

SMART SCHOOL APPLICATION TO IMPROVE STUDENT LEARNING MOTIVATION

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Abstract

The teaching and learning process in junior high schools in Papua, still conventional, is that teachers deliver subject matter, assignments, quizzes, gathering assignments and other things related to the teaching and learning process are only carried out in the classroom so that learning activities are limited by time according to hours lesson. This resulted in the achievement of competence, completeness of the subject matter, and students' learning motivation was not achieved. Smart solutions to deal with problems in junior high schools in Papua is to make smart school applications. Smart school applications become blended learning that combines advance learning methods with online learning systems. Increasing student learning motivation by implementing a smart school application can form interactions between teachers and students, students and students, and communication between the school and parents. This can create an effective, efficient and paperless learning environment.

Keywords: - Smart school application, Blended learning, Motivation to learn, Junior high school.

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1. INTRODUCTION

A one of the national strategic issues that needs to be developed is the application of information and communication technology for increasing, accelerating, and evenly distributing education throughout Indonesia. Information technology development is currently very rapid and has become a need to improve the efficiency and effectiveness of performance in the world of education that cannot be avoided. This is very important benefit and can increase student learning motivation and competitiveness, especially junior high school in Papua. The teaching and learning process currently underway in all junior high schools in Papua is still conventional. The teacher delivered lesson material, gave assignments, quizzes, collection of assignments and other things related to the teaching and learning process only carried out in school (in class) so that learning activities were limited by time according to class hours. The process of teaching and learning activities is only conducted several times a week, as a result there are subjects who only get a portion of one meeting a week. This clearly makes not much learning material that can be delivered and absorbed by students. If there is a teacher who is unable to teach then the teaching and learning process is not carried out. Often times students are required to be independent in looking for materials and homework needed to support learning activities. Various problems in junior high schools in Papua require online learning application software that can be used by teachers to deliver learning materials, assignments, quizzes and discussions. Yudie Irawan, et al (2015) explained that one of the ways that can be used to support learning in the classroom is the online learning method as a teacher's companion. The teacher can utilize all

methods and learning media both in the form of audio and video visual, in addition to other material in the form of documents. The design and manufacture of learning material or e-learning content plays an important role because it is directly related to the learning process of the participants (students). Content is an object of learning which is one of the parameters of e-learning success through the type, content and weight of content (Numiek, 2013).

The support for online learning has paved the way for easy access to the educational resources and also given the learners the comfort of learning from their home (Raghuv eer, et al, 2016). The e-learning technology for home schooling can take advantage of the services and technologies which provided by the application to support teaching and sharing of learning resources. Home schooling can improve the quality, efficiency and effectiveness of online learning. To implement effective home school system, that needs methodology to be done from analysis of organizational characteristics and home school participants their needs, design, implementation, and evaluation of system (Winarno and Setiawan, 2013). Thus e-learning will be able to improve the quality, efficiency and effectiveness of learning for home school organizers and participants. The smart solution to deal with problems in junior high schools in Papua is to create a smart school application.

Smart school is designed so that students can share their work and exchange experiences in applying the knowledge they have gained (Mingsep 2017). Smart school application can provide integrated learning facilities that include tasks, lesson materials, lesson plans, assessment of learning outcomes, and can measure student achievement. Smart

school application to be blended learning that combines face-to-face learning methods with online learning systems. This can create an effective, efficient and paperless learning environment. Communication between teachers and students in learning activities is very important, both in school and outside the school environment. For learning outside of school, it is necessary to use the smart school application software that can bridge the interaction between teachers and students to form effective and efficient communication. Online learning models using the smart school application, can facilitate interaction between teachers and students in the student-centered learning process. So that it can improve student learning motivation, build student independence of learning, easier distribution of subject matter and assignment of information quickly.

2. RESEARCH METHOD

Making of smart school application, using the waterfall method includes five stages, namely identification of user needs, analysis, design, implementation, and testing.

- Identification of user needs was carried out by observing and interviewing in the Adventist junior high schools to collect data and information about the learning system that was running to build smart school applications.
- The analysis is carried out based on the identification of user needs to get a complete understanding of the learning processes, the delivery of information to students and teachers, and making of reports. The data that needs to be analyzed are student, teacher, subject matter, task, lesson schedule, and student report cards. This stage has determined the requirements system and specification of the smart school application.
- The design of smart school application is the stage of translating the analysis into a form of modeling design which includes use case diagrams, activity diagrams, sequence diagrams, and class diagrams. At this stage all the needs and processes of the smart school application have been transformed in the form of diagram design.
- The implementation of smart school application includes two parts, namely coding of smart school application and implementation at the Advent Abepura junior high school. Coding is the translation of the design smart school into the form of program codes using PHP and CodeIgniter programming languages and MySQL databases. The application of the smart school software is the installation in junior high school to be used as school application services.
- Smart school application testing is test of the operational smart school application that has been created and correcting errors in smart school application.

3. RESULTS AND DISCUSSION

Based on the results of research and interviews at the Adventist junior high school in Papua, was obtained data and information about the learning system as a basis for making the smart school application.

These data include:

- Student data is contains student identity. Its function is as information for student data. Data sources are the student section. Student attributes include: number, student name, address, gender, class.
- Teacher data is contains the teacher's identity. Its function is as information on teacher data. Data sources are the administration section. Teacher attributes include: no. nip, name, address, telephone, e-mail address, subjects.
- Study material data is contains material that will be given to students. Its function is as learning material for students. Data sources are teachers. Subject material attributes include: no, id_mapel, name of subject matter, description.
- The task data is contains the tasks given by the teacher to students to be done and collected to the teacher. Its function is as an evaluation of the teaching and learning process and to assess the ability and motivation of students in learning. Task attributes include: id, id_mapel, title, date, description.
- Study schedule data that contains student learning schedules for the implementation of the teaching and learning process. Its function is to regulate school learning. Data sources for the curriculum section. Schedule attributes include: no, id_schedule, time, class, subjects, teachers.
- Value data or student report cards is contains data about the results of student values. Its function is as a result of student learning evaluation. Data source are academic section. Attributes: nis, school name, address, student name, master number, class, school of year, number, subject, KKM, numerical value, letter value, learning progress description, type of self-development, self-development values, information, character and personality, absence of students. The design use case diagram of the smart school application is shown in Figure 1.



Fig 1: Use case diagram of smart school

Smart school application software is used by three categories of users, namely administrators, teachers, and students. The user interface of the smart school application service can be shown in the figure below.

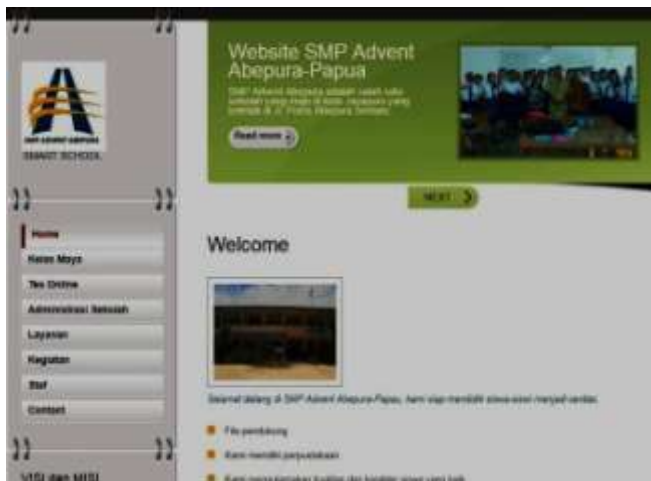


Fig 2: Main Menu of smart school application



Fig 3: Login

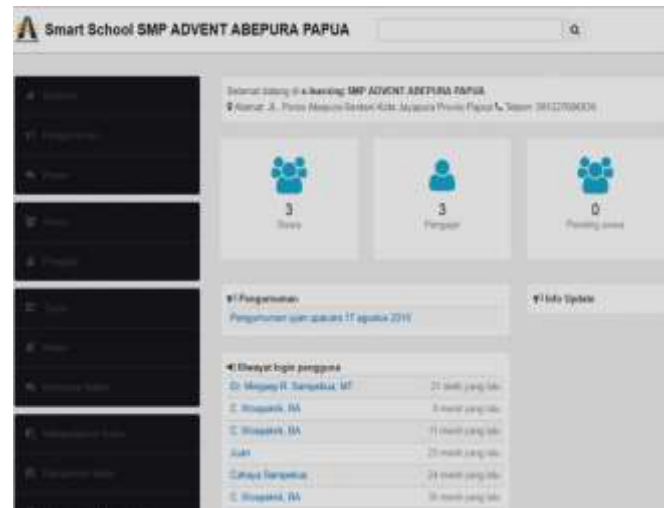


Fig 4: Home for Administrator

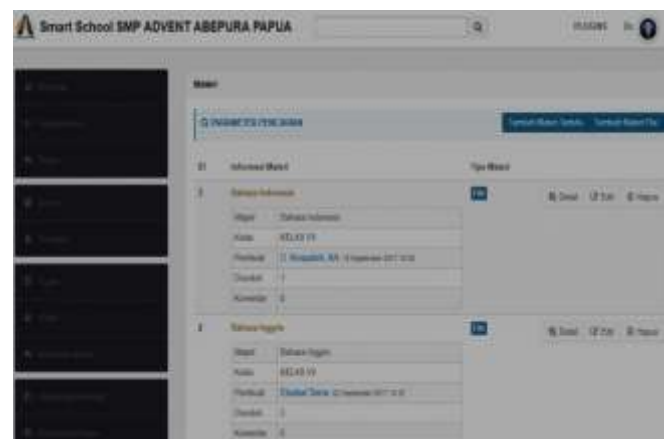


Fig 5: Management of subject matter

The principles in learning activities is that students play a role in the process of teaching and learning activities carried out. The role of students in learning must be supported by strong learning motivation so that it will show their interests, activities, and participation in the learning process. Teacher-centered traditional raises several problems such as difficulty constructing students' ideas and knowledge, difficulty building student learning independence, and delivery of non-complete subject matter due to limited teaching and learning time. These problems require a solution to create a smart school application. Learning with smart school applications can improve the quality of education because the interaction between teachers and students can be done whenever and wherever is not limited to the classroom. Learning materials, assignments, quizzes, task collection and other matters related to the teaching and learning process can be distributed online. Smartschool application can facilitate the interaction between teacher and students in the student-centered learning process so that it can increase student learning motivation, build student independence in learning to facilitate the distribution of subject matter and assignments as well as information delivery quickly.

4. CONCLUSION

The smart school application as an innovative learning model which can create a powerful learning environment, because the smart school application as belended learning from school learning so students can study at home. The smart school application facilitates can support interaction between teachers and students in the learning process. This can increase students' learning motivation, student centered learning, build student independence in learning, facilitate the distribution of subject matter and assignments and deliver information quickly.

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