have a final deadline for completing courses of up to fourteen semesters. Researchers consider using the option of up to eleven semesters because students in the twelfth semester and so on must focus on completing their studies or they will be expelled by the institution. Then, students in the twelfth semester onwards were already very difficult to contact. So with these considerations, the data distribution obtained is Table 3.

Table 3. Semester When Studying English Using an Online Platform

Level/Semester During Distance Learning	F	P (%)
I	91	61.9
II	32	21.8
III	61	41.5
IV	23	15.6
V	17	116
VI	5	3.4
VII	2	1.4
VIII	1	0.7
IX	1	0.7
X	0	0
XI	1	0.7

From Table 3, in general, the distribution of data mostly occurs in semesters one to five. It can be seen that of the 147 respondents, there were 91 students or more than half of the total sample answered that they had attended online lectures in the first semester. Meanwhile, in second place with the most data is the third semester where 61 students from the total sample stated that they had studied online this semester. Then, there are about a quarter percent who have never attended online lectures in the second semester. For the 4th and 5th semesters, 15.6 percent and 11.6 percent respectively of the total sample had attended online lectures. Interesting facts are shown in the 6th, 7th, 8th, 9th, 10th and 11th semesters where less than or equal to five students who answered had attended online lectures at the upper level of the lecture level. When viewed from student study documents, lecture contracts in online or offline classes only reach the 7th semester and in the 8th semester they must carry out field research studies by making a final report in the form of a thesis (research that is recorded). So that students in the 9th semester and so on are students who have not completed their final research studies or still have lecture contracts that have not been completed and/or repeated.

Hence, a survey of the teaching process on the use of eight platforms (Youtube, Zoom, Edmodo, Moodle, Google Classroom, Google Meet, Institutional Platform, and Whatsapp) needs to be carried out to take the right steps in policy making in a study program so that it can determine the right type of learning management system such as which platforms tend to be used by teachers and students in the distance learning process. The survey results can be seen in Table 4.

Tabel 4. Platforms That are Often Used in the Online Learning Process

Type of Platform	F	P (%)
Youtube	70	47.6
Zoom Meeting	113	76.9
Edmodo	19	12.9
Moodle	1	0.7
Google Classroom	88	59.9
Google Meet	69	46.9
SPIDOL-SUTHA/Platform Milik Institusi	44	29.9
Whatsapp	93	63.3

Table 4 shows several online platforms used in the online learning process for 147 respondents from 2019 to 2022. Respondents can choose more than one option if they have gone through a learning period using more than one online platform in different semesters. The table shows that almost 77% of the total students have used

the Zoom Meeting platform in the span of four years of study. Then, more than half a percent of the total students also have experience using platforms such as Whatsapp and Google Classroom. On the other hand, the data also shows that slightly less than half a percent of students have experience using YouTube and Google Meet. However, there are only 30% of the number of students who have participated in online learning using the platform owned by the institution where they are studying. Furthermore, the Edmodo and Moodle platforms are two platforms that are rarely used in online learning, in fact only one student chose to use Moodle in distance learning.

Furthermore, a survey with regard to students' perspectives on their favorite or most attractive platform aims to see opportunities in learning policies to tend to apply and use platforms that students feel are easier and they like to use them as learning media. The results survey toward students' preferred platforms are shown in Table 5.

Table 5. Most Preferred Platform

Type of Platform	F (LIKE)	P (%)
Youtube	39	26.5
Zoom Meeting	66	44.9
Edmodo	2	1.4
Moodle	1	0.7
Google Classroom	66	44.9
Google Meet	45	30.6
SPIDOL-SUTHA/Platform Milik Institusi	11	7.5
Whatsapp	62	42.2

Table 5 displays eight platforms that have been implemented in distance learning at two Islamic institutions in Jambi City. It is noted that none of the data reaches the same or more than 50% of the total respondents who like a particular platform. Zoom Meeting and Google Classroom are the two platforms with the highest percentage where 45% of the total respondents like this platform. Then, around 31 percent of respondents like the use of Google meet in the online learning process even though Google meet itself is integrated with Google Classroom and has functions such as Zoom Meeting which can make video conferences or face-to-face videos. Meanwhile, the communication platform, Whatsapp, has more than 40% of respondents who like its use in the online learning process, the whatsapp function itself can create online learning groups as a media tool for communication and distribution of material and URL addresses or other learning websites to the group. However, the ease of the process of providing learning information via Whatsapp is not enough to make students make it the most preferred or favorite platform. Similar to Whatsapp, Youtube, which is a platform for sharing learning video content, only found less than 30% liked it for use in learning. Worse, only about 8% of respondents liked using an institution's platform. This is an interesting finding to discuss regarding the implementation and feasibility of the institution's platform in the online learning process. While Edmodo and Moodle occupy the last position which is the least chosen by respondents, this is in line with the data in Table 4 that not many students have experience using these two platforms so not many students can determine their preferences and love for these platforms.

Implementation of Online-Based Learning Management in the Industrial Era 4.0 from Three Aspects of Assessment

The online learning process is related to access, time, materials, learning designs and assignments. Students are given the opportunity to assess the quality of the five items from completely agreeing to strongly disagreeing with the statements given. Table 6 shows the percentage of the results of the assessment of 147 students against the five statements of the learning process. Three of the statements that are assessed get the highest results on the points of "neutral" or not in favor of agreeing and disagreeing statements. The other two statements get the highest percentage on the "agree" point which can be interpreted that students tend to justify these statements based on their experiences in the online learning process.

The first item surveys statements regarding ease of access to online learning and 38% of the total students tend not to have significant problems by choosing neutral. However, as many as 37% of other students chose "agree" that they felt it was easy to access all forms of online learning media. In fact, there are around 14% of students who find it really easy to access online learning. However, around 12% of the total students tend to choose "strongly disagree" and "disagree" that the learning access that has been provided so far is easy to operate. Even so, the perspective of these students cannot be ignored, further studies are needed to assess what obstacles are actually experienced by 12% of the total students.

The second item shows the percentage of online learning timeliness statements and 46% of the total students are neither "agree" nor "disagree". Students tend to follow the flow of the online learning process without questioning the timeliness that must be in accordance with the lecture schedule. The total percentage of students who tend to agree that lecturers teach on time is around 39% and the total percentage of students who tend to

disagree is 15%. From the three presentation results above, the flexibility of online learning tends to be less of a problem considering that students can study from any place they like, so that the process does not require them to come to certain places which are more time consuming on the go.

The third item relates to the statement that the transfer of knowledge with online teaching patterns can achieve the final target of learning in which students are able to improve their abilities on the subjects or courses being taught. Table 6 represents 39% of the total students who prefer to be neutral towards this statement. Meanwhile, around 33% of the total students agreed with the statement that they could improve their understanding of a subject taught online. There are even about 8% of students who strongly agree with this statement. In total, 41% or close to half of the total respondents stated that online lectures were able to achieve learning targets and students' needs for an explanation of the structure of a material. When compared with the total students who tend to disagree, which is around 20%, the number of students who tend to agree is more than double. These results conclude that the learning process has been going well, but it must be further improved by looking at the problems students may have who answer disagree.

The fourth item relates to the statement that the Semester Learning Plan (RPS) is well implemented in the online learning process. The data shows that around 16% chose "strongly agree" and 50% of the 147 students chose "agreed" that the teacher had provided teaching in accordance with the RPS which was explained in the first learning meeting. The existence of RPS shows that the teacher has prepared a learning scheme well for 16 meetings in one semester. With the results of approximately 33% being neutral and 1% of students disagreeing with this statement, this survey was able to prove that students tend to like online learning with well-directed and structured schemes and they can track learning themes or topics to be studied at each meeting in the design the learning given.

The last item on the learning and teaching aspect is about the convenience provided by the teacher in collecting assignments submitted online. Table 6 presents the findings of the statement of convenience, that is, approximately 63% of students who gave answers chose to strongly agree and agreed that they felt it was easy to submit assignments remotely or without having to duplicate documents that they made and physically collected with the teacher. Furthermore, only about 27% of students are impartial or neutral with this statement and uniquely around 10% of students lead to disagreement. This 10% presentation is undeniable that there are definitely obstacles in submitting online assignments. Further research is needed to find the problems faced by the 15 students.

Table 6. Distribution of Data on Teaching-Learning Aspects

No.	Aspect/Item	*Likert Scale (%)*				
	Teaching nnd Learning Process	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
1	Implementation of online lectures can be accessed easily	13.6	36.7	38.1	7.5	4.1
2	Implementation of online lectures ON TIME and according to schedule	10.2	28.6	46.3	11.6	3.4
3	Online lectures increase theoretical understanding and skills	7.5	33.3	38.8	17	3.4
4	The material presented online is in accordance with the Lecture Contract / Lesson Plan	15.6	49.7	33.3	0.7	0.7
5	Easy of sending assignments/ practice reports	19	43.5	27.2	9.5	0.7

Aspects of Lecturer Competence

Table 7 shows the survey results of the six questions regarding aspects of lecturer competency in managing the online learning process. All statement items get the highest percentage on the Likert scale "agree" in the presentation range of 46% to 59%. These results tend to be categorized as good with added evidence that there are two statements that do not have a "strongly disagree" presentation.

Table 7. Data Distribution on Lecturer Competency Aspects

No.	Aspect/Item	*Likert Scale (%)*				
	Lecturer's Competency	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
1	Lecturers always accompany online learning until it's finished	14.3	46.3	34.7	3.4	1.4

No.	Aspect/Item	*Likert Scale (%)*				
	Lecturer's Competency	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
2	Lecturers explain the directions and goals in each online learning	12.9	49.7	32	4.8	0.7
3	Lecturers give students the opportunity to ask questions and discuss	19.7	59.2	20.4	0.7	0
4	Lecturers respond to questions that arise during online lectures	17.7	51	28.6	2.7	0
5	Lecturers provide a general understanding of the courses presented online	12.2	51	32.7	2.7	1.4
6	Lecturers actively show a cooperative attitude during online learning	12.2	49.7	30.6	7.5	12.2

Base on Table 7, there were around 79% out of 147 students who tended to agree with the statement that lecturers provide opportunities for students to ask questions and discuss in the online learning process. This statement is a process that must be carried out by a teacher so that classes are more interactive and there is communication between teachers and students in remote classes using certain platforms. Even though there were about 20% choosing neutral and 1% disagreeing with the statement, the percentage agreed which was close to 80% could conclude that the lecturer really did carry out the core learning procedures by checking the delivery of material to students using the question-and-answer method and discussion .

Then, there are two items with the highest percentage achievement, 51% of students agree that the lecturer responds to questions that arise during online lectures and the lecturer provides a general understanding of the courses presented online. The results of this percentage are still added by around 12% and 18% of students who strongly agree with the two statements. Students who answered neutral were only around 30% and those who tended to disagree were below 3%. The same thing is owned by two other statements with the highest percentage value 50% of students tend to agree with the statement that the lecturer explains the direction and goals in each online learning and the lecturer actively shows a cooperative attitude during online learning. This is coupled with around 12-13% of students "strongly agree" with the two statements. 31-32% of students choose to be neutral with the statement and 5% to 20% tend to choose to disagree with the statement.

The last item is that the lecturer always accompanies online learning until it is finished getting around 46% agree and 14% strongly agree. There are around 35% of students who are neutral and around 5% of students tend to disagree that during the online learning process the lecturer accompanies them until the teaching hours are finished. If compared to the total tendency to disagree around 5% and the tendency to agree 60%, only about 7 students felt they were not really accompanied during the online learning process and around 88 students agreed that they felt guided during the online learning process until the end of the process.

Aspects of Facilities and Infrastructure

The third aspect that is assessed is the facilities and infrastructure in the online teaching process, which are related to sources, tools, media and learning aids. This survey is important to carry out to see to what extent the online learning process experiences problems related to facilities and infrastructure obtained from student agreement on the four statements submitted. The results of the four-item survey is show in Table 8.

Base on Table 8 the first item relates to the statement that the material or learning resources presented in online learning are well available. This statement received approval from around 93 students or a total percentage of 63% from strongly agree and agree. Meanwhile, around 29% of the 147 students chose not to take sides and only about 10% of students felt that learning resources had not been presented properly during distance learning.

The second item relates to the statement that individual students have the tools/equipment to do practicum at home in accordance with the instructions given by the teaching staff. Approximately 42% of students choose neutral or the student tries to avoid the statement. Seeing the results of this presentation, the researcher realized that the facilities and infrastructure in carrying out practicums were fully the responsibility of the student to seek their availability. So that the student's neutral answer is accompanied by evidence that they cannot demand the availability of these facilities from the instructor. However, around 11% of students answered that they did not have the tools to support them in practicing learning at home. When compared to students who have practicum tools and equipment, which is around 47% of the total students, 11% of students who have these problems can still be sought to be assisted by the university or given solutions to solve problems from learning equipment.

The third item relates to the statement that most of the use of internet data is provided by institutions/government specifically for online learning. In this statement, 32% of students "agreed" and 16% of

students "strongly agreed" that it was true that they were getting internet data assistance from the government through the campus to carry out online learning in 2019 and 2020 since the Covid-19 case. Then, internet data assistance will no longer be provided in 2021 and 2022, but some of the learning process is still remote or online. The percentage figures for this statement are quite varied where 24% of students choose neutral and around 28% of students tend to disagree.

The fourth item relates to a statement about the lecturer providing facilities as a convenience in submitting assignments, for example: providing a URL/link for Assignment Collection remotely without having to duplicate the assignment in physical form. Data shows 54% agree and 14% strongly agree with this statement. So, if totaled, almost 70% of the total students feel that there is ease in collecting assignments as their obligation. However, about 31% of these students are more neutral for reasons that can be investigated more deeply with in-depth interviews. Even so, there are still students choosing to disagree with this statement with a percentage of 1% of 147 respondents.

Table 8. Distribution of Data on Facilities and Infrastructure Aspect

No.	Aspect/Item	*Likert Scale (%)*				
	Facilities and Infrastructures	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
1	Materials on online learning are well available	13.6	49	27.9	8.2	1.4
2	I have the tools / equipment to do the practicum at home according to the instructions given	9.5	37.4	41.5	10.9	0.7
3	Mostly, Internet data are provided by institutions/government specifically for online learning	16.3	32	23.8	14.3	13.6
4	Ease of collecting assignments based on the facilities provided by the lecturers (example: Assignment Collection Link)	13.6	53.7	31.3	0.7	0.7

Discussion

Implementation of Eight Platforms using the Learning Management System in Islamic Tertiary Institutions

The findings stated that more than half a percent of the students involved in this study had attended online lectures in semester 1 and 40% of the total students had also gone through online learning in semester 3. If you look at the time span from 2019 to 2022, some students currently are in semester 5 and above have passed the learning period in semesters 1 and 3 with the blended learning method or full online with the help of online platforms in 2019 and 2021. This kind of learning was done because of the Covid-19 disease outbreak which prohibited many people from doing activities outside the home (Kurniasari, 2020; Susilowati & Azzasyofia, 2020). Then, the following year the online learning system began to decline to below 16% and was replaced by a normal or conventional education system, namely face-to-face. The decrease in the percentage of teaching using online platforms can be due to government policies in the Minister of Education and Culture circular letter Number 3 of 2022 concerning adjustments to guidelines for implementing learning during the Covid-19 period (Agung & Surtikanti, 2020; Nadjamuddin et al., 2020), where one of them states that schools can return to using the face-to-face learning system with certain conditions. In fact, many educators prefer to return to the face-to-face system.

Even though the decline in learning using online platforms has occurred in 2022, students stated that there were still lecturers who applied online learning to certain subjects. The statement that emerged was whether the decline was purely due to government policy or the constraints that occurred in online learning so that most educators preferred to return to the old system. Previous study stated that interactive electronic media is more effective in achieving learning success than using non-electronic or conventional media (Tang & Chaw, 2016). In this case, online platforms are touted as learning facilities that can increase student motivation by offering certain features as well as their flexibility which facilitates long-distance interactions so as to save energy and time (Ainon & Rosmaizura, 2018; Bagata, 2020).

However, the facts on the ground show the obstacles to implementing online platforms and blended learning systems, namely the existence of limits on learning services provided by teachers, the lack of ability for teachers to use online platforms, bad internet networks in unpredictable conditions and limited internet channels in certain areas. Another problem, teachers think that online teaching has weaknesses in terms of the integrity of students such as cheating on exams and getting good grades during evaluations due to difficult supervision constraints (Fikri et al., 2021; Ramadani & Xhaferi, 2020). Responding to this obstacle, consideration is needed

in implementing online-based learning management which leads to the readiness of teaching staff as well as good learning electronic media facilities and infrastructure. Judging from the implementation of eight online platforms, this study found data that the Zoom platform was most widely used in remote classes in the span of four years of lectures. Then, followed by the use of Whatsapp as a passive communication paltform and Google Classroom as a medium for disseminating learning information in a formal and structured manner. These three platforms occupy the highest percentage as the most preferred platforms for students to use in distance learning.

The zoom platform has proven to be quite effective in replacing face-to-face classes despite the constraints of limited access to zoom for non-premium users (Chandrasiri & Weerakoon, 2022; Irmada, F., & Yatri, 2021). Teachers as facilitators experience problems with the basic zoom account type which only has a duration of 40 minutes to access video conference so those teachers have to increase their account above the basic account by paying a subscription so they can fulfill the learning time based on the lesson plan (Angelina, 2020; Dantes et al., 2022). On the other hand, the survey results also show data that among the eight platforms, around 45% of students like using Zoom, but 26% of the total respondents do not like this platform. When compared to the percentage of dislike of the eight platforms, Zoom also has the highest percentage of being the most disliked, even though it's only 26%. As stated by previous study online learning such as using the zoom platform can never replace traditional learning that has been carried out for centuries (Setyowati & Hastuti, 2021). Students tend to prefer using zoom in distance learning situations compared to other platforms, but they do not fully like the practice of distance learning and still into face-to-face learning to continue to be implemented (Pendy et al., 2021; Yulando et al., 2019).

Youtube and Google Meet are also often used, although not as often as the three platforms above. The facts about YouTube in this study are the second platform that students dislike the most in the online learning process. Even though, the task of making an English conversation video and then uploading it to YouTube can trigger success in improving students' English speaking performance who tend to be more creative and confident in front of the camera (Amira & Amri, 2022; Binmahboob, 2020). This statement was also proved by other researcher state that students still dislike assignments that train their level of confidence (Hasanah & Supriansyah, 2022). Meanwhile, the Google meet application is not liked; the offered features are not as good as Zoom. Then, there are 30% of the number of students who have taken part in online learning using the institution's platform and have not experienced significant problems. This platform is provided by the agency as an alternative learning and in practice teachers are free to choose learning platforms that are more interactive and facilitate the distance learning process to increase student motivation. But still, some lecturers do not choose to use this platform.

Finally, the Edmodo and Moodle platforms are two platforms that are also rarely used in online learning at the two Islamic universities, in fact, only one student chose the statement that he had used Moodle in distance learning in the past four years. Although, Edmodo can be effective as an online learning media and a platform to assess the students' performance in learning (Fuadi et al., 2020; Sumardi & Muamaroh, 2020), it does not mean that the app is easy to use. Unique facts also sparked that whether a student who took lectures with the Moodle Platform was in the teaching system on an Islamic campus or maybe the child's experience was obtained from education outside the campus.

On the other hand, learning designs using Moodle are also said to be able to help improve students' English skills by honing communicative, interactional and sociocultural competencies (Jeong, 2017; Zamora-Antuñano et al., 2022). However, this research proves that not many teachers or lecturers used Moodle as a distance learning medium during the Covid-19 period in terms of student perceptions. Teachers are fully aware that online activities can be a good complement to face-to-face learning activities, but students must be willing to participate in them and use the media offered. In terms of using Moodle, the problems faced by teachers in implementing Moodle features are mostly related to the lack of time to learn how to use it and prepare all the resources and activities desired in designing the web-based moodle whereas there are many alternative platforms that are easier to learn and use (Ivanović et al., 2013; Widarma & Siregar, 2020).

Implementation of Online-based Learning Management in the Industrial Era 4.0 from Three Aspects of Assessment

In the teaching and learning aspect, the statement about ease of access to online learning proves that students have no problems accessing the various types of e-learning tools offered by lecturers. This is not only because students are active users of web-based technology and social media, they are also referred to the native users of technological developments which is evidenced by research results which show a high percentage from the use of technological devices such as mobile phones to carry out educational activities without obstacles (Kennedy et al., 2008; Lenhart, A., Madden, M., Macgill, A., & Smith, 2007). All the learning offered platforms are often used in everyday life so that the constraints of 12% of students need to be further investigated as to what is actually experienced when accessing these learning media; whether it is a lack of ability to use online platforms, bad internet network in unpredictable conditions or limited internet channels in certain areas (Fikri et al., 2021; Putri & Sari, 2020).

Furthermore, the data shows that students tend to follow the flow of the online learning process without questioning the timeliness that must be in accordance with the lecture schedule. The flexibility of online learning tends to be less of a problem considering that students can study from any place they like, so that in practice online learning does not require students to come to a certain place which is more time-consuming on the go (Bagata, 2020; Sadikin & Hamidah, 2020). The statement regarding the transfer of knowledge with online teaching patterns is proven to be able to achieve the final target of learning and the conclusion of the data states that the online learning process went well for 4 years from 2019 to 2022, but it must be further improved by looking at possible problems students have for certain devices (Angelina, 2020; Pendy et al., 2021).

Furthermore, the Lesson Plan is well implemented in the online learning process. Surveys prove that students tend to like online learning with directed and well-structured schemes and they can track the themes or topics of learning that will be studied at each meeting in a given learning design which is supported by the results of previous research (Famularsih, 2020; Kumar & Nanda, 2019). This study also obtained data that students tend to agree with the statement that there is convenience provided by the teacher in collecting assignments delivered online such as using WhatsApp, social media Facebook and Instagram and Edmodo, even though there is data about 10% of students who lead to disagreement with this statement (Lenhart, A., Madden, M., Macgill, A., & Smith, 2007).

The presented data show that students tend to agree with the statement that the lecturer provides opportunities for students to ask questions and discuss in the online learning process even though there are about 20% choosing neutral and 1% disagree with this statement. Then, students agree that the lecturer responds to questions that arise during online lectures and the lecturer provides a general understanding of the courses presented online. This statement has been supported from previous studies that the Question-and-Answer (QnA) method and discussion increase student activity in online learning and this method has also been tested on elementary school students in online learning designs (Prijanto & Kock, 2021; Sipatu & Silitonga, 2022). In addition, students tend to agree with the statement that the lecturer explains the direction and goals in each online learning and the lecturer actively shows a cooperative attitude during online learning and, the lecturer always accompanies online learning until it is finished. These three-processes are in accordance with online learning standards that educators must apply (Baran et al., 2011; Patel et al., 2018). If compared to the total tendency to disagree around 5% and the tendency to agree 60%, only about 7 students felt they were not really accompanied during the online learning process and around 88 students agreed that they felt guided during the online learning process until the end of the process and in line with previous research (Kilis & Yildirim, 2019; Priyastuti, M. T., 2020).

Students tend to agree that learning materials or resources, learning media, internet facilities have been presented well within four years of implementing online-based learning in the Industry 4.0 era and only about 10% of students feel learning resources have not been presented properly during distance learning. This is in line with previous studies which stated that not all students have learning devices such as mobile phones that are capable of operating all online learning sets and have stable internet connections (Abdurrahmansyah et al., 2022). Meanwhile, researchers in the field of education agree that quality educational facilities have a positive impact on student motivation and achievement, as well as the academic performance of staff (Aliyyah et al., 2020; Pajarianto et al., 2020). On the other hand, surveys show that individual students tend to choose neutral in terms of the availability of tools/equipment to carry out practicums at home because the facilities and infrastructure for conducting practicums are entirely the responsibility of these students to ensure their availability. There are around 11% of students who have these problems and the university can still be able to help them. Furthermore, in the implementation of the learning management system, it is proven that lecturers have provided facilities for collecting assignments via online which makes it easier for students.

The results of this study provide input to other researchers to be used as a policy reference for implementing a Learning Management System that implements web-based and social media platforms so that the process will be more effective, efficient and acceptable to students as users in higher education institutions. All parties in managing the learning system in tertiary institutions can pay attention to research results as input so that the implementation of online platforms must be accompanied by quality standards seen from how lecturers teach, learning media used, and learning online evaluations.

4. CONCLUSION

The result of this research can be concluded that the Zoom, Google Classroom and Whatsapp are the distance learning media that are most often used and are also liked by students. Zoom is the platform that students like the most when implementing online-based learning compared to other platforms, for example Zoom offers better experiences and features than Google Meet where the functions of these two platforms are quite similar. Hence, the data show that the distance learning process using zoom is what students dislike the most because they tend to see face-to-face learning as more effective and efficient taking into account the direct interaction between

educators and students. In addition, students tend to dislike assignments using YouTube platform even though it provides benefits to improve their English speaking performance. The use of the institution's LMS Platform does not show significant obstacles since it is rarely used in the online learning process at the two Islamic universities. Then, in terms of using Moodle, the problem faced by teachers is the lack of time to learn how to use the Moodle and prepare all the resources to design the desired learning, whereas there are many alternative platforms that are easier to learn and use such as combining the use of Zoom for the learning and teaching process and Google Classroom as a space for assistance with information on schedules and assignments.

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