Information and Communication Technology-Based Learning Management in Improving Learning Quality Services in the Digital Era

Arifin[✉], Sulkifly, and Syarif Ramadhan Yusuf

Universitas Negeri Gorontalo, Gorontalo, Indonesia
arifin@ung.ac.id

Abstract. This article examines about management of information and communication technology-based learning in improving the quality of learning services in the Digital Age that aims to for know: (1) Planning of learning based on information and communication technology, (2) Implementation of learning based on information and communication technology, and (3) evaluation of learning based on information and communication technology. Method study this use approach quantitative with type study descriptive explanatory design. Data collection techniques with use technique questionnaires, interviews, and documentation. Data analysis techniques used is technique analysis descriptive with use formulation percentage. Research results show that: (1) Information and communication technology-based learning planning is in category good. Preparation learning with provide facility supporter based technology information with input all device learning in digital platforms. (2) Implementation of information and communication technology-based learning are in category good. Learning process conducted with utilise technology information in use learning methods and strategies (3) Evaluation of information and communication technology-based learning is in category good. Teacher does Evaluation learning with utilise various technology media information in the form of assignments, exams formative and summative for measure achievement results study students. Study results students can also seen in the media information system that has been prepared by the school.

Keywords: information and communication technology-based learning management · learning quality service · digital era

1 Introduction

Learning management is essentially related to planning or policies designed in managing learning to achieve the desired learning objectives. Learning management is a method used by a teacher to improve learning optimally for students, including how to manage class discipline and organize good learning.

The essence of the teaching and learning process is learning itself, where the goal is to lead students to achieve meaningful learning outcomes. Learning activities are carried

out systematically and systemically in which there are various elements and components, where these elements and components cannot be separated or stand alone, but must be continuous, orderly, complementary and mutually supportive. Therefore, in learning, a learning management is needed. And a good learning management must adhere to appropriate teaching principles, which include systematic planning, conceptual but practical, realistic and flexible, both in classroom management, teaching and assessment.

The development of science and technology today increasingly encourages the renewal of the use of technology in the learning process as one of the ways to improve the quality of education, the role of educators is not only as a transfer of knowledge or information but rather on how students can learn as well as possible in using interesting media including providing various learning resources that students usually learn. A teacher is required to be creative and innovative in developing the rules of integration by using technology in learning activities. With this technology, it is expected to make learning more active, creative, innovative and fun, so as to create multiple interactions, both between teachers and students, students and teachers, students with media and learning resources, and students with other students. Teachers must be able to familiarize students with being pro-active, creative and innovative in learning activities.

Not only that, teachers also have an important role in the learning process. With the teacher all the activities of the learning process can be realized. Teachers are professional educators with the main task of educating, teaching, guiding, directing, training, assessing, and evaluating students in early childhood education, formal education, basic education, and secondary education. From this understanding, a teacher is responsible for the success of the teaching and learning process.

Efforts to improve the quality of teaching and the quality of learning in the era of globalization, teachers should master computer programs, in order to take advantage of available technology and to facilitate teaching. Teachers should be able to use equipment that is more economical, efficient, and capable of being owned by the school and not reject the use of modern technological equipment that is relevant to the demands of society and the times. A teacher is required to have various skills that support his duties in teaching. One of these skills is how a teacher can use learning media. Teachers can create interactive media creations and variations, make interactive learning videos, powerpoints, and with computer media.

According to Burner, As quoted by Arsyad, there are three main levels of learning mode, namely direct experience (enactive), pictorial/ image experience (iconic), and abstract experience (symbolic). Direct experience is doing something that is understood directly. At the second level, it is labeled iconic or image, so it can be learned from pictures, photo paintings or films. Furthermore, at the third level, namely at the symbol level, students read or hear something and try to match what is read or heard from the picture and connects it with their experience.

Management of information technology is linked to the growth of passion for learning so that students feel happy and enthusiastic about learning. In this case, it can be said as an effort to provide certain conditions, so that someone wants and wants to do something, and if they don't like it, they will try to negate or avoid that feeling of dislike. The growth of the passion for learning and the drive to learn is a motivation in learning, so that students actually carry out what must be done in the learning process.

2   Research Methods

Study this is study quantitative with design quantitative explanatory descriptive, the number of samples in this study were 42 teachers. This research describe management of information and communication technology-based learning in Vocational Middle School (SMK 5 Gorontalo). Technique collection data in study; these are questionnaires, interviews, and documentation studies. Data analysis techniques used in this study is a descriptive percentage analysis technique. This research uses formula which stated by Sugiyono (2017).

3   Results and Discussion

3.1   Lesson Planning Based on Information and Communication Technology

Of information and communication technology-based learning planning consists from 7 (Seven) sub indicator namely: (1) Creating a syllabus or lesson plan; (2) formulating learning objectives; (3) Compile the content of learning materials; (4) Designing learning activities; (5) Develop learning strategies; (6) Providing media and learning resources and; (7) assessing the results of learning instruments. For more details can be seen as in Fig. 1.

Based on the table above, it shows the evaluation of the percentage summary of the sub. Scores indicator m making Syllabus/ Lesson plan located on category good with percentage 88%, formulating learning objectives are in the good category with a percentage of 90%, compiling the content of learning materials is in the good category with percentage 89%, designing learning activities is in the good category with a percentage of 8 8%, developing learning strategies is in a good category with a percentage of 88%, providing media and learning resources is in a good category with a percentage of 84%, and assessing the results of learning instruments in the category good with a percentage of 84%. Can be concluded from the table above shows that the information and communication technology-based learning planning carried out by the teacher is in the category good with amount percentage 87%.

No	Statement	Score achievements	Score Ideal	Percentage	Category
1.	Making a learning syllabus	185	210	88 %	Well
2.	Formulate learning objectives	189	210	90 %	Well
3.	Compile the content of learning materials	188	210	89 %	Well
4.	Designing learning activities	186	210	88 %	Well
5.	Develop learning strategies	186	210	88%	Well
6.	Providing media and learning resources	177	210	84%	Well
7.	Assessing the results of learning instruments	177	210	84%	Well
	Average	**184**	**210**	**87 %**	**Well**

Source: Processed Data Primary, April 202 2

Fig. 1. Precentage Score Indicator Planning Learning

No	Statement	Score achieve ments	Score Ideal	Percentage	Category
1.	Use device technology	188	210	89 %	Well
2.	Presentation of learning materials	185	210	88 %	Well
3.	Carry out learning approaches/strategies	180	210	85 %	Well
4.	Learning development and innovation	180	210	85 %	Well
	Average	183	210	87 %	Well

Source: Processed researcher, April 202 2

Fig. 2. Percentage Score Indicator Implementation Learning

No	Statement	Score	Score Ideal	Percentage	Category
1.	Giving test exams	182	210	86 %	Well
2.	Measurement of students' level of understanding through assessment of student learning outcomes	176	210	83%	Well
	Average	179	210	85%	Well

Source: Processed data primary, April 202 2

Fig. 3. Precentage Score Indicator Evaluation Learning

3.2 Implementation Learning Based on Information and Communication Technology

For indicators of the implementation of information and communication technology-based learning i.e. consists four sub indicators, namely: (1) Use device technology; (2) Presentation Theory learning; (3) Conducting a learning approach/strategy and; (4) Development and learning innovation. For more clear could seen as in Fig. 2.

Based on table in on showing evaluation percentage score sub indicator the use of technological devices is in the good category with percentage 89%, presentation of learning materials is at on good category with a percentage of 88%, the approach/learning strategy is in the good category with a percentage of 85%, and learning development and innovation is at on category good with percentage 85%. So could concluded from table in on showing that implementation of information and communication technology-based learning which includes the use of device technology, Presentation Theory learning, carry out learning and development approaches/strategies and learning innovation has a good category with number of percentage 87%.

3.3 Evaluation Learning Based on Information and Communication Technology

For evaluation indicators of information and communication technology-based learning which consists of two sub-indicators, namely: (1) Giving test exams; (2) Measurement of students' level of understanding through assessment of student learning outcomes. For more details could seen as in Fig. 3.

Based on the table above, it shows that the overall evaluation score of the evaluation indicators for giving test exams is in the category good with a percentage of 86%, and the head of measuring the level of student understanding through the assessment of student learning outcomes is in the good category with a percentage of 83%. Thus it

can be concluded from the table above shows that evaluation of information and communication technology-based learning related to giving test exams, measuring students' understanding levels through assessment of student learning outcomes has categories good by percentage 85%. Information and communication technology-based learning management at SMK 5 Gorontalo is presented in bar chart below this (Fig. 4).

Recapitulation of all research results which show that the indicators information and communication technology-based learning planning obtained 87%, while in terms of Implementation learning based information and communication technology obtained 87% and from In terms of evaluation of information and communication technology -based learning, 85% is obtained from the three indicators that are within category good.

Based on the results of the study showed that the results of planning indicators learning based on information and communication technology has the percentage score of 87% is in the category good. The results of Jusna, Djafri, Yalida and Canon's research (2020) that during the Covid-19 pandemic, teachers are required to be able to design and design learning online which light and effective, with utilise device or appropriate online media and in accordance with the material being taught. Even though online learning will provide wider opportunities to explore Theory which will taught, however teacher must capable choose and limiting the extent to which the material is covered and the application of appropriate learning materials and methods used.

Relevant to Pujiasih's research (2020) that learning media facilities that are applied through media available from the internet with ICT learning management usually use applications that can provide material through facilities for sharing videos, recordings, materials, power points, study modules, activity sheets learning and other learning resources that can be obtained from the internet in the form of web addresses, youtube and so on, which can be accessed by students anytime, anywhere and save them. Here. Theory which can shared to student varied so students no fed up with only one Theory which monotone, with so process learning is more effective, fun and adds new experiences for students.

Mulatsih (2020) in his research also reveals that the preparation of learning evaluation instruments is also included in the planning stage. During the Covid-19 pandemic, the
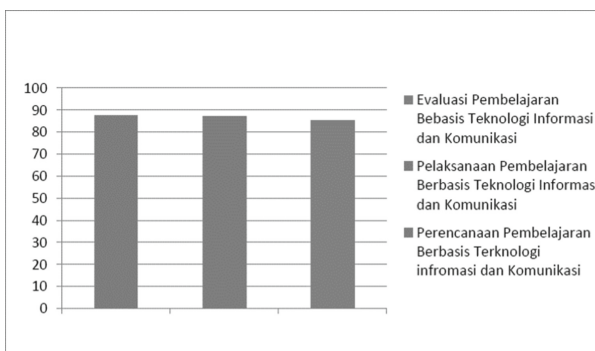

Fig. 4. Percentage Management of Learning Based on Information and Communication Technology

use of the Google Form application gives convenience teacher for make question online, keep question online, and obtain student score data. In addition, the Google Classroom application is still used to manage assignments and administer assignment grades, while the Google Form application is used for assignments, and the Quiz application is used for tests. Daily. From some of the results of the research above, the researcher concludes that in planning information and communication technology-based learning can run well when the teachers can already prepare device learning in lesson plans both offline and online in accordance with situation now.

Based on the results of the study, it shows that the results of the implementation indicators Information and communication technology-based learning is in category good with presentation 87%. Sudrajat (2020) in his research that policy school which apply learning online for implementation of activities study teach him because existence plague covid, of course just requires skills in the field of science and technology that must be mastered by teachers as a form of professionalism, which will later affect the smooth level of teaching and learning activities and the process of mentoring remote students through online optimally. Nafrin and Hudaidah (2021) in their research also emphasized that teachers must be professional and responsible for the continuity of the learning process in the midst of the Covid- 19 pandemic. Teachers are required to be able to innovate in delivering learning materials by utilizing existing platforms to support learning activities that can take place as usual.

Relevant with results in on, study Sutini et al., (2020) found that the interaction between teachers and students greatly affects the learning process. Considering that the learning process in the midst of the Covid-19 pandemic is carried out in their respective residences, using online learning media then the process of delivering the content of the material becomes easier. The maximum interaction between teachers and students has a positive effect on openness and freedom participant educate for disclose question and opinion regarding the material. There is learning through ICT make students more open in expressing questions and opinions on issues what is in the material learning.

Pri and Gustientiedina's research (2020) confirms that learning using ICT learning media facilitates interaction between students and materials, students with teachers and fellow students. Learners can share information and can access learning materials at any time and repeatedly, further strengthening their mastery of the material learning. In addition, the advantages of ICTbased learning including flexibility, saving time in the teaching and learning process, reducing travel costs, costs education by whole (infrastructure, equipment, books), spanning a wider geographic area.

From the several studies above, it can be concluded that the implementation of learning based on information and communication technology can run smoothly if the use of technological devices, presentation of learning materials, interactions and learning activities to the development of learning is classified as good. It's just that further assistance and training is needed in the future, so that the ability them in carrying out the learning process to be better and optimal. That way the process of providing learning materials for students will be much better again.

Based on results study could is known that indicator evaluation learning Information and communication technology-based learning is in the good category with percentage

85%. According to Permendikbud Number 22 Year 2016 About Standard Process Education Base And Secondary Chapter V (2016), assessment of learning processes and outcomes, namely: process assessment learning use approach evaluation authentic (authentic assessment) which evaluate readiness of students, processes and learning outcomes as a whole. The integration of the third assessment These components will describe the capacity, style and learning outcomes of students which capable produce impact instructional (instructional effects) on aspect knowledge and impact accompaniment (nurturant effect) on attitude aspect.

This is supported by the research of Nurmaya et al. (2021) that learning evaluation online include, student participation in participating in online learning applications that used in online learning, network quality conditions during online learning quality Theory which given teacher During learning online, availability time discussionbetween teacher and student During learning online. As for study other, Suwardi (2021) In his research, it was explained that online learning is an absolute thing that must be done carried out both in the process of teaching and learning activities as well as evaluating learning. Whereas in study Wahyuni (2021) that Evaluation which conducted by teacher in learning through e-learning media, namely by looking at the results of student resumes how much far participant educate capable understand Theory which be delivered teacher through watch videos. In addition, the teacher also looks at the students' abilities based on the questions which done in e-learning.

In the research of Ocvianti and Sulisworo (2021) it is also explained that that by using ICT Learning LMS-based, students can share information with each other and can access teaching materials at any time and educators can carry out evaluations at any time that can measure students' conceptual understanding During the Covid-19 pandemic, massive use of LMS is widely used in online learning. With the limitation of face-to-face learning, virtual face-to-face learning innovations have been developed, either by video, chat, or online learning by utilizing LMS. With the advancement of science and technology, the use of teaching aids in schools can be adapted to the development of information technology. From the several studies above, it can be concluded that the evaluation of information and communication technology-based learning has been going well with the facilities could used During learning online that is a number of application which support so that teacher no problem in teaching students online.

4 Conclusions

A study on the management of information and communication technology-based learning in improving the quality of learning services in the digital era, especially in school objects studied in Vocational High Schools shows a result that planning learning based on information and communication technology is at on good category, implement learning based on information and communication technology is at on category good and evaluate information and communication technology-based learning is at in category good. This shows that in the management of learning by the school, starting from the leadership of the principal and teachers, designing learning, implementing learning and evaluating it, they have utilized information and communication technology tools using digital platforms in accordance with current learning needs.

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