

# The effect of education supervision from school supervisors on teacher competence and its impact on the quality of digital learning

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**Abstract.** This research aims to explain the effect of educational supervision on the quality of digital learning which is mediated by the teacher Competences to manage digital learning. The research used a quantitative approach with survey method. The research population was junior high school teachers in the city of Bandung, Indonesia. There were 357 respondents with random sampling technique. Data collection was carried out by surveys and document studies. The questionnaire as a research instrument uses a Likert scale, for exogenous variables, namely educational supervision, endogenous variable, namely the quality of digital learning and intervening variables, namely the ability of teachers in digital learning. Further-more, the analysis process in this research uses a multivariate test using Smart PLS 3.0 software. Based on the research, there is a positive and significant effect of the educational supervision variable on the quality of digital learning through teacher competences. It means that the better of supervision, so the quality of digital learning will be better, and to achieve this, a good teacher's ability to manage digital learning is needed. This implies that there is a need to increase the understanding of school supervisors on the quality of digital learning so that it has a good impact on their supervision.

## 1 Introduction

The appointment and placement of school supervisors must meet predetermined standards so that they affect the performance of educators and education staff [1], then lead to the achievement of the expected educational goals [2]. In carrying out their duties, school supervisors usually create a supervision program which contains activities to be carried out to improve teacher performance in improving the learning situation for which they are responsible [3], including in digital learning.

Digital learning or e-learning is the process of students applying digital media to learning activities (American Society of Training and Education (ASTD)). Further-more, according to Kaklamanou in digital learning, computers and network technology media

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are applied on learning situations (both synchronous and asynchronous learning) to create learner-centered learning [4]. In addition, Doris Holzberger considers digital learning as delivery in the form of digital media (e.g. text or images) via the internet, aiming to improve learning effectiveness [2].

Research has consistently shown that one of the most important factors contributing to students' success in learning is the quality of teaching from teachers [5]. As Hattie found that teachers' teaching strategies and methods have significant influence on student achievement [6]. The important role of the teacher in the learning process should be answered by increasing teacher competence on an ongoing basis [7]. It is because when thinking about the role of the teacher in the learning environment, it can be said that his role is growing, as is the case now teachers must be more intensive in adapting new learning, including digital learning [8].

The presence of educational supervisors is to assist teachers in improving their professionalism. With professional assistance provided by supervisors, it is hoped that teachers can overcome the learning problems they face. As according to Syafaruddin and Asrul that supervision in the education sector needs to be carried out with the aim of continuously improving the quality of education in every school [9].

So this research aims to explain the effect of educational supervision on the quality of digital learning which is mediated by the ability of teachers to manage digital learning. School supervisors in accordance with their duties and functions as school coaches are tasked with supervising [10], both in managerial and academic aspects [11]. Supervision is the process of helping, guiding, advising and stimulating the growth of subordinates in order to improve the quality of their work [12]. Supervision from school supervisors through inspection, control and supervision together has a positive and significant effect on school principal coaching and development activities [13].

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Digital learning or e-learning is the process of students applying digital media to learning activities (American Society of Training and Education (ASTD). Furthermore, according to Kaklamanou in digital learning, computers and network technology media are applied on learning situations (both synchronous and asynchronous learning) to create learner-centered learning [4]. In addition, Doris Holzberger et al considers digital learning as delivery in the form of digital media (e.g. text or images) via the internet, aiming to improve learning effectiveness [2].

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## **2 Research methods**

This research was designed to determine the effect of educational supervision from school supervisors on the ability of teachers in digital learning and its impact on the quality of digital learning. Research using a quantitative approach to the survey method. The study population was junior high school teachers in the city of Bandung, while 357 respondents were taken as a sample using random sampling technique.

The type of data used is primary and secondary data. Primary data in this research sourced from distributing questionnaires to junior high school teachers in the city of Bandung. While secondary data obtained from various sources such as: scientific journals, books, articles, websites and other relevant sources and can be used as references in research.

Data collection in this research was carried out by surveys and documentation. The survey is compiling a list of questions/statement systematically in the form of a questionnaire to gain the desired data, then the questionnaire was circulated to respondents [15]. While documentation is the method used to obtain data sourced from writing, such as books, magazines, from websites or the internet as well as other data related to this research.

The hypothesis proposed is that there is a null hypothesis and an alternative hypothesis as follows:

H<sub>0</sub>: Educational supervision has no effect on the quality of digital learning through the ability of teachers

H<sub>a</sub>: Educational supervision influences the quality of digital learning through the ability of teachers (indirect influence)

This research used a questionnaire with a Likert scale, for exogenous, namely educational supervision, endogenous variables, namely the quality of digital learning and intervening variables, namely the ability of teachers in digital learning. Each questions five alternative answers that are scored. The measurement technique that is determined is based on the rank or ranking stated for exogenous variables and endogenous variables, where each answer is given a score. See table 1 below.

**Table 1.** Likert scale score of the questionnaire.

No	Alternative answer	Score	
		Positive	Negative
1	SS: Very suitable	5	1
2	S: Suitable	4	2
3	N: Neutral	3	3
4	TS: Unsuitable	2	4
5	STS: Very Unsuitable	1	5

Furthermore, the analysis process in this study used a multivariate test using Smart PLS 3.0 software starting from model measurements (outer model), model structure (inner model) and hypothesis testing [16].

### 3 Results and discussion

This research aims to explain the influence of the exogenous variable, namely educational supervision from the school supervisor (X) on the endogenous variable, namely the quality of digital learning (X) which is mediated by the intervening variable, namely the teacher's ability to manage digital learning (Z). To test the proposed hypothesis, multivariate test analysis was used using Smart PLS 3.0.

In the process of data analysis, indirect effect criteria are used which are useful for testing the hypothesis of the indirect effect of an influencing variable (exogenous) on an influenced variable (endogenous) mediated by intervening variables (mediating variables). The criteria for testing this hypothesis are as follows:

- a. If the P-Value is  $< 0.05$ , then it is significant (the effect is indirect). This means that the intervening variable "plays a role" in mediating the relationship of exogenous variables to endogenous variables.
- b. If the P-Value is  $> 0.05$ , then it is not significant (the effect is direct). This means that the intervening variable "plays no role" in mediating the relationship of exogenous variables to endogenous variables.

**Table 2.** The results of hypothesis test.

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ( O/STDEV )	P values
Education Supervision -> Teacher Capabilities in Digital Learning -> Digital Learning Quality	0.293	0.293	0.037	7.95	0.000

Based on the table 2 above, the indirect effect of X-Z-Y is 0.293 (positive), with a P value of 0.000 <0.05 (significant). This means that the teacher's ability variable in digital learning "plays a role" in mediating the effect of educational supervision on the quality of digital learning (H4). This means that the better the supervision is carried out, the better quality digital learning will be. To achieve this, good teacher abilities are needed in managing digital learning.

learning settings are situations and conditions where a learning event can occur [17]. Learning settings in digital learning consist of three categories, namely, synchronous learning, asynchronous learning and blended learning [18]. See figure 1 below.



Fig. 1. Digital learning settings [18].

### 3.1 Synchronous learning

Synchronous learning is a type of learning in which in principle there is direct (real time) interaction between teachers and students in the classroom. It is just that due to the development of computer and internet technology. This learning activity can be carried out online using video conferencing devices, for example learning using Zoom and Google Meet.

### 3.2 Asynchronous learning

In contrast to synchronous learning, asynchronous learning does not require direct interaction between teachers and students. Learners can learn anytime, anywhere, according to their conditions and learning speed.

Some common asynchronous learning activities are reading, listening, watching, practicing, simulating and practicing by utilizing learning objects (digital material), discussions via e-mail, uploading material including videos on a digital learning platform that students can access whenever and wherever they are, for example with a Learning Management System (LMS) [19].

There are lots of LMS platforms to choose from and use, both free and paid. The most popular free LMSs today are Google Classroom, Moodle, Microsoft Teams, and Schoology. The paid LMS that can be used to improve learning optimization include the Academy of Mine, SmartSchool, Ruangguru, Zenius, etc.

### 3.3 Blended learning

Blended Learning is learning by integrating synchronous and asynchronous learning via computers and the internet. In blended learning, teachers can carry out synchronous and asynchronous learning in one subject matter. This learning can also be carried out both face-to-face and online using a digital platform.

Furthermore, by comprehensively analyzing the perspectives of several researchers, digital learning can be divided into four parts [20], namely:

- Digital teaching materials: This emphasizes that students can learn by extracting some digital teaching material content such as e-books, digital data, or content presented with other digital methods.
- Digital tools: Emphasizing students continuing learning activities through digital tools, such as desktop computers, notebook computers, tablet computers, and smartphones.
- Digital delivery: Emphasizing that student learning activities can be delivered via the Internet, such as intranets, the internet, and satellites.
- Independent learning: It focuses on engaging learners in digital learning, both synchronously and asynchronously. The emphasis is on student participation in preparing learning activities independently.

Based on the above concepts, it can be concluded that in order to present quality digital learning, teachers must be able to create good communication, to encourage students to learn independently, to utilize various digital media, to carry out interactive interactions and be supported by adequate supporting facilities [21].

In practice, digital learning has shifted/changed the role of the teacher, that is, to become a facilitator who guides learning experiences [22]. In this case the teacher needs to have the ability to carry out guidance including in the use of technology and digital resources to support learning. In addition, the teacher's ability to design online learning is also needed, including in determining the method used (for example the student centered learning method), this is done so that the teaching and learning process in online classes can run well.

So by looking at this process, the school supervisor who will supervise should develop a strategy in collaboration with the school principal in terms of mapping the teacher's ability to use digital media and teaching materials [3], and it can discuss what methods are used in supervision so that the teacher is able to change and adjust with the times. Based on research, it was found that supervision from supervisors for school principals which was carried out through joint inspection, control and supervision had a positive and significant effect on the coaching and development activities of these school principals [13].

Agus Sukoco as chairman of the Indonesian School Superintendents Association stated that there are three important roles for school supervisors in the millennial era, those are: First, as a trainer where supervisors are expected to continue to train skills so that they can be relevant to the demands of change which will be useful later when carrying out supervision. Second, as a coach where this supervisor can assist teachers and school principals in carrying out their duties in class and at school. Third, as a mentor, a supervisor is an accomplished teacher or principal, so they can share experiences and practices both in terms of teaching and learning activities and school governance, which of course is also adjusted to the existing changing conditions [23].

## 4 Conclusion

Based on the results of the research it can be concluded that the teacher's ability variable in digital learning plays a role in mediating the effect of educational supervision on the quality of digital learning. Therefore educational supervision carried out to improve the quality of digital learning must train teachers to be able to manage digital learning. Teacher competence, especially in managing digital learning, will improve the quality of learning because teachers are at the forefront of education. This implies that there is a need for increase the understanding of school supervisors on the quality of digital learning so that it has a good impact on their supervision.

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