

Conference Paper

Daily Score Cards on Android Smartphones

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Abstract

University students are heavy users of both the internet and android smartphones. This study suggests that android devices could also be used in education, as a tool to deliver learning or supervise learning. Currently, learning supervision is limited to escorting values that are uploaded daily. The purpose of developing a new android application is to optimize students' academic achievement. The device focuses on recording the scores of quizzes, examinations, and assignments given by the piano lecturer and chair of the work group on the piano class. This study used a modified Research and Development method from Borg & Gall with 10 steps. The steps followed were: research and information collecting; planning; developing a preliminary form of product; preliminary field testing; main product revision; main field testing; operational product revision; operational field testing; final product revision; dissemination and implementation. The first scores were 65.25% from the IT validator, 70.50% from the media validator, and 75.25% from the material validator. The mean values in the small group trials were 70.50 and 78.25 in the large group trials. The final scores from validation were 92.50% from the IT validation, 77.25% from the media validator, and 84.75% from the material validator. There are three applications that must be developed based on the results of this research. These three applications are: main teacher applications; peer tutoring applications; and student applications. Each application must be connected and updated in real-time.

Keywords: android application, online supervision, learning supervision, academic scores, student strategies

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1. Introduction

Gadgets and internet connections are now common in students at universities [1]. The selection of Android gadgets is more in demand by students because it is cheap and easy to obtain [2].

Android is software that uses a computer code base that can be distributed openly so that users can create new applications in it [3]. Android has several types, namely Android beta; Android version 1.0; Android version 1.1; Android version 1.5 (Cupcake); Android version 1.6 (Donuts); Android version 2.0 (Eclair); Android version 2.2 (Froyo); Android version 2.3 (Ginger-Bread); Android version 3.0 (Honeycomb); Android version

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4.0 ICS (Ice Cream Sandwich); [1]. Android is an operating system contained on a smartphone where there are several applications in it [2]. This application can be downloaded through a facility called play store [3].

The lecturers who also generally have a smartphone should be introduced to an android-based application. it can help them in optimizing planning, implementing, and evaluating education. Ideally, students can actively participate in their supervision through Android technology. The relationship between the two not only makes the interaction of student lecturers transparent but more than that both lecturers and students can rearrange the value improvement strategy along with the remaining face-to-face progress [4].

Daily recording and value technology based on the android application, is one way of translating and simultaneously updating real-time scores while letting students know what grades they have achieved on that day and what scores they need in the remaining meetings. Temporary values that are known in real-time trigger students to set strategies to achieve maximum value at every face-to-face [5].

Supervising scores while in educational technology designed on Android applications should focus on the principles of responsibility and authority, periodic, democratic, open, and sustainability [4]. Submission of a temporary score that is transparent and with an open timeline should be able to trigger a strategy to maximize student awareness of the weaknesses of grades that must be fought afterward [6].

Android-based education technology can be a systematic way of designing, implementing, and evaluating the learning process. This is because, to make learning more effective communication in humans requires a combination of human and non-human aspects [6]. Donald [7] added that through a breakthrough human and non-human aspects of this kind can run selectively to analyze problems, arrange, implement, evaluate, and manage solutions [8] in increasing scores of student music practices [4]. Mapping the problems of optimizing the score achievement can certainly be mapped through paper-based learning tools. Paper-based devices that have been used and that have functioned well are developed into something revolutionary [6] Supardi, 2012: 3 [7] as in the android on smartphones [2].

Technological advances have an impact on two things, not only a negative impact but also a positive effect that affects soft skills and hard skills [4]. The role of technological advances in hard skills training is helped by the existence of educational technology [9]. Yulianti [10] said that in a practice learning process, the peer tutoring method can make a good contribution. Peer tutors can turn on the drilling method [6]. They will

become inspirators as well as supervisors in long training without direct supervision from lecturers [3].

Learning in the classroom supported by the android application is expected to maximize lecturer records in providing a reference to maximize student academic scores in the next semester.

Music practice performance score achievement activities can be monitored directly through assignments, test scores, and quiz scores submitted or announced to students when the practical activities are over. But not necessarily well archived by every student and can be seen at any time. Non-formal education learning activities cannot be monitored, because outside of teaching hours there is no special record by students about the achievement of scores on each face-to-face [6]. Through a smartphone-based application, it is alleged that both formal and non-formal studies will be monitored and recorded the level of achievement of each student's score. Recording scores for students at each meeting and can be reopened whenever students need.

The level of achievement of formal and non-formal daily scores needs to be monitored [3], because the level of achievement of daily scores can affect the strategies of each student that will be applied at the next meeting [6, 8].

Based on preliminary studies conducted by a campus in Malang-Indonesia on piano courses, students do not have accurate and relevant academic achievement records. So it has an impact on the asynchronous \sum scores of people claimed by students with real \sum scores recorded by lecturers. This gap often shocks students when they receive a final grade below their estimate.

This gap also triggered the regret of some students who felt able to practice but failed to get the maximum score because they were too confident in their incomplete score collection. This student does not realize that there is a lack of grades. A small number of students do not even have a record of personal achievement and do not have a specific strategy to improve academic achievement. The asynchronous and the absence of a record of achieving a maximum score on each face-to-face can reduce the accuracy of student strategies to pursue completeness independently [11].

Achievement of academic scores on practical subjects tends to vary, even in the same meeting. The first student in the basic piano class at the fourth meeting was able to play four scales and Beyer etude number 30. The score obtained at the fourth student face to face was 85. While the second student, in the same class, at the fourth meeting also, could only play just one natural scale. This second student was only able to finish Beyer etude number 19, so the second student achieved a score of only 65 at this meeting.

Thus there have been differences in achievement scores on piano courses between one student and another student. If at this fourth meeting the first student knows that he has scored 85, and the second student also knows the achievement score is 65, then there will be two types of interests. The first student will tend to be strategic to maintain their achievements until the end of the semester. While the second student will tend to look for solutions to increase extreme scores in subsequent meetings. This extreme improvement solution can be a second student to take courses, find a peer teacher, or practice harder.

This is caused because they face different information to complete the score on the next face to face. This situation has an impact on the student's strategy to complete the score on the next face-to-face. Obtaining interim scores recorded in lecturer books and student records must be synchronous. These paper-based notes are accommodated paperless in the android application that researchers developed.

Each student with different achievement scores will have the burden of remaining load with different volumes. This difference influences the way to optimize the time remaining differently. This student's daily strategy setting is expected to be triggered by the android application that researchers developed on the most widely used devices by the public.

Suwiprabayanti [2] added that the most widely used operating system on tablets and smartphones currently available is Android. Android is a favorite of producers and users because it has complete, high-performance, open features, capable of realtime updates, and is free [1].

The use of Android as a platform choice for the development of escort applications for learning outcomes is based on the fact that Android is the most widely used operating system, accessed every day, and capable of realtime updates. These facts are the best reason to focus this research on developing a maximum academic achievement record application to accommodate the gaps that have been presented.

2. Method

Researchers use R&D steps Borg and Gall [12], namely:

In this study using Research and Development (R&D) research. According to Borg and Gall [12], Research and Development or R&D research methods are research methods used to produce certain products and test the effectiveness of these products. These products are not always in the form of objects or books, stationery, and other learning tools. However, it can also be in the form of software.

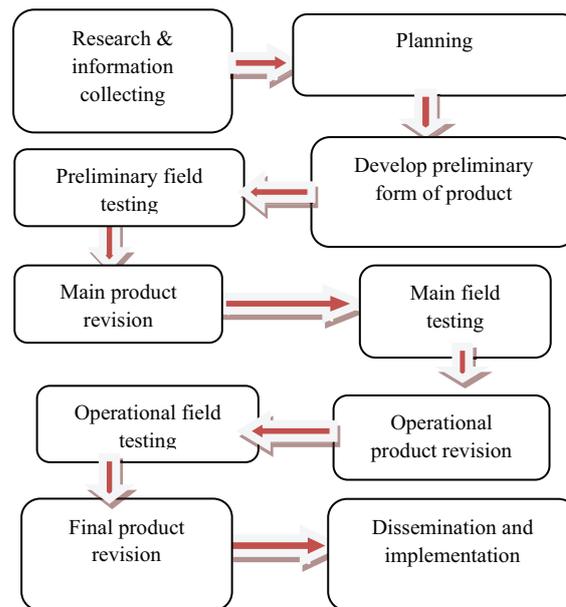


Figure 1: Steps from Borg and Gall [12]

Research and information collecting is a stage to explore problems, find potentials and solutions, and collect data. After knowing the problem to be solved, the next step is planning or research planning. In the planning stage, researchers provide products to three validators, namely IT validators, media validators, and material validators to do stage I validation.

After planning has been validated by the three validators, planning that has been adjusted to the validator input is produced so that it can operate properly. This initial product was included in preliminary field testing in a small group consisting of 1 lecturer and 6 students. The results of trials in small groups are used to play product revision. The product was tested again on the main field testing of large groups with a greater number than the small group trials, namely 1 lecturer and 30 students.

Before the product is submitted to the validator for operational field testing as a final validation, the product is first revised according to what was obtained in the main field testing of the large group. Through operational field testing, researchers find out the feasibility of the product. The final improvement of the product is developed into an application that is ready to be distributed to Android smartphone users.

This study uses two types of data, namely qualitative and quantitative. Qualitative data obtained from interviews with IT developers, multimedia experts, and material experts. They are research data regarding the response to the interface being tried. The interface that has been validated in the previous stage. Qualitative data were obtained from a questionnaire to lecturers, peer group leaders, and students. This questionnaire in the form of criticism, suggestions, and responses is used to determine the shortcomings of

the media and to provide input to researchers that are useful in the product revision stage. Quantitative data is the percentage value of three validators and the percentage of student scores in preliminary field testing and main field testing.

3. Product Result and Study

Development on educational media produces online apk-based learning media products that utilize android smartphones with learning media specifications having the icon image of the State University of Malang; layout sizes can be used on devices that have screens between 4 "(inches) to 6.4" (inches); media size of 97.6MB (Mega Byte).

Media products are not in Google Playstore, because this apk is not for sale. This Apk is directly sent via android social media and can be directly downloaded and installed for free. This Apk has three entry channels namely admission as a lecturer, peer tutor, and student.

3.1. Media Operation Steps

The first step in operating the media is to download an apk file that has been sent via a chat or email application.

Furthermore, after the application has been downloaded and installed successfully, open the application and the dashboard will log in as shown in Figure 2.

The application is opened by pressing the login button and the first dashboard layout will appear.

Figure 2 for the dashboard display login, Figure 3 for the lecturer dashboard, and Figure 4 for the student dashboard. If a student wants to know the value in nine meetings, then click the value printed on the dashboard.

Figure 6 is a dashboard display of student grades. The student dashboard displays the record values for 9 times face to face, so students can find out the achievements of the scores obtained.

In pictures 7, 8, and Figure 9 is a dashboard display of the lecturer value recap. If you want to know the student recap of grades for lecturers, click the report on the lecturer dashboard, then click the recap of student grades, then the student grade recap will appear at nine meetings.

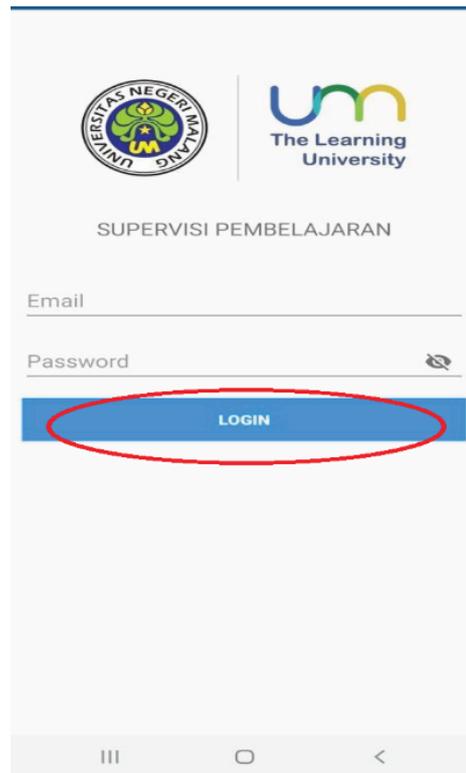


Figure 2: Login menu of lecturers, peer tutors, and students

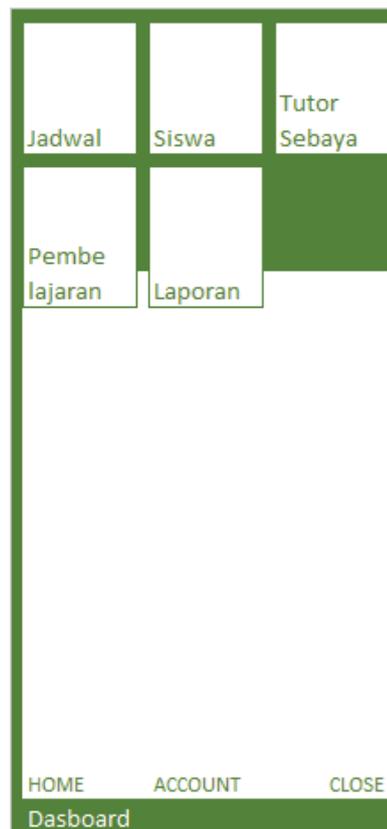


Figure 3: lecturer dashboard

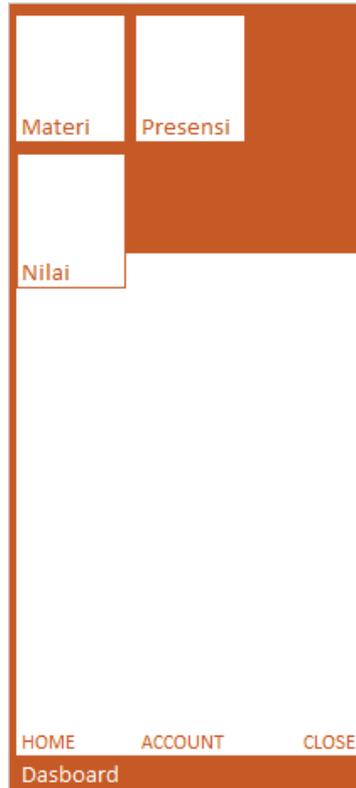


Figure 4: student dashboard



Figure 5: Click the value dashboard



Figure 6: Display dashboard of student grades

4. Product Review

Achievement media score for lecturers and students based on Android can help lecturers to monitor the activities of student academic achievement anywhere and anytime by the wishes of the user (user). This media can improve student achievement scores. Measurement of the validity of the media uses criteria adopted from Sugiyono [12]. The validity criteria table can be seen below.

TABLE 1

Category	Percentage	Criteria	Qualification
Very Good	76%-100%	Valid	No revisions
Fairly Good	51%-75%	Fairly Valid	Partial Revision
Not Good	26%-50%	Less Valid	Partial Revision
Not Very Good	0-25%	Invalid	Revision

A note from the IT validator states that the application has a size that is too large. Thus, triggering the reluctance of potential users to install on the smartphone. The large application size also requires a spacious RAM workspace, this has an impact on slow application performance or even lag on certain smartphone specifications. The

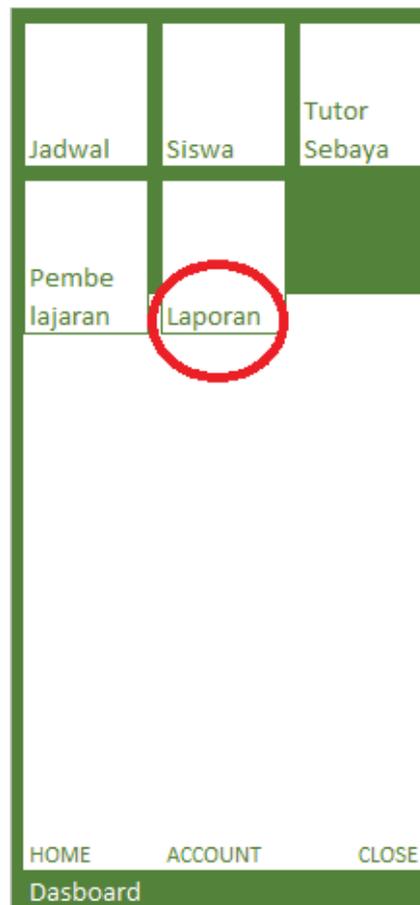


Figure 7: Click the report to find out the student grades

dominance of the monopoly on the use of RAM also has an impact on the appropriation of other optimized applications that run together, it also triggers a slowdown in multitasking on smartphones.

To solve this problem, the IT validator recommends splitting the application into three installers. The original one application for three functions changed to three applications with each one function only. All one applications for three types of login changed to three applications, each of which can only accept one type of login. This division aims to divide up the basic size of the installer and divide the workload of applications on three different smartphones.

After getting revised input from the validator, the application was revised into three applications, namely applications for lecturers, applications for peer teaching, and applications for students. Settling the application in a small group trial targeting one lecturer, two peer tutors, and four students. The results show that 72.50% of the target can use the application properly. Note from a small trial that the peer teaching button does not synchronize with the interface and there are no group names on the peer tutor dashboard. So that the group leader does not know the members of peer-teaching.

Kelas	J1
Pelajaran	Seni Musik
Hari	Senin
Jam	10.00-12.00

Laporan Presensi

Laporan Capaian Materi

Laporan Rekap Nilai Kelas

SAVE

CANCEL

Figure 8: Click the dashboard recap of lecturer grades

Settlement of small group trials then tested on large groups. Large group trials were tested on 1 lecturer, 2 peer teaching, and 28 students who were divided into two groups. The results of a large group trial showed 80.25%. This percentage increased from a small trial which had a percentage of only 72.50%. An increase in the results of small group trials to large groups showed results of 7.75%.

Notes from large group trials reveal that the basic color selection for students must be empowering. Empowering color is a bright, warm, and encouraging color. The media validator recommends using the orange base color as a background. While the monochrome color as a button, text, and form completeness.

The media validator also recommends choosing shades that are comfortable and seen for a relatively long time. Media validators choose green for two reasons.

Material validation suggests there is a need to pay attention to students who are excelling in practice and weak in practice. Students who are weak in good practice are facilitated by applications to be formed in peer teaching groups accompanied by students who excel in practice. Students who excel in practice are expected to get special applications and log in specifically to input the value of the development of the

Nama siswa	Decky	
Kelas	J1	
Pelajaran	Seni Musik	
Pertemuan ke-	1-9	
1	2	3
87	98	0
4	5	6
0	100	90
7	8	9
80	77	98
SAVE		
CANCEL		

Figure 9: Display recap of lecturer grades

group they accompany. In the application, the lecturer is expected to also be provided with facilities to arrange peer teaching groups accompanied by a tutor.

The color selection for lecturers is green, peer teaching is blue, while for students the color is orange. The peer-teaching application is added with a group setting selection button which contains the names of the peer-teaching groups.

The input from IT validators in stage II validation in real-time application development. So the application can be accessed by lecturers, students, and peer teaching in real-time or at the same time. Lecturers can access the application at the same time as students open applications for academic achievement. Students can know directly the value of the exam results and assignments given by the lecturer.

The improvement of IT validator, media validator, and material validator shows an increasing percentage of validation test I. IT validator gives a percentage of 92.50%, media validator gives a percentage of 77.25%, and the percentage acquisition of 84.75% of the validator Theory. The results of stage II validation show that this application is feasible to be produced until the final stage.

The results of the validation, as well as the results of trials on the two target groups, indicate that the application is feasible to distribute. The target of this application is for students and lecturers to make it easier to track academic achievement scores on each face-to-face. This application also helps students organize strategies to achieve better academic scores on every face-to-face.

5. Conclution

The production of this instructional supervision application must be developed in two applications or three types of applications. The application is divided into two consisting of lecturer and student applications. The application is divided into three namely lecturer, student, and peer teacher applications. Every application of this research must be connected and updated in real-time to know the development of academic achievement from students.

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