Evaluation of the Implementation of the Ideal Online Learning System in Frontier, Outermost, and Disadvantaged Regions (3T)

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Abstract: This study aims to evaluate the implementation of an ideal online learning system that has been designed using the ADDIE model in the 3T (Front, Outermost, & Disadvantaged) area in East Sumba Regency. This research method uses descriptive qualitative. This research was conducted at SDI Waingapu 2 and SMP Negeri 1 Waingapu. The subjects of this study were teachers, students, parents, and principals of SDI Waingapu 2 and SMP Negeri 1 Waingapu, as well as the East Sumba Regency Office. Data collection techniques in this study used interviews, questionnaires, observation, and document studies. The data analysis technique is qualitative data analysis which includes data reduction, data presentation, and drawing conclusions. The results show that the Ideal Online Learning System for East Sumba Regency has been implemented by SDI Waingapu 2 and SMP Negeri 1 Waingapu following the Guidelines for the Ideal Distance Learning System in East Sumba Regency by the Education Office, both by students, teachers, parents, school principals, as well as the East Sumba District Education Office. However, obstacles still hinder the implementation of online learning, such as unstable internet connections and teacher skills in utilizing learning technology. The ideal online learning system that has been developed is then used as consideration for policymakers to improve the quality of education in East Sumba Regency as one of the Disadvantaged, Frontier, and Outermost regions.

Introduction

The Covid-19 pandemic that hit Indonesia in 2020 has resulted in some interaction activities in daily life needing to be limited to prevent the spread of the virus. Interaction restrictions were also imposed in the world of education, where the Ministry of Education and Culture of the Republic of Indonesia also issued a policy regarding learning from home activities so that the learning process could continue during the pandemic (Mendikbud RI, 2020). The Government of Indonesia has also issued a Distance Learning Guide to guide schools in carrying out learning during the pandemic. These rules apply to all schools in Indonesia, including schools in East Sumba Regency. East Sumba Regency is located on Sumba Island, which is also included in the category as a Disadvantaged, Frontier, and Outermost (3T) area (Amalia, Budiono, & Andini, 2019).

Schools in East Sumba Regency have implemented several forms of learning during the Covid-19 pandemic, one of which is online learning. This form of learning is quite
diverse from one school to another because it is adapted to the conditions and facilities provided at the school (Enda et al., 2020). The results showed that the form of online learning carried out by elementary and junior high schools in East Sumba Regency was to share materials through social media such as WhatsApp and Facebook; use a Learning Management System such as Google Classroom for task collection and material sharing; communicate with parents and students via WhatsApp Group/ SMS/ Facebook; and others (Enda et al., 2020).

However, implementing online learning during the pandemic cannot be separated from obstacles. Research has shown that students, parents, and educators face these obstacles. The intended constraints include skills in utilizing information technology, learning assessment changes from direct to indirect, and online learning are considered tedious (Prawanti & Sumarni, 2020). Schools in East Sumba Regency also experience these obstacles. Obstacles include unstable internet network conditions; electrical installations that do not cover all areas in East Sumba Regency; the low availability of online learning tools for students; and the lack of skills of teachers and students in utilizing technology for learning activities (Enda et al., 2020). Therefore, developing an ideal online learning system for implementing learning in East Sumba Regency is necessary. So, through previous research, an ideal online distance learning system has been developed for East Sumba Regency.

In previous research, the development of an ideal online learning system for East Sumba Regency has been carried out using the Analysis, Design, Development, Implementation, and Evaluation (ADDIE) development model. However, the previous research only carried out 3 (three) stages, namely Analysis, Design, and Development, while the Implementation and Evaluation stages could not be carried out due to limited research time (Enda et al., 2020). This research continues the steps that have not been carried out to determine the application of the learning system and evaluate the learning system that has been developed. The purpose of this research is to implement and evaluate the learning system that has been designed. The results of this study are expected to be a recommendation for the East Sumba Regency Government to make policies related to the online learning system.

Research Method

This research uses Research and Development (R&D) research with the ADDIE development model (Analysis, Design, Development, Implementation, and Evaluation). The ADDIE model is widely used in development research because this model is general, so it can also be used in developing learning systems (Rohaeni, 2020). As explained in the introduction, this research continues the ADDIE stage, which has not been carried out in previous research, namely the Implementation and Evaluation stages. The learning system was implemented in 2 (two) schools, SD Inpres Waingapu 2 and SMP Negeri 1 Waingapu, from July to October 2021. The respondents in this study were the Head of the Education Office of East Sumba Regency; Head of the Elementary School Division of the Education Office of East Sumba Regency; Head of the Middle School Division of the Education Office of East Sumba Regency; School Principals; Elementary school homeroom teachers (grades IV, V & VI), junior high school teachers (grades VII, VIII and IX) in Mathematics, Indonesian, English, and Science; students of SD Inpres Waingapu 2 grades IV, V and VI; SMP Negeri 1 student, as well as their parents.

The description of the procedure for developing an ideal online learning system for East Sumba Regency can be seen in the following figure.
The stages of developing an ideal online learning system for the East Sumba Regency can be seen in the following table.

**Table 1. Stages of Developing A Learning System Using the ADDIE Model**

| ADDIE Stage | Description |
|-------------|-------------|
| **Analysis** | 1. Schools have implemented online learning based on guidelines provided by the government.  
2. The learning system applied has not been effective.  
3. Researchers analyzed the needs of elementary and junior high schools in East Sumba Regency regarding online learning. |
| **Design** | Design of an effective online learning system for the East Sumba District |
| **Development** | 1. Researchers developed an effective online learning system for East Sumba Regency.  
2. Researchers produced a practical online learning guide for East Sumba Regency. |
| **Implementation** | The school implements an effective online learning system for East Sumba Regency based on the guidelines that have been produced. |
| **Evaluation** | 1. Researchers evaluate the application of guidelines for implementing an effective online learning system for East Sumba Regency.  
2. Obstacles were found in implementing an effective online learning system for East Sumba Regency based on the guidelines that have been produced. |

Data collection techniques used in this research are interview, questionnaire, observation, and document study. The interview was conducted with the Head of the East Sumba District Education Office, the Head of the Elementary School Division of the Education Office of East Sumba Regency, the Head of the Middle School Division of the Education Office of East Sumba Regency, school principals, teachers, parents/guardians, and students, so that information regarding the implementation of an ideal online learning system for East Sumba District has been obtained. In this study, data collection has also been carried out using a questionnaire, namely the provision of research instruments containing statements...(Sugiyono, 2015) (with necessary changes)

**Figure 1. Learning system development procedure using ADDIE**

The stages of developing an ideal online learning system for the East Sumba Regency can be seen in the following table.
submitted to respondents to be answered (Lestari & Yudhanegara, 2015). The questionnaires in this study were addressed to the Head of the East Sumba District Education Office, the Head of the Elementary School Division of the Education Office of East Sumba Regency, the Head of the Middle School Division of the Education Office of East Sumba Regency, school principals, teachers, parents/guardians, and students. Data collection is also done through observation, which is carried out by recording and analyzing things that happen at the research site (Lestari & Yudhanegara, 2015). Research observations have been carried out to observe every process in implementing the online learning system. In this research, document studies have been carried out on student learning outcomes and policies related to implementing learning.

The research data was analyzed using several stages of qualitative data analysis, which included: 1) Data reduction, namely by summarizing, selecting the main things, prioritizing things that were considered necessary, and finding patterns from the data. A clear picture of the research has been obtained after the data reduction process has been completed; 2) Data presentation, where the qualitative data is presented in the form of brief descriptions, tables, and diagrams; and 3) Drawing conclusions supported by consistent and valid evidence. In addition, source triangulation is used in this study to test the credibility of the data by checking the data obtained from several sources (Sugiyono, 2010).

**Results and Discussion**

Based on previous research, an excellent online learning implementation guide has been produced in East Sumba Regency. In the guide, some things must be done by teachers, students, and parents, starting from the preparation, implementation, and evaluation stages (Enda et al., 2020). Based on the study results, information was obtained regarding implementing the learning system in two model schools: SD Inpres Waingapu 2 and SMP Negeri 1 Waingapu.

1) **Preparation Stage**
   
a) **Student**

The students of SDI Waingapu 2 and SMP Negeri 1 Waingapu who are research respondents have carried out all stages of preparation for online learning contained in the guide, such as (1) Providing social media accounts such as WA/ email/ Messenger/ and others; (2) Provide virtual class accounts such as Google Classroom or Edmodo or other LMS applications; (3) Providing virtual meeting accounts such as Zoom/Webinar/Google Meet and others; and (4) Downloading teaching materials in the form of teaching materials and learning videos through virtual meeting classes. Thus, the stages in the preparation of online learning can also be implemented for other schools that want to implement online learning.

The implementation of online learning needs to be supported by the availability of adequate devices and internet networks (Putria, Maula, & Uswatun, 2020). Based on the stages mentioned above, students are required to provide social media accounts such as WhatsApp Groups. Previous research has shown that WhatsApp Groups can increase student activity and achievement (Setyaningrum, 2021). This application is also used to communicate with teachers and fellow students (Hasanah, 2021) and to distribute teaching materials by educators to students (Hariani, 2021). In addition, student activity, discipline, creativity, understanding of information, collaboration, and a sense of responsibility can be trained through virtual classroom applications, virtual face-to-face applications, and social media (Dewi, Pratisia, & Putra, 2021).
b) Teacher

The results of the study, as shown in Table 2, show differences in the implementation of the preparation stages by the teachers of SDI Waingapu 2 and SMP Negeri 1. The teachers at SMP Negeri 1 Waingapu had carried out all stages of preparation for online learning well. The school supported the teachers by implementing training to improve their ability to prepare for online learning. For example, schools hold training on how to use Google Classroom, how to use Google Meet, how to make learning videos and other training related to learning. Implementing training on how to use Google Classroom and Google Meet can increase teachers’ skills in terms of strategies for implementing online learning (Fajriana, Muhammad, & Safriana, 2021).

Table 2. Number of Teachers Carrying Out the Online Learning Preparation Stage according to the Guidelines

| Statement of Teacher's Online Learning Preparation Stage | Number of teachers of SMP N 1 Waingapu who do according to the guidelines (person) | The number of SDI Waingapu 2 teachers who perform according to the guidelines (person) |
|---------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Preparing Learning Tools (Syllabus, RPP, LKPD)           | 4                                                                                    | 10                                                                                    |
| Preparing teaching materials                            | 4                                                                                    | 10                                                                                    |
| Making learning aids                                    | 4                                                                                    | 10                                                                                    |
| Preparing learning videos                               | 4                                                                                    | 8                                                                                    |
| Create a class group on Whatsapp/Email/Messenger/other Social Media | 4                                                                                    | 7                                                                                    |
| Create virtual classes using Google Classroom/ Edmodo/ other learning system management applications. | 4                                                                                    | 4                                                                                    |
| Uploading teaching materials and learning videos through virtual classes and or class groups | 4                                                                                    | 9                                                                                    |
| Create a virtual meeting account either via zoom/webinar/google meet and others | 4                                                                                    | 10                                                                                    |
| Prepare online learning attendance                      | 4                                                                                    | 10                                                                                    |
| Prepare assessment rubrics according to cognitive/affective/psychomotor assessments | 4                                                                                    | 10                                                                                    |
| Create an online learning schedule                      | 4                                                                                    | 10                                                                                    |
| Deliver online learning schedules to students and parents| 4                                                                                    | 10                                                                                    |

What happened at SMP Negeri 1 differed from what had been done at SDI Waingapu 2, where the teachers were not yet fully able to carry out all the preparation stages based on the guidebook. Several teachers have not been able to prepare the learning videos
needed for the online learning process, even though learning videos are critical media that teachers can use to provide material to students more easily (Ridha & Desyandri, 2021). Not only that, the use of learning videos in online learning can make students achieve the Minimum Completeness Criteria (KKM) because they have increased understanding (Susiyanti & Nugraheni, 2020). Therefore, the commitment of teachers is needed to improve skills in utilizing technology to provide learning videos, one of which is by actively participating in training (Puryono, 2020). Likewise, social media is a communication medium between students, teachers, and parents. The teachers at the school have not been entirely able to use these social media applications to communicate with students and parents.

c) Parents

![Percentage of Implementation of the Preparation Stage by Parents](image)

Figure 2. Percentage of Implementation of the Preparation Stage by Parents

Based on Figure 2 above, it can be seen that almost all parents of SDI Waingapu 2 and SMP Negeri 1 Waingapu students have carried out the stages of preparation for online learning by the guidelines provided. One essential step parents have taken is providing the necessary equipment for online learning, such as devices and data packages. These two aspects are essential things that students need when participating in online learning (Sholikah & Hanifah, 2021). Likewise, mentoring activities allow children to be accompanied and guided when encountering learning difficulties (Handayani, Al-Bahij, Bahar, & Iswan, 2020; Ramadanti, 2021). However, this study found that mentoring was more often done for elementary school students than junior high school students because junior high school students are easier to capture information. Thus, the stages of preparation can also be applied to parents from other schools who also want to implement online learning.

d) School Principal

Both the principals of SDI Waingapu 2 and SMP Negeri 1 Waingapu have carried out all stages of preparation for online learning contained in the guidelines that have been developed. So, these stages can also be implemented by other school principals. The principals hold a workshop for teachers on creating assessment criteria during the COVID-19 pandemic because the rubric is one of the essential aspects of the learning process. The availability of a good assessment rubric will support the implementation of an accountable, objective, transparent, and fair assessment of student learning outcomes.
(Winarni, Hambali, & Purwandari, 2021). Through teachers, principals also reach out to parents regarding learning applications used in online learning. The socialization of learning applications will help parents accompany students (Girsang, Friska, & Shalihat, 2021).

e) East Sumba District Education Office

The study results indicate that several stages of preparation have been carried out by the Education Office of East Sumba Regency, namely coordinating with the Office of Communication and Information Technology to add internet network points for schools. However, several stages have not been carried out by the East Sumba Regency Education Office, namely assisting schools in developing human resources in the IT field and allocating the funds needed for online learning. The addition of internet network points is essential at the preparation stage because one of the obstacles often found in the implementation of online learning is access to the internet network (Rigianti, 2020).

Mentoring to develop human resources is not carried out by the Education Office because these activities have been carried out independently by the school. Human resource development is essential because one of the things that need to be considered in learning during a pandemic is the resources of educators and the technology used (W. N. Gunawan, 2021). Therefore, this activity needs to be carried out by the Education Office by government policies as stated in the 4 Ministerial Decree (Menteri Pendidikan dan Kebudayaan, Menteri Agama, Menteri Kesehatan, & Menteri Dalam Negeri, 2020). The teacher competency improvement program is one of the tasks of the Education Office, which functions to improve human resources (Rahmatiah, Surya, & Hasanah, 2019).

2) Implementation Stage

a) Student

The stages of implementing online learning have been carried out well by the students of SDI Waingapu 2 Waingapu and SMP Negeri 1 Waingapu based on the online learning guide. These students interact with their teachers in virtual face-to-face learning using the Zoom Meeting and Google Meeting applications. The results show that Google Classroom, Zoom, and WhatsApp are the best choices that can be combined for the implementation of online learning (Utomo, Sudaryanto, & Saddhono, 2021). The results also show that the use of meeting zoom makes interactions between teachers and students easier (G. Gunawan, Kristiawan, Risdianto, & Monicha, 2021). Students also said through interviews that when they encountered problems in the learning process, they interacted with teachers through discussions, and learning was fascinating. Virtual face-to-face applications can positively impact and function as a discussion medium in the learning process (Prayudha, 2021). In addition, the assistance provided by parents and close relatives helped the students at the two schools to understand the learning materials. This result is in line with the statement stated in the results of previous research (Handayani et al., 2020; Ramadanti, 2021). However, some obstacles hinder the implementation of online learning by students, namely unstable internet connections and the provision of data quotas.

b) Teacher

Based on Figure 3 below, it can be seen that the implementation of online learning at SMP Negeri 1 Waingapu and SDI Waingapu 2 is quite varied. All teachers at SMP Negeri 1 Waingapu can implement all stages of the implementation of online learning well. It is different with the teachers at SDI Waingapu 2, where some teachers can still not use LMS or virtual face-to-face applications to carry out online learning. Some teachers still
distribute learning materials through social media, such as WA Group, which makes it difficult for teachers to manage assignments according to deadlines. Giving a deadline for giving assignments during a pandemic can train student discipline (Dewi et al., 2021). This difference is caused by differences in the skills of teachers in using learning technology. Therefore, teachers need to improve their skills in using technology.

Figure 3. Percentage of implementation of online learning stages by teachers

c) Parents
Almost all parents of students who were research respondents had followed the stages of implementing online learning based on the guidelines provided. However, it is still found that some parents have not provided maximum assistance to students, especially for students of SMP Negeri 1 Waingapu. The parents do not provide mentoring because students are proficient in using technology independently, so assistance is only given when students have difficulty working on questions or other learning difficulties. Nevertheless, parents still need to provide full assistance because parents fully contribute to supporting the implementation of online learning (Handayani et al., 2020).

d) School Principal
The principals have followed the stages of implementing learning well per the guidelines, for example, by monitoring and evaluating the implementation of online learning once a week. Thus, the principals of these schools have carried out their role as mentors for teachers in carrying out learning. It is intended that the learning process can be carried out effectively (Ahmadi, Suib, & Syukri, 2013). Teachers’ careful preparation needs to be evaluated to make online learning effective. Teachers need to improve their ability to manage learning, ability in learning materials, as well as in transfer knowledge to students. If the teacher's ability to increase is carried out, it will increase students' abilities in terms of attitudes, knowledge, and skills (Syauqi, Munadi, & Triyono, 2020).

e) East Sumba District Education Office
The Education Office of East Sumba Regency has followed the stages of implementing online learning based on the guidelines. The thing that has been done by the Education Office of East Sumba Regency is monitoring the online learning process. The monitoring and evaluation carried out by the Education Office can improve the quality of education. The monitoring is carried out by the Education Office of East Sumba Regency through monthly reports by teachers, monitoring by school supervisors, as well as direct visits to schools.
3) Evaluation Stage

a) Student

The students of SDI Waingapu 2 and SMP Negeri 1 Waingapu have carried out the stages of evaluating online learning by the guidelines provided. However, there are still obstacles at this stage; students cannot submit assignments due to unstable internet connections. In addition, there are still students who have not been able to access online learning outcomes through LMS. This stage is essential to determine the quality of the learning that has been implemented (Rukajat, 2018).

b) Teacher

Figure 4. Percentage of evaluation of online learning stages by teachers

Based on Figure 4 above, it can be seen that almost all SDI Waingapu 2 and SMP Negeri 1 Waingapu teachers have completed the online learning evaluation stages by the guidelines provided. However, one stage cannot be carried out optimally, namely in conveying the results of the learning evaluation to the LMS. This stage cannot be carried out because of teachers' lack of skills in utilizing existing technology to assess, return, and inform the evaluation results online. This obstacle is also experienced by teachers who apply online learning (Prawanti & Sumarni, 2020). Using the assessment provided in the LMS can help teachers carry out authentic assessments by utilizing the rubric features available on the LMS, such as in Google Classroom (Widiatsih, Wulandari, & Muarif, 2020).

c) Parents

Most of the parents of SDI Waingapu 2 and SMP Negeri 1 Waingapu students have carried out the online learning evaluation stage by the guidelines provided. However, some parents still have not accompanied students in learning evaluation activities because students have been able to use learning technology independently. However, parents must still carry this assistance out because the family is the primary key to providing education (Ratiwi & Sumarni, 2020). Therefore, parental commitment is needed in providing particular time to accompany students (Anugrahana, 2020).

d) School Principal

Evaluation is the principal's role in guiding teachers in evaluating learning activities (Ahmadi et al., 2013). School principals have also carried out the stages of evaluating online learning. The evaluation was carried out to measure the achievement of online
learning that had been carried out. The school principals have also submitted the evaluation report to the East Sumba District Education Office.

e) East Sumba District Education Office

The East Sumba Regency Education Office has also completed the stages of evaluating online learning by the guidelines. The evaluation was carried out concerning the results of monitoring and reports on online learning provided by school principals. The East Sumba District Education Office should always initiate the evaluation of the achievement of implementing online learning by schools. The Education Office of East Sumba Regency has also carried out a learning evaluation based on monitoring and learning reports submitted by school principals. Other studies also state that one of the duties of the education office is to assist local governments in evaluating and reporting on government affairs related to the education sector (Rahmatsyah & Efriza, 2022).

4) Online Learning Effectiveness

The effectiveness of online learning can be measured from several aspects, one of which is the percentage of students graduating from online learning (Hakim's & Safi'i, 2021). Based on the results of this study, it was found that almost all students at SMP Negeri 1 Waingapu had met the KKM set by the school. The students even at the school reached the KKM with an average Mid-Semester Assessment of 78.29. Thus, it can be stated that online learning has been implemented effectively.

Conclusion

The Ideal Online Learning System for East Sumba Regency has been implemented by SDI Waingapu 2 and SMP Negeri 1 Waingapu by the Guidelines for an Ideal Distance Learning System in East Sumba Regency by students, teachers, parents, school principals, and the Department of Education. However, obstacles still hinder the implementation of online learning, such as unstable internet connections and teacher skills in utilizing learning technology. The ideal online learning system that has been developed is then used as a consideration for policymakers to improve the quality of education in East Sumba Regency as one of the Disadvantaged, Frontier, and Outermost (3T) regions. This online learning system has detailed what students, teachers, parents, school principals, and government need to do in conducting ideal online learning in East Sumba Regency.

Recommendation

Based on the conclusions above, there are several recommendations for The Regional Government/Education Office of East Sumba Regency, school principals, teachers, students, and parents to improve the quality of education services in East Sumba Regency as follows:

1) The Regional Government/Education Office of East Sumba Regency needs to prepare a Follow-Up Plan (RTL) regarding the obstacles faced by the school and propose it to the Regent of East Sumba Regency as a policy maker.

2) The local government of East Sumba Regency needs to provide more places that students can use to access the internet for free, thereby reducing the cost of spending internet quotas. East Sumba Regency's local government also needs to provide technical training for managing and utilizing the wifi.

3) The East Sumba District Education Office facilitates the implementation of training on the use of learning technology such as virtual classroom applications, virtual meeting applications, online learning assessments, and others.
4) School principals cooperate with universities in increasing the frequency of training on virtual classroom applications, virtual meeting applications, online learning assessments, and others.

5) Teachers must provide short learning videos to help teachers deliver material to students.

6) Parents should build comfortable communication with students so the mentoring process can run well. In addition, parents need to motivate students, monitor children's learning at certain time intervals, monitor online learning that students follow, and actively follow information teachers share through social media.

7) Students need to be more actively involved and increase learning motivation in the online learning process to improve understanding and learning outcomes. Students also need to be more active in participating in learning and doing the assigned tasks independently.

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