



Evaluation of the Android-based Learning Outcomes Report for Effective and Effective Student Learning Outcomes

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Abstract: In the implementation of submitting reports on student learning outcomes both daily scores, midterm exam scores, and final semester exam scores still use e-reports. thus causing a lack of interest in student learning because learning outcomes cannot be obtained by students/parents in an updated manner. Parents experience difficulties in knowing their children's learning outcomes because parents only get their children's learning results in the middle of the semester and the end of the semester. Schools also experience difficulties, namely: in archival storage. Related to these conditions, good cooperation is created for the application of the SIHABEL software Android-Based Learning Outcomes Evaluation Report as an information system for reporting learning outcomes so that later the reporting process will run effectively. The method used in this research is R&D (Research and Development) version 4D (Define, Design, Develop, Disseminate). Based on the results of this product test it can be concluded that the SIHABEL software Evaluation of Android-Based Learning Outcomes Reports helps schools in carrying out student learning outcomes reporting effectively and can provide the information needed by stakeholders quickly and validly.

Keywords: Research and Development; 4D model; Information System

Introduction

Educational institutions have a system to produce quality graduates. The education system consists of four main stages, namely input, process, output, and results (Raflesia et al., 2021). Enter what is meant above, among others: teachers, students, books, administrative staff or technicians, facilities and infrastructure, funds, documents, curriculum, and the environment. Included in the process category are the following learning processes and management processes. Those included in the output category include graduates, and other science and technology works, while those included in the category of results of community recognition of educational institutions, improving the quality of society and the environment. Education is an important aspect of human life. Without education, humans will become useless people living in this world. Education will lead humans to become civilized and knowledgeable (Bahtilla & Xu, 2021). The definition of education

according to the 2003 National Education System Law No. 20 is planning to realize a learning process in which students actively explore their potential which is carried out consciously, both in religious spiritual, independence, mastery, personality, intelligence, and good etiquette as well as skills that for personal or other people's needs.

Several supporting elements of the education system include Miranda et al. (2021), a healthy organization, transparent and accountable management, lesson plans in the form of a curriculum and according to the needs of the job market, skills in the academic and non-academic and professional fields, adequate facilities and infrastructure and a conducive environment (González-Pérez & Ramírez-Montoya, 2022).

With the support of the five elements above, schools can develop learning, and make guidelines to produce an academic and professional society (Brame, 2016). Assessment of learning outcomes carried out by educational institutions aims to assess the achievement

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of graduate competency standards from all subjects with consideration of student assessment by teachers (Masih & Ariana, 2018). Assessments are generally presented in the form of numbers, letters, symbols, or words, the purpose of which is to measure the extent to which students have mastered what they have learned by using certain criteria as a benchmark or reference for assessment. Learning outcomes can be known through evaluation activities that aim to obtain data to prove the level of students' ability to achieve learning objectives (Fricitarani & Maksun, 2020).

In the implementation of submitting reports on student learning outcomes, both daily scores, mid-semester scores, and final semester scores, still use e-reports. thus the implementation of submitting reports on student learning outcomes at SMK Negeri 1 Panyabung using e-report is less effective. Various problems greatly affect the implementation of reporting student learning outcomes van Alten et al. (2019), that is, there is no information system for reporting student learning outcomes at SMK Negeri 1 Panyabung which is always updated. Reports on student learning outcomes from the school to students are held only in the mid-semester and end of the semester using e-rapport so that students have difficulty obtaining results Study.

In the implementation of reporting on student learning outcomes at SMK Negeri 1 Panyabung did not present the parents of students, learning outcomes were submitted only in the mid-semester and the end of the semester so communication between the school and parents of students was not well established. There is no system for reporting student learning outcomes from the school to students who can print them immediately if the previous report is lost. The school has difficulties in keeping archives of reports on student learning outcomes.

To overcome this, the development of an information system for reporting student learning outcomes needs to be implemented which aims to develop an information system for reporting learning outcomes that are always updated. Make it easy for parents to get reports on their children's learning outcomes. Helping the school in storing student learning results report archives. The intended learning outcomes report information system is an Android-based information system. This software appears as an answer to various problems that often arise at SMK Negeri 1 Panyabung in implementing student learning outcomes reporting. The main advantage of developing an information system for reporting learning outcomes is that students will be more motivated (Koivisto & Hamari, 2019) so that student's interest in learning increases, s, and parents will also find it easier to obtain information on learning outcomes because the system that is built is always updated. Thus, researchers are interested in conducting research with the title

Evaluation of Android-based learning outcomes reports evaluating the effectiveness of student learning outcomes validly and effectively.

Method

The method used in this research is R&D (Research and Development) version 4D (Define, Design, Develop, Disseminate).

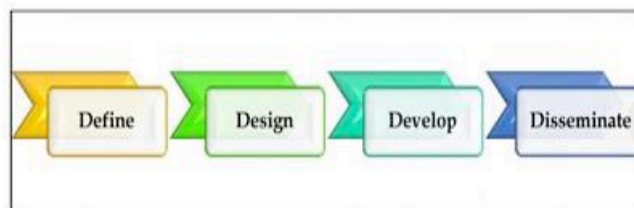


Figure 1. Four-D mode

System Development Model

The system development used by the author in this study is the SDLC model in Indonesian, known as the system development life cycle. The SDLC model is the stage of developing a system using a methodology that has been used previously in the sense that it has been well-tested (Alam et al., 2022).

Result and Discussion

The following is a description of the stages of research development:

Define

In this process, the authors carry out field studies and literature to obtain data about the system used now and previously in the implementation of reporting student learning outcomes (Wickham, 2019). thus the qualitative method used by the author in determining the problems in the field. Sources of data and information were obtained from the school of SMK Negeri 1 Panyabung, namely the principal, along with the teachers and administrative staff, students, and parents.

Activities at this stage are carried out to establish and define development requirements. In general, in this definition, analysis of development needs is carried out, product development requirements that suit user needs, as well as research and development models that are suitable for developing products. Researchers conducted a needs analysis that aims to obtain information related to the development of an information system for reporting student learning outcomes at SMK Negeri 1 Panyabung. Based on the research results obtained by the author in the field, namely by direct observation and understanding of the actual situation and conditions in the field there is

reporting of student learning outcomes based on Android. Thus, several requirements can be obtained, namely functional requirements analysis and software requirements analysis.

Design

Description of the initial plan that will be carried out, both the data that will be input into the product and preparing the tools and materials to be used, such as installing supporting software. At the research design stage, there are several sections, including the following: research schedule, use case diagrams, class diagrams and sequence diagrams, and database design.

Develop Communication

The author collects data and information from users by determining the specifications of the system to be built so that the resulting product will meet the user's needs. Project Initiation Daily scores, midterm exams, and final semester exams are summarized in a student learning outcome by reporting it using a report. Thus the implementation of submitting reports on student learning outcomes at SMK Negeri 1 Panyabungan using e-report is less effective. Therefore the researcher wants to develop an information media for reporting student learning outcomes so that students can easily obtain reports on learning outcomes from the school.

Various problems greatly affect the implementation of reporting student learning outcomes, namely Lodge et al. (2018), there is no information media for reporting student learning outcomes at SMK Negeri 1 Panyabung which is always up-to-date. Reports on student learning outcomes from the school to students are held only in the middle of the semester and the end of the semester using e-reports so that students and parents have difficulty obtaining learning outcomes. In carrying out the reporting of student learning outcomes at SMK Negeri 1 Panyabung not presenting parents, Learning outcomes are submitted only in the middle of the semester and at the end of the semester so that communication between the school and parents of students is not well established. There is no system for reporting student learning outcomes from the school to students who can print them immediately if the previous report is lost. The school has difficulties in keeping archives of reports on student learning outcomes.

Related to these conditions, to facilitate the reporting of student learning outcomes from the school to students, namely by creating good cooperation in the application of the Android-based Sihabel software so that later reporting of student learning outcomes can be carried out properly with valid and effective results (Hayati et al., 2020). To overcome the above problems, it is necessary to apply the Android-based SIHABEL software, SIHABEL is an information system for reporting student learning outcomes based on Android.

This system emerged as an answer to various problems that often arise in the implementation of reporting student learning outcomes from the school to students or parents.

Requirements Gathering (Requirement Gathering).

User Requirements

The intended users are as follows: School leaders (Principal, Deputy Principal, Head of Department), Homeroom teacher, Subject Teacher, counseling guidance teacher, and students or parents are those who access reports of student learning outcomes based on Android, As for the needs needed by school leaders (Principal, Deputy Principal, Head of Department), Homeroom teacher, Subject Teacher, counseling guidance teachers, and Students or Parents, namely computers, laptops, smartphones, tablets and so on that are connected to the internet network which is used to access reports on student learning outcomes based on Android. Admin is the one who manages the reporting of student learning outcomes Application Requirements data.

Functional requirements

Functional requirements are requirements that contain processes and information generated by the system, including handling admin login validation, school leadership (Gabriela, 2017) (Principal, Deputy Principal, Head of Department), Homeroom teacher, Subject Teacher, counseling guidance teacher, and students or parent. The admin will log in with the username and password, edit personal data, then add a user account, then update the master data and select logout to close the application. The subject teacher will log in with a username and password, that edit personal data, then set KMM, then input student grades and select logout to close the application.

The counseling guidance teacher will log in with the username and password, after that edit personal data, then enter the student's attitude value and select logout to close the application. The homeroom teacher will log in with the username and password, after that edit personal data, then approve the grades, view student report cards, then print the report cards and select logout to close the application. Students will log in with a username and password, after that edit personal data, then view the report card, then print the report card and select logout to close the application. The leader will log in with the username and password, after that edit personal data, then monitor student learning outcomes, view report cards, then print report cards and select logout to close the application

Non-Functional Requirements

To carry out reporting of student learning outcomes based on Android, supporting components are needed

(Churiyah et al., 2020), namely: Hardware: The hardware in reporting student learning outcomes is based on Android using computers (Nurhikmah et al., 2021), laptops, smartphones, tablets and so on which are always connected to the internet network, Software : The software used is Android-based student learning outcomes reporting software itself by installing it on smartphones, tablets, and so on Yang & Chen (2020), the need for Human Resources, in this case, workers are needed, namely: Admins are professionals who actively run computers and Android and understand and understand the use of student learning reports on the Android platform, Leaders are experts in the active use of computers and Android and understand and understand how to use reporting of student learning outcomes based on Android, Homeroom teacher, is an expert in the active use of computers and Android and understands and understands how to use Android-based student learning outcomes reporting, Mapel teachers, are experts in the active use of computers and Android and understand and understand how to use reporting of student learning outcomes based on Android.

Counseling guidance teachers, are experts in the active use of computers and Android and understand and understand how to use reporting of student learning outcomes based on Android. Students, are experts in the active use of computers and Android and understand and understand how to use reporting of student learning outcomes based on Android.

Technology Needs

Components and technological equipment in terms of the specifications of the devices used (El-Nahtawy et al., 2019), namely: Web admin (Computer, Min intel dual core, Minimum memory 2GB, Min hasdisk 320 GB), Network. To access the evaluation of reporting student learning outcomes based on Android, it must be connected to an internet network, so the APK can be used both inside and outside the school (Demir & Akpınar, 2018).

Planning

After the data and information are obtained, then make plans for product work, including the technical aspects to be implemented, the risks that may occur, and the schedule for implementation and the products to be produced (Aven, 2016). Admin : log in to the system, Edit personal data, Add a user account, then update the master data, and Select logout to close the application, Subject teacher : log in to the system, Edit personal data, Then set KMM, then input the student grades and Select logout to close the application. Counseling guidance teacher : log in to the system, Edit personal data, Then enter the value of the student's attitude, and Select logout to close the application. Homeroom teacher : log

in to the system, Edit personal data, Then approve the value of the folder, View student report cards, Then print the report card, and Select logout to close the application. Students: log in to the system, Edit personal data, Then look at the report, Then print the report and Select logout to close the application. Leadership : log in to the system, Edit personal data, Then monitoring student learning outcomes, See report cards, Then print the report card, and. Select logout to close the application.

Disseminate

This stage is an activity to promote products that have been developed to users either individually or in groups with the aim that these products are accepted by users. After the product is produced according to user needs, the next step is to try it out in the field, namely at SMK Negeri 1 Panyabungan. To find out the validity and effectiveness of using this app by testing it on users, namely the head of administration, subject teachers, homeroom teachers, leaders, and students or parents so that later they will get suggestions or input which can later be used as material for improvement.

SIHABEL is an android-based application developed (Kurniawan, 2020) by the author for an information system for reporting student learning outcomes at SMK Negeri 1 Panyabung. Where previous reporting of student learning outcomes used e-reports, based on this the researcher created an innovative reporting of student learning outcomes based on Android. With several supporting reasons, namely Students are required to have an Android-based smartphone to support learning outcomes so that the application of syllables will be right on target, The author is also guided by the industrial revolution 4.0, which is a change in trends in the industrial world that combines automation technology with cyber technology.

The process of developing sizable has gone through several stages, namely by using the waterfall model, namely communication, planning, modeling, construction, and deployment (Tjahjanto et al., 2022). The first stage is communication where this stage is the most important Silva et al. (2018), because at this stage the process of gathering information about user needs and defining detailed system specifications (Pedaste et al., 2015). The second stage is planning system work such as technical tasks to be carried out, risks that might occur, data sources, implementation schedules, and products to be produced. The third stage is modeling, which focuses on data structure planning, product architecture to be made, and views and procedures in the resulting product. The fourth stage is construction, the coding process will be carried out where this stage is a real stage in a system maker. And the last stage of deployment is the final process where after everything

is complete. After the process is complete, it will then be distributed and used by the user.

By implementing the use of the Siebel application as an information system for reporting learning outcomes at SMK Negeri 1 Panyabung, reporting student learning outcomes will be more effective on the results of field research that has been carried out. Learning outcomes will be conveyed personally to each student's account with various processes. Where the learning outcomes obtained by students, both daily scores, midterm exam scores, and final semester exam scores, will be inputted by the subject teacher into the Siebel application (Baiquniy et al., 2018). After all subject teachers and counseling guidance input student assessments, the homeroom teacher will approve these values so that learning outcomes will be conveyed to students.

Conclusion

From the description above, the writer can conclude that the results of the research carried out are as follows: The author develops an Evaluation Reporting of Student Learning Outcomes Based on Android to Effectively and Effectively Student Learning Outcomes using the MySQL programming language and some supporting software such as sublime texts and so on. With the SIHABAEL Software evaluating reports on learning outcomes based on Android students will be more motivated so that student's interest in learning increases and parents will also find it easier to obtain information on their learning outcomes because the system being built is always updated. The Sihabel software evaluation report on Android-based learning outcomes that were developed got a product functional suitability score of 72.6 and an effectiveness suitability score of 0.98. So it can be concluded that the SIHABEL Software evaluating reports on Android-based learning outcomes is very effective in use.

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Author Contributions

Conceptualization: Marwan Efendi, Data curation: Marwan Efendi, Handaru Jati, Funding acquisition: Marwan Efendi, Methodology: Handaru Jati, Visualization: Handaru Jati, writing-original draft: Marwan Efendi, Handaru Jati, Writing-review & editing: Marwan Efendi, Handaru Jati.

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Conflicts of Interest

No Conflicts of interest.

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