



META ANALYSIS: EFFECTIVENESS OF GOOGLE CLASSROOM, MOODLE IN BLENDED LEARNING AS VOCATIONAL LEARNING MEDIA IN INDONESIA

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Abstract

The purpose of this research is to find out the effectiveness of blended learning on the google classroom platform and moodle as a medium of vocational school in Indonesia. The effectiveness assessment is examined from several previous findings or studies. This research uses meta-analysis methods, in accordance with the application of research topics, and conducts research on several research journals taken purposively or directedly. The research journal used is in the last five years (2015-2020) derived from a google scholar database of 16 journals. Analysis of the data used is qualitatively descriptive. From the meta analysis done shows that the objectives that are often studied are impact or influence and or effectiveness 56%, the most commonly used design is the experiment 63%, the most commonly used data analysis is observation by 53%. Data analysis that is often done by research is t-test 50%. In vocational google classroom platform is used more often 81% than moodle platform 19%, and blended learning research through google classroom platform, moodle is more effective to improve learning results by 65%. Meta analysis of student learning outcomes, motivation and self-reliance were the most frequently reviewed from the 16 journals.

Keywords: Meta Analysis, blended learning, google classroom, moodle, effectiveness

INTRODUCTION

The rapid development of technology indicates that it is already in the era of globalization. Along with the development of technology, the use of technology in the form of smartphones and the use of internet access continues to increase used by groups of young people who sit at the junior high school level (vocational high school) equivalent, and high school (high school) equivalent. This statment, supported by the results of a survey of internet service providers association in 2017 that reported that internet users through smartphones in 2017-2019 continue to face an increase

(Association, 2020) and digital marketing education institute emaker reported that in 2018 more than 100 million Indonesians became active users of smartphones (Emarketer, 2015). Keminfo reports that Indonesia is located in 4th place like a country with active users of smartphones.

Internet and smartphone usage for junior high school or high school level is more widely used for communication such as telephone, sms, and whatshap, and used to access social media such as Twitter, Instagram, Facebook, and used for entertainment (youtube, playing games, music). On the contrary, the use of the internet in education is still not





maximal (Sari & Utami, 2019). In González's opinion, smartphone usage and internet access should be maximized in education, for example used to find learning resources related to educational modules and used to access learning management systems (LMS) (García-peñalvo, Conde, & Griffiths, 2013), the use of smartphones has a positive effect on learners because learners can access learning materials from various sources of learning media with the use of learning management system (LMS) including Schoology, google classroom, quipper school, moodle (González, González, Martín, Llamas, & Martínez, 2015). Based on government policy in 2020 in the implementation of learning for the curriculum 2013 during the covid-19 pandemic requires the use of technology in the process of learning activities as well as the use of smartphones, the internet is tiered high school equivalent. In the implementation of online learning can be done with the existing platform in the LMS or blended learning. This use of existing platforms in the LMS such as google classroom and moodle is very supportive of the implementation of the 2013 kurikulum (Sujana, Waluyo, Arifuddin, & Soepriyanti, 2019).

Optimization of the use of technology as an online learning media can be utilized by LMS or blended learning (Nugroho, Ariyawan Agung, 2013).

Research on blended learning has been done by researchers and academics in Indonesia and the objects used in this

study are journals about google classroom platform and moodle in blended learning. In journals and research articles found blended learning, conducted efforts to explore the use or implementation so that how effective the use of google classroom and moodle platforms in vocational high schools (vocational) in Indonesia, as well as provide bonded data about blended learning. Based on this, researchers are interested in uncovering the effectiveness of google classroom and moodle platform-based blended learning applied to vocational high school (vocational) by analyzing various research studies related to blended learning using google classroom and moodle platforms obtained from google scholar database

RESEARCH METHODS

The method used in this research is a meta-analysis to examine some research results that have similar problems, namely about blended learning based on Google Classroom and Moodle in Vocational High School (vocational). The population in this study was 16 journals from google scholar/sholar that got online about blended learning using google classroom and moodle platforms in the last five years (2015-2020). The samples in this study used purposive techniques because the theme of the research was taken according to the sample. Data analysis used in this research is descriptive qualitative.





RESULTS AND DISCUSSIONS

In this study using meta analysis from 16 journals that discuss about blended learning based on google classroom and moodle as vocational learning media in Indonesia include meta analysis based on purpose, meta analysis based on research design, meta analysis based on data collection techniques, meta analysis based on data analysis, meta analysis based on blended learning implementation and meta analysis based on the effectiveness of blended learning application in the learning process based on platform google classroom and moodle. The results of the analysis meta can be seen in tables 1-6 as follows.

Table 1. Meta Analysis Based on Research Objectives

No	Goal Research	F	(%)
1	Impact/Effect/Effectiveness	9	56
2	Develop	3	19
3	Increase Amount	4	25
Amount		16	100

Based on the table. 1 above, the meta analysis based on the purpose of blended learning research based on google classroom, moodle in vocational. showed the highest percentage of 56% which aims to test the impact / influence / effectiveness of blended learning research on bound variables. The purpose of the study was to increase variables tied to a percentage of 25%. The purpose of the research for indoctrinate develops bound

variables, very identical to research PTK (Class Action Research). To be recognized the development of variables tied to looking at cases in the classroom when before practicing google classroom / moodle related to the case of bound variables, after that analyze the results of cycle 1 and the results of cycle 2 after practicing google classroom / moodle in the learning process in vocational school. The purpose of blended learning research based on google classroom / moodle in vocational for indicators developing by 19% The goal to develop here makudnya is to develop syllabus, RPP and online platform that can support blended learning based on google classroom / moodle in vocational. Research that aims to develop, identical to research Research & Development (R&D). The next meta analysis is based on the design of research in vocational such as table.2 beikut.

Table 2. Meta Analysis Based on Research Design

No	Research Design	F	(%)
1	R & D	2	19
2	Eksperimen	10	63
3	Survei	3	6
4	Class action research	1	12
Amount		16	100

Blended learning research design based on Google Classroom / Moodle in vocational with the highest presetase using experiments of 63% and the lowest





percentage of PTK research is 12% seen in table.2 above. Blended learning research based on google classroom / moodle in vocational depends on the formulation, purpose of the problem and hypothesis of the study. The design of the research according to arikunto is to examine the influence of treatment on behaviors arising as a result of treatment (arikunto, 2013). In table 2, the following findings will be discussed about blended learning data collection techniques based on google classroom / moodle in vocational.

Table 3. Meta Analysis Based on Data Collection Techniques

No	Techniques Data Collection	F	(%)
1	Questionnaires	4	27
2	Observation	3	20
3	Tes	8	53
	Amount	16	100

Based on the research journal blended learning based on google classroom / moodle in vocational in table.3 above, data collection consists of: questionnaires, observations, and tests. In one study can use more than one type of data collection techniques / methods. The most commonly used data collection techniques are the techniques / test methods proven by the highest percentage of 53% while the least used is observation with a percentage of 20% after the questionnaire method of 27%. Data collection methods/techniques with tests in this study are used to measure bound

variables. Test methods/techniques used in the form of description tests and objective tests depending on bound variables measured. Then the test method is also to measure cognitive learning outcomes, concept understanding, and science literacy. The next anaalisa in this study is about the meta analysis of journals based on the analysis of blended learning data based on google classroom / moodle in vocational in the table. 4 below.

Table 4. Meta Analysis Based on Data Analysis

No	Data Analysis	F	(%)
1	t-test	8	50
2	Anava	2	13
3	Descriptive qualitative Amount	6	37
		16	100

Data analysis / analysis of data is very frequent and widely used in research- research on blended learning based on google classroom / moodle in vocational is a t-test of 50%, the opposite is very rarely used is anava, with a percentage of 13%. The determination of statistical tests in research depends on the formulation of problems, objectives, and research hypotheses. T-test in blended learning research based on google classroom / moodle in vocational listed different tests used to find whether or not there is a comparison between 2 groups (experimental classes and control classes), judging from the information obtained by each group so that there is clearly or not the influence / effectiveness of the





implementation of learning with google classroom / moodle in vocational. In table 5 below meta analysis analysis of the implementation of blended learning research based on google classroom / moodle in vocational.

Table 5. Meta Analysis Based on Blended Learning Implementation in Vocational

No	Implementation Blended Learning	F	(%)
1	<i>Google Classroom</i>	13	81
2	Moodle	3	19
Amount		16	100

From 16 journals of blended learning implementation for learning media in vocational, there are several research journals applying the entire platform in blended learning such as Schoology, google classroom, quipper school, moodle but yg in the data in this study is only google classroom platform, moodle. From table.5 above the largest percentage is the implementation of blended learning in vocational using google classroom flatform with a percentage of 81% or as many as 23 journals. In addition, not so many journals that reviewed the flatform moodle in vocational learning only 19% or 3 of the 16 journals found. According to Hakim, In fact, Google Classroom makes it easy for teachers to manage education and can provide students with accurate data (Hakim, 2016). Through the Google Classroom app, it means that the level of education will be easier to achieve and

give meaning. The last discussion in this research is to find out what the effectiveness of blended learning application based on google classroom / moodle in vocational, can be seen in table 6 below.

Table 6. Effectiveness of Blended Learning Implementation based on Google Classroom, moodle in vocational

No	Blended Learning Platform Implementation	F	(%)
1	Science Literacy	1	7
2	Learning Outcomes	9	65
3	Learning Motivation	2	14
4	Student Learning Independence	2	14
Amount		35	100

From journals that conduct blended learning for learning media in vocational, there are 4 effectiveness found using google classroom and moodle platforms described in the table. 6 above such as, science literacy, learning outcomes, learning motivation, self-reliance of learners with the following findings.

- a. Effectiveness of google classroom and moodle platforms improves science literacy. From 16 journals found such as table 6 above that discuss the effectiveness of learning using google classroom and moodle platform use as learning media in vocational percentage by 7%. Learning using google classroom and moodle media can take time for students to find





information in the preparation of procedures such as reading many scientific articles and designing procedures from the tasks given by teachers. The process of finding reference information can develop students' ability to determine information, use information, and evaluate. The existence of such information search activities can develop the ability of vocational students in filtering information based on the literature obtained. The demands of students to complete their assignments independently will be able to develop students' ability to understand learning (Adi, Suwono, & Suarsini, 2017) So that the students' ability can improve science literacy.

- b. Effectiveness of google classroom and moodle platforms improves learning outcomes. Google classroom and moodle platforms are effective in improving vocational student learning outcomes, both in cognitive, affective and psychomotor aspects. The learning process with the implementation of google classroom and moodle platform there are 2 methods of direct learning taitu that take place in the classroom and online learning outside the classroom. With online learning outside the classroom, vocational students have more learning time and vocational students have more opportunities to repeat learning materials and train themselves to do exercises because on the google classroom and moodle

platforms there are quis that vocational students must do, so as to improve vocational student results (Raharjo, Sebastian, Chrismanto, & Saputra, 2019). In table 6 above the research that discussed the effectiveness of google classroom and moodle platforms increased learning outcomes by a percentage of 65% or the most frequently researched in vocational schools.

- c. Effectiveness of google classroom and moodle platforms increase learning motivation. Google classroom and moodle platforms are effective at motivating vocational students (Kosasi, 2015). In student learning activities it is not a matter of learning using online platform online, vocational students individually or in groups are able to complete tasks, answer questions or solve problems that have been provided. This can motivate vocational students to learn the subject matter that has been provided to be able to answer questions and hopefully solve problems. vocational students must also upload tasks that have been provided within the teacher's specified time. With this in doing so, students are motivated to do their assignments in a timely manner so that vocational students do not delay learning. Thus, the use of google classroom and moodle platform can increase student learning motivation in vocational. The percentage of studies that discussed





this study was 14% or 2 out of 16 journals found.

- d. Blended learning based on google classroom and moodle platforms can increase the independence of learners' learning.

Discussion of the effectiveness of google classroom platform and moodle in learning towards vocational student independence from 16 journals only 2 studies discuss this. Judging from students who explore materials from various sources and independently to seek information from various sources independently, students rely on resources that are only from teachers. Google classroom and moodle platforms using online platforms will increase the independence of vocational students (su'uga, ismayati, agung, & rijanto, 2020) because it can be done without direct teacher supervision (wicaksono & rachmadyanti, 2016)

INFERDS

Based on the results of research and discussion in tables 1-6 above, it can be concluded that research on blended learning using google classroom and moodle platforms as learning media in vocational, done a lot to know the impact or effect or effectiveness of 56% then in order to increase by 25% and to develop 19%, the most commonly used design is experimentation 63%, then r&d 19% , then ptk 12% and last surve 6%. the most widely used data analysis is observation of 53%. data analysis that is often done by researchers is t-test 50%,

followed by descriptive qualitative 37%. of the 16 journals studied by google classroom platforms, 81% were used more frequently than moodle platforms by 19%, and blended learning research through google classroom platforms, moodle was more effective in improving learning outcomes by 65%, student motivation and independence by 14% each, and vocational student science literacy by 7%. this meta-analysis only examines two platforms in blended learning namely google classroom and moodle, it is expected that further research will examine the effectiveness of learning in vocational using the platform in blended learning namely schoology, and quipper school

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