

Design of Software of Learning Achievement Report at SMK Negeri 9 Luwu

Nirsal¹, Frabowo Prasetya², Syafriadi³, and Vicky Bin Djusmin⁴

¹Departemen Informatika, Universitas Cokroaminoto Palopo, Jl. Latammacelling No.19, Palopo, 91921, Indonesia

²Departemen Informatika, Universitas Cokroaminoto Palopo, Jl. Latammacelling No.19, Palopo, 91921, Indonesia

³Departemen Informatika, Universitas Cokroaminoto Palopo, Jl. Latammacelling No.19, Palopo, 91921, Indonesia

⁴Departemen Informatika, Universitas Cokroaminoto Palopo, Jl. Latammacelling No.19, Palopo, 91921, Indonesia

nirsal@uncp.ac.id

Abstract. This research aims at designing and developing software of report of student learning result which is a tool to assist management in making report of student learning result quickly and accurately. This research was conducted at SMK Negeri 9 Luwu. This research used Research and Development (R&D) by using model of ADDIE (Analysis, Design, Development, Implementation and Evaluation). The steps of developing ADDIE model are need analysis, software designing of learning result report by using object oriented approach which consisted of use case diagram, activity diagram, sequence diagram, class diagram, developing software of learning result report by using programming language of Visual Basic.net version 2010 and MySQL version 3.2.1., implementation of software test by using trial test (one to one, small group and field) and evaluation which is conducted for need of software revision of learning result report. The result of this research is software of report of student learning result at SMK Negeri 9 Luwu.

1. Introduction

Education is conscious and planned effort to create learning condition and process so the students actively develop their own self potency to get power of religious spiritual, self control, personality, intelligence, good morals, and skills needed by themselves, community, nation and country [1]. Therefore, the government keep having effort to improve the quality of education by reforming curriculum. In 2013 the government through Minister of Education and Culture conducted correction of curriculum from the previous one. The curriculum is 2013 curriculum. 2013 curriculum does not only focus on improvement of cognitive, but also focus on the improvement of attitude whether spiritual attitude or social attitude, and improvement of students skill, it can be seen in standard of content used in 2013 curriculum [2]. In 2013 curriculum, it more emphasizes to attitude to be good behavior, ability to think with high level and skill needed in facing global challenge.

The implementation of evaluation in education has important role, especially in deciding target of curriculum implementation. Practically, process of evaluation in education helps the teachers place the students in certain group, improve teaching method, know the students' readiness whether attitude or

mental, give guidance and selection in deciding major and level [3]. The level of education is started from Elementary School, Junior High School, Senior High School, Vocational High School or the same level and the last is College. Someone who has achieved the knowledge will be evaluated how far his ability. Providing information which help the teacher makes the decision for education better [4]. This score will be proof as the result of what has been conducted through Sheet of Students' Learning Achievement, and this score also makes decision about continuing study and program evaluation [5]. Because of the importance of evaluation role, so the evaluation process must be conducted completely or it is usually called authentic evaluation. Authentic evaluation needs the students to use the same competences or to combine knowledge, skill, and attitude that they need for professional life [6].

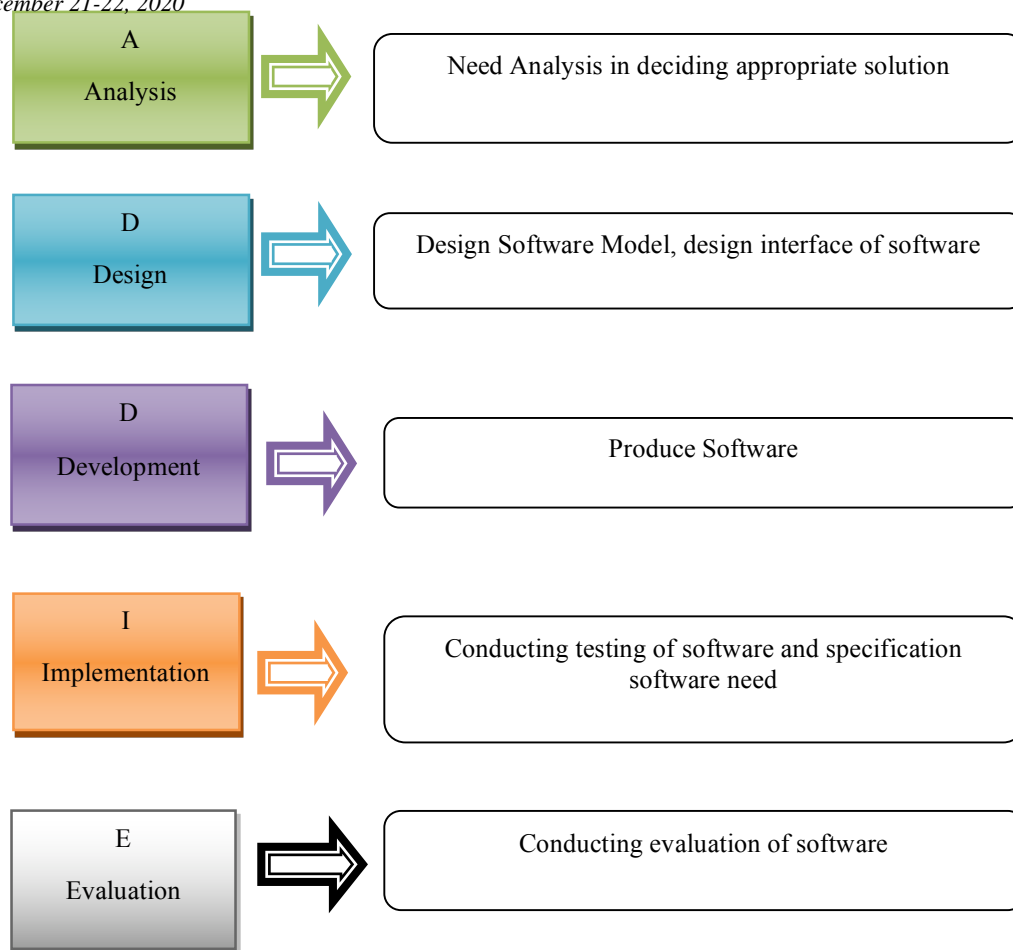
Problems in conducting authentic evaluation can be solved by preparing medium of assistance, whether it is support of evaluation tools or program of supporting computer application, and integrate them with technology. Some experts state that it is important to integrate technology with evaluation process [7]. Form of the use can be *computer-based assessment* [8]. There are many advantageous can be obtained through evaluation by using evaluation system using computer whether for students, teachers, and administrators. Integration of information and communication technology and evaluation can be used for collecting, saving, analysis, and information report or evaluation result [9]. Beside that, scoring by using computer system has reliable result [10].

Especially in SMK Negeri 9 Luwu score processing in the school is still semicomputer namely using computer to process raport score, using data processor program. In the process of score processing the teacher put in the score of assignment, sore of test and score of students attitude into application of data processor based on each class, then the score is counted using formula to obtain the last score of lesson. Then the lesson teachers print out and submit the result of the last score to homeroom teacher and it is given to curriculum part to process into report. Beside that, the teacher also must copy the score to application of data processor provided in computer of curriculum official so it can be united with other scores from other lessons. The united score will be checked by homeroom teacher to make sure that the scores have been correct. So, it is important to design model of software of learning achievement report at SMK Negeri 9 Luwu. The model design is an activity related to making major decision, it is often structural [11]. To design software using UML (*Unified Modelling Language*) approach model, where UML is a language standard used in industrial world to define *requirement*, make analysis and design, as well as describe architecture in object oriented programming [12]. To develop software it is using programming language of Visual Basic.net version 2010, programming language of Visual Basic.net is programming language which can implement programming concept by approach of procedural and object oriented [13]. Based on the background above, it can be identified a problem namely there is no a software to process students learning achievement at SMK Negeri 9 Luwu which produce quick information based on the students need.

2. Experimental Method

2.1 Development Model

In development research this web base learning media used Research and Development (R&D) namely research method which are intentionally, systematically, has purpose, formulate, repair, develop, produce, test product effectiveness, model, method, certain procedur which is better, new, effective, efficient, productive and has meaning [14] . The steps of this mdl are: a). potency and problem, b). data collection, c). product design, d). design validation, e). revision of desing, f). test of product, g). revision of product, h). test of using, i). revision of product, j). massive production. Development Model used in this research is ADDIE (*Analysis, Design, Development, Implementation, and Evaluation*) model as learning design model which is more generic and as a guidance in developing sets of equipment and infrastructure of effective training, dynamic and support the performance of the training itself. This model is more rational and more complete than 4D model, and it can be used for some forms of product development such as model, learning strategy, learning method, media and modul. This model used five steps of development:



Picture 1. Step of ADDIE Model Development [15]

1. Analysis. The main activity in this step is analyzing the importance of making software students learning achievement report. The problem in processing the result of students learning achievement which is implemented, has not been relevant with target need, learning environment, technology.
2. Design. This step has similarity with designing software model, software interface and software basis data. Model design uses Unified Modeling Language (UML) approach and it will be basic for the process of the next development.
3. Development. This step contains realization of product design. It is arranged the conceptual framework of model implementation and it is applied into product which is ready to implement interface and basis data.
4. Implementation. In this step it is implemented the design of model in real situation and it is conducted first evaluation to give feedback for the next user of model.
5. Evaluation. In this step it is conducted the last activity and process. If it is implemented, it is conducted formative and summative evaluation. The result of evaluation is used to give feedback for the user of model. Revision is made based on the result of evaluation or need which cannot be fulfilled yet by the new model.

2.2 Research Procedure

Step 1: Analysis

In analysis step, so: a) Determining need of software what the teachers need, b) Relate score processing analysis of students learning achievement to decide target of making software, c) Determining the first ability and ability expected after implementation of software, d) Analyzing context and available of time.

Step 2: Design

In this step it is needed: a) Clarification of software designed so the software can achieve the objective of using software as expected, b) Determining non-functional need when designing and using software, c) Having ability to answer question whether software designed can be used to solve problem of making report which happen among teachers.

Step 3: Development

In this step: a) Conducting process of creating what has been designed, b) Adjust coding with design approved by school, c) Revise or complete and produce material and teacher activity, d) Define suitable interaction, must be in creative and innovative form.

Step 4: Implementation

In this step: a) Implementing software which has been created, b) Conducting test before implementing.

Step 5: Evaluation

In this step: a) Implementing plan to evaluate program, b) Implementing plan for treatment and revision.

3. Result and Discussion

The results of the research are:

3.1 Analysis

In this step it is conducted data collection namely direct observation and interview to headmaster of SMK Negeri 9 Luwu. The result of interview is as follow:

“Score processing of students learning achievement at SMK Negeri 9 Luwu uses semi computer by using application of word and data processor. There is no special application yet to manage the score of students learning achievement and this school really needs score processing software of students learning achievement” (result of interview 10 October 2019).

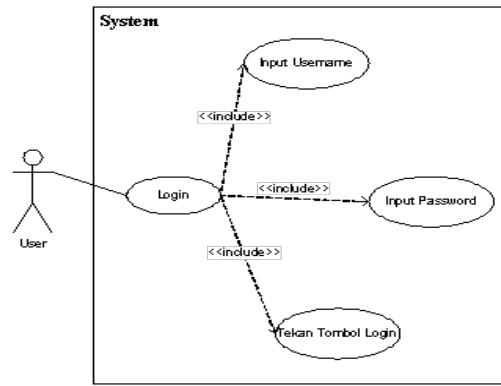
Based on the result of observation and interview with informant of SMK Negeri 9 Luwu, that it is used konventional method where: (1) The teacher manages score of students learning achievement still using data processor, (2) there is no use of special software in processing score of students learning achievement. Then conducting a) Plan: after collecting the first data so the next step is making plan of modeling form by using UML model approach using application of Microsoft Visio 2010, form of *interface* uses application of photoshop 9.0, database uses MySQL (*MyStructure Query Language*) 3.2.1. version, and coding uses programming language of Visual Basic.Net, validation sheet of model design, validation sheet of *interface* design and validation sheet of database design, b) The first design of software: activity conducted in this step consist of: modelling, *interface*, choosing language programming, choosing format and first design. In this step it is also conducted validation to some instruments such as: validation instrument of media expert, validation instrument of material expert, instrument of observation, and instrument of interview.

In this step the researcher conducted analysis from field research such as conducting direct observation at SMK Negeri 9 Luwu, then the researcher conducted interview to homeroom teacher and conducted documentation of location. Technique of data collection conducted by the researcher consist of 3 ways, they are observation, interview, and documentation. In observation of data collection the researcher noted information what he saw during conducting research. In observation, not only eyes as important part but also hearing, feeling, which then noted in research result. In this research, the researcher conducted direct observation at SMK Negeri 9 Luwu as research object to find out appropriate and accurate information.

The next is interview, in this research the researcher conducted asking and answer to headmaster or vice headmaster, homeroom teacher and curriculum part at SMK Negeri 9 Luwu. Generally, it is asking some questions about processing of students learning achievement. In documentation method, the researcher took picture in some places about students score input.

3.2 Design

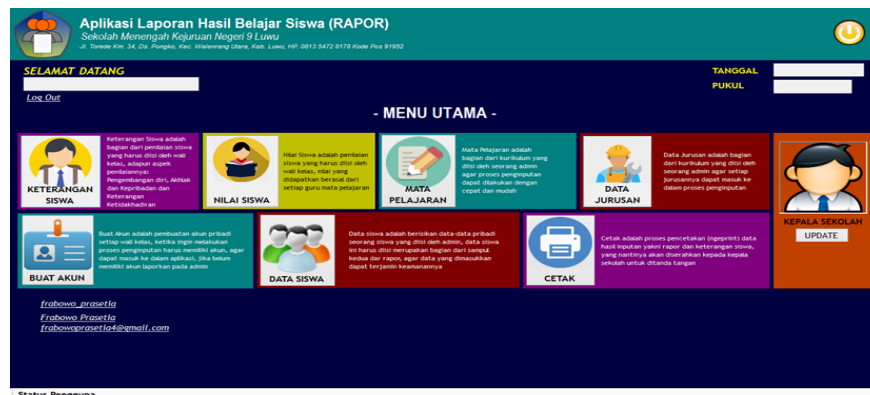
The first design of software of learning achievement report based on object using UML modeling which consist of *use case diagram*, *activity diagram*, *sequence diagram*, *class diagram*:



Picture 2. Use Case Diagram Login User

3.3 Development

After the explanation above about design, the researcher conducts process of making new system again. The first that is made in this new system is *form of login*, *form of main menu*, *form of major data*, *form of students data*, *form students information*, etc. after process of making *form* the researcher makes *listing* again by using programming language of visual basic.net 2010 version and *MySQL* version 3.2.1 version. *MySQL* is a kind of server database, database as its source of data processor [16].



Picture 3. Appearance of main form

Addition of *listing* in this new application system is very important because without listing application cannot work based on what we want. The process of listing addition needs much time because each of its *toolbox* must be filled listing.

3.4 Implementation

In implementation step the software designed is developed and the teachers try to use software of students learning achievement report.

3.5 Evaluation

Evaluation conducted by using approach of *blackbox* testing where the result of testing directly conduct improvement toward software if there is not suitable with application function and suggestion from the teachers to the use of application.

4. Conclusion

Based on the result of the research and development, so it can be concluded that design of model is step after analysis from cycle of system development which is definition from functional needs, as well as it describes how a system made which can be description, plan and making of sketch of arrangement of some elements separated into a unit which are complete and function, it include about configuration from components of hardware and software of a system. Process of software development of learning achievement report at SMK Negeri 9 Luwu used ADDIE Method (*Analysis, Desain, Development, Impelementation, Evaluation*). It has produced a software of learning achievement report SMK Negeri 9

Luwu and it has fulfilled test standard of software by using *blackbox* where every component has function well.

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