

Web-Based Accounting Learning Innovation with Real-Time Journaling Simulation

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ABSTRACT

Entering the era of globalization, education has undergone many changes. Education today is far more advanced than in the past, which was more conventional and did not yet utilize technology, resulting in many difficulties in accessing new knowledge. Now, technology has brought many innovations and new breakthroughs in learning media, one of which is the innovation of website-based accounting learning with real-time journaling simulations created by researchers. Researchers used literature studies to facilitate researchers in collecting data and UML (Unified Modeling Language) as a system design method that made it easier for researchers to create an overview of the running system. The ADDIE method (Analysis, Design, Development, Implementation, and Evaluation) was also applied as a method for system design and systematic development of educational systems. With this method, researchers can create learning media that makes it easier for users to learn accounting journaling and financial reporting. In addition, researchers hope that users can better understand journaling through the system that has been created.

1. Introduction

At this time the development of technology is very fast, where almost all activities can be computerized, for example in the field of education. With the rapid development of technology, the development of information systems will also be more advanced, with the progress of the information system can facilitate the activities of organizations or individuals in delivering or obtaining data and information [1][2], so that the information system is a combination of human systems consisting of abilities and technology or computers that have various functions. This journal will discuss the development of information systems involving technology in the world of education. The world of education has now experienced rapid technological progress, where there are already many learning media in various fields of study that are online-based [3]. This progress has not only appeared at the level of education lately, but has experienced progress as a whole, namely from elementary to final levels. The learning media that appear today are not only in the form of digital books but are already in the form of learning videos, animations, and websites and online-based applications that are available in various lessons [4]. The development of technology is a major issue in the era of globalization where new breakthroughs are increasingly based on information systems [5]. In addition, technology or information and communication technology can be used as a place for

students to learn both offline and online [6]. Information systems are systems that combine human activities and the use of technology. Information systems can be used in many different fields, one of which is education.

The education sector is an important part of human resource development. Where at this time the world of education is beginning to be required to involve information technology in the learning process [7]. However, in this situation, there are still many people in the field of education who have not been able to utilize technology as a learning medium for accounting journaling. Where journaling is currently still done conventionally so that it is often considered a complex field because it requires a deep understanding of journaling, financial principles, and regulations that are constantly changing [8][9]. This process still makes it difficult for users to record accurate transactions, and requires high analytical skills to produce accurate and relevant financial reports [10][11]. In addition, the challenge in accounting lies in the interpretation of complex data, and the learning process is still based on conventional records.

Learning the conventional accounting method makes it very difficult for students to understand journaling, because of the many limitations that are imposed, as explained, namely the difficulty of interpreting data and processing the results of the data to be reported. According to Delilah Khoiriyah

Mashuri in 2020 in her journal discussing the development of learning media through animated videos, media is one way to attract someone's enthusiasm in learning something, such as online-based learning media [12]. Lia Kurnia, Asih et al. in 2023:10 in her journal discussed the ease of learning media where learning media is an online platform that makes it easier for someone to access and learn about the intent and purpose of learning materials [13]. In addition, based on previous research on the interest in learning accounting conducted by Prasetyo & Haryani, 2021 through online learning media is very high, where students can more easily and freely carry out training and re-understanding through modules created on the web or applications [14]. In addition, according to Susanto 2013:5, learning outcomes can be a reference for a person's success in learning, so that the current learning system must continue to be updated in order to obtain maximum results [15]. So, researchers try to maximize the information system in education, which can facilitate the teaching and learning process for students and teachers. Therefore, researchers propose a solution by developing learning media with a website-based computer for accounting courses. Where researchers maximize user knowledge through the accounting system (AIS) and help facilitate understanding of journaling whose information can be accessed easily and flexibly [16].

Accounting information system (AIS) is a system that manages, processes and presents financial reports of a company or individual [17]. Through this accounting information system, researchers make a proposal regarding the existence of a website-based accounting learning media that is carried out in real-time. The proposal for this system is made with several methods to support the success of designing and analyzing the system and information needed. The method used is a literature study as a basic source for finding information and data, then UML as a description of the running system and the ADDIE method as a method for designing and developing systems in the field of education. By using this method, researchers hope that the purpose of creating this innovation system can facilitate accounting learning by providing website-based simulations for compiling journals and journaling reports, in addition, researchers hope that with this proposed system, system users can be more effective and efficient in journaling and reporting [18][19].

2. Method

2.1 Data Collection Method

The data collection method in this study uses the literature study method:

- a. Literature review

In this study we use the library study method as a data collection method. Where the data obtained comes

from the internet, as well as scientific journals that still have related information [19][20].

2.2 Analysis and Design Method

The method we use for systematic design and development in the field of education is the ADDIE method (Analysis, Design, Development, Implementation, and Evaluation) [21][22]. Where the ADDIE method has continuous stages in the development of a system, especially an education system [11]. Researchers conduct system design and analysis based on the ADDIE method where the stages carried out by researchers in system design are;

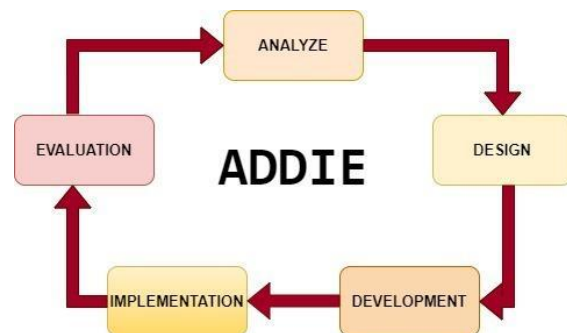


Figure 1. Step ADDIE

Analysis Stage: at this stage the researcher identifies the needs of the education system, and analyzes the user's ability in accounting [23]. At this stage the researcher identifies the education system in the field of accounting, because based on previous research the accounting system is very important in various aspects, one of which is education. Therefore, at this stage the researcher can easily determine the system to be created. In addition, at this analysis stage the researcher identifies the user's ability in accounting biasing. Based on previous research, users have limitations in managing data results that are difficult to balance. So that at this analysis stage the researcher can find a suitable system design and can facilitate users in the field of accounting.

Design Stage: based on the results of the identification related to the research, the design stage is one of the important stages in system design where at this stage the researcher begins to design the system, in this design the researcher uses the Laravel programming language besides the design of this system is made by adjusting user needs and aligning it with the accounting system created. In addition, the researcher also made a design of this system that is easy for users to understand later.

Development Stage: after the system design is complete, the researcher conducts development by consulting the system to several parties in their fields. After that, the researcher begins to make innovations and developments to the system that make it easier for users to access this accounting journaling system.

Implementation Stage: at this stage the researcher conducts a system trial, where at this stage the researcher checks the function of each menu, so that it can be ensured that each menu that is created and has been running can function properly [24].

Evaluation Stage: The evaluation stage is the final step in the ADDIE model. At this stage, the researcher evaluates the system by explaining the system to the examiner. This evaluation allows the researcher to identify any deficiencies in the system so that the system can be improved. During this evaluation, the researcher adds additional information to one of the menus, namely the guidebook menu. This menu adds detailed information to make it easier for users to use. This addition is the result of the examiner's evaluation.

2.3 UML (Unified Modeling Language) Method

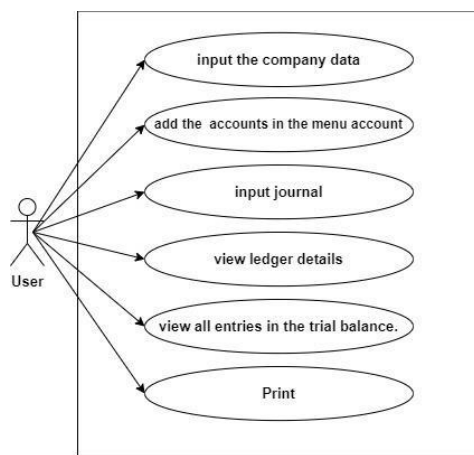


Figure 2. Use Case Journal Diagram

In addition, researchers also use UML. Unified Modeling Language (UML) is a basic specification language used to build software, in addition it can be used to show the visualization of the system to be designed [17]. To describe the flow of the running system which is made with a use case model and activity diagram.

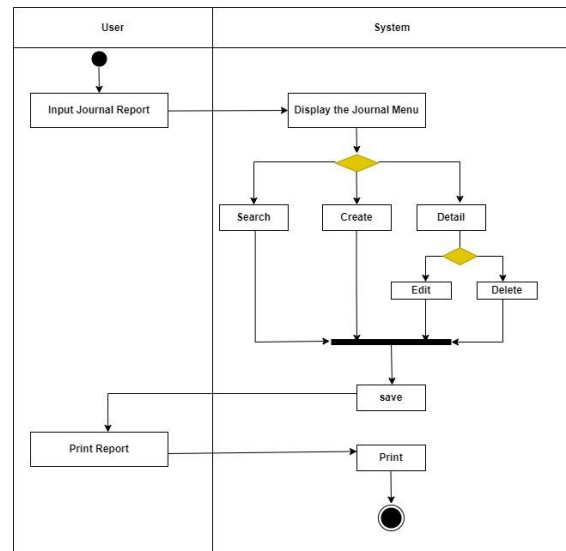


Figure 3. Journal Activity Diagram

3. Results and Discussion

The use case of the current system, namely a system that covers all recording activities in basic accounting, namely there is 1 actor who carries out the activity (user). Where there are 6 (six) use cases What is done includes, users being able to fill in data, add accounts, enter journals, view general ledger details, view all input and print reports.

In the activity diagram This running journal entry is a system that covers all recording activities in basic accounting. And there is 1 (one) user who carries out activities, namely the user. The user himself can input data into the journal, then can enter data, make edits, and can also delete data and finally can print reports.

3.1 Script Encoding

Script coding is writing instructions in a programming language to control software or a computer system. Scripts are used to create a web that will be run, using the Laravel programming language. Laravel itself is a PHP framework that has good efficiency by following architectural patterns [25].

MVC (Model-View-Controller) which separates logic, display and data which can facilitate system development and maintenance.

```

<?php
namespace App\Models;
use Illuminate\Database\Eloquent\Model;
class Jurnal extends Model
{
    // nama table tidak mengikuti konvensi laravel
    protected $table = 'jurnal';

    // Non-aktifkan Timestamp
    public $timestamps = false;

    // kolom tabel untuk Mass Assingment
    protected $fillable = ['keterangan',
    'waktu_transaksi', 'nominal', 'tipe',
    'id_akun'];

    // kolom akan disembunyikan dalam array
    protected $hidden = [''];

    // Relasi N-1 antara akun dengan jurnal
    public function akun(){
        return $this->belongsTo(Akun::class, 'id_akun');
    }
}

```

Figure 4. Account Model

In the folder model, there is an Akun.php file where this file functions to manage user data. This includes retrieving, storing, and updating user account information.

3.2 System View

The system view is the part of the web that interacts directly with the user, such as buttons, menus, and forms. This view is designed to be easy to use, intuitive, and responsive, providing a good user experience. Important elements in the system view include layout, navigation, interaction, responsibility, and aesthetics, all of which aim to make it easier for users to complete tasks efficiently. Good design improves the convenience and functionality of the application.



Figure 5. Homepage View

This image shows the homepage, where the homepage contains menus on the website such as guidelines, menus, profiles, accounts, general journals, ledgers, trial balances and reports.



Figure 6. Guideline View

This display explains the procedures for using the menus in the system, starting from the home screen to reports. And briefly explains debit and credit.



Figure 7. General Journal View

This display contains the general journal, where users can input company data, according to the income and expenses of the user company.

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NO	AKUN	DEBIT	KREDIT
1	Investasi	Rp. 0.-	Rp. 0.-
3	Peralatan Usaha	Rp. 0.-	Rp. 0.-
4	Bangunan	Rp. 0.-	Rp. 0.-
5	Tanah	Rp. 0.-	Rp. 0.-
6	Utang Usaha	Rp. 0.-	Rp. 1.000.000.-
7	Utang Bank	Rp. 0.-	Rp. 0.-
8	Modal Saham	Rp. 0.-	Rp. 0.-
9	Pendapatan	Rp. 0.-	Rp. 0.-
10	Gaji & Upah	Rp. 0.-	Rp. 0.-
11	Utilities (Listrik, Air, & Gas)	Rp. 0.-	Rp. 0.-
12	Bunga Bank	Rp. 0.-	Rp. 0.-

Figure 8. Balance Sheet Display

Trial balance display, this menu will display the journal data that has been entered, then made into a trial balance display.



Figure 9. Report View

In the report display menu, users can print reports in the form of general ledger reports and balance reports.

3.3 Black Box Testing

Table 1. Black Box Testing

<i>NO</i>	<i>Testing Activities</i>	<i>Expected results</i>	<i>Test Results</i>	<i>Status</i>
1	Enter company name, date of establishment, telephone number, address and email.	User successfully created company profile	User successfully created	Valid
2	Edit company name, founding date, telephone, address and email	User successfully edited company profile	Profile Successfully Updated	Valid
3	Enter Account Code and Account Name	User successfully created account code and Account Name	Journal Account Successfully Saved	Valid
4	Editing Account Code and Account Name	User successfully debited	Account Successfully Updated	Valid
5	Deleting Accounts in Journal	User successfully deleted	Account Successfully Deleted	Valid
6	User inputs time, account, nominal, description and type.	User successfully created General Journal	General Journal Input Successfully Created	Valid
7	Users edit time, account, nominal, description and type.	User successfully edited General Journal	General Journal Transaction Successfully Updated	Valid
8	User Clicks Delete	User successfully deleted General Journal	Transaction Successfully Deleted	Valid
9	User Clicks Print Icon	User Successfully Downloaded print report	Report Successfully Downloaded	Valid

4. Conclusion

Based on the analysis and research of the system created using several methods, one of which is the ADDIE method, the ADDIE method makes it easier for researchers to conduct system analysis. Where in the analysis stage, researchers can easily find the results of related identification regarding the education system and user abilities in the field of accounting, then the ADDIE method can also facilitate researchers in the design and development stages of a system, so that the system can be designed and developed well and make it easier for users to understand the displays that have been designed by researchers. In addition to the ADDIE method, researchers also use the literature study method as a basic source of research. By using literature studies, researchers can easily obtain sources from previous research, where the results of the summary of previous research are useful to help researchers in designing and making innovations and developments in learning media, especially in the field of accounting. Another method used in this study is UML, this method is useful for creating an overview of the running system flow, so that by using this method researchers can visualize the workflow of a system that is running well. The methods used in this study are

complementary methods. So that researchers can easily create an innovative system that can facilitate users in conducting journaling and basic accounting reporting in real-time, in addition users can directly print and enter data according to income and expenditure data from the user company, this system can also be useful as an effective and efficient learning medium for accounting students who already have the basics of accounting. So that this system is developing well and this system can be developed by further researchers by detailing or adding a profit and loss calculation menu and changes in equity and can upgrade the system via this web to an android version, so that it is easier to use anywhere.

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