

# THE DEVELOPMENT OF ACCOUNTING INFORMATION SYSTEM MODUL LEARNING IN UNIVERSITAS PERSADA INDOONESIA YAI

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## Abstract

The development of accounting information systems learning module is very important to help teaching process. Therefore the Persada Indonesia YAI is trying to develop it. This module is using ADDIE model, Gerlach and Ely, J.E Kemp, Bella H Banathy, MPI model, Borg and Gali, Dick and Carey model. The result area Students are obtaining learning resources for self-study, Students are more eager to learn, because already available SIA print module, Student learning outcomes have increased finally. Based on the results of interviews with lecturers SIA module developed to give a positive impact for lecturers and students. Keyword: AIS, Module model

## I. INTRODUCTION

### A. Background

The government and the community of educational service user, toward the provision of higher education quality, and easily accessible. Therefore, the process of education as a vehicle to realize the learning atmosphere and the learning process of learners in developing the potential of spiritual power of religious, self-control, personality, intelligence, noble character and skills needed him; society, nation and religion can be improved quality and quantity. [1]

The University as a provider of higher education is an institution that can keep up with the times. Higher education is education at a higher level than middle school education in college and university education. [2] The purpose of higher education according to the government regulation is to prepare students to become members of the community who have academic and professional skills that can apply, develop and create science, technology and art

Develop and disseminate science, technology and art and optimize its use to improve people's lives and enrich the culture

The role of college indispensable in the process and dynamics of sustainable development now and in the future. Informatics Engineering Study Program UPI YAI, which is one of the study program that has active role in developing science, technology, and has big contribution in the intellectual life of the nation, overcoming various problems of the nation, improving people's welfare, and maintaining the environment and culture. An effort to improve the quality of learning in the course of SIA is not only influenced by the factors of lecturers, students, and lecture facilitation facilities, but one of the factors is teaching materials. The availability of lecture materials in Informatics Engineering Study Program UPI YAI not yet meet needs student's

This Roles are not only using conventional learning method but also using an innovative but too with contextual with the condition and needs to the existing environment. This is of course, that the provision of teaching materials SIA for students if this step can run well with the aim curriculum in the SIA courses and institutional for the organizational goals will be able well achieved. For students as subject of course study will gain experience, attitude, and skill relevant to life in society.

One form of teaching materials in college is a module. The teaching materials are using module could be a source learn to meet this function. Are module could function as source learning process to meet function that the module must meet certain criteria. conducted by Padmapriya [3], namely:

*The students treated with the modular approach achieved the mean scores of those students taught through the activity oriented method. The study reveals the effectiveness of self-instructional module on achievement among secondary school students and the administrators must take necessary steps to give special training to teachers in developing modular packages.*

That students who are learning by using print modules have an average score higher than the average grade of students taught using method-oriented activity. This means that the module can help students in improving achievement. Other research conducted by Dhamija, N. and Kanchan [4] states that:

*Self-Learning Modules create an effective learning environment for the learners to learn. These contain the answers of all possible queries, confusions and questions that may come in the mind of the learner at the time of learning. These also provide immediate feedback on the performance of the students. This also helps to maintain high interest level and sufficient motivation for the learners. These Self Learning Modules have self-motivated and Self-directed Self-motivated and Self-motivated learning tools.*

Learning Module will be able to create an effective learning environment for students to learn. The module also provides direct feedback on performance of the students. Furthermore, the module can also help to incidence of high interest and motivation enough for the students, form self-learning module has enriched features such as scent clear, *Self-directed, Self-motivating and Self-evaluation* that helps meet the needs all students. Developing a module is very important to identify the knowledge, skills required and solve problems, and manage information.

Based on the two results of this study can be argued that the use of standardized and scientifically developed modules, especially in the learning of SIA courses, greatly assist students in achieving the required competencies in the course.

## **B. Formulation Problem**

Formulation problem research development is as following this:

1. How learning System Information Accounting Major Technique Informatics at Universitas Persada Indonesia YAI?
2. How can inflate a print modules learning system information accounting (SIA) effective?
3. How the module effectiveness on using Accounting Information System (AIS) developed in improving student learning outcomes Universitas Persada Indonesia YAI?

## **II. REFERENCES THEORETICAL**

### **a. Understanding Learning and Learning**

Learning is a process of behavior change as a result of experience. Hilgard defines learning as "*Learning is the process by which an activity originates or changed through training procedures.*" [5]

Yeakam and Simpson express the definition of learning where "*Learning is guided by purpose and consists in living and doing, in having experiences and seeking to understand the meaning of them.*" [6] Learning is directed by purpose and related to life and doing, by having experience and trying to understand the search for meaning over the experience. According to Seagoe, as quoted Snelbecker learns is how behavior is changed through experience (*how behavior is changed through experience*). [7]

Miarso formulates four references contained in the definition of learning, namely (1) a change or new capability; (2) new changes or capabilities do not last for a moment; they are permanent and can be stored; (3) new changes or capabilities occur due to business; and (4) the new change or capability not only arises because of growth factors. [8]

Physical model is a model in the physical form (product). According to Gustafson and Branch in categorizing the model, there are nine characteristics that need to be considered, it is described in the following table:

Table 2.1. Comparison of Learning Development Model [9]

Characteristics of Model Selection	Class Oriented Model	Product Oriented Models	System Oriented Model
Development results	Hours of instruction	Independent learning or learning packages	A series of lessons or curriculum
Resources used for development	Very low	High	high
Team or individual effort	Individual	Usually a team	Team
Learning development skills or experiences	Low	High	High or very high
Emphasis on the development or selection of learning materials	Selection	Development	Development
Quantity of start-up analysis and needs assessment	Low	Low to medium	Very high
The complexity of media delivery technology	Low	Medium to high	Very high
Quantity of trial and revision	Low to medium	Very high	Medium to high
Quantity distribution and distribution	There is no	High	Medium to high

Gustafon and Branch categorize the design model of learning into three categories related to its use, namely: 1). *Classroom-Oriented Models*, 2) *Product-Oriented Models*, and 3) *System-Oriented Models* [10].

Lots of models in the development of learning and instructional design that its use is tailored to the needs and conditions of learning, including:

**1) Model ADDIE**

According to Gagne, a model of instructional design that shows the basic stages of the design of a simple learning system that is easy to learn is the ADDIE model. [11] This model appeared in the 1990s developed by Reiser and Mollenda. One of the functions of the ADDIE model is a guide in building the tools and infrastructure of effective, dynamic learning programs and supporting the learning performance itself. ADDIE Model consists of five phases, namely Analysis, design, *Development*, Implementation and Evaluation, which represent a guidelines are dynamic and flexible as well as receive feedback on an ongoing basis and continued for as build learning materials. The ADDIE model cycle can be described as follows:

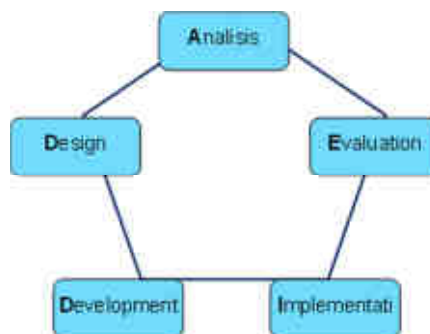


Figure 2.1. Model ADDIE.

- a) *Analysis*, which is doing *needs assessment* (assessment of needs), identify problems (needs), and perform analysis tasks (*task analysis*). The analysis stage is a process of defining what is studied by students. Also what the student using, Are some activities, such as me doing needs analysis, identify problems (needs), and an analysis. Therefore, the output will have a result is the form of characteristic or student profiles, identify gaps, identify needs a detailed task analysis right on needs. Here are some questions addressed in the analysis phase: Who are students and how are their characteristics? , Identify the output behavior of the students? , What restrictions apply to learning? , How to deliver existing material? , What kind of tools is considered in learning?
- b) *Design*, design deals with the object of assessment instruments, exercises and content, subject analysis, lesson plans and selection of instructional media. In this phase must be systematic and specific. Systematic means methods in identifying, developing, and evaluating a set of strategic planning to achieve the learning objectives. Some steps are taken in this phase: (1) documenting the learning project, both visual and technical from the design strategy; (2) using learning strategy in accordance with the expected output in a cognitive, affective, and psychomotor scope; (3) create modules; (4) make interface design and estimate user capabilities in the system; (5) create a proto type of the system; and (6) using a particular design.
- c) *Development*, development is the process of realizing the draft design into reality or a product that can be used. This phase feeds phase developers of designer and incorporate important materials have made design phase. The task of the designer is to assume right and / or to incorporate existing information systems. Describes the technical development of a predefined learner and method.
- d) *Implementation* (execution), implementation is a concrete step to implement the learning system being created. That is, at this stage all that has been developed in *install* or set in such a way in accordance with the role or function that can be implemented.
- e) *Evaluation*, which is a process to see if the learning system being built is successful, in line with initial expectations or not. The evaluation stage can occur in each of the four stages above. Evaluation occurring in each of the above four phases is called formative evaluation for revision needs. Steps for developing the ADDIE model are finally reviewed based on formative evaluation results aimed at making improvements.

The advantages of the ADDIE model, among others: (1) the description seems complete and systematic; and (2) in its development involves expert judgment, so that prior to testing in the field of learning devices has been revised based on the assessment, advice and input of experts. The weakness of the model is irrelevant for large-scale or widespread development. Assessments made in this model are only done at the end of the lesson and have no sustainability. The ADDIE model is good for guidance in building the tools and infrastructure of effective, dynamic learning programs and supporting the learning performance itself.

### **Accounting information system**

Accounting information system (SIA) is an information systems that deal with all things pertaining to accounting. Accounting information system has six interrelated components and interacts to achieve the goal. Romney and Steinbart explain the six components of SIA as follows: Accounting information system is defined by Bodnar and Hopwood as *An Accounting Information System (AIS) is a collection of resources, such as people and equipment, designed to transform financial and other data into information.* [12] Which means, the accounting information system is a collection of resources, such as people and equipment, designed to transform financial and other data into information? [13] This information is then communicated to various decision makers. The accounting information system performs these transformations to determine their basic system manual or SIA module. According Mulyadi accounting information system is a record, and reports are coordinated in such a way as to provide financial information needed by management in order to facilitate the management of the company. [14] The accounting system for identifying, composing, analyzing, classifying, recording and reporting of company transactions and for maintaining

accountability of related assets and liabilities ". [15] According to Warren et al Accounting system (*accounting system*) is a method and procedure, to collect, classify, summarize, and report the operation and financial information of a company. [16] Suwardjono explain the accounting system (*accounting system*) studying various engineering (*design*) procedures for the collection, creation, and reporting of accounting data that best suits the needs of a particular company. [17] Romney and Steinbart's menu information system is a system that collects records, stores and processes accounting data and other data to generate information for decision makers. [18]

According to Sealehi that been quoted Awosejo and Kekwaletswe *et al*:

*"The role of accounting information systems is the system of data processing, processing, categorizing, and reporting financial events with storing information keeping inventories records and decision making, and also providing financial report on a daily and weekly basis. [19]*

An accounting information system is a system that operates data collection, processing, categorization, and reporting of financial events in order to provide relevant information and for decision making. Accounting information systems also to create and provide financial statements every day and every week.

Next, according Wilkinson *et al* which was written by Hla and Teruz:

*"The main function of accounting information system is to assign the quantitative value of past, present, and future economics events. AI through its computerized accounting system produces the financial statement, income statement, the balance sheet, and cash flow statement. [20]*

The main function of Information systems accounting is to set a quantitative value economy of the past, present, and future. Through the accounting system will produce financial statements i.e., income statement, balance sheet, and cash flow statement.

The 4th *accurate* program that has been provided by the campus can be used or used by students and lecturers in learning SIA. SIA modules are students and lecturers using SIA modules provided by the campus. The advantages of this SIA are: facilitate the system of calculation, the way faster work more systematic, more accurate.

Accounting information system used by students in teaches SIA in UPI YAI is a system that has been installed. Lecturers and students can utilize the facilities in accounting learning. The advantages of SIA are to make it easy, make work faster, especially in the counting process. The students and faculty use of operational guidelines SIA. With regard to the limitations of learning resources (books, modules, etc.), it becomes the basis for researchers to develop other learning tools to support the accounting information system course. The module was developed as a reference to support the information system learning. This information system module is expected to provide direction and clarity for students and lecturers in learning System Information Accounting in UPI YAI

### III. RESEARCH RESULT AND DISCUSSION

#### Development of Learning Module and Design (SIA)

In field trials conducted, the user is able to either create instructional systems design. The quality of the project result or the work of the test subject has a good category. This proves that the module of SIA module learning system design can be effectively categorized as a learning resource. Stimulus delivered in the form of a module dish can be responded well by the user based on his cognitive strategy. Creative test subjects can develop their *prior-knowledge* to creatively create the design of the learning system they will be studying in the classroom.

Overall, individual trials, small group trials, and field trials of serving parts on modules that the SIA module has received are acceptable. The design of the design, the relevance of the learning materials, as well as the grad ability and the extent of the media are well appreciated and can be used appropriately. Language elements in this case the use of sentences in the module easy to understand. The use of effective sentences aims to facilitate the user to understand the meaning contained in it. Effective use of sentences is relevant to the view, that the user more easily understands

short sentences. One reason is that long sentences may exceed the memory range of the listener. Another reason is that long sentences usually contain conditional clauses, which are difficult to estimate and remember. Some opinions and suggestions are of concern, is the need to add resources related to the design of learning systems, and the latest information on education and learning policies.

The modules developed in their use during trials have involved not only the cognitive, affective, but psychomotor aspects. Because in the learning activities there is a tendency to actualize oneself, realize the potential, the drive to grow and mature, the tendency to express and activate all abilities organism. This ability is reflected in the ability of self-actualization users in terms of developing the ability of mastery, working groups, and build interpersonal communication among colleagues. This activity has an impact on the effort to build confidence in the ability to do something new.

Another opinion of the results of individual trials, the three subject trials require learning the design of learning systems conducted in group learning activities. Group learning activities allow more interaction between students with lecturers, students with students, and students with learning environments. It is based on group learning objectives: 1) to create enough self-discipline for educators to feel confident in using active and interactive learning strategies; and 2) for learners to feel that they can participate enthusiastically in the activities of all classes and small groups without fear of the negative consequences of their peers.

The auxiliary group learning module of SIA learning system design conducted by experimental subjects was felt to be effective. Subjects feel guided and guided systematically in accordance with the steps of developing a learning system design. In addition can be studied independently, the subject was happy if the learning process is done in groups. A group learning strategy while doing practical work provides an opportunity for the user to come up with a capability.

The quality of learning in the module, which can require group learning, is believed to provide an opportunity for users to be able to develop creativity, so that the achievement of learning outcomes will be achieved. When students are in groups freely, according to their own volition or pace, they train their abilities. Learning a group will bring a sense of self-confidence to the learners and will lead to new experiences.

The fact of the field trial results that the SIA learning system design module developed in addition can be used for self-study can also be used in group learning activities. This is done by the experimental subjects in the activities of the workshop activities in the forum of the lecturer's assemblies of SIA subjects.

Evaluation results on the mastery of learning materials after using the SIA module show that the test subject understands and can make positive changes in the design of the learning system. It can be seen from the product before studying the module as the observation findings, that the lecturer has not fully implements the knowledge into the design of the learning system. Most lecturers assume that the Unity of Course Events (SAP) is a complete design of a lesson. Though SAP is only part or subsystem of a learning system design. But after using the test subject module not only make SAP but also make a complete learning design. This means that the test subject has been able to perform the activity and follow the performance instructions correctly. This data shows that the learning material contained in the module can be mastered by students or users well not only for the guidance of performing performance, but also as cognitive understanding for the user.

Referring to the test result data, it can be concluded that the learning using the developed SIA learning system design module has shown that the module developed has fulfilled the criteria of study effectiveness. Users can carefully organize the learning process, teaching materials, and perform the desired performance. Users can perform well with proven ability to make product learning outcomes (such as: determining general learning objectives, perform learning analysis, determine initial skills and behavior, write down specific learning objectives, draft benchmark reference assessment in the form of a grid, develop strategies learning, and selecting and developing learning materials, and developing media ). The results of this study are supported by Nicholson's research [21] which states that "Students value the challenging yet rewarding nature of the module and engage with formative activities and peer review".

In addition to Nicholson module effectiveness is also put forward by Tong [22] that

*In fact, it is quite feasible that feedback is given on summative coursework, not just on formative ones. If a summative assignment is designed to serve as an intermediate step for helping students consolidate their understanding of the course materials and skills for the final examination*

#### **4. Limitations of Research on SIA Module Development**

In practice, starting from the preliminary research process, product development, and formative evaluation is fully realized still the limitations noted, both by researchers and by the next researchers. The first thing to note as the limitations of the results of this development is that the accounting information system (SIA) module is not the only source of learning for students. Because there are still limitations and shortcomings, it is recommended that in addition to using this module students should use other learning resources to complement each other.

From the support side of model theory used, that this development model uses Dick and Carey model. Of the nine development steps undertaken, this development research only came to the eighth step, i.e. formative evaluation

Limitation others of the module development system of accounting information (SIA) are:

- a. Development of accounting information systems, especially online media such as Accounting information system has been growing from time to time very quickly, requiring the latest technology and continuous *upgrading* to align with these developments.
- b. Mature preparation and calculation for research and development from preparation, production, validation, collaboration with SIA experts, and testing process is required. This is done to produce a good and accountable SIA.
- c. The results of this study are only limited to the subject of students who have the same characteristics and initial abilities in accordance with the results of preliminary research.

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **A. Conclusion**

The whole process of development research Module Learning Accounting Information Systems in Universitas Persada Indonesia YAI produces some conclusions as follows:

1. Learning process of Accounting Information System at Informatics Department of Information UPI YAI at this time 1) Lecturers use teaching materials still limited to Unit Events Course (SAP), teaching materials, component of learning system design, and Competency Standard (SK), Basic Competence (KD), and learning materials. 2) Many lecturers do not mention the formulation of specific learning objectives, learning strategies, and assessment plans including making the program's grid and evaluation into the learning component.
2. The results of expert validation of design, materials, instructional media and *one to one learner, and small group, a field test* of the feasibility, acceptance and usefulness of print modules learning Accounting Information Systems (AIS) developed at the Department of Informatics at the University of Persada Indonesia YAI; overall the magnitude of the response value is very good. This means that the print module of Learning Accounting Information System (SIA) developed can be used in improving the results of student learning Department of Informatics at the University Persada Indonesia YAI.
3. The results of the test of the effectiveness of the print module learning Accounting Information System (AIS) developed in improving student learning outcomes Department of

Informatics at the University Persada Indonesia YAI, that is student has an average value of *pre-test t* amounted to 46.167, the average value of the post-test 7 8.33, the value of the progress of students by 32. 17, and h acyl t-test at the 5% significance,  $t_{count} = 41.0513$ ,  $t_{table} = 1.699$ , i.e.  $41.0513 > 1.699$ . That is convincingly that "module learning Print Accounting Information Systems (AIS) has shown a real effusiveness in improving learning outcomes student in Informatics Engineering Department at Universitas Persada Indonesia YAI ".

## B. Implications

The development of SIA module provides implications and positive impacts for lecturers and students at Universitas Persada Indonesia (UPI YAI), namely:

1. Students obtain learning resources for self-study;
2. Students are more eager to learn, because already available SIA print module;
3. Student learning outcomes have increased;
4. Based on the results of interviews with lecturers SIA module developed to give a positive impact for lecturers and students. Where the development of modules as teaching materials is believed will further increase the motivation of lecturers and students, improve the effectiveness of learning, and develop learning accounting information system becomes more varied.

## C. Suggestion

Based on the research results of the development of SIA module at the University Persada Indonesia (UPI YAI), the researcher's suggestion as follows:

1. This SIA -based learning system module can be used, either individually or in groups. In addition, this module is produced as a tool as one source of learning. This SIA module is not the only module that can be used as a learning resource. Therefore, it is suggested to the user, in addition to using the system learning system design module
2. Information accounting should also be able to search for modules or other teaching materials that can help users in designing the learning system, so that can complement each other. For the University it is advisable to subsidize the procurement of books, modules, and teaching materials related to the design of learning systems through the library.
3. In the development of bell teaching as module-based, developers can do it in groups. In this way it can improve the efficiency of funding and the timing of the development project. In addition, it will provide more input opportunities, so it will get the expected product.
4. It is necessary to adapt the product development design to the characteristics of the user and the necessary requirements. Because each region does not automatically users have the same subordinate capabilities and support facilities.
5. Based on the results of field trials known, that most users can operationalize the module design of this learning-based system. Therefore, it is suggested to the user to deepen the understanding of the design of the learning system by discussing and collaborating, both with peers and with supervisors or tutors who better understand the material of designing the learning system information accounting.

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