JMKSP (Jurnal Manajemen, Kepemimpinan, dan Supervisi Pendidikan)
Volume 9 (1) 2024, 426-439
E-ISSN 2614-8021, P-ISSN 2548-7094

The Influence of The Constructivism Learning Model on The Quality of Learning in Public Elementary School at Panyabungan District

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Article History: Received on 10 December 2023, Revised 13 December 2023, Published on 12 February 2024

Abstract: This research aims to investigate the effect of applying the constructivist learning model on the quality of learning. This research was conducted at the Panyabungan Mandailing Natal District for Elementary School. The research method used is quantitative, with a causative approach. The population of this study was all 84 teachers spread across 6 public elementary schools in Panyabungan sub-district. The research sample consisted of 35 people, obtained through a stratified proportional random sampling technique. Research data was collected through questionnaires which have been tested for validity and reliability. The analysis technique used is the level of response attainment (TCR) to describe the data, while the analysis requirements tests carried out are the normality test and linearity test. Next, testing the hypothesis is carried out using simple correlation and regression. The research results revealed that the constructivist learning model had a significant effect on the quality of learning by 32.2%. The implications of these findings can be used as a basis for improving the quality of learning in similar schools and making a positive contribution to the development of learning models that suit the contextual needs of education in Indonesia.

Keywords: Constructivist Learning Model, Elementary School, Quality of Learning.

A. Introduction

Education is a process that aims to prepare quality and competitive human resources. The objectives of this education have been stated in the National Education System Law number 20 of 2023. Furthermore, the objectives of this national education are stated in chapter 2, article 3, which states that national education aims to develop the potential of students so that they become human beings who believe and fear God. The Almighty, has noble character, is healthy, knowledgeable, capable, creative, independent, and a democratic and responsible citizen. This educational goal can be achieved if the learning process carried out is of high quality.

Learning is said to be of quality if its implementation is carried out effectively.

(Setyosari, 2017) believes that effective learning cannot be separated from quality learning because basically the quality of learning outcomes is very dependent on the effectiveness of learning that occurs in the learning process itself. The effectiveness of learning can be realized through the interaction of all the main components of the teaching and learning process, such as teachers and students, and is also supported by the completeness of educational infrastructure. Ismaniati, (2013) states that quality learning describes the existence of a learning environment that helps students control the fulfillment of their emotional needs, make choices that allow them to be physically, emotionally and mentally involved in the learning process, and an environment that gives them the freedom to make learning choices according to their abilities. and their will.

Recently, the ongoing learning process is still teacher-centered, so it is conventional in its implementation. If this is allowed to continue continuously, it is feared that it will have a negative impact on the quality of education. Therefore, an effort needs to be made to overcome this concern. One form of effort that can be made to overcome this concern is through the application of learning models. This is in line with the new paradigm which requires teachers to use learning models that not only activate students, but also enable students to actively construct their knowledge. This is a deep transformation that requires adaptation and creativity, guiding teachers to become learning facilitators, motivating and empowering students in the process of discovering knowledge.

Even though there is a paradigm shift in the curriculum that encourages the use of learning models that construct students' knowledge, many teachers have difficulty integrating active learning techniques into daily learning (Mislinawati & Nurmasyitah, 2018), having difficulty adapting learning materials to learning styles. diverse learners (Evie et al., 2021), and limitations in supporting resources needed to implement learning models that focus on knowledge construction (Nur et al., 2023).

Learning models refer to systematic approaches or strategies used by teachers to design and deliver learning materials to students. It includes various methods, techniques, and approaches aimed at achieving specific learning goals. Trianto in (Irviana, 2020) stated that the learning model can provide an organized structure to help students understand, process and apply information in an effective way. The use of appropriate learning models can create more effective learning experiences, increase students' motivation, and help them develop relevant skills for future life and work.

One of the learning models with the constructivist philosophy is a learning model that is aligned and compatible with the current curriculum, especially in the project of strengthening the profile of Pancasila (Nerita et al., 2023). The Independent Curriculum is defined as an effort to provide more freedom to schools, teachers and

students in designing and implementing learning. This may involve a learner-centered learning approach, an emphasis on developing critical skills, and flexibility in the selection of learning materials. The basic idea is to provide freedom to schools and educators to adapt the curriculum according to local needs and context.

The constructivist learning model is an adaptation of the constructivist philosophy that can be applied in the learning process in order to shape students' experiences and knowledge in a more meaningful way. The constructivist learning model is a learning approach that places emphasis on the active role of students in building their own knowledge and understanding. Constructivism argues that students are not just passive recipients of information from teachers, but active actors in forming their understanding through interaction with the environment and experience (Tanjung et al., 2023). Starting from the importance of the position of the constructivist learning model as an effort to improve the quality of learning, this article is focused on investigating the influence of the constructivist learning model on the quality of learning.

Constructivism Learning Model

The constructivist learning model has high relevance in the context of the independent learning curriculum. The concept of an independent self-study curriculum emphasizes providing freedom, independence and developing the potential of students. The learning model that applies a constructivist approach is learning that emphasizes students' activeness in building their own knowledge with the experience they have gained, so that this knowledge will be easy to understand, remember and transform in their daily lives (Sofiana, 2023).

Learning by adopting a constructivist approach should be "meaningful learning". This means that students can discover a new concept rather than accept a new concept. This will be more meaningful for students. Several meaningful learning flows can be illustrated in the following flow.

Flow 1. Meaningful Learning Flow in the Model Constructivist Learning (Sofiana, 2023)

Meaningful learning in the flow above begins with initial organization. The concept

of initial organization in learning is related to the way teachers plan and arrange learning material before teaching it to students. This includes planning, structure, and teaching strategies implemented to achieve learning objectives. Initial organization ensures that learning takes place in a structured, efficient and effective manner.

Then move to the subordinate learning step, which is a learning approach that emphasizes understanding basic concepts before involving yourself in more complex concepts. In subordinate learning, students build a strong foundation of understanding first before moving on to higher level material. Teachers help students understand basic concepts, provide support, and provide clear explanations before engaging students in more complex understanding.

Then after that, integrative adjustment refers to the teacher's ability to align learning with the various needs and learning styles of students. Teachers not only take into account diversity in the class, but also try to unite various elements in the learning process. This involves utilizing a variety of teaching methods, resources, and assessments to suit individual learners' needs. Integrative adjustments promote inclusivity and ensure that each learner has appropriate access and support in the learning process.

In the initial organizing stage, the teacher plans teaching by understanding the needs and level of understanding of students. In subordinate learning contexts, teachers begin by ensuring students have a solid understanding of basic concepts before entering more complex material. In this process, teachers can provide detailed explanations, case studies, or activities that support understanding of basic concepts.

Furthermore, in integrative adjustments, teachers ensure that the teaching and assessment methods chosen are appropriate to the learning styles and needs of students. This may include the use of a variety of resources, such as digital media, group projects, or assignments specifically designed to support inclusivity and diversity in the classroom.

Summarizing, the concepts of initial organization, subordinate learning, and integrative adjustment work together to create an effective learning environment and support holistic student development. Several main characteristics of the constructivist learning model(Tanjung et al., 2023) is:

1. Active learning, in this case students are encouraged to be actively involved in the learning process, such as discussing, asking questions, and carrying out independent exploration. This activity helps them build a deeper understanding (Oanh & Nhung, 2022).
2. The importance of personal experience, in this case the constructivist learning model emphasizes the importance of personal experience and the construction of knowledge based on that experience. According to Jumaat et al in

(Kusmaryono & Wijayanti, 2023) students form their own understanding through reflection on their own experiences.

3. Cooperative and Collaborative, in this case constructivist learning often involves cooperative and collaborative activities. Learners work together in groups to solve problems or explore concepts, allowing them to learn from each other.
4. Contextual learning, in this case the constructivism model, recognizes the importance of context in learning. Students' knowledge and understanding are built in the context of real or contextual situations that are relevant to their lives.
5. Focus on understanding concepts, in this case understanding concepts is prioritized over memorizing information. Students are invited to understand fundamental concepts and the relationships between them.
6. Question-based teaching, in this case the teacher often acts as a facilitator who asks questions to stimulate students' critical thinking and reflection. These questions guide students in building their knowledge.
7. Formative evaluation, in this case evaluation in constructivism tends to be formative, with a focus on students' understanding during the learning process. Teachers use feedback to help students understand and improve their understanding.
8. Ability to adapt, in this case the constructivism model can be adapted according to the needs and level of understanding of students. Teachers can adjust learning approaches according to student responses and progress.

Learning with a constructivist learning model has the advantage that students go through a process of thinking, understanding, remembering, strong interaction between students and teachers so that the end result is that they are happy with the existing learning. However, this model also has shortcomings, namely that the different characters and conditions of each student have different impacts on the learning process. Differences in opinion, time, and thought processes influence this. Of course this is normal and a solution can be found (Zulqarnain et al., 2021).

Several keys that need to be considered in the learning model with a constructivist approach so that it is implemented effectively in the classroom is to shift the teacher's role from providing information to facilitating learning. This involves understanding students' pre-existing conceptions and guiding activities to address and develop those concepts. Teachers with a constructivist approach engage students in problem-solving and inquiry-based learning activities, allowing them to design and test their ideas, draw conclusions, and convey their knowledge in a collaborative learning environment (Shah, 2019).

The constructivist learning model is very relevant in facing the demands of an ever-changing world, where critical thinking skills, problem solving and independent learning abilities are becoming increasingly important. This approach provides a strong foundation for the development of creative thinking and deep understanding.

Furthermore, he also explained that from the 1548 data collected through articles, it was stated that this constructivist theory had great effectiveness in improving student learning, especially for students at the primary and secondary levels because students at this age were ready to construct their knowledge using his own experience(Tanjung et al., 2023).

In research conducted by (Candra & Retnawati, 2020) through a meta-analysis study, there is a correlation between constructivist learning which involves active involvement of students in knowledge construction and learning outcomes in citizenship education subjects. The research results found that the constructivist learning model had a significant and strong correlation with civic education learning outcomes.

B. Methods

This type of research is quantitative with a causative approach. The aim of this research is to see the influence of the constructivist learning model on the quality of learning in superior public elementary schools, Panyabungan District, Mandailing Natal Regency. The total population of this study was 84 teachers with Civil Servant (PNS) status. Furthermore, the sample size for this study was 35 people. The sampling technique used is stratified proportional random sampling, taking into account: 1) educational level consisting of S1 and non-S1, 2) Groups consisting of groups namely ≤ III D years and > III D. Reasons for using strata of educational level and group in sampling because it is suspected that these two strata influence the quality of learning carried out by teachers.

The research instrument is a Likert scale model questionnaire which has been tested for validity and reliability. The analysis technique used is the response achievement rate (TCR) for data description, while the analysis requirements tests carried out are the normality test and linearity test. Next, hypothesis testing is carried out using simple correlation and regression.

C. Results and Discussion

Quality of learning

Learning quality is the achievement of learning objectives as measured through aspects of mastery of knowledge, skills and changes in attitudes. Daryanto in (Ahmadi & Hadi, 2023) stated that the quality of learning refers to various factors and characteristics that determine how effective and efficient the learning process is in achieving the desired educational goals. The same opinion was also expressed by (Gurnito, 2016) that the quality of learning is the quality and effectiveness of the level of learning achievement which can be measured from objectives, learning materials,

strategies, learning tools, students and teachers. Schools are said to be of quality seen from the results of graduates who can change behavior, attitudes and skills related to educational goals. The learning process implemented recently should be carried out creatively and innovatively. Learning in the old ways is no longer needed, there needs to be changes for students, especially those carried out in this era of digitalization. The use of learning models and media needs to be considered carefully so that it influences the achievement of learning objectives. This is what is said to be quality (Kusumaningtyas et al., 2020)

The learning quality variable consists of 35 statement items, so the minimum score obtained is 35 and the maximum score is 175. The results of data processing show that the maximum score for learning quality is 148 and the minimum score is 130, then the mean value is 139.14, the mode is 139, and the median value is 139, and the standard deviation value is 5.03. The difference between the mean, mode and median values is no more than one standard deviation. This means that the frequency distribution of the learning quality variable for teachers at State Elementary School, Panyabungan District, Mandailing Natal Regency tends to be normal.

Furthermore, the respondent's achievement level for the learning quality variable is known to still be in the adequate category with a response achievement level of 79.51% of the ideal score. If we look at the indicators, it can be seen that the indicators: 1) The environment is able to foster students' enthusiasm for learning, 2) Delivery of material is carried out in a coherent and focused manner, and 3) Learning is real, already in the good category with a response level for each indicator of 82.35%, 80.57%, and 80.13%. Meanwhile, for the indicator of effective use of learning technology, it is known that it is still in the adequate category in terms of implementation. This means that it is necessary to increase the use of effective learning technology in the constructivist model learning process. For more details regarding the level of achievement of respondents for each indicator of the learning quality variable, see Table 1 below.

Table 1. Respondents' Achievement Level for Each Learning Quality Variable Indicator

No	Indicator	Max Score Ideal	Average Score	% of Respondents' Achievement Level	Category
1	The environment is able to foster students' enthusiasm for learning	45	37.06	82.35%	Good
2	Delivery of material is carried out in a coherent and focused manner	50	40.29	80.57%	Good
3	Learning is real	45	36.06	80.13%	Good
4	Effective use of learning technology	35	25.74	73.55%	Enough
Overall Level of Achievement of Respondents Learning Quality Variables		175	139.14	79.51%	Enough

Referring to the table above, it can be interpreted that the quality of learning carried out by teachers at State Elementary School, Panyabungan District, Mandailing Natal Regency needs to be improved in a better direction. Efforts that can be made to increase teacher productivity are through improving indicators of the quality of learning itself. That quality learning is reflected in students' enthusiasm for learning which is fostered by the environment, the delivery of coherent and focused material, real learning, and the effective use of learning technology.

From Table 1 it can be seen that for the fourth indicator, namely the effective use of learning technology, its implementation is known to have not gone well. This means that this fourth indicator can be used as a gap to improve the quality of learning. This is in line with what was stated by (Suartama, 2010) that the use of technology in learning in particular can make a major contribution to the effective learning of all students and can help them achieve their highest potential regardless of their innate abilities. From this opinion, it can be understood that the use of technology has a big influence on the effectiveness of learning carried out by students, which will ultimately lead to the creation of quality learning.

Many efforts can be made to improve the quality of this learning. One of them is through the professionalism of the teachers themselves. Mas, (2017) states that teachers have an important role in determining the direction of the learning process they carry out. Further (Mas, 2017) states that quality learning is very dependent on the professional abilities of teachers, especially in providing ease of learning to students effectively and efficiently. It can be understood that whether a learning process is quality or not really depends on the teacher. Another effort that can be made to improve the quality of learning is through improving the management of infrastructure. This is in line with research conducted by (Megasari, 2014) entitled improving the management of educational infrastructure to improve the quality of learning at SMPN 5 Bukittinggi City. Research result (Megasari, 2014) This reveals that management of educational infrastructure can improve the quality of learning.

Constructivist Learning Model

The constructivist learning model variable consists of 37 statement items, so the minimum score obtained is 37 and the maximum score is 185. The results of data processing show that the maximum score for the constructivist learning model is 152 and the minimum score is 129, then the mean value obtained is 141.40. the mode is 141, and the median value is 141, and the standard deviation value is 6.03. The difference between the mean, mode and median values is no more than one standard deviation. This means that the frequency distribution of constructivist learning model variables at State Elementary School, Panyabungan District, Mandailing Natal Regency tends to be normal.

For respondents' level of achievement, the constructivist learning model variable is known to still be in the adequate category with a response level of 76.43% of the ideal score. Furthermore, if you look at the indicators, it is known that for the third indicator, namely the focus on understanding concepts, in implementation it is still in the adequate category with a response level of 62.73% of the ideal score. Meanwhile, the indicators: Active Learning, Cooperative and Collaborative, and Ability to Adapt have been implemented well, with each respondent's achievement level being 80.71%, 80.94%, and 80.83% of the ideal score.

Table 2. Respondents' Level of Achievement, The Constructivist Learning Model Variable

No	Indicator	Ideal Score	Average Score	% Respondent Achievement Level	Category
1	Active Learning	40	32.29	80.71%	Good
2	Cooperative and Collaborative	55	44.51	80.94%	Good
3	Focus Understanding on Concepts	45	28.23	62.73%	Not good
4	Ability to Adapt	45	36,37	80.83%	Good
WholeRespondent Achievement Level Constructivist Learning Model Variables		185	140.4	76.43%	Enough

From the explanation above, it can be understood that the implementation of the constructivist learning model at State Elementary School, Panyabungan District, Mandailing Natal Regency needs to be improved to be better in its implementation. Efforts that can be made to improve the implementation of the constructivist learning model are through improving the indicators of the constructivist learning model itself. From the data processing that has been carried out, it can be seen that the indicator of focus on understanding the concept is still low/in the category of poor implementation. This means improving the implementation of the constructivist learning model, one of which can be improved through indicators focused on understanding concepts. There are several efforts that can be made to improve students' understanding of this concept, one of which is through a trajectory learning strategy. This is in line with the findings of research conducted by (Triwibowo et al., 2018), he revealed that improving the ability to understand concepts can be done through a trajectory learning strategy. The Trajectory learning strategy is a learning trajectory that consists of several significant steps in learning a particular topic, where each new step in the learning path is based on the previous steps (Setiana, 2019). Furthermore, another effort that can be made to increase the focus on understanding this concept is through problem-based learning. This is in line with the findings of research conducted by (Santoso, 2018) with the research title Problem Based Learning in Efforts to Improve Students' Mathematical Understanding Abilities. This means that problem-based learning can improve students' understanding of learning concepts.

The Influence of the Constructivist Learning Model on the Quality of Learning

The first step taken before investigating the influence of this constructivist learning model is to carry out a requirements analysis test. The analysis requirements tests carried out are homogeneity tests and linearity tests. The results of testing the analysis requirements for the data normality test for both variables show that the data is normally distributed. Data normality test calculations were carried out using the Kolmogorov Smirnov-Z technique. The calculation results show that the significance value is 0.738 > 0.05, meaning the data is normally distributed.

For the results of the linearity test calculations, it was found that the significance value for deviation from linearity was 0.198 > 0.05. This means that there is a significant linear relationship between the variables of the constructivist learning model and the quality of learning. Detailed calculations can be seen in Table 3 below.

Table 3. Linearity Test Results of the Constructivist Learning Model on Learning Quality

Source	Sum of Squares	df	Mean Sum of Squares	F count	*p*
Deviation	494,296	16	30,894	1,525	198
Within Groups	344,300	17	20,253		
Total	1236,400	34			

Furthermore, the results of hypothesis testing which states that the constructivist learning model has an effect on the quality of learning, shows that there is an influence of the constructivist learning model of 32.2% on the quality of learning. A clear picture of the influence that the constructivist learning model has on the quality of learning can be seen in Table 5 below.

Table 4. Summary of Correlation Analysis Results between Constructivist Learning Model Variables on Learning Quality Variables

Correlation	Correlation Coefficient (r)	Coefficient of Determination (r2)	*p*
rxy	0.567	0.322	0.0001

Referring to Table 4 above, it is known that the correlation coefficient (rxy) = 0.567 with a p value of 0.0001 < α 0.05. This means that there is a significant relationship between the constructivist learning model and the quality of learning. The coefficient of determination (r2) is 0.322. To find out whether the form of the relationship is predictive or not between the variables of the constructivist learning model and the quality of learning, a simple regression analysis was carried out. For the results of simple regression analysis, the form of the regression equation is obtained, namely: $\hat{Y}$ = 72.240 + 0473x. Next, the equation was tested for significance. The results of this significance test calculation can be seen in Table 5 below.

Table 5. Summary of Regression Analysis Results for Constructivist Learning Model Variables

Source	Sum of Squares	df	Mean Sum of Squares	F count	*p*
Regression	276,791	1	276,791	15,654	0.0001
Residue	583,494	33	17,682		
Total	860,286	34			

In the table above it can be seen that the F count obtained is 15.654 with a p value of 0.0001 < α 0.05. This means that the regression equation $\hat{Y}$ = 72.240 + 0.473x can be used to predict the quality of learning. Next, a significance test was carried out for the regression coefficient. A summary of the results of the regression coefficient significance test analysis can be seen in Table 6 below.

Table 6. Summary of Regression Coefficient Test Results for Constructivist Learning Models on Learning Quality

Source	Coefficient	T	*P*
Constant	72,240	4,268	0.0001
Constructivist Learning Model	0.473	3,957	0.0001

From Table 6 it can be seen that the t value of the regression coefficient is 3.957 with a p value of 0.0001. This means that the regression coefficient value of 0.473 is significant and can be used to predict the quality of learning. This means that every time there is an increase or increase in the variable of the constructivist learning model by one unit, it will also cause an increase in the learning quality variable. Thus, it can be interpreted that the constructivist learning model variables can be used as predictor variables in improving the quality of learning.

The findings of this research are in line with the findings of research conducted by (Suhardiyanto, 2009) in his research entitled improving the quality of education through a constructivist-based cooperative learning model. Research result (Suhardiyanto, 2009) illustrates that the quality of learning can be improved through constructivist-based learning models. Furthermore (Suhardiyanto, 2009) states that this constructivist-based learning model is a learning model that can be used as a tool to increase the quality of an educational process. Through this constructivist learning model, teachers have the opportunity to encourage students to find or apply their own ideas and encourage them to use their own strategies to learn. From this explanation, it can be understood that the constructivist learning model has an important position in efforts to improve the quality of learning. Nur is deep (Suhardiyanto, 2009) states that through the constructivist learning model teachers can provide students with a foundation that will take them to a higher level of understanding. In other research conducted in external schools using a constructivist learning approach and active learning methods can significantly increase the effectiveness of environmental education when compared to traditional teaching methods (Arik & Yilmaz, 2020). In

addition, research (Gurnito, 2016) stated that the Contextual Teaching and Learning (CTL) learning model used in the classroom can improve the quality of student learning. In this case, CTL is part of the constructivist learning model (Wibowo, 2020). This means that if students have a high level of understanding then this will directly have an impact on the realization of quality learning.

Thus, it can be understood that the constructivist learning model studied in this research article can be used as a predictor variable to improve the quality of learning, of course apart from other variables which are not studied in this article.

D. Conclusion

The results of this research data analysis reveal that there is a significant influence of constructivist learning model variables on the quality of learning at State Elementary School, Panyabungan District, Mandailing Natal Regency. The magnitude of the influence exerted by constructivist learning model variables on the quality of learning is 32.2%, while the remaining 67.8% is the influence of other variables not studied in this research article. Therefore, this can be used as a basis for constructivist learning model variables to be used as a tool to improve the quality of learning.

E. Acknowledgement

We acknowledge all respondents and stakeholders who help us in this study.

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