Study of improving the quality of learning in an effort to improve the quality of elementary school education

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Article Info

ABSTRACT

Quality education is education that is able to carry out the process of maturation of student quality developed by liberating students from ignorance, incompetence, helplessness, untruth, dishonesty, and from poor morals and faith. This study aims to analyze the quality of education in Buleleng Regency with a meta-analysis approach. The subjects of this study are researchers and research reports, data analysis begins with categorizing each research in accordance with its research paradigm and the central issues raised, and then the results of all studies are compared according to their categories. The results showed that student learning outcomes are strongly influenced by the quality of teachers or teaching staff. And the quality of teaching can be done by developing innovative learning models. If educators are able to improve performance related to improving classroom management and the learning process by participating in training on various innovative learning, then the quality of education and the quality of graduates will be able to compete in the global era.

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Introduction

Education has always been a hot topic for every country in the world. This is certainly understandable because through education a nation can develop and become a developed country. Indonesia, until now, is still far behind the quality of education compared to developed countries and developing countries in the world (Lukita et al., 2020). (Darmawan, 2020) revealed that the quality of Indonesian education is lower than its Southeast Asian neighbors, namely Malaysia and Thailand. The low quality of education has implications for the low level of human resources (HR). The low number of human resources boils down to the lack of competitiveness of the Indonesian nation facing competition in this global era. According to Degeng (2001) in (Dou et al., 2020), human beings who can 'live' in the 21st century are human beings who are competitive, intelligent, and ready to face change. Education can be used as a means to produce quality human resources (Ali et al., 2021; Glewwe et al., 2020; Hanushek, 2020; Nuraini et al., 2019; Werner, 2021). In this regard, the world of education has received a very sharp spotlight related to efforts to create quality human resources. Improving quality human resources, of which can be done by improving the quality of education.

Various efforts have been made by the government to improve the quality of education, especially science, namely 1) development of science learning models, 2) development of science learning media, 3) upgrading for educators, 4) provision of infrastructure that supports science learning, and 5) training (Latip & Faisal, 2021; Sham & Santaria, 2020). However, all of these things have not shown encouraging results. Trends

International Mathematics and Sciences Study (TIMSS), an institution that measures educational outcomes in the world, reports that the mathematics and science abilities of Indonesian elementary school students are ranked 32nd out of 38 countries (Mejía-Rodríguez et al., 2021; Verawati et al., 2019). The International Consortium (2010) (Fenanlampir et al., 2019), reported that in the fields of mathematics and science, Indonesia ranked 32nd out of 36 countries. These facts show that the quality of learning needs to be improved because science learning plays an important role in improving the quality of human resources.

The learning success of a student with another student varies, this can be caused by several factors. These factors include internal factors, external factors, and learning approach factors. Internal factors are factors derived from oneself consisting of physiological aspects and psychological aspects. Physiological aspects include physical conditions while psychological aspects include intelligence, attitudes, talents, interests, and motivations. Factors that come from outside the student include the social environment, non-social environment, learning methods, and learning media. Meanwhile, the learning approach factor is a type of learning effort that includes strategies, learning models, and methods used to carry out learning activities.

The selection of learning models must pay attention to the condition of students, the nature of the teaching material, available media facilities, and the condition of the teacher (Dwijayani, 2019). Thus the learning process will be varied, innovative, and constructive which can later create an interaction between teachers and students and students with other learning resources.

Currently, the challenge that must be faced by humans is a new industrial era marked by an era of digitization in various sectors of life. Experts call this the era of the industrial revolution 4.0. The term "Industrial Revolution" was introduced by Friedrich Engels and Louis-Auguste Blanqui in the middle of the 19th century. This industrial revolution is also going on from time to time. This last decade can already be called entering the fourth phase of 4.0 (Malik, 2019; Nicoletti, 2020). The change from phase to phase gives an articulate difference on the side of its usefulness. The first phase (1.0) is based on the invention of machines that emphasize (stressing) production mechanization (Adnan, 2022; Malik, 2019). The second phase (2.0) has moved on to the mass production stage integrated with quality control and standardization. The third phase (3.0) enters a mass stage of uniformity that rests on the integration of computerization. The fourth phase (4.0) has brought digitalization and automation of the combination of the internet with manufacturing (Ghobakhloo, 2020).

Technological advances allow automation to occur in almost all areas. New technologies and approaches that combine the physical, digital, and biological worlds will fundamentally change the pattern of human life and interaction (Amelia et al., 2022; Suaedi & Trisliatanto, 2020). Industry 4.0 as a phase of the technological revolution is changing the way of human activity in scale, scope, complexity, and transformation from previous life experiences (Piwowar-Sulej, 2020). Humans will even live in global uncertainty, therefore humans must have the ability to predict a very fast-changing future (Verlie, 2019).

To realize the industry 4.0 revolution, educational institutions must be able to produce superior human beings. In accordance with the sound of the Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System Chapter II Article (3) (Khunaifi & Matlani, 2019) it is stated that national education functions to develop abilities and form a dignified national disposition and civilization in order to explore the life of the nation, aiming to develop the potential of students so that humans who have faith and piety in God Almighty, have a noble character, healthy, knowledgeable, capable, creative, independent, and become a democratic and responsible citizen.

To produce humans who are ready to face the industrial revolution 4.0, educational institutions must carry out a quality educational program that is certainly an education that is able to develop the 4C's ability of its students. For this reason, existing educational units must review the existing curriculum, and adjust it to the needs and demands. One of the important components of learning is the learning model. According to Joyce (Purba & Situmorang, 2019) "A learning model is planning or a pattern that is used as a guide in planning learning in the classroom or learning in tutorials and to determine learning tools including books, movies, computers, curriculum, and others.

Method

This research uses a meta-analysis approach by adopting the meta-analysis method of educational research developed by Wilson and Kelly in (Crowther et al., 2010) which includes the following stages (1) determining the topic or scope, namely the field of education; (2) determine the period of research results that will be used as sources, namely the last 2 years (2020-2021); (3) tracing and collecting research reports in accordance with the field of education; (4) scrutiny of research titles and abstracts that are the population / sample of the study;

(5) meta-analysis research is focused on (a) content (data, data analysis, conclusions and suggestions), (b) methodology (type, place, time of research, methods, population, sample, conclusion drawing techniques, data analysis techniques), and (c) goals (output targets); (6) the categorization of each study in accordance with its research paradigm and the central issues raised; (7) compare the results of all studies according to their categories; (8) analysis of conclusions, and (9) drawing conclusions of meta-analysis research.

The subjects of this study are the researchers and the report of the results of the study. The objects of this meta-analysis study are (a) content (data, data analysis, conclusions, and suggestions), (b) methodology (type, place, time of research, method, population, sample, data analysis technique, conclusion drawing technique), and (c) target (output target). Data relating to the object of study are collected by collecting all reports. Data analysis begins with categorizing each research according to its research paradigm and the central issue raised and then the results of all studies are compared according to their categories. *In-depth analysis* is carried out on the content, methodology, and research objectives to provide an appropriate interpretation of quantitative data. The conclusions of each categorization stage are analyzed so that in the end the conclusions of meta-analysis research can be drawn in the form of policy alternatives in the world of education

Results and Discussions

Overview of the Quality of Education in Buleleng Regency

The quality of education can be seen from the picture of learning outcomes obtained by the students. The following are presented some of the results of research conducted related to student learning outcomes in several elementary schools in Buleleng district. Observations, interviews, and document recordings have been carried out by several researchers related to the learning outcomes of several subjects in several elementary schools in Buleleng district. A summary of the results of observations, interviews, and document recording is presented below.

First, based on the results of document recording, observations, and interviews conducted with homeroom teachers in class V at SD Cluster III Sukasada District for the 2020/2021 academic year, the learning outcomes obtained by students in mathematics subjects have not reached expectations. This can be seen from the existence of several problems that must be handled in the field of education related to the understanding and ability to solve mathematical problems of class V students.

Table 1 <End of Semester 1 Test Scores in Mathematics Class V Subjects for the 2020/2021 Academic Year in Cluster III Sukasada District>

No	School Name	KKM	Number of Students	Students Who Achieve KKM		Students Who Have Not Reached KKM	
				Student	%	Student	%
1	SD Negeri 1 Pegadungan	58	12	3	25%	9	75%
2	SD Negeri 2 Pegadungan	60	10	3	30%	7	70%
3	SD Negeri 3 Pegadungan	70	29	11	38%	18	62%
4	SD Negeri 1 Silangjana	66	20	8	40%	12	60%
5	SD Negeri 2 Silangjana	65	21	8	38%	13	62%
6	SD Negeri 1 Padang Bulia	58	19	12	63%	7	37%
7	SD Negeri 2 Padang Bulia	60	28	14	50%	14	50%
8	SD Negeri 3 Padang Bulia	60	15	5	33%	10	67%
	Total		154	64	42%	90	58%

Source: UAS Grade 1 Mathematics Class V Cluster III

Second, the results of interviews and observations conducted at SD Cluster VII Sukasada Subdistrict, Buleleng Regency, that in the learning process teachers still tend to use lecture methods, have not maximized innovative learning models, and Student interaction is still low, this is marked as rarely seen students asking questions, students are just waiting for information from the teacher, the teacher only delivers the material without relating to grades, norms, and morals prevailing in society. So that learning in the classroom only occurs one way, this has resulted in low social studies learning outcomes for grade IV students at SD Cluster VII Sukasada District, Buleleng Regency.

Based on the results of the document study, the average score of social studies learning outcomes from grade IV students in the first semester at SD Cluster VII Sukasada District, Buleleng Regency, the academic year 2020/2021 can be seen in Table 2.

Table 2 <General Test Scores for grade IV students in the first semester at SD Cluster VII Sukasada District, Buleleng Regency, Academic Year 2020/2021>

	School Name	Number of Students	KKM School	Number of Students Achieving KKM		Average Values
				Complete	Not Complete	
1	SD Negeri 1 Selat	26	70	11	15	70,38
2	SD Negeri 2 Selat	31	60	14	17	59,67
3	SD Negeri 3 Selat	23	75	7	16	50,43
4	SD Negeri 4 Selat	20	70	10	10	72,75
5	SD Negeri 5 Selat	23	60	12	11	75,86
6	SD Negeri 6 Selat	10	70	3	7	56

(Source: Value Archives at SD Cluster VII Sukasada District, Buleleng Regency in 2021)

Third, based on the results of observations and interviews in grade III elementary school students in Cluster V, Sukasada District, Buleleng Regency, it can be seen that the results of science learning obtained are still mostly optimally achieved. This can be proven from the UAS scores of students in semester 1 of the 2020/2021 school year in science learning, most of whom have not been able to achieve the KKM set in the Cluster. As presented in Table 3 as follows.

Table 3 <Average Score of End-of-Semester Test of Grade III Elementary School Students in Cluster V Sukasada District, Buleleng Regency>

	School Name	KKM School	Number of Students Achieving KKM		Average Values
			Complete	Not Complete	
1	SD Negeri 1 Panji	74	12	9	61,59
2	SD Negeri 2 Panji	72	4	10	62,77
3	SD Negeri 3 Panji	72	8	12	64
4	SD Negeri 4 Panji	70	5	16	60,37
5	SD Negeri 5 Panji	72	8	10	66,67
6	SD Negeri 6 Panji	70	5	8	65,36
7	SDN 1 Sambangan	70	5	10	64,45
8	SDN 2 Sambangan	72	7	7	68,55
9	SDN 3 Sambangan	70	11	8	62,77

Based on Tables 1, 2, and 3 presented above, it is shown that the learning outcome scores of elementary school students in several schools in the Buleleng district are still mostly below the KKM (minimum completion criteria). Such low learning outcomes can be caused by several factors. Factors that can cause low student learning outcomes can come from internal factors as well as external factors. Internal factors include the student himself, for example, motivation or desire to learn, health and physical condition, and physical condition of the student. Meanwhile, external factors are factors that come from outside the student, including those that can be caused by infrastructure, the learning environment, and can be caused by teachers or educators. Teacher qualifications, teaching experience, and the desire to learn can be the cause of student learning outcomes to improve or be under KKM.

The Effect of Teacher Quality on the Quality of Education in the Buleleng District

The quality of an education is greatly influenced by the quality of teachers/ teachers. The role of teachers in the teaching and learning process includes many things, Syaiful Bahri Djamarah explained that the role of teachers as proofreaders, inspirers, informators, organizers, motivators, initiators, facilitators, supervisors, demonstrators, class managers, mediators, supervisors, and evaluators.

The teacher se as anemonstrator melalui his role as a demonstrator, lecturer, or teacher, the teacher should always master the material or subject matter he will teach and always develop it in the sense of improving his ability in terms of the knowledge he has because this will greatly determine the learning outcomes achieved by students.

The teacher has a role as a learning manager, the teacher should be able to manage the classroom as a learning environment and is an aspect of the school environment that needs to be organized. This environment is organized and supervised so that learning activities are directed towards educational goals. This supervision of environmental learning also determines the extent to which the environment becomes a good learning environment. A good environment is challenging and stimulates students to learn, providing a sense of security and satisfaction in achieving goals. The quality and quantity of student learning in the classroom depends on many factors, including the teacher, personal relationships between students in the classroom, as well as the general conditions and atmosphere in the classroom.

Teachers as mediators and facilitators as teacher mediators should have sufficient knowledge and understanding of educational media because educational media is a communication tool to further streamline the teaching and learning process. Thus the educational medium is an indispensable basis that is complementary in nature and is an integral part for the success of the educational and teaching process in schools. Meanwhile, as a facilitator, teachers should be able to strive for useful learning resources and can support the achievement of goals and the teaching and learning process, whether in the form of resource persons, textbooks, magazines, or newspapers.

The teacher as an evaluator as anevaluator the teacher should be able and skilled in carrying out the assessment because, with assessment, the teacher can find out the achievements achieved by the student after he has carried out the learning process (Conley & Glasman, 2008).

Meanwhile, Piet A. Sahertian cited Watten B's opinion in explaining the role of teachers as "respectable figures in society, appraisers, a source, helpers, referees, detectives, objects of identification, fear buffers, people who help to understand themselves, group leaders, parents/guardians, people who foster and provide services, co-workers and bearers of affection (Holil, 2018).

(Sopian, 2016) grouping teacher duties into three types, namely: professional tasks, humanitarian tasks, and tasks in the field of society. The duties of the teacher as a profession include educating, teaching, and training. Educating means passing on and developing the values of life. Teaching means passing on and developing science and technology. While training means developing skills in students. The task of the teacher in the field of humanity at school should be able to establish himself as a second parent. He must be able to attract sympathy so that he becomes the idol of his students. Whatever lessons are given, should be a motivation for students in learning. The task of teachers in the field of society is expected to provide knowledge. This means that teachers are obliged to educate the nation towards the formation of a complete Indonesian people based on pancasila.

According to (Ariani, 2021) that teachers in educating students are tasked with: 1) Handing over culture to students in the form of intelligence, skills, and experiences; 2) Forming a harmonious child's personality; 3) Preparing children to become good citizens in accordance with the education law which is a decision of the MPR No. II of 1983; 4) As an intermediary in learning; 5) The teacher is as a guide, to take the protégé towards maturity; 6) Teachers as a liaison between the school and the community; 7) As a disciplinary enforcer; 8) Teachers as administrators and managers; 9) The work of the teacher as a profession; 10) Teachers as curriculum planners; 11) Teachers as leaders, and 12) Teachers as sponsors in children's activities

Given the importance of the role of teachers in determining the quality of education, it is appropriate that in choosing or appointing teachers, they must pay attention to the competencies possessed by prospective teachers. Related to the quality of teachers in improving the quality of education, the Buleleng district education office has made various efforts to improve the quality of teachers. Externally, it turns out that the principals have established continuous cooperation in the principal bonding forum known as the principal working group (K3S). This bond was formally formed by the principals under the coordination and facilitation of their respective work agencies.

The principal in his capacity as an education administrator has carried out a number of internal policies in his respective schools. They have sent teachers to participate in various instructional ability and skills improvement programs. On the other hand, the principal has also carried out inward coordination, by appointing one of the teachers as the coordinator of the teacher's work. Periodically, the principals have made coaching and directional efforts related to the performance of the teachers in their schools. On the other hand, the school in collaboration with the School Committee has provided a special budget for the allocation of teacher performance improvement (by sending teachers to participate in upgrading and training.

The results of observations made by several researchers related to the effect of teacher quality on the quality of education and teaching in the Buleleng district can be presented in Table 5 below.

Table 5 <The results of observations by several researchers about problems that occurred in several elementary schools in the Buleleng district>

No.	Research Title	Observation Results
1	The effect of the ice breaker-assisted base learning project on the critical thinking ability of grade V elementary school students in cluster IV of the Buleleng sub-district for the 2017/2018 academic year.	1. Classroom learning is still dominant using the lecture method. 2. Low student participation in asking and answering questions during learning. 3. Students ' ability to write conclusions is still low. 4. Students have not been facilitated in assessing and evaluating the results of observations.
2	The effect of the project-based learning model on science learning outcomes in grade IV students of SD cluster 1, Seririt District, Buleleng Regency, for the 2019/2020 academic year	1. Science learning outcomes are still low (below KKM). 2. Learning using the lecture method. 3. Lack of use of media and props. 4. The use of methods in learning is still less varied. 5. Students are passive because they only listen to lectures from teachers. 6. Rarely give experiments to students
3	The influence of the character education-based Snowball throwing learning model on the science learning outcomes of grade 3 students of SD cluster V Sukasada sub-district for the 2018/2019 academic year.	1. Teachers follow the flow in the book more. 2. Teachers have not been able to make the most of the media. 3. The teacher has not optimally explored the initial knowledge of students. 4. Students are only able to memorize science concepts. 5. The science learning outcomes obtained are still mostly achieved optimally.
4	The influence of the tri kaya parisudha-oriented Role playing learning model on the social studies learning outcomes of grade IV students of SD cluster VII Sukasada district 2018/2019.	1. In the learning process, teachers still tend to use the lecture method. 2. Not yet maximizing innovative learning models 3. Student interaction is still low, this is marked as rarely seen students asking questions, students just waiting for information from the teacher. 4. The teacher only delivers the material without attributing it to the values, norms, and morals prevailing in society. 5. Social studies learning outcomes that have not reached KKM
5	The influence of the number head together learning model assisted by open question card media on the understanding and problem-solving ability of mathematics class V cluster III Sukasada district 2018/2019.	1. Solving students' mathematical problems is lacking, namely when the learning process is seen that students tend to only be able to answer questions that are similar to the example questions gave earlier. 2. Students do not understand the material given, and students find it difficult to solve problems related to mathematical formulas. 3. The learning process that occurs in schools is dominated by teachers who often use the lecture

and assignment method, but there are also those who use the question and answer method

Based on Table 5, we can know that in several schools conducted research, problems were found related to student learning outcomes for several learning contents such as Mathematics, Science, and Social Studies. From observation and recording of documents, it is known that the learning outcomes on some of these learning contents are still under the KKM. The low learning outcomes of students are caused by the learning carried out, many still use conventional learning methods. To overcome these problems, it is carried out by applying innovative learning by applying various innovative learning models that will theoretically be able to improve or improve student learning outcomes. Based on 5 samples of research carried out, it is known that the application of various innovative learning models has been proven to affect student learning outcomes. This influence can be seen from the results of the study which showed that student learning outcomes applied by innovative learning models were significantly different compared to the use of conventional learning models.

Conclusions

Based on the analysis of some of the research results above, it can be concluded that student learning outcomes are strongly influenced by the quality of teachers or teaching staff. In addition, the application of various innovative learning models can help students to better understand the material being taught so that student learning outcomes can be improved. Some policy alternatives that can be conveyed regarding the results of this meta-analysis research are: (1) To the principal to take strategic steps in improving teacher performance, especially those related to improving classroom management and the learning process that can be done by providing training on the application of various innovative learning to all educators, (2) To other researchers to use the results of this meta-analysis to develop a research umbrella and the advantages of its research products.

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