

Development of e-Modules Entrepreneurship

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Abstract— This research was aimed to develop media in the form of e-modules for entrepreneurship lectures. The e-module was developed using the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). (1) Analyze, conduct analysis related to system requirements and curriculum analysis. (2) Design, carrying out the systematical design of modules and carrying out the stages of system design, database and interface. (3) Development, i.e. compiling module content (4) Implementation, inserting module content into Moodle which can be seen at the website of e-learning of Universitas Pendidikan Ganesha in the entrepreneurship course section (5) The final stage is Evaluation, which is conducting an e-module formative test. The formative test was aimed to determine the effectiveness of the entrepreneurship e-module used in lectures. In addition, students responses as the e-module users were described.

Keywords—e-module; entrepreneurship; moodle.

I. INTRODUCTION

Modules are one of the common teaching materials used by education practitioners. Modules can guide students to learn independently because they are equipped with complete material, illustrations in the form of pictures or tables and evaluation into the learning objectives. The development of the digital era turned out to be a change in teaching modules. Nowadays, teaching modules are integrated into technology so that the printed modules are transformed into modules in electronic form. The electronic module (e-module) is developed from printed module into a digital form [1].

E-module is a form of module digitalized and packaged more interactively. E-modules are also called media for independent learning since it has been equipped instructions for self directed learning. E-modules can be filled with material in pdf format, videos and animations that are able to make the user actively learn by themselves. The characteristics of a good e-Module are as follows:

1. Self Instructional: through the module, someone is able to learn by himself, do not depend on other parties.
2. Self Contained: all learning material needed to achieve one competency unit or sub-competencies are comprehensively included in one module.
3. Stand Alone: The module that is developed does not depend on or not must be used together with other learning media.

4. Adaptive: The module has a high adaptive power to development science and technology.
5. User Friendly: The module includes clear instructions that are easily understood by the users as well as being helpful so the user will find it convenient to use the module.

One of the advantages of using e-modules is its superiority in presenting illustrations in the form of videos. Some materials provide illustrations with the help of videos to help students in understanding lecture material such as entrepreneurship course so the time allotment will be more effective. Entrepreneurship course is a subject that study the basics of entrepreneurship, entrepreneurial character competencies, communication, and interpersonal competencies, creativity and innovation competencies, competence in selling products or services, business management competencies, organizational aspects, and business management. This subject is very important to be mastered by students so that students have an entrepreneurial skills so they can start a businesses and open employment.

Learning with e-modules can help students in understanding the material so that student learning outcomes will improve. This is consistent with research conducted by reference [2], that e-modules have a positive and significant effect on learning outcomes and motivation. Therefore, it is important to develop e-modules on entrepreneurship courses.

II. METHOD

ADDIE stands for Analyze, Design, Develop, Implement and Evaluate, which is a concept for research and development design. In the present study, the ADDIE concept was applied for constructing performance-based learning. One of the basic tenet in the application of ADDIE is that intentional learning should be student centered, innovative, authentic, and inspirational. Because ADDIE is a set of process that serves as a guiding framework for complex situations, it is considered as one of the the most effective tools for research and development design. Thus, it is appropriate for developing educational products and other learning resources [3]. ADDIE model is a simple framework that is useful for designing learning where the process can be applied in a variety of settings because of its general structure [4]. Reference [5] stated that the ADDIE model is a generic

learning design model that provides an organized process in the development of learning materials that can be used both for the development of traditional learning (face-to-face in class) as well as online learning. ADDIE model is an everyday term used to describe a systematic approach [6].

Gustafson and Branch [7] use The ADDIE Model as a major organizing principle, but no explicit citations are given. Thus, the use of ADDIE model is essentially the creativity of each researcher to adopt and to adapt this model to meet their respective needs [8].

This research is a research and development design. The model used to develop this e-module is the ADDIE model. (Analyze, Design, Development, Implementation, evaluation).

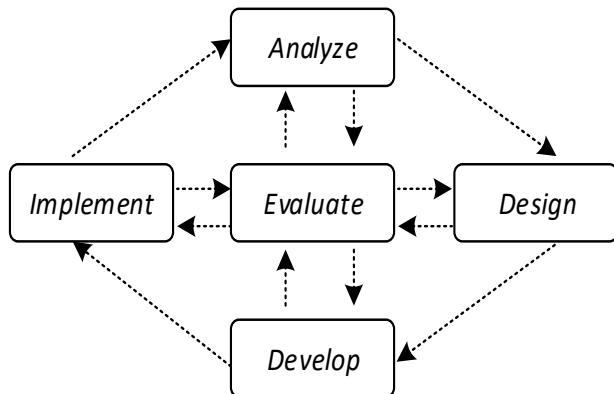


Fig. 1. ADDIE Model

A. Analyze

The analysis phase generally carried out two activities, namely: content requirements analysis and software requirements analysis.

- 1) Analysis of Content Requirements includes analysis of course characteristics conducted by analyzing the syllabus of entrepreneurship courses.
- 2) Software Requirements Analysis includes functional requirements analysis, nonfunctional requirements analysis, and system analysis that is needed and able to be done by Moodle software applications.

B. Design

The planning phase included module design, e-module development design, and software development design (Fig. 2).

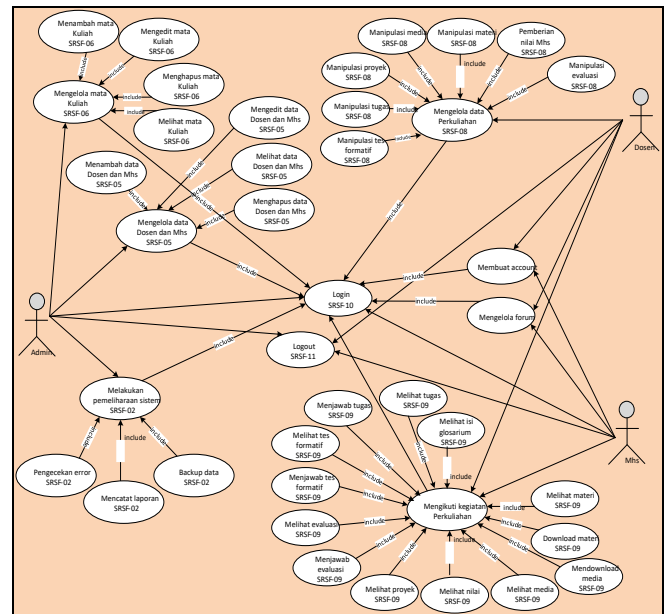


Fig. 2. Use case e-modules

C. Development

The development phase consisted of material preparation, evaluation, Moodle development, and learning support features needed by lecturers and students. The results at this stage of development was a product of teaching modules and e-modules that have been structured according to applicable competencies.

D. Implementation

This e-module was implemented on computer hardware 2 GB RAM, Monitor with 1024 x 728-pixel resolution, Windows 7.

E. Evaluation

Only formative evaluation was conducted aimed to evaluate the effectiveness and efficiency of the media. The formative evaluation consists of one to one evaluation of experts (content experts, learning design experts, and media experts). Instruments needed during the formative evaluation process were presented in Table I.

TABLE I. DATA COLLECTION METHODS AND INSTRUMENTS FOR FORMATIVE EVALUATION

Data type	Data source	Method	Instrument
Formative Evaluation Data	Judges/ Expert	One to one judges/ expert Evalua-tion	Content & language questionnaire, design questionnaire, questionnaire Media

III. DEVELOPMENT RESULTS

Computer assisted instruction (CAI) is a combination of hardware and software capabilities in the form of interactive instructional technique that can be used to assist learning process. CAI method allows the learning process between teachers and students become more interactive, interesting, effective, and efficient. *Computer-Assisted Instruction (CAI)* is the use of computer to present training methods including simulations, games and tutorials. With CAI presentation of materials can be presented through the use of graphics, text, video and audio enhancements. Because CAI can increase the users' experience and engagement, it is often used as a tool to facilitate the training.

This e-module has been published on Undiksha e-learning with the address <https://elearning.undiksha.ac.id> can be seen in Figure 3.



Fig. 3. The interface of Undiksha e-learning

To attend online lectures or access material on e-modules, each student must have a username and password in Undiksha SSO (single sign-on). The username and password on this SSO will be used to login all applications that have been owned by Undiksha including one of them is Undiksha e-learning web. The display when a student successfully logged in to Undiksha e-learning can be seen in Figure 4. After a successful login, students will be confronted with some lecture material. Then students must choose one of the courses they wish to attend.

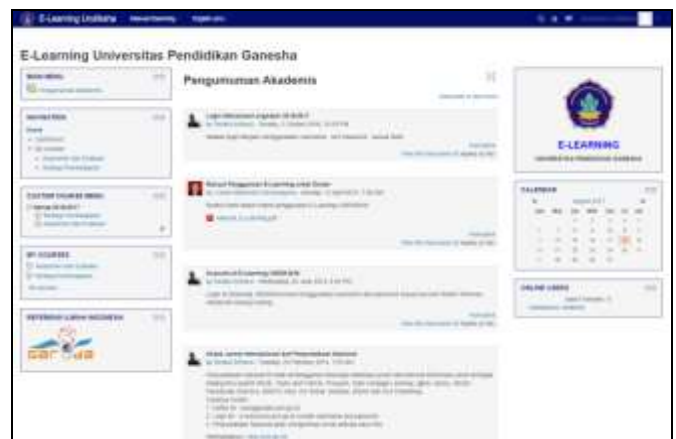


Fig. 4. Homepage (login as a student)

After students choose the entrepreneurship course, several facilities and learning activities will appear (Fig. 5). In accordance with the elaboration on the syllabus, Entrepreneurship courses are divided into five (5) learning activities, with the following material details:

- 1) Learning activities 1: Entrepreneurial character competence.

In learning activity 1 there are several materials, including:

- a) Chapter 1: The character of a successful entrepreneur, Dream
- b) Chapter 2: Character of Entrepreneurship Success, Self Motivated
- c) Chapter 3: Character of Successful Entrepreneurs, Problem Solving
- d) Chapter 4: Character of Successful Entrepreneurship, Assertiveness

- 2) Learning activities 2: Communication and Interpersonal Competencies.

In learning activity 2 there are several materials, including:

- a) Chapter 5: Communication and Interpersonal Skill, Communication
- b) Chapter 6: Communication and Interpersonal, Leadership
- c) Chapter 7: Communication and Interpersonal, Motivation

- 3) Learning activities 3: Creativity and Innovation Competencies.

In learning activity 3 there are several materials, including:

- a) Chapter 8: Developing Innovation and Creating Superior Products and Services
- b) Chapter 9: Establishing Innovation and Creating Superior Products and Services
- 4) Learning activities 4: Competence in Selling Products or Services.

In learning activity 4 there are several materials, including:

- a) Chapter 10: Selling Products to Retail Consumers
- b) Chapter 11: Selling Products to Corporate Consumers
- 5) Learning activities 5: Business Management Competencies

In learning activity 5 there are several materials, including:

- a) Chapter 12: Personal Financial Management
- b) Chapter 13: Evaluating and Controlling Business
- c) Chapter 14: Business Financial Management
- 6) Learning activities 6: Aspects of Organizational and Business Management.

In learning activity 6 there are several materials, including:

- a) Chapter 15: Aspects of Business Organization and Management

- 4. Students work together to gather and manage information for solving the problems;
- 5. The evaluation process is carried out continuously;
- 6. Students periodically reflect on the activities that have been carried out;
- 7. The final product of learning activities will be evaluated qualitatively; and
- 8. The learning process has a generous space for mistakes and change.

Some of the advantages of the PjBL model are:

- 1. Promote students' learning motivation to learn, encourage their ability to do important work, and their need to be appreciated.
- 2. Improve problem solving skills.
- 3. Promote students active role in solving problems successfully.
- 4. Promote collaboration.
- 5. Encourage students to develop and practice communication skills.
- 6. Improve students' skills in managing resources.
- 7. Provide learning experience for students in organizing projects, proposing time allocations, and in managing resources for completing the project.
- 8. Provide learning experiences that involve students in solving real-life problems.
- 9. Involve students to learn to take information and demonstrate knowledge possessed, then implemented with the real world.
- 10. Create enjoyable learning atmosphere thus, students and educators enjoy the learning process.

The PjBL steps include (1) problem orientation, (2) compiling project plans, (3) conducting investigations, (4) planning reports, (5) report/project presentations, (6) evaluations. In accordance with the concept of Computer Assisted Instruction (CAI) used in this e-module concept, every process in the e-module must be carried out before proceeding to other processes. For example, the evaluation process can be done if the student has read the material first.

Problem orientation is an activity to provide early-onset based on problems.



Fig. 5. Entrepreneurship e-module

Entrepreneurial e-modules were developed using the project-based learning (PjBL) learning model. PjBL has the following characteristics, namely:

- 1. Students has to make decisions about a framework;
- 2. There are problems or challenges identifeid by students;
- 3. Students determine solutions to problems or challenges that are already identified;



Fig. 6. Problem orientation



Fig. 9. Investigation activities

A. Arrange Project Plan

Preparing a project plan is a preparatory activity to prepare a group project. At this stage, students are also asked to arrange groups on e-modules online (Fig. 8).



Fig. 7. Stage of preparing the project plan

C. Planning Reports

At this stage, the report format is given and students are required to upload project reports in groups.

D. Report / Project Presentations

Report presentation activities are group activities demonstrating the projects that have been made.



Fig. 10. Planning report



Fig. 8. Display stage of forming groups

B. Investigation Activities

Investigation activities are student activities to read lecture material independently. At this stage, several chapters of materials will be displayed.

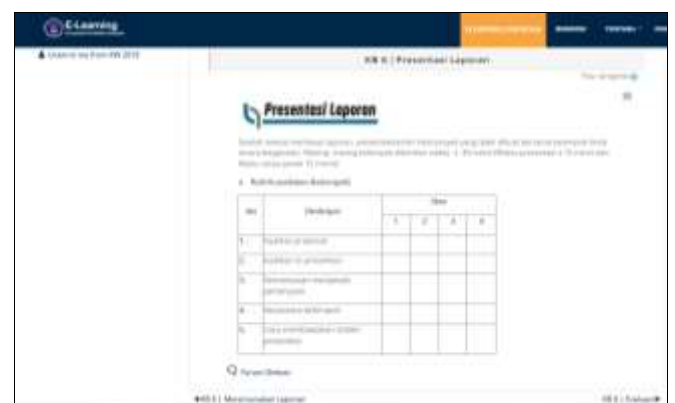


Fig. 11. Project presentation

E. Evaluation

In evaluation activities, students are required to answer evaluation questions individually. The form of the problem given is an essay problem.



Fig. 12. Evaluation (Essay Test)

The Entrepreneurship e-module is also equipped with Forum facilities. Students can discuss with lecturers related material that is not yet understood through this forum. In addition, students can also communicate with each other to streamline the learning process (Fig. 13).



Fig. 13. Forum discussion

Based on the results of the formative test analysis with the Gregory formula which includes content expert test,

media, and learning design, the Gregory score was obtained for each expert test (Table II).

Table II. Formative Test Results

Formative Test	Gregory Coefficient	Criteria
Expert Test Content	0,9	Very high
Media Test	0,9	Very high
Learning Design Test	1	Very high

IV. CONCLUSION

In conclusion, The Entrepreneurship e-Module was mapped into 6 learning activities, where each learning activity consists of one or more teaching materials. This e-module system has been published on Undiksha e-learning with the address <https://elearning.undiksha.ac.id>. The result of formative test which consist of the content expert test, media, and learning design get a very high percentage of each value.

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