Analyses Strategy of Information Technology and Alternative Presential Learning Process for Timor-Leste

Antonio Soares Martins[1]
Gabriel Neves[2]
Vasio Sarmento Soares[3]

Abstract:- This research focuses on analyzing the information technology strategy used during the online class due to the Pandemic or Covid-19 which affects all activities including the learning process at the university runs unstable. The subject or object of research in this study was carried out in universities in the city of Dili, especially UNPAZ, ICS, IOB, and UNTL. The purpose of this study is to bring up online learning strategies for everyone who has contributed to the online learning process, especially information technology as an online platform based on the situation and conditions in Timor-Leste. There are several procedures or rules that become guidelines used to carry out online learning processes so that they can respond to emergency situations that affect precision activities that do not go well. The method used in this study is a qualitative method and conducts analysis with descriptive methods through graphs, how to collect data using triangulation methods, with combination and structured questions interviewed. The results of this study are to bring up the platform and recommendations or information technology LMS is Google Classroom by carrying out in-depth configurations on several features such as streaming, student assignments, college participants, and the last grade. For video, conferences are advised to use the Zoom meeting used for direct explanation of the lectures to students. The bandwidth consumed is 700 kbps compared to other platforms. The features of Zoom Meeting are as follows: new meetings, join, schedule, share screen, record, and chat. The procedure or rules must conduct a training session before starting an online class to have a material guide guideline tell the rules that have relationship in using LMS, must participate and conduct a video conference, must define the evaluation team to be responsible for online classes such as the academic department and the head of the institution who takes responsibility directly or indirectly for students and colleagues.

Keywords:- *Online Platform, Information Technology, LMS, IES, Pandemic COVID-19.*

I.   INTRODUCTION

Timor-Leste, a small island nation in Southeast Asia, has made significant strides in its development efforts, including the integration of information technology (IT) in various sectors, including education. Recognizing the transformative potential of IT, Timor-Leste aims to leverage technological advancements to enhance its educational landscape. In this context, the present study focuses on the analysis of information technology strategies and alternative presentation learning processes in Timor-Leste.

The integration of information technology in education has become increasingly important as countries worldwide strive to improve access to quality education and equip students with the necessary skills for the digital age. Timor-Leste, with its unique socio-economic and educational context, faces specific challenges and opportunities in implementing IT strategies in the education sector.

This study aims to critically examine the existing strategies for IT integration in education in Timor-Leste and explore alternative approaches to presentation learning. Presentation learning refers to pedagogical techniques that enhance student engagement, knowledge retention, and learning outcomes using multimedia, interactive technologies, and online platforms.

By analyzing the current state of IT integration and presentation learning in Timor-Leste, this study seeks to identify strengths, weaknesses, opportunities, and threats in the educational system. The findings will contribute to the development of evidence-based recommendations and strategies for the effective utilization of IT and alternative presentation learning processes in Timor-Leste.

The research objectives are as follows: to evaluate the existing information technology strategies in Timor-Leste's education sector, including infrastructure, connectivity, and access to digital resources. To assess the challenges and opportunities in implementing IT integration in educational institutions in Timor-Leste. To explore alternative presentation learning processes, such as online learning platforms, multimedia resources, and interactive teaching methodologies, applicable to the Timor-Leste context. To identify the potential benefits and limitations of alternative presentation learning processes in enhancing student engagement, knowledge acquisition, and learning outcomes. To provide evidence-based recommendations for policymakers, educators, and stakeholders to enhance the effectiveness and sustainability of IT integration and

alternative presentation learning in Timor-Leste's education system.

This study utilizes a mixed-methods research approach, incorporating both quantitative and qualitative data collection methods. Surveys, interviews, and document analysis will be conducted to gather data from various stakeholders, including students, teachers, administrators, and policymakers. The collected data will be analyzed using appropriate statistical techniques and thematic analysis to derive meaningful insights and draw robust conclusions. The significance of this research lies in its potential to inform policy decisions and educational practices in Timor-Leste. By understanding the strengths, weaknesses, and opportunities related to IT integration and alternative presentation learning, stakeholders can make informed decisions regarding resource allocation, capacity building, curriculum development, and pedagogical approaches.

Ultimately, the findings of this study are expected to contribute to the advancement of Timor-Leste's educational landscape, fostering a digitally enabled learning environment that equips students with the necessary skills and competencies for a rapidly evolving world.

II. RESEARCH METHOD

➢ *Location and Time of Research.*
This study was conducted at universities in Timor-Leste such as UNTL (*Universidade Nasioal Timor Lorosae*), Faculty of Sciences, *Unpaz (Univercidade Da Paz)* from the Faculty of Engineering. ICS (*Instituto Ciência*

de Saúde) and IOB (Institute of Business) from the Faculty of ICT (Information and Communication Technology). This study was conducted for six months, from August 2021 and was completed in December 2021.

➢ *Research Method*
The type of research conducted in this study is a type of qualitative research. Qualitative research methods are research methods based on post-Pasca philosophy, which are used to check the condition of natural objects (such as opposite experiments) where researchers use research instruments, data collection techniques are carried out with triangles (combinations), data analysis marked by findings Executive/qualitative research while emphasizing the meaning of generalization (Sugyono, 2016).

➢ *Population and Sampling.*
The population is an overall field consisting of objects or subjects that have quality and some characteristics determined by researchers for studies and conclusions. The population is not limited to humans, but also other objects. The population is also not only objects or subjects looking for studies but also from all characteristics. For example, research in institution A, this institution is a population. Institution A has the number of people and other objects. This problem says that the population is the quantity.

The research population in this study was students, lecturers, and academic administration sections.

Such as: UNTL, IOB, UNPAZ and ICS.

Table 1 Population Research

Institution	Faculty	Target	Population
IOB	Faculty ICT	Students	2064
		Lecturer	43
ICS	-	Students	2497
		Lecturer	99
UNPAZ	Faculty of Engineering	Students	1386
		Lecturer	40
UNTL	Exact Science	Students	350
		Students	15
The Total of Population			**6494**

➢ *Sampling*
The sampling technique in this study uses a probability sample (sampling). Probability is a simple random sampling technique that will be a sampling to follow the research objectives. In this study, the sample was chosen based on several balances. Then the calculated numbers also collect data stop. Generally, sample errors have a maximum (estimated error rate) of 10 percent (10%). In this study, the sample was made based on the use of formulas (Ferdinand, 2011).

$$n = \frac{N}{Nd^2 + 1}$$

➢ *Note:*

- N = total number of samples
- N = sample population
- D = level of error calculations (precision)
- Resources: (Ryan, 2013)

Based on data from the population of this study, based on the Slovin formulation, the research sample is shown in the following table:

Table 2 Defining Samples (Slovin)

Institution	Faculty	Target	Population	Sample Slovin (10%)
IOB	Faculty ICT	Students	2064	95
ICS	ICS	Students	2497	96
UNPAZ	Faculty of Engineering	Students	1386	93
UNTL	Exact Science	Students	350	78
The Total of Population			**6297**	**363**

In addition to the sample described above, this study also does not use the probability of sampling but also uses incidental samples. An incidental sample is a technical decision to decide on the sample based on the existence of objects (people) of research, if the person seems to be the right source of data (Sugyono, 2016).

From the two sample techniques mentioned above, the results are as follows:

Table 3 Research Sampling

Institution	Faculty	Target	Sample
IOB	Faculty of ICT	Students	95
		Lecturers	2
		Leadership position	5
ICS	ICS	Students	96
		Lecturers	2
		Leadership position	3
UNPAZ	Faculty of Engineering	Students	93
		Lecturers	2
		Leadership position	4
UNTL	Exact Science	Students	78
		Lecturers	2
		Leadership position	2
The Total of Population			**384**

> *Data Collection Techniques*

In triangulation techniques, data collection is shared with all data collection techniques such as interviews, observations, inspections, or documentation of data sources. If the triangulation research technique uses accuracy, the researcher collects data at that time it seems to be validated to confirm the credibility of data and from various data sources. Triangulation according to Swan STAIN BACK (1988) Copy of Sugyono, 2016).

> *Validation and Rehabilitation Methods of Qualitative Research*

Data collection workshops are used triangulation, according to knowledge (William, 1986), this triangulation is described as a cross-validation of qualitative triangulation. "The assessment of data adequacy is very urgent with various data sources or data collection procedures." This triangulation credibility test means verifying data from many sources in various ways.

> *Data Analysis Techniques*

Data Analysis In this study using qualitative methods, the process of this method will use the following models from the mailing list and Huberman (1992): collect data, reduce data, and make summaries.

III. RESULTS

The results of this study indicate that in Pandemic Covid-19, the online platform used to carry out the online learning process is a Zoom at 30%, Google CLASSROOM at 28%, WhatsApp Group at 27%, Video Tutorial at 9%, and other platforms at 6%.

The results of the implementation of the learning process, the results show that the online class runs badly 66% and 34% say it is good. As a result of the behaviour mentioned above, the factors that influence it are such as the internet network slowing up to 36%, the platform used to be very difficult to operate at 29%, without an 8% internet package, there is no 4% information technology tool and there is no reason which is clear 8%. Other factors that influence the results above are planning, organizing programs, and using platforms, as the following results: Programs planned by academics are 33%, organized 29% that do not answer 29%, conduct 15% TOT training, the use of simple platforms is operated 14 % and ultimately have no clear reason for 9%.

The results of the use of the conference video platform using Zoom were 77%, Google Term 4%, 1% Hangout, and 8% other applications. Using the results of the conference video platform showed that it was not 52% and the one who said was good 48%.

From internet providers, the results show that during the learning process online providers, most of the welcome 34%, Telemor with 33%, Timor-Telecom with 27%, and Gardamor with 6%. The reason to choose the provider above is that the network runs well with 39%, runs well and cheaply, 32% and 29% cheaper. The package used is a 50% daily package, a weekly package $ .5.00 4%, monthly package. $. 20.00 17% and other packages 9%.

Distribution of online learning materials, the results show that during the online learning process, most of the online learning processes are explained by lecturers through a 48%conference video transmission, making modules for 30%material, making tutorials on YouTube for 19%and others 3%.

Control of the learning process by the leadership, the results show that during the online learning process, the majority answered that direct control from the leadership 41%, was controlled through the application of 31%and controlled through virtual 11%. Facilities supported by the institution, the results show that the online learning process is mostly supported by 78% institution itself 11% and there is no answer 11%.

Evaluation of learning and material presented that most of the online learning processes are evaluated by the academic department, head of the department and IQA 75%, for direct reporters 25%. Facilities presented by lectures for online learning direct explanation 55%, 23% power point and a 22% conference video.

Organizing the online learning process, the results show that most of the training before the online learning process starts 40%, making an online platform 18%, making modules for the use of 17%online learning systems, setting hosting centralized video conferences at 7%. Using the Internet, the results show that the institution facilitates the Internet to lecturers 37%, prepared 13% of lecturers from the Internet to dedicate 12%.

Rules for online learning activities, the results show that there are no rules for lecturers and students 29%, providing material in LMS 23%, providing schedules to students to participate in online classrooms with 29%, topics and answers 20%, questions and answers at LMS is only 9%. The rules for students also show that there are no rules used for teaching 13%, there are lesson rules in LMS 25%, must follow the 25% cotter video, and must be held for an 18% discussion. The rules for the conference video, results show that there are rules used for 90% of students, and there are no rules for only 10%.

The evidence presented by lectures to the institution, results show that 37% said there is a recording of recordings with other applications, 38% said that recordings are in the host, and 25% said there is no recording.

In terms of the use of LMS, the LMS use, the result shows that the more frequent use of software (67%) is compared to the premium (33%). The internet offered to part of it for its activities above, the result shows that most of the internet use has 75% of its own and dedicates to only 25% campuses.

The means that the Lecturers evaluate the students are all components of evaluation as in the presence of the classroom are also used online learning processes. As a 20% quiz, presence in LMS at 20%, working at 20%, middle exam at 20%, and 20% final exam.

IV. DISCUSSION

A. Analysis of Current Conditions

➤ The Applications Platform.
Most of the software or applications are used to support learning processes such as SEVIMA Edlink, Moodle, Google Classroom, Edmodo, and *Schoology. The* Five applications (5) mentioned, the use of Free Balance or not paid for their licenses. In addition to LMS (Learning Management System), the Video Conference (VC) was supported by the following applications: Life size, Google Hangouts, Skype, Zoom, and Free Trial Solution.

In the application of LMS and VC mentioned above, we can collaborate to discuss, provide materials, provide the homework, and quiz through LMS, but for the presentation of materials or explanations can be through VC.

➤ Current Infrastructure Conditions (Internet)
The current network provided by the provider that exists in Timor-Leste is namely, Timor-Telecom, Telemor, Telcomcel, Met Telcom or Gardamor, GlobalNet, Inet, etc. Among the suppliers, only used for sim cards to access the internet are Timor-Telecom, Telemor, and Telcomcel. And those who are not using a sim card and are dedicated are Met Telcom, Inet, GlobalNet, and others. Research findings show that 36% of the online learning process is poor, most say that the internet network is slower, 29% said that the platform used was very difficult to operate, 18% said there is no internet package, 4% said there is no clear way of Information Technology and 8% is no clear reason.

➤ Online Learning Process (Online Class)
The provision of online classrooms from the existing die sits in Timor-Leste is not yet standardized, and optimal to the online platform. In this case, we see from the data shown in this research that from the LMS more will be used than the WhatsApp group, although we know that the WhatsApp group is not the LMS. Data on D2 indicators, 2 that use WhatsApp groups 49% compared to the Google class with only 45%.

➤ Rules or Procedures.
Rules or procedures for the implementation of online classrooms that are currently being implemented without maximum. The rule for Lecturers results showed that 29% said there are still no rules for teaching through Google, 13% said there are still no rules for students to participate in the LMS and 10% said there are still no rules to conduct a video conference.

B. Define Future Strategies

➢ *The Online Uniform Platform Ideal for IES*

We see that the lecturers use WA groups as a means of conducting online classrooms, even though they know that WA is not the LMS. Therefore, we must use LMS as a Google class to carry out online classes because there are sufficient facilities like each other.

- *Stream*, in the form to facilitate the Lecturers and students to share some information related to teaching materials.
- *Class Work*, the lecturer can provide homework (HM), the work may be a questionnaire, direct question, or through a fixed term, as well as only one topic may be written.
- *People*, in the menu or the form, will be used to invite the most people to participate in the class, both as students and Lecturers.
- *Classification*, in this menu will be used for the lecturer to value according to the results of the work given by the lecturer to the students.

- *Procedure use of Google Classroom.*

In addition, the LMS will be supported by Zoom to carry out the newsletter, which requires an integrative interaction between the Lecturers and students. The force for Zoom is as follows:

- The New Meeting, menu, or form can be the host of any hare, both students and lecturers to invite participants to this class.
- Together, I'm used to if the participants enter the class from the players or holsters, they can insert the ID reunion and pass the agreement in accordance with the schedule created by the host or the player.
- Schedule, the menu is a HOST, or a lecturer can do VC so that he can inform the students that there is data and hours in the VC class. At this time, the topic, materials, data and hours, ID meeting, password, and VC applications will be mentioned.
- Share Screen, the facility was used by lecturers and students to share our land or layer for VC participants. This sharing can also be shared on the whiteboard and file documents.
- The Lecturers and students will be used to record the class during the presentation of the material and to ask and answer.
- Chat, PIDE facilities, use chat if there are any questions that cannot be addressed through language and video, due to prejudice from the network. Chat can go to everyone and can only go to some people.
- Procedure use of Zoom (video conference)

➢ *Create and Implement Online Class Rules for All Entities (Lectures, Students, and Leaders)*

In addition to the platform used for better online classrooms, however, if there are no rules used to carry out the class, the learning process will be ineffective, efficiency and quality, so the researcher presents some rules and strategies as described below:

- *Preparation and Establishment of LMS (Google Class + Zoom)*

✓ Prepare module Google Class + Zoom
✓ Train the lecturer (offline + online)
✓ Create a Google class and Zoom account
✓ Student training

- *Material Resources used in the LMS by Lectures:*

✓ Module in the classroom
✓ Materials in PowerPoint for each class
✓ List of references (book digital + journal)
✓ Presentation video

- *Activity in the LMS for Lectures:*

✓ Materials must be presented in the LMS
✓ Introduction should be made to this subject
✓ Discussion topic should be given
✓ Students need to reduce their schedules to participate in VC
✓ The doubts for response must be given by the student

- *Activity in LMS for Students:*

✓ Materials should be taken in the LMS (Google class)
✓ Homework should be done
✓ Discussions should be held in Forum
✓ To attend the video conference

- *Rule VC*

✓ Don't take young children to harm the process of video conference
✓ Don't speak words that aren't connected to the subject during the video proceedings
✓ Extinguish microphone and camera videos during the lectures or other students explaining and asking questions.
✓ Enter the video conference 15 minutes to start the class
✓ Wearing ethical clothing, to avoid harming the attention of others

- *Entity Responsible for Developing and Controlling LMS*

✓ *Lectures*

▪ Prepare module LMS (Google Class + Zoom)
▪ Providing LMS training
▪ Support the creation of Google class+ Zoom.
▪ Upload material for LMS
▪ Digitalizing copyrights results in the learning process.

✓ *Academia Division (Vice-rectors, Head of academia, Dean, and Head of Department)*
Disseminate information about the use of LMS:

▪ Use of materials,
▪ Rules for teachers and students during online learning
▪ Rules for VC)

- Verify material didactics (note speech PPT, reference of literature, video)
- Verify the student list.
- Verify the amount of class.
- Make a schedule for academic learning.
- Monitoring the online learning process.

✓ *IQA (Internal Quality Assurance)*

- Evaluate the quality of the materials.
- Evaluate the quality of the presentation of the Lecturers.

✓ *Human Resources*

- The lecturer is present.
- Evaluate Lecturers performance.

✓ *Research Centre*

- Student participation research.
- Research the use of TIC devices by students and Lecturers
- Lecturer's field research
- Lecturer's language research
- Research current and future LMS platforms.
- *The Component Evaluation*

✓ The most powerful resource used.
✓ Student participation (quantity)
✓ Sign language ethics
✓ Relevant content
✓ A language used.
✓ Presentation capacity
✓ Subject
✓ Answer capacity.

C. Challenge Finding

➢ *Internet*

The internet provided by the provider shows that the internet is slower, and caused by its online learning processes are not very good. This case was shown through the research data that during the online learning process, the results showed that the online learning process had not been poor, most responded that the internet network was slower with 36%, a platform used very difficult to operate with 29%, no internet packet with 18%, no means of Information Technology was 4% and finally there was no clear reason for 8%.

➢ *Student Participation is Not Yet Maximum*

The causes of students are not yet fully understood and socialised by lectures and people are responsible for online classrooms. The results show that during the online learning process, a question was the participation of students not yet maximum, which represents 5% of the 7 points.

D. Define Changing Strategies

➢ *Improve the Internet*

Internet providers should increase banding supply services to clients with adequate capacity according to the costs spent by clients to buy the Internet package. The issue was addressed as the data shows that during the online class, there was not good because the network walks slowly have a response from 36% of the 36% majority representing points 7.

➢ *Conduct the TOT Before Online Class Implementation*

The causes of the lectures and students will be used which are not used to LMS, such as using WhatsApp groups to distribute students' materials, because they are not fully understood and are dominated by LMS applications such as Google Class. Therefore, it is necessary to provide a TOT to the lecturer and then he can provide training to the students before starting online classes on any subject.

➢ *Make Advanced Configuration.*

Advanced configurations are needed on the online platform, such as Google Glass and reunion Zoom. Online platforms used for LMS, and video conferences need to make advanced configurations so that the platform can be used properly and in accordance with the online needs of the class.

➢ *Define Rules and Socialize for Lecturers and Students*

For online classrooms to work effectively, and efficiently and achieve quality objectives, the ideal rules need to be implemented properly. Then implementing it should also evaluate the online learning process for each subject or discipline.

➢ *Rigor Controls*

The entity that takes part in the online learning process must actively participate in controlling the implementation. Each entity must know its power to control the system so that it does not result in the misinterpretation of this honesty.

V. CONCLUSION

➢ *From the introduction, there was also a research discussion concluded that:*

- This research was carried out with the aim of creating and maximizing the use of the online platform properly in accordance with each function.
- This research can create rules that will support the implementation of online classrooms.
- The research was carried out at the Exact Sciences Faculty - National University of Timor-Lorosa'e, Engineering Faculty- UNPAZ, ICT Faculty-IOB, and ICS (*Instituto de Ciência de Saúde*). With a period of 6 months, starting from July 2021 to December 2021.
- The population and sampling of this research were 362 students, 8 teachers, and 14 leading positions. The method is used to decide many samples (students), using Slovin.

- The methodology used in this research was similar, qualitative research through gossip, data collection using triangular techniques, and validation using triangular support with crosstab between students, Lecturers, and leadership positions.
- The recommended platform LMS is Google Classroom and video conference using Zoom.
- Rules for online learning processes need to be implemented because rules thank students and lecturers to be able to conduct online classrooms well.
- The benefits of the research are directly carried out by lecturers, institutions, and students. Indirect benefits Ministerial of Higher Education Science and Culture and INCT (*Instituo de Nacional de Ciência e Tecnologias*) and relevant government.

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BIOGRAPHY

António Soares Martins. Received B.Lg and L.Gi degrees in Information Systems from the Institute Of Business (IOB) Timor-Leste , and Master in IT/IS Strategy Planning from the University of BINUS Jakarta Indonesia. He is a lecturer at the Faculty of Information and Communication Technology (ICT), in IOB Timor-Leste from 2018 to 2020 and dean of faculty ICT at IOB. In 2020 to 2022 was vice-rector I for academic affairs. Now the director of ICT Center IOB Timor-Leste. He also some of the lectures of IOB Timor-Leste. Now take his PhD in Évora University-Portugal

Gabriel Neves. Received his S.Kom in computer science in Stikom Kupang Indonesia. and in 2014 took a master's in computer in Bandung Jakarta Indoneisa. Was dean of the faculty of ICT IOB from 2012 to 2014 and was vice-rector of IOB I from 2016 to 2018. Now the director of ICT Center IOB Timor-Leste. He also some of the lectures of IOB Timor-Leste

Vasio Sarmento Soares. Received a bachelor in informatics from 2004 to 2009 from the University Stikom Kupang Indoneisa and a master Technic of informatics in Atma Jaya Yogyakarta Indonesia from 20215 to 2017. Now the vice-rector of the Institute of Business (IOB) Timor-Leste. From 2020 to 2022 Dean of Faculty ICT of IOB. Now the director of ICT Center IOB Timor-Leste. He also some of the lectures of IOB Timor-Leste