

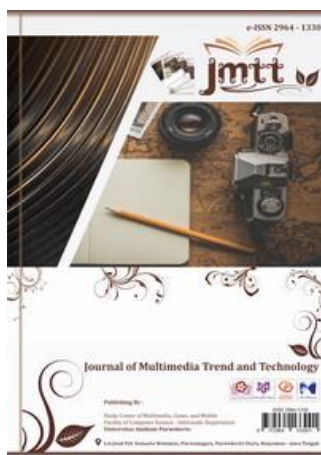
Design of TOEFL English Exam Simulation Application Model for Trisila Dharma Polytechnic Student Environment

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ABSTRACT

The Language Training Unit is a forum for an institution to manage language-related activities. In improving the quality of an educational institution, the need for performance is very much considered. Language Training Unit which aims to improve the quality of students in terms of language understanding. Multilingual skills in the Trisila Dharma Polytechnic environment need to be developed, especially for students and all teaching staff in the environment. The need for TOEFL implementation is one of the considerations of Trisila Dharma Polytechnic, where the function and benefits of TOEFL have become one of the obligations of most universities in Indonesia. This language skill can also be used as a companion to a diploma in accordance with Indonesian regulations, namely through the Ministry of Education and Culture Institution no. 81 of 2014. This background underlies the design of the TOEFL test simulation application at the Trisila Dharma Polytechnic Language UPT. The author used observation, interview, questionnaire and literature study techniques to collect data. The system development method used is the waterfall method. This application can be used to make TOEFL implementation easier, especially the type of assessment that uses website-based information technology.

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INTRODUCTION

Now world of education, technological factors increasingly influence the level of quality of education produced[1][2]. Like online exam activities which are currently known as Computer Based Tests (CBT) which use computer supporting tools as the medium. This method is widely applied in several educational institutions so that it supports the use of technology that facilitates activities there in[3].

For example, an Android-based National High School Examination simulation application. The aim of this research is to enable a student to do several try outs and the student can analyze the scores he got by looking at the list of scores for all the try outs he has done, so that students can analyze themselves as often as possible because they can be accessed anytime and anywhere because This application is based on Android mobile[4][5].

One of the educational institutions such as colleges and universities has an important role in increasing the potential of students, especially in terms of communication, especially English, because at this stage students will be faced with the world of work where most English language skills are the main factor in getting a job or continuing to work. higher level[6][7]. English is an important component for economic competitiveness at the individual and national level[8]. Taken from the website page, Indonesian people are at an intermediate level in English language proficiency[9]. The 2016 EF English Proficiency Index (EPI) report notes that Indonesians' English language skills are in 8th place in Asia with a score of 52.94. This affects the level of English language skills, especially in Indonesia, efforts to face globalization competition in terms of communication, one of which is through the TOEFL test (Test of English as a Foreign Language) where with this test it can be seen how high a person's level of ability is in understanding english[10][11].

One thing that can support the need for technological progress is the implementation of e-learning, which is learning that is structured with the aim of using an electronic system and also a computer so that it is able to support a learning process[10][12]. With e-learning the learning process is easier and more effective. In an educational institution, many undesirable things are found, such as learning activities that tend to be limited so they cannot be done at all times or in all places, learning methods that only rely on books so they are less effective and so on. The existence of e-learning can help make it easier for an educational institution to carry out the learning process better[13].

One of the activities carried out is holding English language certification, which only presents material and speaking tests[14]. Therefore, to optimize the function of language training, especially English, this application implementation provides TOEFL tests and practice to make it easier for students to face the TOEFL test which is held off campus and on campus. The need to understand the TOEFL test is an important part of the education system, especially in tertiary institutions, one of which is Trisila Dharma Polytechnic. Where TOEFL itself is an English language skills test that is often required to register with a company or is a requirement for entering a national or international university.

Meanwhile, Trisila Dharma Polytechnic itself has not implemented the TOEFL test, therefore it is necessary to simulate or practice the TOEFL test which aims to assess the level of students' English language skills, and help improve their English language skills in the form of providing TOEFL test questions so that they are ready to face the TOEFL test being held. outside the campus either by companies or universities or other high schools. In fact, by looking at increasingly advanced developments, it is hoped that we will be able to implement a TOEFL test system specifically held by Trisila Dharma Polytechnic which can be used as a graduation requirement or as a Diploma Companion

Certificate in accordance with the Minister of Education and Culture Regulation no. 81 of 2014 which states that diplomas are given to college graduates accompanied by at least an academic transcript and a certificate accompanying the diploma[15].

From the results of the questionnaire produced by 150 Trisila Dharma Polytechnic students covering various classes from the 2021 to 2022 class, the results show that more than 90% of respondents want e-learning for the TOEFL test to improve students' ability to understand and master English, and make it easier for students to access information and practice for the certification exams being held. As many as 90% of respondents agreed that the TOEFL test was a mandatory requirement for graduation. With the implementation of e-learning, it can be a solution for information and to determine the level of students' ability to understand a foreign language, namely English.

METHOD

The data collection method is the initial stage of the research method carried out by the author. Research methods are basically scientific ways to obtain data with specific purposes and uses. Based on this, there are four key words that need to be considered, namely scientific methods, data, objectives and uses[16].

The framework is a series that describes the flow of a research process in implementing English e-learning. The following is a frame of thinking chart shown in Figure 1 below:

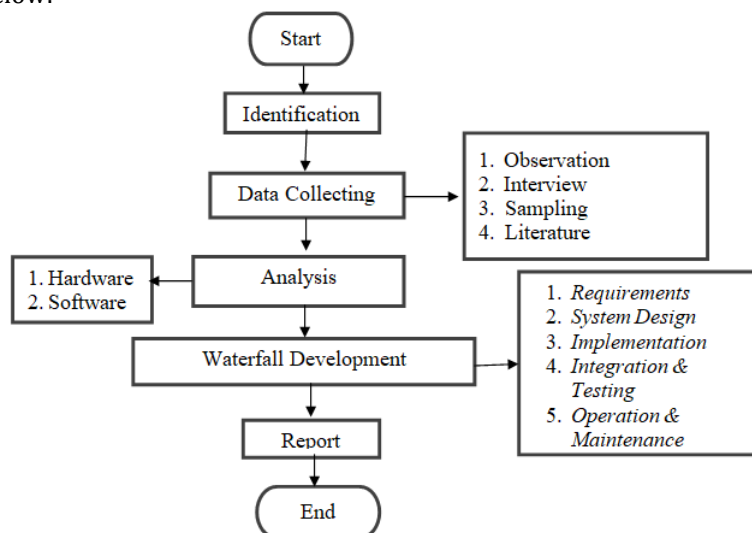


Figure 1, Settlement framework flow.

The identification process is the author's stage for identifying problems that exist in the research object. This stage is an important stage for formulating problems that will become the background for the research object being carried out. The problem identified is how to create an English e-learning application and its implementation in the Trisila Dharma Polytechnic student environment.

The stages of data collection and data processing are the stages that researchers carry out to collect the data needed to complete all research materials. This stage is carried out using several techniques, namely observation, interviews, documentation and literature studies. After the data is collected, then analyze the needs needed to create the system, including hardware, software, user needs, and the data analysis process by collecting some of the required data in the form of exam questions.

The next stage is to design the application using the waterfall development method with several stages, namely requirements, specification, design, implementation, integration & testing, and operation & maintenance[16]. This stage is the final stage of the research carried out, all research results are reported in the form of a scientific article. In this report there are also conclusions and suggestions for this research.

Next is system development. The author uses a waterfall framework. Using the waterfall method is very helpful in the application creation process because it functions to control each stage or feature with those in the one by one method application before designing the next feature, so that it is more structured in its creation and minimizes errors that might occur. The stages carried out are requirements, specification, design, implementation, integration & testing, and operation & maintenance. The stages that must be passed in the Waterfall method are shown in Figure 2 below:

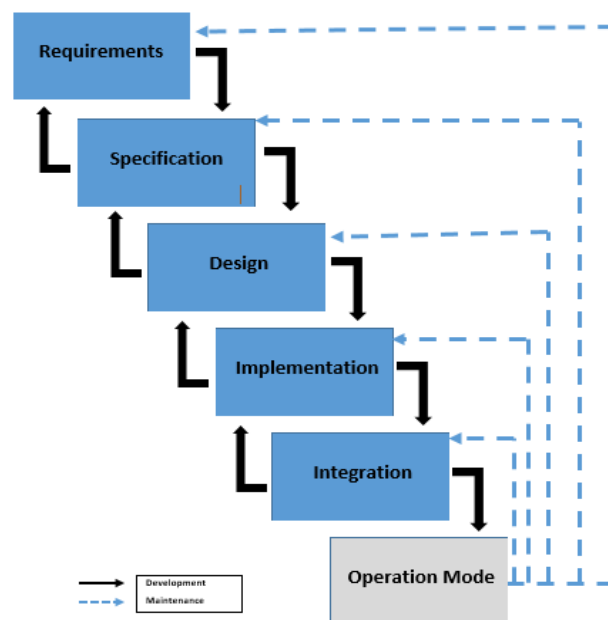


Figure 2, Waterfall Framework.

The initial stage of system researchers carries out communication aimed at understanding the software expected by users and the limitations of the software. The requirements specifications from the previous phase will be studied in this phase and a system design is prepared. In this application, system design helps in determining hardware and system requirements which helps in defining the overall system architecture such as models for test testing systems, interface displays tailored to users (students) and e-learning functions according to desired needs. In the next stage, coding is carried out for the e-learning application. Coding using pure PHP which is procedural in nature is supported by bootstrap. Systems are first developed in small programs called units, which are integrated in later stages.

All units developed in the implementation stage are then integrated into the system after testing is carried out on each unit, then testing is carried out and the integration of the entire system is tested to check for any failures or errors, if the application is in accordance with what is required then it enters the operation stage. The final stage in the waterfall model. The software is finished, run and maintained. Maintenance includes correcting errors that were not found in previous steps. Improved implementation of system units and increased system services as new requirements.

RESULT & DISCUSSION

As a completion stage, the author compiled the process of creating this application using the stages in the waterfall framework, following the stages carried out to achieve the specified results.

1. Requirement

This stage is the planning stage where researchers carry out communication aimed at understanding the software expected by users and the limitations of the software. Information was obtained through the results of questionnaires, discussions and direct surveys with language training managers. Based on the results of questionnaires from students, and discussions and direct surveys with the management of the UPT Language, it can be concluded that a TOEFL Assessment application is needed at the Trisila Dharma Polytechnic language training center to support education in terms of language mastery, especially English for students. The processes carried out in this system are:

Input Requirements:

- Enter admin username and password to log in to manage the entire application process.
- Input student data containing NIM, full name, study program, username and password.
- Input English material and information data.
- Input data for practice exam questions (simulation) and TOEFL questions.
- Input student NIM and password to join the TOEFL application.

Process requirements include, Login, Verify, Save, Logout. Then, finally, the output requirements include training score results reports, TOEFL score results reports, and certification files for the TOEFL test.

2. System Design

Context diagrams are used to describe the relationship between entities outside the system and the input and output of the system. Below is a context diagram that illustrates the process that occurs in the TOEFL test application within the Trisila Dharma Polytechnic environment.

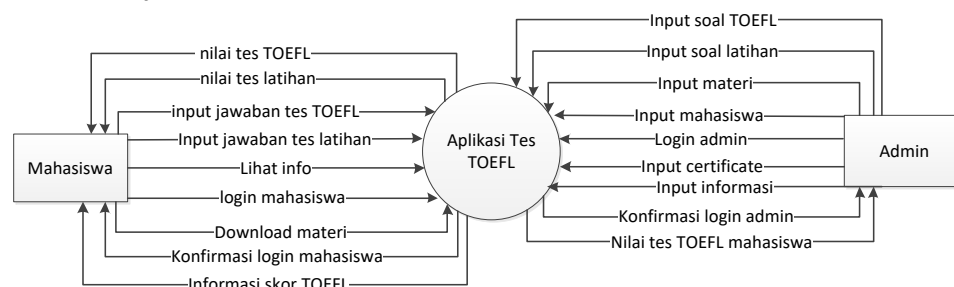


Figure 3, Design of Context Diagram.

Data Flow Diagrams are used to describe the flow of information and transformations that are applied when data moves from input to output. The following is the proposed Data Flow Diagram. The level 1 diagram illustrates that in the TOEFL test management system there are several processes, namely:

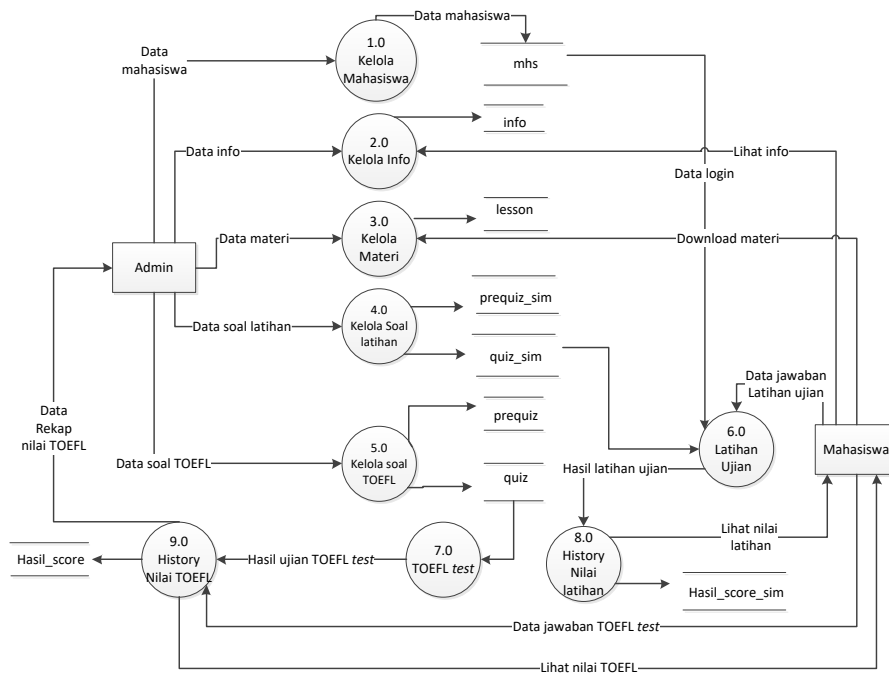


Figure 4, Dataflow System Diagrams

Then the author constructs an entity relations diagram framework to determine the relationships between classes that will function in the TOEFL system.

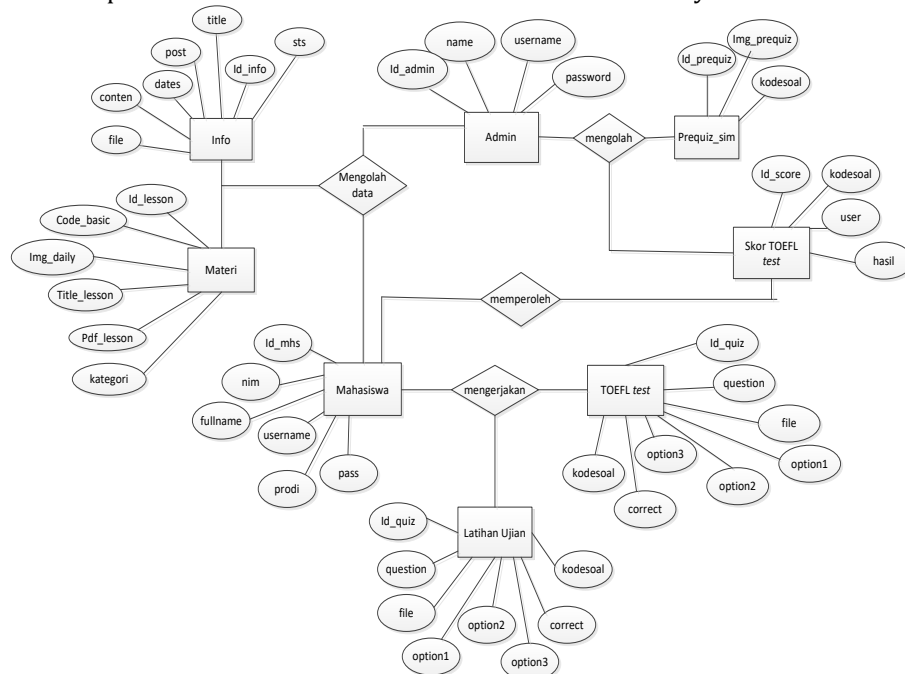


Figure 5, Entity Relationship Diagrams

After the system concept design has been formed, the next step is to create a user interface and experience model to make it easier for users to use the TOEFL system later.

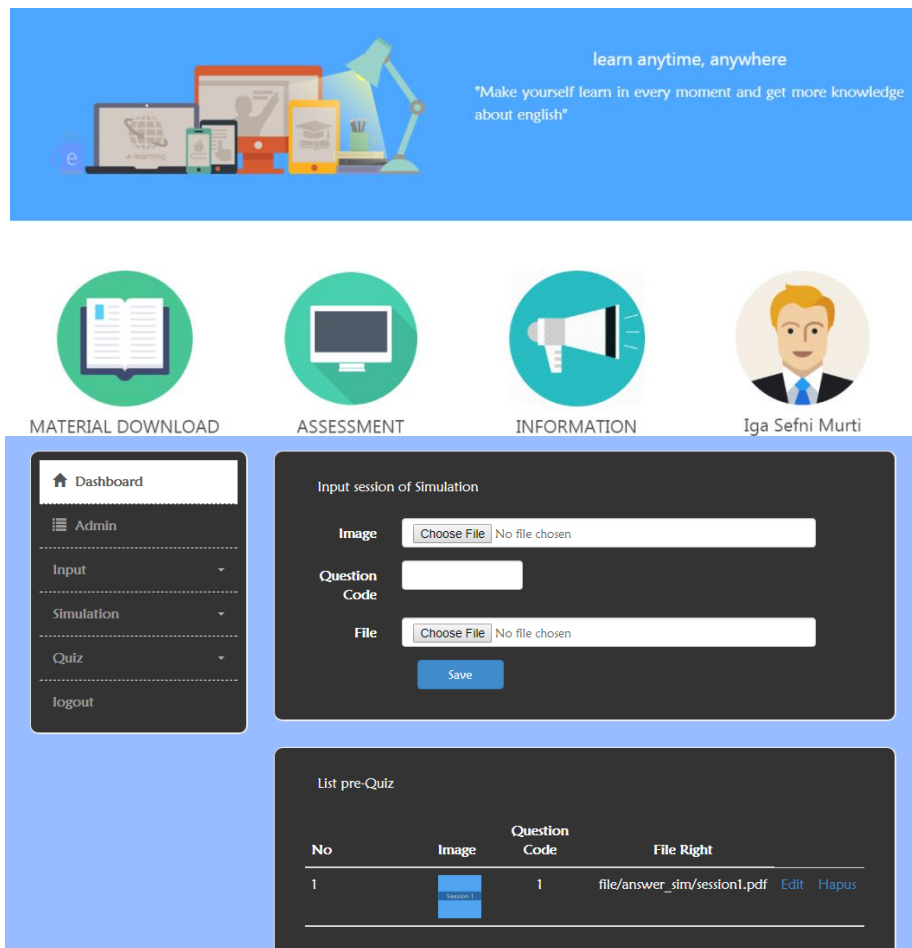


Figure 6, Interface system models.

3. Integration & Testing

In this test, alpha testing is used, which is also called functional testing, a functional testing technique that designs test cases based on information from specifications. Alpha testing is also a test that is carried out only by observing the execution results through test data and checking the functionality of the software by making an analogy like looking at a alpha testing where you can only see the outer appearance, without knowing what is behind the black packaging.

Based on the results of the alpha testing that has been carried out, it shows that the application built has met the functional requirements. However, in the process it is still possible for errors to occur. Functionally, the system implemented has produced the expected output. So it can be concluded that the performance of the TOEFL assessment e-learning application for data processing is running well.

In this test, User Acceptance Testing is carried out, namely by using a questionnaire. From the results of the questionnaire calculations that have been carried out, a percentage value of 88% is obtained, which is classified as very good criteria. So it can be concluded that the TOEFL Test Application at UPT Bahasa can be used to carry out TOEFL exercises and tests followed by application development so that it can produce even better output.

Below is a user questionnaire table for the Beta testing stage along with the calculation of the percentage value.

Table 1, Questionare of UAT model.

No	Aspect	Assesment				
		SS	S	RR	KS	TS
1	The use of the e-learning website menu for UPT Language is good.	11	4			
2	Ease of accessing existing features		12	3		
3	The features provided are complete		10	4	1	
4	Testing methods such as practice and the TOEFL test are very helpful.	13	2			
5	With the TOEFL e-learning test, I can assess my English language skills	15				
	Score	39	28	7	1	

SS : Absolutely Agree, S : Agree, RR : Dithering, KS : Disagree, TS : Not Agree

The number of respondents was 15 people (2 administrators, 13 students), the number of questions was 5 questions, the highest score was 5 and the lowest score was 1. The formula for calculating the questionnaire used a Likert scale calculation (Index Formula % = $\text{Total Score} / \text{Highest score} \times 100$). From the results of the questionnaire, the following results were obtained:

Total Score = (Total Voters x Score)

$$\begin{aligned}
 &= (39 \times 5) + (28 \times 4) + (7 \times 3) + (1 \times 2) + (0 \times 1) \\
 &= 195 + 112 + 21 + 2 + 0 \\
 &= 330
 \end{aligned}$$

Highest Score = (Highest Score x Number of Questions x Number of Respondents)

$$= (5 \times 5 \times 15) = 375$$

Index Formula % = Total Score / Highest Score x 100

$$\begin{aligned}
 &= 330 / 375 \times 100 \\
 &= 88\%
 \end{aligned}$$

From the results of the questionnaire calculations that have been carried out, a percentage score of 88% is obtained which is classified as very good. So it can be concluded that the TOEFL UPT Language assessment e-learning application can be used to carry out TOEFL exercises and tests followed by application development so that it can produce even better output.

4. Implementation & Distribution

At the system maintenance stage, researchers use adaptive maintenance, in the form of applications to adapt to new hardware and software environments and convert databases.

a. Backup Program

To make it easier to maintain the program, it is necessary to have a program backup. Backing up the program can be done easily by simply copying the files related to the system page, storage can be in the form of a webhosted.

b. Backup database

To maintain the database, it is necessary to back up the database from MySQL which will then be stored on CD to anticipate errors or damage due to viruses. The database that has been created must be backed up regularly and stored in a safe location and then saved to a CD (burning). Backup files can be restored to the origin server or to another server.

CONCLUSIONS

Based on the results of research conducted at the Trisila Dharma Polytechnic Language Training Center, it can be concluded that this e-learning system was created to develop a website-based English language learning system, namely TOEFL and provide space for the Language UPT to present activity programs with a TOEFL test simulation system. Based on the results of the black box test, functions such as viewing data, adding, changing, deleting, modifying and searching for data in the menus in this system can run according to the system's functionality.

The TOEFL application using the CBT (Computer Based Test) method can be developed into the IBT (Internet Based Test) method where IBT has been accepted in various countries in terms of TOEFL test certification, while CBT is no longer valid in several developed countries in the world. By looking at the existing background, it is very possible for language e-learning applications to be developed into a platform using the MOOC (Massive Online Open Course) method which can be accessed without any user restrictions, which presents e-learning, one of which can contain material that is not provided. during the lecture. The MOOC method has several advantages, one of which is that it has many benefits in terms of social aspects.

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