Innovative Journal of Curriculum and Educational Technology
10 (1) (2021) : 51–63

https://journal.unnes.ac.id/sju/index.php/ujet/article/view/

The Development of Evaluation Model Based on Information Technology and Communication

Manik Larasati✉, Titi Prihatin, Djuniadi Djuniadi

Pascasarjana, Universitas Negeri Semarang, Indonesia

Article Info

History Articles
Received:
November 2020
Accepted:
December 2020
Published:
June 2021

Keywords:
Information and Communication Technology, Evaluation Model, Development, Simulation and Digital Communication.

Abstract

Implement daily tests at school to find out student capability after learning process on certain materials study. The evaluation model is designed by utilizing technology to achieve expected goals, making it easier to implement and assess daily tests. This research has aimed to (1) analyze students and teachers needs, (2) analyze the design of evaluation model based on ICT, (3) develop an evaluation model that must be applied, (4) assess applicability, (5) evaluating daily tests effectiveness with ICT evaluation model. This research is based on ADDIE research and development model, which covers Analysis, Design, Development, Implementation, and Evaluation. Daily tests so far using paper. Students and teachers need new innovative technology with a username, password, timer, and easy to evaluate. ICT evaluation model has a design with the homepage from WordPress, and then daily tests system use moodle. Based on due diligence from material expert validator, media expert, and practitioner, the ICT evaluation model is feasible to be applied to students. Percentage level validation of small-scale class trials in each aspect is an aspect of the interface, presentation of questions, and advantages with proper assessment results when implemented on a large class scale. Meanwhile, results of large-scale trials in this aspect are feasible if implemented on a larger class scale. Formative evaluation is when the researcher follows up input from the validator. Summative evaluation is carried out after large-scale class trials or activities have ended in their entirety. Evaluation models based on ICT can provide benefits to the education process, especially knowledge about technology for teachers to implement a more varied, flexible, efficient, and effective learning evaluation process that simplifies the assessment process.

✉ Correspondence address:
Pascasarjana, Universitas Negeri Semarang, Indonesia
Jalan Kelud Utara III Semarang, Jawa Tengah Indonesia
E-mail: tp12.086@gmail.com

p-ISSN 2252-6404
e-ISSN 2502-4515

INTRODUCTION

The development of Science and Technology (IPTEK) resulted in the emergence of competition in life. One of them is in the field of education. Utilizing science and technology in education is essential in changing education, especially in the learning process (Kusyeni, 2017). The development of science and technology further encourages renewal efforts in using technology results in the learning process (Arsyad, 2009). Science and technology have transformed conventional learning systems into modern learning systems based on Information and Communication Technology (ICT) (M, Suryaningtiyas, & Kristanti, 2016).

ICT is used in all aspects of life, and its influence is expected to bring a more significant impact on the world to come (Isjoni & Mahmud, 2008). This is very much in line with the mandate of ICT utilization as outlined in the Strategic Plan of the Ministry of Education and Culture 2015 - 2019. ICT solutions by utilizing internet networks provide collaborative learning that can be accessed widely, anytime, and anywhere (Fuady, 2016). In a world of education, ICT development has brought significant changes. This development has affected teachers, students, and schools in the classroom's learning process (Semerci & Aydın, 2018).

In general, ICT are various tools and systems used to obtain, process, manage, manipulate, move, store, and distribute everything through electronic media (Isjoni & Mahmud, 2008). Benefits of Information and Communication Technology (ICT) in learning are a learning resource for teachers and students. Besides that, it can also be used as an evaluation model in learning activities. One of the benefits of technology in learning is an alternative learning source for teachers and students (Sudaryati, 2016). Teachers can use it to find references regarding subject matter, while students can use it as a learning resource. The use of technology can also be carried out in the learning result test/test system.

Evaluation is a systematic process to determine or make decisions to what extent program objectives have been achieved (Djaali & Muljono, 2008). The evaluation process is carried out to determine whether the learning process is good or bad. This process is expected to provide information to determine student learning and teachers' effectiveness in the classroom (Hanung Wicaksono, 2017). Learning success is always seen from the aspect of learning outcomes. In contrast, assessment of the application of learning is still rarely done. Thus evaluation is needed in various activities of everyday human life (Mahirah, 2017). Evaluation of learning outcomes in education is carried out on students to determine the level of ability or success during the Teaching and Learning Activities process. The school-level process of evaluating learning outcomes is carried out through direct observation by teachers of their students and assessment (Sonjaya, Sumiah, & Nugraha, 2016).

Things that we often encounter in schools in general, in daily tests, only use conventional methods, namely using paper as a media for questions and assessment instruments (Wati, Kasmawi, & Mawarni, 2018). This conventional method is commonly called a paper-based test (Paper Based Test / PBT) or Paper and Pencil Test (P&P Test).

Many schools use conventional systems and have not applied science and technology, causing several obstacles or problems in conventional methods. For example, in arranging questions, teachers must compose repeatedly and repeatedly print every time they carry out daily tests in a different class. That has resulted in higher school expenses. In a presentation of difficult questions, it is varied. Students have the opportunity to cheat, such as cheating and soon. If teachers make different questions for each student, it will take a relatively long time to compile them. Daily tests with this conventional method are limited in time and place. They require a supervisor/face-to-face teachers at the time of implementation. So that students tend to be tense, bored, and not enthusiastic. In calculating grades, the teacher

calculates manually to have a high likelihood of human error in assessment. In a manual assessment, value processing takes a relatively long time. So that students cannot know the results of grades directly after carrying out daily tests. An online learning model is generally needed to overcome problems such as time, place, cost, and very little teaching staff (Fuady, 2016).

H. Moenadi public vocational high school has an increased number of students from year to year, so implementing the learning evaluation process has experienced several obstacles. As experienced by teachers, they are increasingly overwhelmed in compiling questions and processing grades. In questions prepared, it is difficult for teachers to make various forms of questions, such as a limited display of questions and non-random questions. The confidentiality of questions is relatively difficult to maintain. In processing daily test scores, teachers need a relatively long time to correct and calculate grades. Other obstacles arise for students with problems in preparing questions and processing grades experienced by teachers, such as boredom and unenthusiasm of students in carrying out daily tests because the form of questions does not vary. Students cannot know the results of the scores directly.

These obstacles can be overcome by utilizing information technology, allowing students to do tests from different places. Computerized tests provide speed and ease in giving grades because the teacher no longer checks one by one on student answer sheets. However, the scores are available by the software in the database with automatic calculations based on students' answers (Saraswati & Putra, 2015). The technology needed to simplify student examinations and assessments so that the process of student examinations and assessments can be processed more quickly and produce fast, precise, and accurate data (Tsani & Nurhadianto, 2016). Another advantage is that the time and place for implementation can be arranged to make it difficult for students to commit cheating.

Aims of this research are (1) to analyze the needs of students and teachers at H. Moenadi public vocational high school, (2) to analyze the design of the ICT-based evaluation model, (3) to develop an ICT-based evaluation model that should be applied to daily tests, (4) assessing the feasibility of implementing daily online tests with an evaluation model based on Information and Communication Technology (ICT), (5) evaluating the effectiveness of daily online tests with an evaluation model based on Information and Communication Technology (ICT).

METHODS

This research and development refer to ADDIE research and development model developed by Branch, which includes Analysis, Design, Development, Implementation, and Evaluation (Branch, 2009). ADDIE model is an easy-to-apply model. The process used is systematic with a clear framework to produce effective, creative, and efficient products (Wahyuny, Ika N., 2017). In this research, two main activities must be carried out in research and development, namely producing products and testing Sukmadinata products' effectiveness (Siroj, 2015).

Product development steps, this model can be used for various forms of product development, such as models, learning strategies, learning methods, media, and teaching materials (Arkun & Akkoyunia, 2008).

This research was conducted from October to December 2019. The subjects of this research were students of class X H. Moenadi Semarang public vocational high school, namely students who received Simulation and Digital Communication subjects. In the small-scale test, there were ten students. Whereas in the large-scale test, there were three classes with a total of 78 students.

RESULTS AND DISCUSSION

Analyzing Students and Teachers Needs

The results of the analysis of student and teacher needs were obtained at the ADDIE model analysis stage.

Analysis

The analysis phase is divided into 2 phases, namely conducting field studies and literature studies. The analysis stage carried out in this research is to determine an evaluation model that is considered appropriate to be developed. Of the three teachers interviewed, one teacher never carried out daily tests online, 1 had several daily tests online but more often offline, and one teacher often used online tests. According to her, daily online tests are efficient because they can be done anytime and anywhere without face-to-face. The teacher uses google form as a provider of daily tests. The teacher also revealed shortcomings in google form are too easy for anyone to access because of the absence of privacy security in daily tests. In google form, are public application, there is no specific command to enter a personal username or password. Google Form used by each student who participates in the implementation of daily tests—another drawback expressed by teachers, namely the absence of a timer in Google Form.

Google form itself can use a code or token to join specific daily tests, but with one code shared and can be used by anyone. Meanwhile, each student needs a username account and password to access the course. These more privately, and only registered students can participate in daily tests. In google form, there is no timer when students work on test questions. There are only times when replay opens or starts and when it ends, indicated by date and time. To get this service, you need to set it, namely, adding the Form Limiter plugin manually.

There is material on the Basic Concepts of Algorithm Logic and Mind Maps in Simulation and Digital Communication subject. Students learn how to make concept maps. This material is very suitable if daily tests start online because students no longer need a complete paper, a ruler, and a long time to make a concept map.

A needs analysis questionnaire is given to students who have carried out daily tests or who have received Simulation and Digital Communication subjects, especially class XI.

Table 1. Results of Student Needs Analysis Questionnaire

Question	Answer Options	
	Yes	No
Does your teacher currently use technology in carrying out daily tests?	37	3
Are you comfortable doing daily tests?	38	2
Are you enthusiastic in carrying out daily tests?	29	11
Do you have difficulty understanding the questions on the daily test?	24	16
Is your teacher presenting questions in a monotone? (for example, there are no pictures, videos, animations, etc.)	29	11
Can you find out your score after daily test?	16	24
Has your teacher ever made mistakes in correcting or assessing your answers?	24	16
Has your teacher ever asked you to do daily tests using technology?	38	2
Does your school have adequate computer laboratories?	37	3
Has your teacher ever invited you to use a computer laboratory in carrying out daily tests?	29	11
Do you have a handphone / computer / laptop?	40	0
Do you often use handphones / computers / laptops?	39	1
Do you frequently access the internet?	39	1
Do you need a new innovation in carrying out daily tests?	37	3
Do you agree if a daily test is developed using technology?	38	2

The analysis questionnaire was given to 40 students randomly from 2 different classes. According to table 1, data show that 37 students stated that teachers in school had used

technology in implementation of daily tests but for browsing facilities on internet if daily test was an open book. 38 students stated that they were comfortable carrying out daily tests by utilizing technology. 24 students stated that they had difficulty understanding questions.

29 students stated that questions presented were monotonous or did not vary. 24 students stated that they could not know value or daily test results directly and had to wait sometime after corrected. 24 students stated that teachers had made mistakes in correcting results of daily tests. 37 students stated that computer laboratory owned by school was adequate in terms of devices and internet networks they had. 40 or all students stated that they have handphones/ computers/laptops.

39 students stated that they often use handphones/computers/laptops. 39 students stated that they often use the internet. 37 students stated that they needed new innovations in carrying out daily tests. 38 students stated that they agreed if a daily test was developed using technology.

Field studies were carried out to determine the objective conditions of the field by collecting various information. From the results of field studies, it can be seen that elemental weaknesses and needs that will be used based on research are (Nurdin & Ertikanto, 2015). The analysis phase begins with a survey of students and the learning environment to determine which learning problems are top priority and should be selected as objectives (Premana, Suharsono & Tegeh, 2013). Analysis of student characteristics, student needs, learning environment, subject matter, determining the type of learning media used, and analyzing constraints found are activities carried out at the analysis stage (Premana, Suharsono & Tegeh, 2013).

Results of interviews with three teachers, one teacher who often used c revealed that daily online tests were efficient. Because the daily online test could be carried out anytime and anywhere without face to face. The teacher uses google form as a provider of daily tests. However, in google form, there is no command to enter a username and timer. The material on the Basic Concepts of Algorithm Logic and Concept Maps is very suitable if daily tests are carried out online. Students no longer need complete paper, a ruler, and a long time to make a concept map. From the needs analysis questionnaire results, 95% of students stated that they were comfortable carrying out tests by utilizing technology. 100% of students stated that they had a handphone/computer/laptop, and 92.5% of students stated that they needed innovations in carrying out daily tests.

Based on findings in the learning activity and literature study phases, researchers developed an ICT based evaluation model presented in the form of an online Moodle. This evaluation model is practical, efficient, minimize human error, evaluations that can be seen directly, allocates time used according to specified limits, and reduces fraud in exams (Rahayu & Listiyadi, 2014). Seeing that all students have devices, they often use the internet and intelligence of today's children familiar with the technology. Moodle is a software package useful for creating and conducting internet-based courses/training/education (Safitri, Budiharti, & Ekawati, 2014). Moodle is considered very appropriate because it has several advantages that can help with obstacles experienced by teachers and students. Moodle's features can be developed or modified as needed.

Analyzing Design of ICT-Based Evaluation Model

Analysis design of the ICT-based evaluation model was carried out at the ADDIE model design stage.

Design

The design stage is needed to assist in making evaluation models at the development stage or later development The design stage has each activity in example, formulating performance the ICT evaluation model, compiling flowcharts, compiling storyboards, compiling student modules, compiling teacher modules, compiling development procedures modules, compiling student perception

questionnaire instruments, compiling expert validation instruments.

Performance of ICT evaluation model design developed is determined by model requirements structure table below, which is adjusted to the results of students and teachers needs analysis.

Table 2. Model Requirements Structure

Characteristics and Model Needs
The evaluation model developed utilizes technology.
The evaluation model developed can make various questions with display images, animations, videos, etc.
The evaluation model developed can present the value directly after completing the questions.
The evaluation model developed can be operated using a computer/laptop/ handphone.
The evaluation model developed uses the internet.
The evaluation model developed includes a specification of the command to enter a username and password.
The evaluation model developed includes a timer.
The evaluation model developed includes an answer sheet for making minda maps.

Flowchart designed to illustrate developed ICT based evaluation system management graphically. Flowcharts are designed according to the concept of performance that has been conceptualized before. The following designed flowchart is presented in Figure 1.

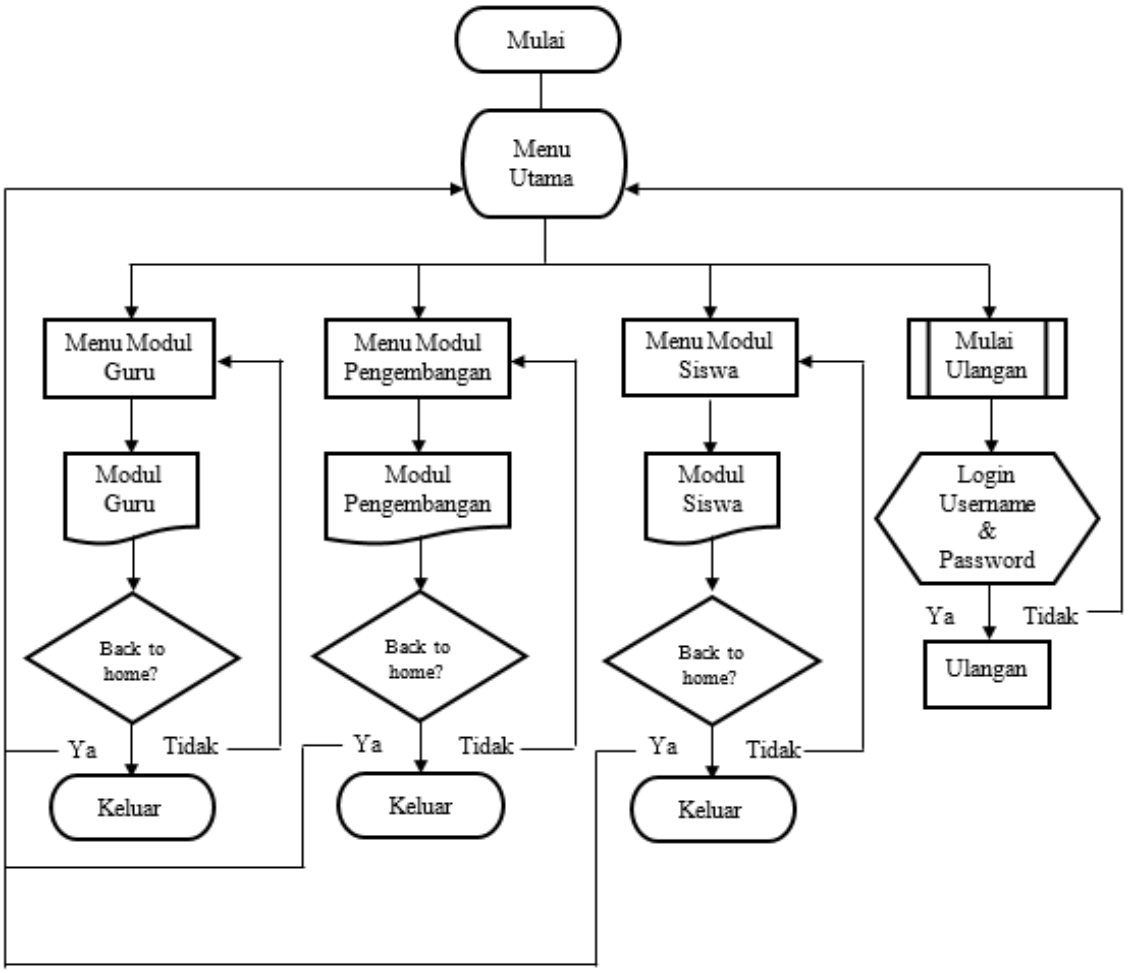
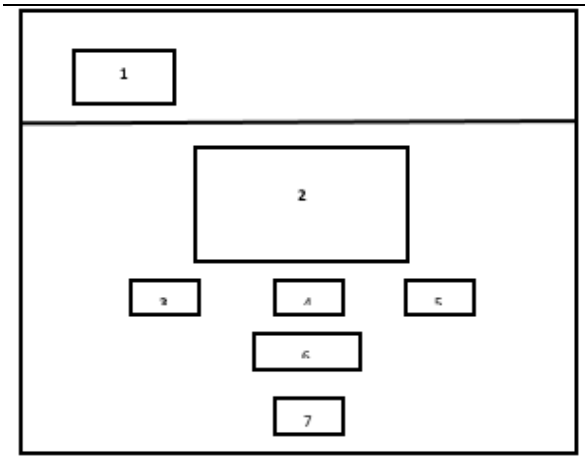


Figure 1. Flowchart of ICT Based Evaluation Model

It made the first design in the form of a storyboard to make it easier to create an evaluation model. Compilation of a sketch or design of the initial product as a whole in the form of a storyboard describes product design—storyboard visualization of ideas from a developed evaluation model to provide an overview of the resulting model. A storyboard can also be said as a visual script used as an outline of a shot by shot, commonly called a scene.

A storyboard is designed according to the concept of performance and flowcharts that have been previously conceptualized. The researcher-made a design layout for each page, namely the logo, text, and buttons in the storyboard. Researchers also designed more detailed page navigation for each button that was adjusted to the flowchart. The following storyboard that has been designed is presented in table 3.

Table 3. Storyboard of ICT Based Evaluation Model

Pages	Link
 **Homepage** **Information:** Logo "https://siangon.net/" Preface and developer profile Menu "Teacher Module" Menu "Development Module" Menu "Student Module" Menu "Start Repeat" Contact the developer	Navigate "teacher modules" to the "teacher modules" page. Navigate the "development module" to the "development module" page Navigate "student modules" to the "student modules" page. Navigate "start replay" to the "Moodle" page. Developer contacts have navigation to Instagram, telegram contacts, and email.

Activities are undertaken at the design stage, usually selecting the most appropriate learning environment by learning types of cognitive skills needed to achieve instructional goals, writing instructional goals, choosing overall approach, program form, and appearance: unit outline, learning, and modules, designing course materials. Specifically for use in interactive electronic media (Sukenda, Falahah, & Lathanio, 2013). The design stage includes the process of making a design (blueprint), both interface design and multimedia interactivity design being developed (Premana, Suharsono & Tegeh, 2013).

The evaluation model developed was named Sistem Ulangan Online (SIANGON). Evaluation model designed using the homepage of WordPress, then for daily test system using Moodle. Moodle is considered very appropriate because it has several advantages that can help with obstacles experienced by teachers and students. Moodle's features can be developed or modified as needed.

Flowcharts and storyboards to visualize product workflows from start to finish. If the

flowchart and storyboard are well designed, it will undoubtedly make it easier to create a media design appearance (Juniantari, Parmiti, & Suwatra, 2012).

Developing an Evaluation Model That Should be Implemented

Development of the ICT-based evaluation model is carried out at the ADDIE model development stage.

Development

The evaluation model is named Sistem Ulangan Online (SIANGON). Home page designed using WordPress containing a teacher module, development module, student module, and navigation from testing to get Moodle. The teacher module contains teacher guides in using Online Test System for daily tests, from logging in, creating questions, organizing classes for students to downloading and assessing students. The student module contains guidance on using Online Test System for daily tests, from logging in to working on questions to see grades. The development module contains guidelines on how to develop an Online Test System. This is an overview of the ICT evaluation model's homepage that has been developed, presented in Figure 2.

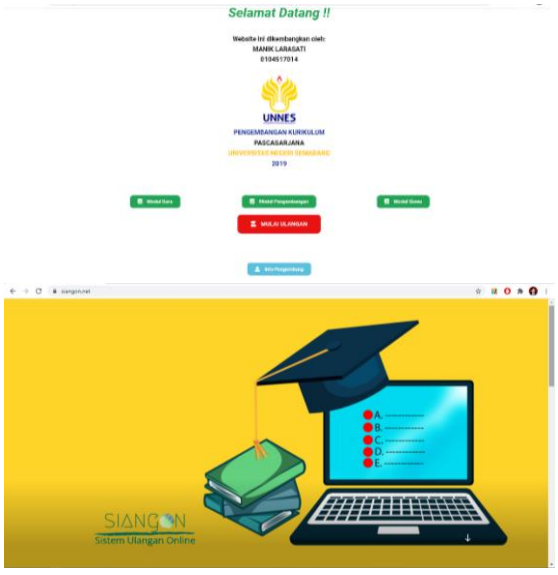


Figure 2. Homepage Display

A daily test system developed using Moodle. Teachers and students must first fill in username and password to access and carry out daily tests. There is a provider for making mind map questions so that students can draw a mind map on the question-answer sheet. Teachers can provide a timer for each daily test. Following is an overview of the ICT evaluation model developed using Moodle is presented in Figure 3.

Figure 3. Display of Evaluation Model with Moodle

The development stage is an advanced stage at the design stage. The researcher creates or produces an evaluation model that has been conceptualized at the design stage. After the ICT-based evaluation model is finished, the researcher first validates several experts so that it is feasible to continue the implementation stage.

Following are the assessment results by the material expert validator, which are summarized in table 4.

Table 4. Table of Material Expert Validator Assessment Results

Validator	Score	Category
Material Expert I	51	Good
Material Expert II	52	Good

The material expert I validator assessment obtained a score of 51 with a maximum score of 65. An average value of all aspects was 51/65 × 100% = 78.46%, which was in the "Good" category. The material expert I validator gave suggestions and comments, " Questions are good enough, can be implemented immediately."

Results of the assessment of material expert validator II obtained a score of 52 with a maximum score of 65, an average value of all aspects was 52/65 × 100% = 80%, which was in the "Good" category. Material expert validator II gave suggestions and comments: "Media is good enough and able to accommodate user needs."

Based on the results of the overall evaluation of material validators, this ICT based evaluation model is feasible to be implemented.

Results of assessment by media expert validator are summarized in table 5.

Table 5. Table of Media Expert Validator Assessment Results

Validator	Score	Category
Media Expert I	62	Good
Media Expert II	64	Good

Results of assessment from media expert validator I obtained a score of 62 with a maximum score of 80. The average value of all aspects was 62/80 × 100% = 77.5%, which was in the "Good" category. Suggestions and comments given by expert validator of material II were " Color lacks contrast, and there needs to be socialization related to existing abbreviations." The researcher followed up, namely revising several aspects that were suggested by the media validator. The follow-up carried out was that the researcher reviewed colors used in the ICT-based evaluation model to make it more attractive and clarify existing abbreviations to make it easier for users to understand.

Results of assessment from media expert validator II obtained a score of 64 with a maximum score of 80. The average score of all aspects was 64/80 × 100% = 80%, which was in the "Good" category. Suggestions and comments were given by expert validator material II are "The design is okay, some features are adjusted as needed, fonts are looking for that are eye-catching, repetition features are okay, the interface is still complicated and can be simplified again, overall okay." Researchers need to follow up, namely revising some of the aspects suggested by the media validator. Follow-up is that researchers review features of ICT based evaluation model or so-called Sistem Ulangan Online (SIANGON) to better suit user needs, review font used to make it more attractive, and simplify display that it is easier for users to use.

Practitioner validation is carried out to strengthen evaluation media made and improved by the material validator's input, and media is more appropriate or appropriate to the actual situation in the field. Results of assessment by practitioner validator are presented in table 6.

Table 6. Table of Practitioner Validator Assessment Results

Validator	Score	Category
Practitioner I	43	Good
Practitioner II	46	Good

Results of the validator practitioner assessment I obtained a score of 43 with a maximum score of 55. The average value of all aspects was 43/55 × 100% = 78.18%, which was in the "Good" category.

Results of assessment from practitioner validator II obtained a score of 46 with a maximum score of 55. The average value of all aspects was 46/55 × 100% = 83.63%, which was in the "Good" category.

Based on the overall assessment of practitioner validators, this ICT-based evaluation model is feasible to be used or applied to students because it is by conditions in the field.

The development stage is carried out by collecting learning material, making material to combine elements, audio, animation, video, text, and graphics (Premana, Suharsono & Tegeh, 2013). At the development stage, media content collection, media content creation, media design and content, and media finishing are carried out (Juniantari, Parmiti, & Suwatra, 2012). Products that have been made will then be validated by experts so that researchers can find out the feasibility and weaknesses of media products that have been developed. (Restian & Maslikah, 2019).

Design validation by experts is an activity that will be assessed by an expert whether the product made is suitable for use or not in learning (Pantiwati, 2016). The ICT-based evaluation model's feasibility is seen from the validation results of material experts, media experts, and practitioners. From the validation results, results are "Good," so it is feasible to be implemented. With the note that researchers

improve some views referring to validator suggestions so that they are better implemented.

Assessing the Feasibility of Implementing ICT Evaluation Model

The feasibility of the ICT-based evaluation model can be seen at the ADDIE model implementation stage.

Implementation

Two trials were carried out, that is, small-scale class and large-scale class. Trials were carried out by distributing questionnaires. A small-scale class test is implemented on ten students of class X outside large-scale class trial students. At the same time, a large-scale class trial was implemented in three X classes.

Results of the small-scale trial are presented in the following table:

Table 7. Table of Small-Scale Class Trial Results

	Display Aspects	Presentation Aspects of Questions	Benefits Aspects
Amount	180	112	158
Assessment (%)	75	70	79
Validation Level	Good	Good	Good

The percentage level of validation carried out in small-scale classes showed excellent results totaling two students, both five students, and three students good enough. While the level of validation is more detailed in each aspect, namely, display aspect with assessment result of 75% is good, aspect of the presentation of questions with assessment result of 70% is good, and benefit aspect with assessment result of 79% is good. So it can be concluded that this ICT-based evaluation model is excellent or feasible to be implemented on a large class scale with several suggestions that become input from students that researchers need to follow again.

Results of large-scale trials are presented in the following table:

Table 8. Table of Large-Scale Class Trial Results

Amount		Assessment (%)	Validation Level
XATPH5			
Display Aspects	526	76	Good
Presentation Aspects of Questions	334	72	Good
Benefits Aspects	442	76	Good
XATPH1			
Display Aspects	531	79	Good
Presentation Aspects of Questions	349	78	Good
Benefits Aspects	459	82	Good
XMM			
Display Aspects	397	79	Good
Presentation Aspects of Questions	263	78	Good
Benefits Aspects	329	78	Good

The percentage level of validation carried out in large-scale class I. Class XATPH5 showed excellent results totaling three students, a good result for 19 students, good enough for seven students. While the level of validation is more detailed in each aspect, the display aspect with an assessment result of 76%, which is good, the aspect of the presentation of questions with the result of the assessment of 72% is good. The aspect of benefit with a result of the assessment of 76% is good.

The percentage level of validation carried out in large-scale class II, namely class XATPH1, showed excellent results totaling five students, 22 students, one student good enough. While the level of validation is more detailed in each aspect, namely display aspect with assessment result of 79%, which is good, aspect of the presentation of questions with assessment

result of 78% is good, and benefit aspect with the result of the assessment of 82% is good.

The percentage level of validation carried out in large-scale class III, namely the X MM class, showed excellent results totaling two students, 18 students, and one student good enough. While the level of validation is more detailed in each aspect, the display aspect with an assessment result of 75%, which is good, the aspect of the presentation of questions with an assessment result of 70% is good. The benefits aspect with an assessment result of 79% is good.

From large-scale test results, it can be concluded that this ICT-based evaluation model is excellent or feasible if implemented on a larger class scale.

The implementation stage is a follow-up to the development stage (Restian & Maslikah, 2019). The implementation stage is a concrete step to apply media developed in learning (Premana, Suharsono & Tegeh, 2013). Two trials were carried out, that is, small-scale class and large-scale class. The small-scale trial results concluded that this ICT-based evaluation model was useful or feasible to be implemented on a large class scale with several suggestions that became input from students that needed to be followed up by researchers again. Large-scale trials conducted in three different classes concluded that the ICT-based evaluation model was useful or feasible to be implemented on a larger class scale.

Evaluating the Effectiveness of Daily Test with the ICT Evaluation Model

Evaluation of the effectiveness of ICT based evaluation model was carried out at the ADDIE model evaluation stage.

Evaluation

Formative evaluation in this research follows up input from material expert validator, media expert validator, practitioner validator, and small-scale class trials as described in each of the stages above, so it is feasible to be tested, large-scale class. This is carried out in summative evaluation after a large-scale class trial or activity ends in its entirety. At the time of evaluating, the researcher found what became an obstacle and became input from students. Constraints found were when the ICT evaluation model was opened or operated simultaneously, more than 15 students experienced a down or error. So the researcher gave directions and divided the group with ten students each to operate in turn to log in and submit answers to daily tests.

The evaluation stage of students was assessed to determine the extent to which they mastered goals set at the beginning, and revisions were made as needed (Molenda, Regeluth, & Nelson, 2003). The evaluation stage in this research consists of two forms of evaluation, namely, formative and summative evaluation. Formative evaluation occurs at every stage of the ADDIE process (Sukenda, Falahah, & Lathanio, 2013). In line with this expression, the researcher followed up input from all expert validators and small-scale class trials so that it was feasible to be tested on a large-scale class. In summative evaluation, carried out after the implementation of large scale trials or at the end of activity where researcher found an obstacle that is ICT error model if more than 15 students operated it to log in and submit simultaneously.

CONCLUSION

Daily tests carried out so far are mostly offline or manually using paper. Thus the teacher needs time to correct and assess so that scores cannot be presented directly after completing the test. There is one teacher who often carries out daily tests online, using google form. However, Google Form does not specify a username, password, and timer. So that teachers and students need innovative new devices to carry out daily tests.

The ICT evaluation model is designed using the homepage of WordPress, then for daily test system using Moodle. Moodle's features can be developed or modified according to the needs of teachers and students. Moodle is appropriate to use by looking at adequate school infrastructures such as computer laboratories, good internet networks, and students who can bring handphones to school. Moodle can be

operated using any device such as a computer, laptop, or handphone and can be accessed anywhere. ICT evaluation model developed has other advantages, namely, there is a usage module for students, use for teachers, and a development module.

Results of several validators' feasibility tests indicate that this ICT-based evaluation model is feasible to be used or applied to students for daily tests. The percentage level of validation of small-scale class trials in all aspects, namely appearance aspect, question presentation aspect, benefit aspect, shows promising results so that it is feasible to be implemented on a large class scale. While the percentage level of validation of large-scale class trials in all these aspects also shows good results, it is feasible to be implemented on a larger class scale.

Informative evaluation, the researcher followed up input from material expert validators, media expert validators, practitioner validators, and small-scale class trials so that it was feasible to be tested on a large-scale class. Summative evaluation is carried out after large-scale class trials or activities have ended in their entirety. At the time of evaluating, the researcher found what became an obstacle and became input from students. The problem found was that when the ICT evaluation model was opened or operated simultaneously, more than 15 students logged and submitted simultaneously, then it experienced a down or error. So the researcher gave directions and divided the group with ten students each to operate in turn.

REFERENCES

Arkun, & Akkoyunia. (2008). A Study on The Development Process of A Multimedia Learning Environment According to The Addie Model and Students' Opinions of The sMultimedia Learning Environment. Interactive Educational Multimedia, 10(17), 1–19.

Arsyad, A. (2009). Media Pembelajaran. Jakarta: PT.Grafaindo Persada.

Branch, R. M. (2009). Instructional Design: The ADDIE Approach [.pdf]. Diperoleh dari https://www.academia.edu/38378022/Robert_Maribe_Branch_-_Instructional_Design_The_ADDIE_Approach_.pdf (diakses pada tanggal 29 April 2019).

Djaali, & Muljono, P. (2008). Pengukuran Dalam Bidang Pendidikan. Jakarta: PT.Grafaindo Persada.

Fuady, M. J. (2016). Pengembangan Aplikasi Evaluasi Pembelajaran Online Untuk Pendidikan Jarak Jauh. Tekno, 26(September), 148–154.

Hanung Wicaksono, A. E. K. B. (2017). Pelaksanaan Evaluasi Pembelajaran Ips Berbasis Ktsp Kelas V. Jurnal Kreatif : Jurnal Kependidikan Dasar, 7(1).

Isjoni, I., & Mahmud, R. (2008). ICT untuk Sekolah Unggul Pengintegrasian Teknologi Informasi dalam Pembelajaran. Yogyakarta: Pustaka Pelajar.

Juniantari, N. M., Parmiti, D. P., & Suwatra, I.I. (2012). Pengembangan Media Presentasi Pembelajaran Mata Pelajaran Pendidikan Kewarganegaraan pada Siswa Kelas VIII SMP Negeri 1 Manggis Tahun Pelajaran 2012/2013. Jurnal Jurusan Teknologi Pendidikan, Fakultas Ilmu Pendidikan Universitas Pendidikan Ganesha.

Kusyeni, M. (2017). "Pengembangan Media Pembelajaran Blended Learning Berbasis Edmodo di Sekolah Menengah Kejuruan Kelas Xi pada Materi Gelombang." Universitas Islam Negeri Raden Intan.

M, A. G., Suryaningtiyas, W., & Kristanti, F. (2016). Penggunaan Model Pembelajaran Blended Learning terhadap Hasil Belajar Matematika Kelas VIII di SMPN 38 Surabaya. MUST: Journal of Mathematics Education, Science and Technology, 1(1), 10. https://doi.org/10.30651/must.v1i1.97

Mahirah. (2017). Evaluasi Belajar Siswa (Siswa). Idaarah: Jurnal Manajemen Pendidikan, 1(2), 257–267. https://doi.org/10.24252/idaarah.v1i2.4269

Molenda, M., Regeluth, C. M., & Nelson, L. M. 2003. Instructional design. Encyclopedia of Cognitive Science. 2, 574-578.

Nurdin, H., & Ertikanto, C. (2015). Deskripsi Analisis Kebutuhan Pembelajaran Ilmu Pengetahuan Alam (IPA) Kelas VII di Sekolah Menengah Pertama (SMP) Negeri 1 Gisting. Prosiding Seminar Nasional Fisika, (Oktober), 11-16.

Pantiwati, Y. (2016). Pengembangan Modul Evaluasi Pembelajaran dengan Model Pembelajaran 7E Berbasis Kreatifitas. Proceeding Biology Education Conference, 13(1), 13 (1), 461-467.

Premana, I. M. Y., Suharsono, N., & Tegeh, I. M. (2013). Pengembangan Multimedia Pembelajaran Berbasis Masalah pada Mata Pelajaran Produksi Gambar 2d untuk Bidang Keahlian Multimedia di Sekolah Menengah Kejuruan. E-Journal Program Pascasarjana Universitas Pendidikan Ganesha Program Studi Teknologi Pembelajaran, 3.

Rahayu, E. E., & Listiyadi, A. (2014). Pengembangan Alat Evaluasi Pembelajaran Berbasis Information and Communication Technology (ICT) pada Materi Mengelola Dokumen Transaksi. Jurnal Pendidikan Akutansi, 2(2), 1–7.

Restian, A. & Maslikah, S. (2019). Pengembangan Media Big Book Belajar Bersama Dodo dan Teman-Teman untuk Pembelajaran Tematik Kelas IV di Sekolah Dasar. Jurnal Cakrawala Pendas, 5(2), 141-152.

Safitri, M. R., Budiharti, R., & Ekawati, E. Y. (2014). Pengembangan Media Pembelajaran IPA Terpadu Interaktif Dalam Bentuk Moodle. Jurnal Pendidikan Fisika, 2(1), 1–5.

Saraswati, N. W. S., & Putra, D. M. D. U. (2015). Sistem Ujian Online Berbasis Website. S@Cies, 6(1), 21–30. https://doi.org/10.31598/sacies.v6i1.78.

Semerci, A., & Aydın, M. K. (2018). Examining High School Teachers' Attitudes towards ICT Use in Education. International Journal of Progressive Education, 14(2), 93–105. https://doi.org/10.29329/ijpe.2018.139.7

Siroj, M. B. (2015). Pengembangan Model Integratif Bahan Ajar Bahasa. Jurnal Pendidikan Bahasa Dan Sastra Indonesia PENGEMBANGAN MODEL INTEGRATIF BAHAN AJAR BAHASA, 4(1), 74–84.

Sonjaya, R., Sumiah, A., & Nugraha, D. (2016). Sistem Informasi Ujian Sekolah Online Berbasis (Study Kasus : SMP Negeri 2 Luragung). Nuansa Informatika, 11(1), 43–52.

Sudaryati, S. (2016). Pengembangan Online Test System Untuk Siswa. Konferensi Nasional Penelitian Matematika Dan Pembelajarannya (KNPMP I), (Knpmp I), 686–694. Retrieved from https://publikasiilmiah.ums.ac.id/bitstream/handle/11617/7012/74_38_Makalah Rev Sri Sudaryati.pdf?sequence=1&isAllowed=y

Sukenda, Falahah, & Lathanio F. (2013). Pengembangan Aplikasi Multimedia Pengenalan Pemanasan Global dan Solusinya Menggunakan Pendekatan ADDIE. Prosiding Seminar Nasional Sistem Informasi Indonesia, (Desember), 185-190.

Tsani, M. R., & Nurhadianto, -. (2016). Sistem Informasi Ujian Berbasis Web Server Smk Bina Islam Mandiri (Bisma) Kersana Brebes Tegal. CogITo Smart Journal, 1(1), 45. https://doi.org/10.31154/cogito.v1i1.5.45-54.

Wahyuny, Ika N. (2017). Pengembangan Modul Edukasi Literasi Keuangan Islam dan Produk Halal dengan "ADDIE". Prosiding Seminar Pendidikan Ekonomi dan Bisnis, 3(1), 1-10.

Wati, L., Kasmawi, Mawarni, S. (2018). Implementasi Computer Based Test (CBT) di Sekolah Menengah Kejuruan. Jurnal Batoboh, 3(1), 83-91.