Design of Electronic Module ATS Message Handling System (AMHS) as Learning Media on Learning Management System (LMS) Aviation Polytechnic of Surabaya

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Abstract

The ATS Message Handling System (AMHS) electronic module was developed using the ASSURE model which is an acronym for (Analyze Learners, State Standards and Objectives, Select Methods and Strategies, Utilize Media, Require Learners Participation, and Evaluate & Revise). ASSURE is one of the simple learning designs that can create a learning that is expected to guide educators effectively, efficiently, and systematically and attractively. The aims of this research are: 1) To build and produce an electronic Module Design product ATS Message Handling System (AMHS) which can be used as learning on the Learning Management System (LMS) of Aviation Polytechnic Surabaya, 2) To determine and test the feasibility of the ATS Message Handling System (AMHS) electronic Module Design as a learning media on the Learning Management System (LMS) of the Aviation Polytechnic Surabaya. From this study it was found that the results of the Material Expert Validation Test obtained the "Valid" and "Very Understandable" categories. Then Media Validation Test 1 obtained the "Valid" and "Understandable" categories and Media Validation Test 2 obtained the "Valid" and "Very Understandable" categories, and the Learner Response Test obtained 90.4% of the "Very Good" or "Very Feasible" category. As a result, the ASSURE model in the ATS Message Handling System (AMHS) is very worthy (effective and efficient) in the context of utilizing learning on the Learning Management System (LMS) in Aviation Polytechnic of Surabaya.

Keywords: Electronic Module, ATS Message Handling System (AMHS), Learning Management System (LMS), Content Management System (CMS) Moodle.

INTRODUCTION

The role of Information and Communication Technology (ICT) is increasingly felt in various sectors, including in the field of education. This is characterized by the increasing use of computers and internet networks in supporting learning, so that every educational institution must be able to prepare technology and data-based literacy [1]. With the use of computers connected to the internet network today, both children and adults can look for wider learning resources without having to come to the library to open books one by one [2]. One of the learning products born from ICT-based learning model is e-learning. Currently, e-learning has been developed into Learning Management System (LMS) Moodle. Moodle provides an e-learning portal feature that allows users to modify e-learning pages according to the needs of educators [3].

One of the utilizations of e-learning in the scope of higher education is in the form of a learning system in the network (SPADA). SPADA is a program of the Directorate General and Student Affairs of the Ministry of Research, Technology and Higher Education (Kemenristek Dikti) which began in 2014 with the aim of increasing equitable access to quality learning in higher education [4]. Moreover, the COVID-19 pandemic is a breakthrough for the world of education, which previously taught offline, inevitably must be done online in order to break the chain of COVID-19 spread and maintain the sustainability of the existing education system [5] [6]. Meanwhile, the concept of home-schooling has never become the mainstream in the national education discourse [7]. National Education Standards can be said to be fulfilled if the learning must be interactive, inspiring, fun, challenging, motivate students to actively participate, and provide sufficient space for initiative, creativity, and independence in accordance with the talents, interests, and physical and psychological development of students [8].

However, it is not easy for the continuity of vocational education which is hampered because the COVID-19 pandemic has hit the sector where they do field work practice (On the Job Training) [9]. On the Job Training in vocational schools is an important factor in vocational education in order to prepare skilled, expert, and competent human resources in their fields [10]. COVID-19 pandemic The Indonesian government limits mobility to its citizens and foreign nationals who want to

come to Indonesia to prevent the spread of COVID-19. Therefore, as an educational institution, Aviation Polytechnic of Surabaya has an online learning system (*courses.poltekbangsby.ac.id*) by academicians who have an account. Unfortunately, the Learning Management System (LMS) has not been optimized regarding existing teaching materials in accordance with the education and training curriculum in the field of aviation.

Based on the Regulation of the Head of the Transportation Human Resources Development Agency Number PK.09/BPSDM-2016 concerning the Curriculum of the Formation Education and Training Program in the Aviation Sector in order to improve the quality of education and training graduates in the field of aviation, it is necessary to establish a diploma program curriculum for education and training formation in the field of aviation based on Law Number 1 of 2009 concerning Aviation. The curriculum for the formation education and training program in the field of aviation as referred to is an aviation study program which includes the Diploma 3 Study Program, with the specificity of item 7) Aeronautical Communication Guide [1]. Based on the Regulation of the Head of the Transportation Human Resources Development Agency (BPSDMP) Number PK.09/BPSDM-2016 in the Diploma 3 Aeronautical Communication Guide Program section with a study period of 3 years (6 semesters, study load 111 credits), in semester 4 there is a "Mata Kuliah Keahlian Berkarya" (MKB) ATS Message Handling System (AMHS) with a total Semester Credit System (SKS) of 1 theory and 2 practices (total 3 credits) [11] .

The Air Traffic Service Message Handling System (AMHS) is a system within the Aeronautical Telecommunication Network (ATN) that will be replacing the Aeronautical Fixed Telecommunication Network (AFTN) (a worldwide network structure of communication links established under ICAO provisions, which contains written news stored and transmitted using character-oriented procedures) in exchanging air traffic services messages [12]. ATS Message Handling System (AMHS) was adapted by aviation organizations which was previously called X.400 Message Handling System (MHS), a messaging application that uses internet protocol to connect with each other [13].

Based on researcher observations and informal interviews with students (cadets) of the 6th generation Aeronautical Communication Diploma 3 Study Program with the unavailability of printed modules (conventional modules) and E-Modules (electronic modules) it caused students (cadets) to feel difficult, bored, and less motivated during learning. Moreover, when taking AMHS courses until the AMHS learning period in semester 4 ends, the AMHS conditions in the AMHS Laboratory at the Aviation Polytechnic of Surabaya cannot be used for practicum activities. This is not in accordance with the learning objectives which are in accordance with the 2 Semester Credit System (SKS) practice cannot be fulfilled properly which results in AMHS learning during semester 4 only based on theory and not knowing how the flow of sending, using, and applying the Message Handling System (MHS).

Electronic modules or E-Modules can be interpreted as a form of learning media using computers that display text, images, graphics, audio, animation, and video in the learning process [14].

The researcher has developed an electronic module that can add and expand the horizons of AMHS courses at the Aviation Polytechnic of Surabaya and in the world of work to develop further. Videos, animations, and quizzes are provided so that cadets or students can memorize AMHS material and not get bored with the material [15]. In fact, learners (cadets) can access general information on AMHS courses, interact with other learners (cadets), collect learning tasks, take quizzes and see the achievement of learning outcomes. This AMHS learning development uses the ASSURE Model which is used as a model for designing learning.

This research only focuses on the Design of the ATS Message Handling System Electronic Module on the Learning Management System (LMS) of the Aviation Polytechnic of Surabaya. It is a challenge for educators who use Electronic Modules as learning media on the Learning Management System (LMS), especially for the ATS Message Handling System (AMHS) course. This research is not to determine the learning outcomes of the Electronic Module Design developed. However, to find out how feasible or valid and positive responses to the development of AMHS electronic modules on the Learning Management System of the Aviation Polytechnic of Surabaya. Because of this, there has been no research related to the development of the ATS Message Handling System (AMHS) Electronic Module.

Therefore, this study explores the potential impact of learning strategies using electronic modules and the use of effective Learning Management System (LMS) media by students (cadets) of the 6th batch of Aeronautical Communication Diploma 3 Study Program or students who have AMHS courses in their curriculum. To fulfil the objectives of this study, the following questions were asked:

1. How is the design of the ATS Message Handling System (AMHS) electronic module as learning media on the Learning Management System (LMS) at Aviation Polytechnic of Surabaya?
2. How is the feasibility of the ATS Message Handling System (AMHS) electronic module as a learning media on the Learning Management System (LMS) of the Aviation Polytechnic of Surabaya?

Benefit of Research

The Benefit of the research conducted are:

1. Learners
   1) As a complement in independent learning and in class in discussing the ATS Message Handling System (AMHS).
   2) As a means to explore the knowledge of the ATS Message Handling System (AMHS).
2. Educators (Lectures and Instructors)
   1) Can help lecturers and instructors can be used as alternative teaching materials in the process of teaching and learning activities.
   2) Can help lecturers and instructors in the learning process by providing an understanding of AMHS material.
3. College (Aviation Polytechnic of Surabaya)
   1) Can provide support to improve the quality of education in the field of Aviation, especially in the "Mata Kuliah Keahlian Berkarya" (MKB) ATS Message Handling System (AMHS).

Problem Limitations

In this study, researchers limit it to developing learning ATS Message Handling System (AMHS) Electronic Module Design as learning media with the ASSURE Model which will be installed on the Learning Management System (LMS) of the Aviation Polytechnic of Surabaya which is web-based using the Moodle Content Management System (CMS) in the context of independent online learning.

METHODS

This Final Project Research Method includes Research and Development (R&D) with the ASSURE model initiated by Heinich and developed by Smaldino, in the book "Instructional Technology & Media for Learning". The ASSURE model is included in the Instructional Model category specifically for learning development [16]. The ASSURE model includes 6 stages (Analyze Learners Characteristics, State Standards and Objectives, Select Technology and Media, Utilize Media and Materials, Evaluate and revise) [17]. The stages of developing learning media adapted from the ASSURE model according to Smaldino are as follows:

1. *Analyze Learners* Stage. This stage is carried out to find out the characteristics of students towards Learning Styles and to find out what problems are experienced by educators when teaching students through interviews [18].
2. *State Standards and Objectives* Stage. Then, after getting the results of the characteristics of the learners and a summary of interviews with teachers, the researchers refer to the RPS and Syllabus to be more directed in building a material and learning content for electronic modules on the Learning Management System (LMS) of the Aviation Polytechnic of Surabaya.

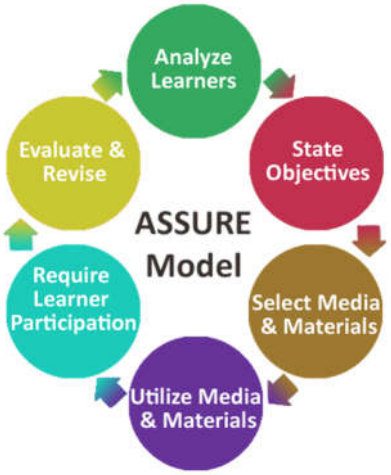


Figure 1 ASSURE Model

3. *Select Methods, Media, and Materials* Stage. Furthermore, researchers chose the methods, media, and teaching materials used from several literacies related to the ATS Message Handling System (AMHS).
4. *Utilize Media and Materials* Stage. In this stage, the Electronic Module Validity Test is carried out by Material Experts and Media Experts. Then the Learner Response Test was also carried out to find out the perspective of the electronic module that had been validated by the experts. The results of the Learner Response Test are used as a steady step to test the feasibility of the electronic Module.
5. Requires Learners Participation
   The Require learners participation stage (involving learners in the AMHS development process) about the AMHS teaching materials being developed from the Field Trial. Then the responses from learners are used to improve the AMHS electronic module teaching materials that are being developed.

However, referring to the previous problem limitation, this research only reaches the Utilize Media and Materials stage. The Analyze Learners stage is carried out by interviewing lecturers who teach AMHS courses to find out what needs and problems are during AMHS learning in semester 4 of the 6th Diploma 3 Aeronautical Communication Study Program. Furthermore, to build an electronic module that was developed, researchers distributed Learning Style Questionnaires to 23 cadets of the Diploma 3 Aeronautical Communication Study Program. The results of the Learning Style Questionnaire are used to build the dominance of what Learning Style suits students. Then at the State Standard and Objectives stage is the stage where researchers develop an electronic module which certainly requires a Course Learning

Outcome or Learning Material or "Rencana Pembelajaran Semester" (RPS) so that the electronic module developed is in accordance with the "Capaian Pembelajaran Lulusan" (CPL). Continued at the Select Methods, Media, and Materials stage, which determines what methods are used for the content of the electronic module, and what media are used to build an electronic module so that it can be used for online learning through the Learning Management System (LMS). Then Materials refers to materials and sources related to AMHS which previously referred to the "Rencana Pembelajaran Semester" (RPS) will be summarized to facilitate the development of an electronic Module. Then in the Utilize Materials stage, the Material Expert Validation Test and the Media Expert Validation Test and the Learner Response Test to the AMHS electronic Module developed by the researcher are carried out. The ASSURE model can assist educators in carrying out teaching and learning activities in the classroom by combining available technology and media.

Design of Instrument

Through the concept that has been developed, the following is the design of the AMHS Electronic Module created through the Canva graphic design application.

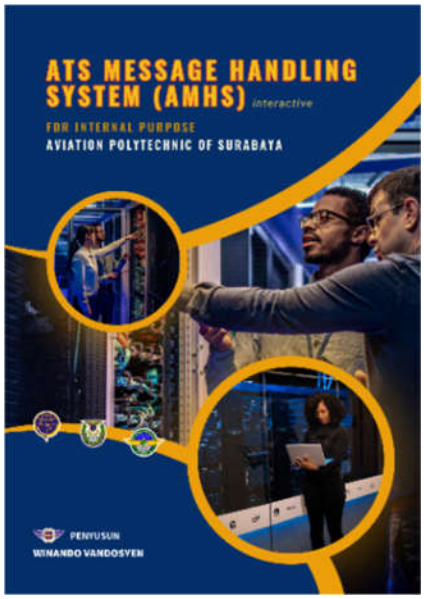


Figure 2 AMHS Electronic Module Cover Page

In Figure 2 is the AMHS Electrical Module Cover Page. When learners access the AMHS Course on the Aviation Polytechnic Learning Management System (LMS) Surabaya will appear on the Basic Rules Document Topic.

Figure 3 AMHS Electronic Module Preface Page

Then in Figure 3 is the Preface Page which contains a brief explanation of the purpose and purpose of writing and conveys thanks to those who contributed to the development of the work.

Figure 4 AMHS Electronic Module Learning Outcomes page

Figure 4 is the Learning Outcomes Page as known as “Capaian Pembelajaran Mata Kuliah”. The contents on the page are learning materials that must be studied to fulfill the Graduate Learning Outcomes as known as “Capaian Pembelajaran Lulusan”.

Instrument Component

Researchers designed the AMHS Electronic Module learning using several related Hardware and Software,

with the laptop specifications used by researchers are as follows:

1. Hardware
   Using Windows 11 64-bit Operating System, with 8th Generation Inter Core 5 Processor, RAM Capacity of 8gb, and ROM Storage of 1 TB HDD and 256 gb SSD.
2. Software
   1) Canva
      Canva Graphic Design App, which was released in 2013, with the latest version is 1.62.0.
   2) Moodle CMS
      The name of the website is Online Learning Poltekbang Surabaya with Moodle CMS, which was launched in 2002, with the current version used is Moodle LMS 4.1.2, Learning access link *https://courses.poltekbangsby.ac.id*.
   3) Heyzine Flipbook
      Website name is Heyzine Flipbook launched in 2021, Flipbook access link at *https://heyzine.com*..

Testing Techniques

To find out and test the feasibility of a material and learning media. The following are the testing stages carried out by researchers:

1. Expert Judgment Stage
   To measure the level of feasibility of materials and media developed by validating material experts and media experts, and to find out whether the material needs improvement or not before being tested [19].
2. Learner Response Test Stage
   This stage will be tested on 23 students of the 6th Diploma 3 Aviation Communication Study Program to get a response to the AMHS electronic module developed whether it is interesting and feasible to use as independent learning material.

RESULT AND DISCUSSION

This section is the result of Analyze Learners, State Standards and Objectives, Select Methods Media and Materials, and Utilize Media. From the 6 stages of the ASSURE model, it is simplified to 4 stages because it refers to the limitations of the problem in this study and the competence of Diploma 3.

Analyze Learners Result

At this stage, the results are obtained in the form of Learning Styles through distributing Learning Style Questionnaires to 23 students (cadets) of the Diploma 3 Aeronautical Communication Study Program, with the results being dominant Visual Kinesthetic and submissive Auditori. Then an interview with Mr. Ady Sumarno, S.AP., as the Lecturer of the ATS Message Handling System (AMHS) Course was conducted to find out the needs of educators (Lecturers or Instructors) for AMHS electronic modules used as learning development in the Era of the Industrial Revolution 4.0. With this interview, it is expected that in the future AMHS learning can use electronic modules by integrating the Learning Management System (LMS) for the transfer of knowledge.

State Standard and Objective Result

The AMHS "Rencana Pembelajaran Semester" (RPS) and Syllabus are used as a reference to build learning materials in the AMHS E-Module to make it more focused.

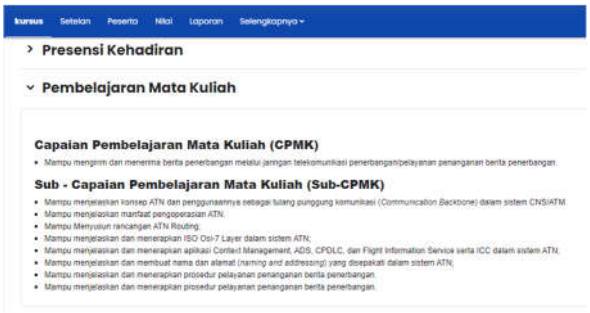


Figure 5 User Interface Learning Outcomes of Course Materials on Learning Management System

In Figure 5 is a display of Course Learning Outcomes Topics as known as "Capaian Pembelajaran Mata Kuliah (CPMK)" on the Learning Management System (LMS). When students access the AMHS course on the Aviation Polytechnic of Surabaya Learning Management System (LMS), they will be served several Topics (Sessions) such as Attendance Presence, Course Learning, and Session 1 - Session 8.

Figure 6 List of Sessions in the AMHS E-Module

In Figure 6 is the AMHS e-Module Session List to make it easier for learners when accessing learning materials in the AMHS e-Module.

Select Method, Media, & Materials Result

This stage refers to the results of the Analyze Learners Stage related to the distribution of Learning Style instruments to 23 respondents of the 6th batch of Diploma 3 Aeronautical Communication Study Program cadets. The method used is tutorial because the material in the ATS Message Handling System (AMHS) Course is the dominant procedure for operating a tool, creating a message, sending a message, and distributing a message through the AMHS equipment.

Figure 7 Example of a Tutorial Section in an AMHS E-Module

Then the media used is in the form of a Learning Strategy with the AMHS Electronic Module product which will be installed on the Learning Management System (LMS) of the Aviation Polytechnic of Surabaya. The media used to create this Electronic Module is the Canva graphic design application to select the electronic Module design template and develop the design according to the creativity and effectiveness of the electronic Module display. The selection of attractive templates makes learners who access the electronic module interested in reading it.

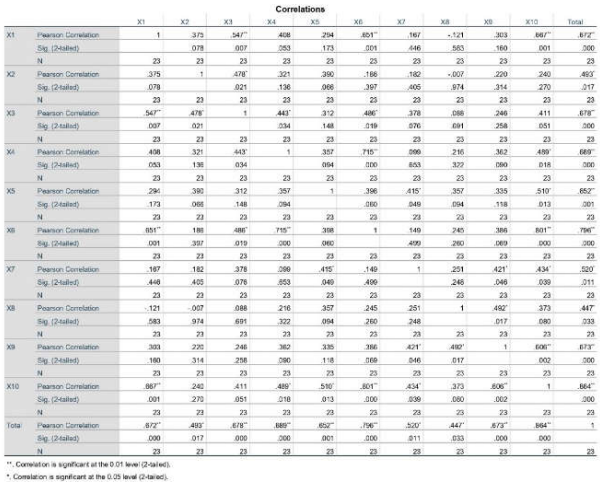
Utilize Media Result

The Material Expert Validation Test was directly assessed by Mr. Ady Sumarno, S.AP., as the lecturer for the ATS Message Handling System (AMHS) course with the test results about recommends that the Electronic Module that has been installed on the Learning Management System (LMS) including the development of AMHS learning in terms of direct practicum also needs to be considered in order to improve the materials and Electronic Modules that have been developed on the Learning Management System (LMS).

In other wise, the result related to Validation testing by Media Expert 1, namely Madam Dr. Laila Rochmawati, S.S., M.Pd., who stated that the Electronic Module developed on the Learning Management System (LMS) of Aviation Polytechnic of Surabaya is feasible to use but with revisions according to the suggestion that the Electronic Module that has been installed is given a Manual Book for users, admins, and lecturers.

Last bu not least, Madam Lady Silk Moonlight, S.Kom., M.T., as the Media Expert Validator 2 tested the Electronic Module developed by researchers on the Learning Management System (LMS) of Aviation Polytechnic of Surabaya. The results of the Media Expert 2 validation test stated that the electronic module needs to add a bibliography with IEEE style.

Then the final stage is the Learners Response Test with 23 respondents from the 6th batch of cadets of the Diploma 3 Aeronautical Communication Study Program. The questionnaire distributed to cadets is an adaptation of the National Education Standards Agency as known as "Badan Standar Nasional Pendidikan (BSNP)" related to the Learner Response Test to Electronic Modules [20]. The Validity Test and Reliability Test of the Learner Response Questionnaire were carried out before obtaining data related to Learner Responses. The following are the results of the Questionnaire Validity Test obtained using the IBM SPSS 26 application.



Correlations

		X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	Total
X1	Pearson Correlation	1	.375	.547**	.408	.294	.851**	.167	-.121	.303	.667**	.672**
	Sig. (2-tailed)		.078	.007	.053	.173	.001	.446	.583	.160	.001	.000
	N	23	23	23	23	23	23	23	23	23	23	23
X2	Pearson Correlation	.375	1	.478*	.321	.390	.186	.182	-.007	.220	.240	.493*
	Sig. (2-tailed)	.078		.021	.136	.066	.397	.405	.974	.314	.270	.017
	N	23	23	23	23	23	23	23	23	23	23	23
X3	Pearson Correlation	.547**	.478*	1	.443*	.312	.486*	.378	.088	.246	.411	.678**
	Sig. (2-tailed)	.007	.021		.034	.148	.019	.076	.691	.258	.051	.000
	N	23	23	23	23	23	23	23	23	23	23	23
X4	Pearson Correlation	.408	.321	.443*	1	.357	.715**	.099	.216	.362	.489*	.689**
	Sig. (2-tailed)	.053	.136	.034		.094	.000	.653	.322	.090	.018	.000
	N	23	23	23	23	23	23	23	23	23	23	23
X5	Pearson Correlation	.294	.390	.312	.357	1	.396	.415*	.357	.335	.510*	.652**
	Sig. (2-tailed)	.173	.066	.148	.094		.060	.049	.094	.118	.013	.001
	N	23	23	23	23	23	23	23	23	23	23	23
X6	Pearson Correlation	.851**	.186	.486*	.715**	.396	1	.149	.245	.386	.801**	.786**
	Sig. (2-tailed)	.001	.397	.019	.000	.060		.499	.260	.069	.000	.000
	N	23	23	23	23	23	23	23	23	23	23	23
X7	Pearson Correlation	.167	.182	.378	.099	.415*	.149	1	.231	.421*	.434*	.520*
	Sig. (2-tailed)	.446	.405	.076	.653	.049	.499		.246	.046	.039	.011
	N	23	23	23	23	23	23	23	23	23	23	23
X8	Pearson Correlation	-.121	-.007	.088	.216	.357	.245	.251	1	.492*	.373	.447*
	Sig. (2-tailed)	.583	.974	.691	.322	.094	.260	.248		.017	.080	.033
	N	23	23	23	23	23	23	23	23	23	23	23
X9	Pearson Correlation	.303	.220	.246	.362	.335	.386	.421*	.492*	1	.606**	.673**
	Sig. (2-tailed)	.160	.314	.258	.090	.118	.069	.046	.017		.002	.000
	N	23	23	23	23	23	23	23	23	23	23	23
X10	Pearson Correlation	.667**	.240	.411	.489*	.510*	.801**	.434*	.373	.606**	1	.864**
	Sig. (2-tailed)	.001	.270	.051	.018	.013	.000	.039	.080	.002		.000
	N	23	23	23	23	23	23	23	23	23	23	23
Total	Pearson Correlation	.672**	.493*	.678**	.689**	.652**	.786**	.520*	.447*	.673**	.864**	1
	Sig. (2-tailed)	.000	.017	.000	.000	.001	.000	.011	.033	.000	.000	
	N	23	23	23	23	23	23	23	23	23	23	23

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Figure 8 Results of the Learner Response Questionnaire Validity Test

In Figure 8 it is proven that the questionnaire used is valid because the significance value obtained is less than 0.05 [21].

Table 1 Reliability Test Results of Learner Response Questionnaire

Reliability Statistics	
Cronbach's Alpha	N of items
0,851	10

It is proven that In Table 1, that the questionnaire used is reliable with a Cronbach's Alpha value of more than 0.6 [21]. After carrying out the Validity Test and Reliability Test, then proceed to the final stage, namely the Learner Response Test. From the results of the Learner Response Test, the overall score of the answers is 1040 out of a maximum total score of 1150. And then, The data obtained previously will be calculated as the average score (Mean) of all research respondents using the IBM SPSS 26 application and obtained the following results:

Table 2 Results of Mean Questionnaire Score

Report		
Total		
Mean	N	Std. Deviation
45.2174	23	3.82523

Total Average Score result obtained is 45.2174 ~ 45.2 from the Total Maximum Score is 50. Then calculated using the following formula with the aim of knowing the response of the Likert scale answer index.

$$P = \frac{\text{Total Average Score}}{\text{Total Maximum Score}} \times 100\%$$

$$P = \frac{45.2}{50} \times 100\% = 90.4\ \%$$

Table 3 Likert Scale Answer Index

Value	Assessment Criteria
0%-19,99%	Strongly (Disagree, Bad, Less, Very Bad)
20%-39,99%	Not (Agree, Good, Feasible) or Less (Agree, Good, Feasible)
40%-59,99%	Moderate or Neutral
60%-79,99%	Agree, Good, Like, Feasible
80%-100%	Strongly (Agree, Good, Excellent, Like, Feasible)

In accordance with Table 3 of the Likert Scale Answer Index, 90.4% is included in the assessment criteria of Strongly Agree or Very Feasible as known as "Sangat Layak".

CONCLUSION

Summary

Based on the results of the Material Expert and Media Expert Validation and the Learner Response test carried out during the development process, it can be concluded as follows:

Table 4 Material and Media Validation Test Conclusion

No	Expert Validation Test	Item	
		Materials	**Language**
1	Material Expert Validation	Valid	Very Understandable
2	Media Expert Validation 1	Valid	Understandable
3	Media Expert Validation 2	Valid	Very Understandable

Table 5 Material and Media Validation Test Conclusion

No	Learner Response Test	Persentase	Criteria of Value
1	Interest	90.4%	Very Feasible as known as "Sangat Layak"
2	Materials		
3	Language		

Based on Table 4 and Table 5 above, it can be concluded as follows:

1. The development of the AMHS electronic module on the Learning Management System (LMS) at Aviation Polytechnic of Surabaya is able to fulfill technology-based AMHS learning in order to increase students' interest in learning actively independently.
2. The development of the AMHS electronic module on the Learning Management System (LMS) at Aviation Polytechnic of Surabaya is able to become one of the references and supports in learning ATS Message Handling System (AMHS). In accordance with the questionnaire distributed, the results obtained were 90.4% with a Likert scale answer index and included in the Very Good assessment (80%-100%) from these results it can be concluded that the development of the AMHS electronic Module is Very Feasible to use in the context of online and offline learning at the Aviation Polytechnic of Surabaya and is considered to have a positive impact on online learning through the Learning Management System (LMS) Very Good.

Suggestion

Suggestions from researchers for further product development are:

1. Updating the Syllabus and Curriculum as well as the Semester Learning Plan (RPS) in the ATS Message Handling System (AMHS) Course by the Diploma 3 Aeronautical Communication Study Program to suit the needs of the field.
2. Adding more clarified material by looking for other latest literature sources in accordance with the conditions and technological developments in the field and paying attention to the quality of media that is more interactive so that students (cadets) can focus more on the material and be more enthusiastic in participating in teaching and learning activities. This can be done by consulting with existing Material Experts and Media Experts.
3. Conducting an Effectiveness Test on the development of the AMHS electronic Module on the Learning Management System (LMS) Aviation Polytechnic of Surabaya to measure student learning outcomes.

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