ONLINE TRY OUT SYSTEM AND LEARNING MEDIA NATIONAL EXAM PREPARATION CASE STUDY N 2 BANDUNG

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ABSTRACT

Problems that occur in the process of preparation of national exams at SMKN 2 Bandung is Vice Principal of Curriculum and Teacher subjects require a long time in mengolah try out data from the first, second and evaluation process in determining try out the third, so that the time required for the implementation of the third or fourth try out very little. Students are only given stabilization exercises during the stabilization time together at school and had to relearn all of the material, so that students do not get to choose exercises and creatives who want to explore. Pursuant to the problems that exist at present in the N 2 Bandung, it is necessary to try out an online system development and test preparation instructional media development nasional.Metode try out online using CBT (Computer Based Test) which will facilitate teacher and vice principal of curriculum perform processing try out the data evaluation process. The learning method uses a hybrid learning, because it is based suitability of the needs of students and teachers of subjects in the process of consolidation of national examinations can be carried out not only in the classroom. Hybrid Learning learning combines face to face (face to face) in the classroom by using additional instructional media using a aplikasi.Penerapan of the results of testing of the system is built using a black box and Beta it can be concluded that this system can help the Vice Principal of Curriculum and Subject Teachers do processing the results of the evaluation, and assist students in the learning process memepersiapkan national exam.

Keywords :*try out online*, Instructional media, hybrid learning, Computer Based Test

1. PRELIMINARY

Vocational School (SMK) Negeri 2 Bandung is one of the Vocational High School in Bandung, West Java. SMK Negeri 2 Bandung using the National Education Standards (NES) on Vocational Secondary Education (PKM), in accordance with the Regulation of the Minister of Education and Culture of the Republic of Indonesia no. 4 2018 on the Assessment of Learning Outcomes by Unit Education and Learning Outcomes Assessment by the Government. One form of the Assessment of Learning Outcomes in the form of the National Examinations, National Examination is the activities undertaken by the Government to measure the achievement of competency of students in certain subjects. Curriculum is obliged to keep the National Examination at SMK Negeri 2 Bandung, therefore the joint school curriculum to create a policy that requires all students to attend counseling (try out) and stabilization to prepare students for national exams. Implementation try out can be used as a tool to determine the ability of the students, so the teacher can know who's mastery of the material is still below the average value to be given more attention.

The result of a joint interview with Mr. Sukarna as Wakasek Field Curriculum SMK Negeri 2 Bandung, SMK Negeri 2 Bandung has rules in holding tryouts required two (2) times, wherein try out the first and the second is used as an evaluation of the extent to which the students ready for exams national. If the results of the evaluation of the student seoang try out the value is still below the standards of the school, the school will hold tryouts will be declared ready selanjutnya.Siswa national exam if the value for each respective subjects have reached KKM is $\leq$ (greater than or equal to) 55 (fifty-five). The results of the first and second try out students get average - average score for mathematics at 52.89 (fifty-two point depalan-nine), mathematics by 58, 89 (fifty-eight point ninety eight), and English at 67.86 (sixty seven point eighty six). The average grade obtained by the students in the evaluation process try-out has not yet reached the average yield expected is 70 (seventy), it is necessary to try out the third diadakkanya mainly Indonesian lesson, because the values obtained (minimum completeness criteria). The interval between the third and try out a national exam only about 4 weeks, so the two weeks before the implementation of the National Examination, students will no longer be given a try out. The average number of students of class XII (twelve) is approximately 564 (five hundred and sixty-four)

students lead the evaluation process in determining try out all three require considerable time,

The process of consolidation of the national examination at SMK 2 Bandung still done conventionally in the classroom with the teacher hand out exercises in the form of paper, then the student is required to do exercises in newsprint. The results of the answers will be examined together in the classroom, then the teacher will incorporate the results into the consolidation of book value. Exercises are only given to students during the school consolidation and exercises covering all the material on the grating - grating the national exam. Students do not know in detail where the location of the material that has not been understood because the students are not able to do the exercises yourself at home, and had to relearn all of the material, so that students do not get to choose exercises and creatives who want to explore.

Related constraints have been described that experienced by the curriculum in determining try out the third, the researchers intend to build the system try out using Computer Based Test (CBT) and instructional media for Mathematics, Bahasa Indonesia and English using the Hybrid Learning. Learning Hybrid (Hybrid Learning) is a learning method that combines face-to-face learning methods (conventional) with online learning by taking advantages of each.

1.1 Identification of problems
Based on the background of issues raised, the problems that occurred in N 2 Bandung in preparation for the national exam are:
1. The Vice Principal of Curriculum and Teacher Coordinator subjects of trouble to make about the tryout and evaluation of each student.
2. Students difficulty to choose which one you want more material explored

1.2 Purpose and objectives
Based on the description of the problem, the purpose of this study was to Build try out the system and learning media containing materials and exercises to prepare students SMKN 2 Bandung national exams. While the objectives to be achieved in this study are as follows:
1. Memudahkan Vice Principal Curriculum and Teacher Coordinator subjects in making the matter and student evaluation.
2. Make it easy for students to choose which one to more material exploration.

1.3 Scope of problem
Making the online applications that do try out this necessary limitation problem, so that the problems were viewed is not too broad and in accordance with the aims and objectives to be achieved. The restrictions are the problems created in the review of these aspects are as follows:
1. Entries will be processed include the data of the school year, student data, class data, teacher data, test data, the training data, user data, data subjects, the response data, the data about the data values and test result data.
2. The process is done is the setting of the school year, the manufacture of exercises, manufacture about tryouts, manufacturing materials, processing of the exercise and the value of the try out of students, data processing classes, student data processing, pengelohan the data coordinator of subject teachers, the processing of data subjects, processing data banks about tryouts.
3. The output of the system try out this form of information teaching materials such as text, infromasi exercises in the form of multiple choice questions, information about the try-out in the form of multiple choice questions, the information value of the student try out the form in the form of textual, student scores of exercises in the form of textual and statistical reports value of students in the form of a graph.
4. Bank about tryouts are grouped into every period of the school year.
5. Students can simply try out work in accordance with the prescribed schedule of school.
6. Problem try out only in the form of multiple choice.
7. Learning materials and exercises contained in the system only from the coordinator of the subject teachers.
8. Learning materials and exercises can not be accessed when the try out is underway.
9. Media that will be built only three (3) subjects namely Mathematics, Indonesian and English.
10. Analysis model used in the construction of this system is object-oriented analysis.
11. Try out a system that will be built based on the web.
12. *Database Management System* (DBMS) is MySQL.

1.4 *Try out*
Try out is a mechanism that is used as an exercise for the student prior to executing the actual exam. Meanwhile, Try out Pre National Exam is a test (try out) which was held to determine the students' ability to respond to the UN earlier period.

To prepare for the national exam, it is common knowledge when every school has always held tryouts (trials) do the questions predictions of the national exams. Try out the national exams can also be called a simulation of a real national exam. The students are given problems and should be done like a true national exam.

1.5 Instructional Media

1. Media

According Arsyad [1]"That the media (the plural form of the medium), a word derived from the Latin medius, which literally means' middle ',' intermediary 'or' pengantar'.Oleh Therefore, the media can be interpreted as an intermediary or an introductory message from the sender to the message recipient. Media can be something material (software) or tools (hardware). "(Azhar, 2007)

2. Learning

Learning theory generally pay attention to the tendency-kcenderungan how the learning is done by learners (leaner). Learning theory is also associated with the structure of knowledge. There are three conceptions of knowledge structures, (a) the knowledge structure must be able to simplify the information that is very spacious, (b) such structures must be able to bring learners to things that are new, beyond the information that learners explain (c) the knowledge structure must be able to expand horizons think of learners, combine it with other sciences.

According to Gerlach and Ely[1] cited by Azhar Arsyad "media when understood in outline is the human, material and events that establish conditions under which students are able to acquire the knowledge, skills or attitudes".

In a learning process, two crucial elements are the teaching methods and media pembelajaran.kedua these elements are interrelated. Selection of one of the teaching methods specified will affect the type of media that suit, though there are still other aspects that must be considered in choosing the media, among others, learning objectives, types of tasks, student characteristics, learning context, and the response of students are expected to master after learning underway.

1.6 National exam

In a large dictionary Indonesian Exam syllables derived from test and an ending which means something that is used to test the quality of something (intelligence, ability, learning outcomes). Exam is the standard set by the School to determine the extent of students' ability to do the questions given in the exam.

National Education Minister Regulation No. 77 Year 2008 on National Exam High School / Madrasah Aliyah. National Exam is an activity measurement and assessment of national competence of learners in secondary education. National exam aimed at assessing the achievement of national competency on specific subjects in the group of subjects in science and technology.

The UN is used as a consideration for: a. quality mapping unit and / or educational program; b. basic selection into the next education level; c. determining the graduation of students from the program and / or education units; d. development and provision of assistance to the education unit in an effort to improve education. UN organized by BSNP whose implementation in collaboration with relevant agencies environment of government, provincial governments, universities, county or city governments, and educational unit.

1.7 Hybrid Learning

According to Kaye Thorne "Hybrid learning is a learning model that integrates innovation and technological advancement through online learning systems with interaction and participation of the traditional learning model"

Hybrid learning terminology originally used to describe courses that tries to combine face to face learning with online learning. Currently, the term blended learning is becoming popular, the more combinations are referred to as blended learning. However, the definition of blended learning based learning is learning that combine learning penyampaikan strategy using face to face activity (offline) and computer-based learning (online), via the Internet and mobile learning.

The necessity and significance leaning Hybrid lies in its potential. Hybrid learning represents a clear advantage to create learning experiences that provide learning at the right time and the right time for every individual. Hybrid learning to be a limitation truly global and universal and brings together groups of learners across cultures and different time zones. In this context of blended learning can be one of the most significant development in the 21st century (twenty-one). The term is also used by the mass media such as e-mail, forums, blogs coupled with technology, text or audio synchronous. Learning to use interactive multimedia learning supported by receipts hybrid method. According to[2] CW Putriana and G. Herman,

"Multimedia is a combination of text, images, art graphics, sound, animation and video elements are manipulated digitally. The look and feel of a multimedia project should be fun, aesthetically pleasing, inviting and binding. The project must contain visual consistency, just by using elements that support the overall message of the program. "
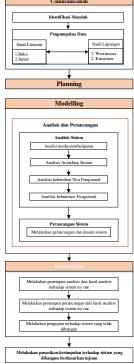
2.9 Methods CBT (Computer Based Test)

Computer Based Test (Computer Based Test, CBT) is a test or evaluation that is conducted by using a computer. Characteristics of the test is the same as the conventional test that is using one perangakat tests for some of the participants to the length of the same test (fixed test length), the difference lies in the technique of delivery (delivery) items that are no longer meggunakan paper

(paperless), good for a script about and the answer sheet. The scoring system or direct correction performed by the computer.

1.8 Research methods

The method used is quantitative method. Software development methods used in the making of this application is using the Waterfall method. Here is a depiction of the groove in this study, can be seen in Figure 1.

Picture 1. Flow Research

2. RESEARCH

2.1 Problem analysis

Analysis of the problem is an assumption of the problems that are described in the procedures of data processing in system development and learning media try out a national test preparation at SMK Negeri 2 Bandung use CBT methods and Hybrid Learning. Analysis of problems of the current system at this time is:

1. Data processing results try out first, second and evaluation processes about tryouts is still done manually, thus causing the old curriculum and teachers in getting results and determine implementation due to at least try out the third time and is adjacent to the quiet period of national exams.
2. Stabilization exercises only national test given to students during the stabilization time together at school and exercises covering all the material on the grating - grating the national exam. Students can not do exercises yourself at home, and had to relearn all of the material, so that students do not get to choose exercises and creatives who want to explore.

2.2 Learning Media Analysis

SMK Negeri 2 Bandung providing extension (try out) and stabilization in order to prepare students to face the National Examination. Implementation try out mandatory two (2) times, wherein try out first and the second is used as an evaluation of the extent to which a student is ready to face national exam. Try out the first and second simultaneously implemented in schools according to the schedule specified. Try out the third or fourth must be done where the value of the student has not met KKM (minimum completeness criteria). Try out the third or fourth home can be implemented in accordance with a predetermined schedule.

National exam preparation instructional media using hybrid learning is an application that utilizes the flexibility of a computer as a tool or tools that communicate the material to students, doing exercises, and see the evaluation results of the exercise students.

2.3 System Architecture Analysis

Analysis of system architecture of the system and learning media try out a national exam preparation at SMKN 2 Bandung to be built has two parts: System try out and learning media in the form of multimedia content:
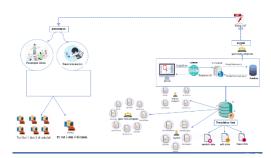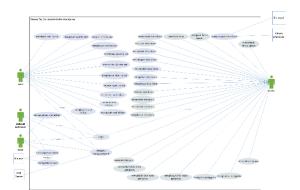

Figure 2. System Architecture

2.4 Functional Needs Analysis

Analysis of functional requirements needed in order to describe the process of activities to be implemented in the system and details the requirements needed by the system for the system to work properly. Functional needs analysis conducted modeled using UML (Unified Modeling Language).

2.4.1 Use Case Diagram

Use Case diagram designed to try out the system and learning media national exam preparation. After the admin login, then setting the school year shall be set before all of the functionality is
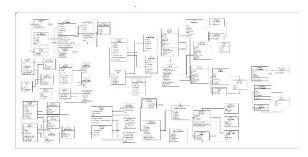
executed. Use Case systems and learning media try out a national exam preparation can be seen in Figure 3.

Figure 3. Use Case systems and learning media try out a national exam preparation

2.4.2 Class Diagram

Class diagram of the system and learning media try out a national exam preparation class diagram try out the system and learning media national exam preparation national exam preparation can be seen in Figure 4.

Figure 4. Class Diagram try out the system and learning media national exam preparation

2.5 Design Database

Designing Database consists of: relationship diagram and table structure
1. Relationship diagram

Diagram relation describes the relationship between data, meaning data and limits. The process of relations between attributes is a combination between the attributes that have the same primary key, so that these attributes into a single unit which is connected by the key fields. The following relation schema try out the system and learning media national exam preparation in Figure 5.

Figure 5. Relationship Diagram try out the system and learning media national exam preparation

2.6 testing Systems

System testing phase is an important stage in which applications built were tested to find errors or damage. Tests conducted in this study is the Black Box testing and beta testing. The test system development using test data based on some of the data provided.

2.6.1 Pretest and posttest

pretest and posttest is a test given to students of class XII SMK Negeri 2 Bandung is done by providing practice questions as many as 10 multiple choice questions to measure the success of the media that is built in to help students in understanding the subject matter presented. Election Coordinator assigned by the teacher about the subject teachers Indonesian. Posttest testing was held on 24 August 2019, and testing pretest was conducted on 29 August 2018. Samples taken as many as 24 students of class XII (twelve) RPL. In testing the pretest and posttest, the material used in the testing is a matter of Indonesian material submitted. Results of the tests performed and compared to test whether the application is built was able to help the understanding of the students or not.

2.6.1.1 Scenario Testing pretest and posttest

The test will be divided into two (2) that the pretest and posttest, with a given pretest (test prior to running applications and learning as usual) and posttest (testing after running applications and learning as usual). The evaluation criteria for the pretest and posttest described in the following:

Table 1. Testing Assessment Criteria on pretest and posttest

Lesson	Question	A value of 1 Problem	Total Value of Correct Answers
Indonesian	10	10	100

1. **Data analysis**

Technique analyzed data do see if there is an increase in the value of the students after testing with the application of learning to use the application. To view the analysis of the average difference in the two is by using the t test. with the hypothesis.

H0: no increase in the value of the students after using the method of learning by using learning media. ($M1 = \mu2$) (1)

H1: an increase in the value of the students after using the method of learning by using learning media. ($M1 < \mu2$) (2)

2. **Results Pretest - posttest**

To view student learning outcomes in the cognitive domain before and after treated (treatment), it is necessary to do processing and data analysis of the pretest and posttest scores. Improved student learning outcomes in the cognitive domain after using instructional media based on test results of students by looking at differences in pretest and posttest values by calculating the difference between

the two. Data values pretest and posttest results can be seen in the table and graph below.

Table 2. Data value of pretest and posttest

No.	NIS	Name	pre test	posttest
1	11724328	Abdul Halim Algufroni	60	70
2	11724329	Abil Nurdin Aprian	70	80
3	11724400	Arda Nur Azhar Jabbar	50	70
4	11724332	Marwa Binno Suponco	70	80
5	11724404	Celline Putriana Oktaviandi	50	70
6	11724405	Annisa Nurul Cindy	60	70
7	11724334	Destry Adina Rahmawati	50	80
8	11724336	Elvan Alvianto	60	80
9	11724368	Fina Rahmadia	40	70
10	11724369	Gia Algapura	60	80
11	11724370	Hadi Muhammad	70	80
12	11724408	Haikal Wahid Nashrullah	80	90
13	11724409	Hasna Nur Azizah	50	70
14	11724343	Mochammad Berets Faithful	70	80
15	11724344	Muhammad Ari Surya	60	70
16	11724378	Muhammad Stars	70	80
17	11724345	Muhammad Faiq Athallah	60	70
18	11724348	Muhammad Raihan	70	80
19	11724350	Muhammad Rizky	40	80
20	11724417	Mustika Rahayu	50	70
21	11724418	Nabilah Ainul	80	90
22	11724421	Putri Usman Nur Syafitri	60	70
23	11724393	Nabila Shilvia	80	80
24	11724420	Punari	60	70

Average yield - average students

Total	1470	1830
Average	61.25	76.25

Having calculated the average value of pretest and posttest average value. The average value of the reduced value posttest average pretest to determine at what happened after the increase in the value of students using instructional media built. The results of pretest and posttest value comparison is shown in Table 2

The formula to calculate the percentage of the increase in value is as follows:

$$\left(\frac{(V2 - V1)}{V!} \right) x 100\%$$

Percentage Improvement (3)

Information :
V1 = Old Value
V2 = New Value
Then the calculation of the percentage increase in the value of pretest and posttest are as follows:
Percentage Improvement = (76.25 - 61.25 / 61.25) x 100%
Percentage Improvement = (15 / 61.25) x 100%
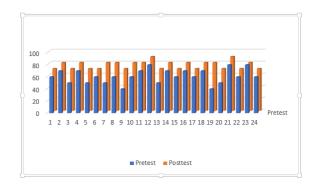Percentage Improvement = (0.2449) x 100%
Percentage Improvement = (0.2) x 100%
Percentage Improvement = 20%

Table 3. Comparison of results of pretest and

Matter	Average pretest	Average posttest	Enhancement Value	Percentage Enhancement
Indonesian	61.25	76.25	15	20%

posttest

Figure 6. Graph Value Average - Average pretest and posttest

Based on the chart above can be seen that there is an increase in the average value of the class with an average value of 76.25 with a percentage increase of 20%.

3. CLOSING

In this section, describes the conclusion that contains the results obtained after the analysis, design, and implementation of the design of the built and suggestions that will provide important records and possible improvements that need to be done.

3.1 Conclusion

Based on the results obtained in this thesis, it can be concluded as follows:

[1]. Try out the online system and media that built this can facilitate the vice principal and subject teachers to try out the results of the evaluation process of students including data processing and item construction

[2]. System and media try out online learning can help students to be able to learn and do the exercises without having to be in the classroom with the teacher.

3.2 Suggestion

Suggestions for the development of systems and try out online learning media are some suggestions that can be done, among others:

The integration with replications midterm (UTS) and or replay the end of the semester (UAS) were still using paper.

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