

**TALKING STICK LEARNING MODEL ASSISTED BY MEDIA
QUESTION BOX: EFFECTIVENESS ON SCIENCE LEARNING
OUTCOMES IN ELEMENTARY SCHOOLS**



**Compiled as one of the requirements for completing the Strata I Study Program in
Department of Elementary Study Program, Faculty of Teacher Training and Education**

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APPROVAL

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ACCEPTANCE

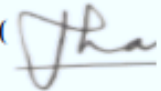
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Surakarta, 2 January 2023

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TALKING STICK LEARNING MODEL ASSISTED BY MEDIA QUESTION BOX: EFFECTIVENESS ON SCIENCE LEARNING OUTCOMES IN ELEMENTARY SCHOOLS

Abstrak

Penelitian bertujuan mengetahui efektivitas penggunaan model pembelajaran talking stick berbantu media question box terhadap hasil belajar IPA sekolah dasar. Jenis penelitian merupakan kuantitatif dengan desain eksperimen. Pemilihan sampel menggunakan simple random sampling. Subyek penelitian siswa kelas V di Sekolah Dasar di Kecamatan Purwodadi Kabupaten Grobogan. Desain penelitian menggunakan "One Group Pretest-Posttest Design" yang melibatkan satu kelompok tanpa kelompok pembandingan. Teknik pengumpulan data menggunakan teknik observasi dan tes. Menganalisis data yang diperoleh dalam penelitian menggunakan teknik analisis statistik deskriptif dan analisis statistik inferensial. Hasil penelitian menunjukkan bahwa berdasarkan nilai hasil belajar yang diperoleh peserta didik kelas dapat disimpulkan bahwa setelah diterapkan metode pembelajaran talking stick berbantuan questions box mengalami peningkatan, sehingga mayoritas nilai peserta didik masuk kedalam kategori tinggi. Berdasarkan hasil analisis, output uji Independent Sample T Test diketahui nilai Sig. (2-tailed) sebesar 0,000, maka H_0 diterima sehingga dapat disimpulkan bahwa terdapat perbedaan rata-rata antara hasil pretest dan posttest. Sehingga dengan adanya model pembelajaran talking stick berbantu media question box efektif digunakan dalam meningkatkan hasil belajar IPA pada peserta didik.

Kata Kunci : Talking Stick, Question Box, Hasil Belajar

Abstract

The research aims to determine the effectiveness of using the talking stick learning model assisted by the question box media on science learning outcomes in elementary schools. This type of research is quantitative with an experimental design. Selection of the sample using simple random sampling. The research subjects were fifth-grade students at an elementary school in Purwodadi District, Grobogan Regency. The research design uses the "One Group Pretest-Posttest Design," which involves one group without a comparison group. Data collection techniques using observation and test techniques. Analyzing the data obtained in the study using descriptive statistical analysis techniques and inferential statistical analysis. The results showed that based on the learning outcomes obtained by class students, it could be concluded that after applying the talking stick learning method assisted by the questions box, it has increased so that the majority of student scores fall into the high category. Based on the analysis results, the output of the Independent Sample T Test is known to be the value of Sig. (2-tailed) of 0.000, then H_0 is accepted, so it can be concluded that there is an average difference between the pretest and posttest results. So that the talking stick learning model, assisted by question box media, effectively improves science learning outcomes for students.

Keywords: Talking Stick, Question Box, learning outcomes

INTRODUCTION

The success of the learning process can be seen from the learning outcomes obtained by students, so the learning process requires the readiness and ability of the teacher or educator to

choose learning methods that can improve student learning outcomes. Based on Law no. 20 of 2003 in Article 37, paragraph 1, it is known that one of the subjects in elementary schools, which is a vehicle for equipping students with knowledge, skills, and attitudes, is science content. The process of learning Science in elementary schools needs to create learning conditions that can encourage students to be active and curious. Therefore, teachers in designing science learning in elementary schools can consider the involvement of various sensory organs owned by students and the development of science and technology in students (Putri et al., 2017). Application of innovation in learning in the form of creative ideas that are useful and needed in learning activities, including science content (Redhana, 2019), because science learning is a collection of knowledge that contains facts, concepts, and principles related to everyday life phenomena so that the process of learning activities requires an innovation such as learning media that can create concrete material (Juniati & Widian, 2017). Science learning in elementary schools is designed so that students experience a process, not just sit back and receive a bunch of knowledge from the teacher (Sayekti & Kinasih, 2018). The content of science lessons is the content of classes that teach about natural phenomena related to human life. The content of science lessons in elementary schools is a vehicle for equipping students with the knowledge, skills, and attitudes to continue to a higher level of education and also a means for students to adjust to changes in their surroundings.

Facts in the field show that the science learning method is not following the characteristics of science subjects. Empirical facts in the area show that many science lessons are still taught using techniques that are not following the aspects of science subjects (Laksana et al., 2019). As the facts were discovered by researchers while observing SD Negeri 3 Nambuhan, it is known that the teaching and learning activities in schools have returned to normal due to a government policy that requires face-to-face learning activities. Students attended the learning process, especially the content of science lessons, well. However, in terms of activity, understanding of the material, mastery of concepts, and assignments, there was no improvement after implementing online learning, and there were still students who could not read fluently. Activeness in learning there are only a few students who are active in learning, while assignments are given to each student because in giving assignments, there are still students who work on them at school. In addition, when face-to-face learning takes place, many students are less focused and lack discipline in doing assignments, so most students get grades in the low category. During the learning activities, the teacher uses conventional lecture learning.

Based on the facts described by the researcher, it is necessary to have an innovative learning model by the teacher in delivering the material so that students can receive and understand the material presented. Creative learning activities such as role-playing can develop student knowledge so that innovation in learning can increase students' contextual understanding (Ofori et al., 2020). An effective learning model to overcome these problems by improving 21st-century skills in learning, by implementing active and student-centred learning, so an approach with an active learning model is needed (Halili, 2019). So that the alternative that teachers can use to improve student learning outcomes by making innovations in the selection of learning models and media. In current education, students must be active, creative, and innovative in the learning process. Educators do not only explain the material contained in the book but understand, encourage, motivate, and guide students in learning activities. Science learning activities must emphasize direct experience so students can develop scientific competencies to explore and understand the natural surroundings. Science material is important to learn because it relates to systematically finding out about nature, which is expected to be used as a vehicle for self-study, nature, and development in everyday life (Panjaitan, 2017). Science learning is meaningful when it focuses on physical, mental, and intellectual student activities (Megawati, 2018). Teachers can deliver science or science lesson content through alternative methods expected to help improve students' science learning outcomes with cooperative learning models.

The learning model that can attract students' attention based on problems in the field and potentially involve students being active in science learning is the talking stick learning model combined with question box learning media. The Talking Stick learning model is a learning model with the help of a stick. Students holding posts must first answer questions from the teacher after studying the subject matter presented (Andre Suhardiana, 2019). Students are more courageous in expressing opinions by using the talking stick model, which begins with an explanation from the teacher regarding the subject matter that students will learn. Students are allowed to understand the material (Perwita & Indrawati, 2020). The talking stick learning model requires a stick aid, each group that has understood the material will be given a stick by the teacher and must answer the questions posed by the teacher. The talking stick learning model not only improves students' communication skills but also provides solutions for students to understand a subject matter concept that can improve student learning outcomes (Khairunnisa & Surya, 2017). The use of the talking stick learning model can increase the activity and experience of students in participating in learning that takes place in class because students must be ready when they get a stick to answer questions.

Implementing learning in the classroom needs to be designed creatively and innovatively by considering student development characteristics, so students do not feel bored. The cause of student boredom is that learning is only based on handbooks and explanations using lectures dominate. Hence, students become less active, tend to be passive and lose interest in the learning process. This hurts the development of student thinking and student learning outcomes. It is necessary to make changes through active learning to help them construct their knowledge (Cookson, 2015) and actively involve students in class discussions (Singh & Yaduvanshi, 2015). Through group discussions, students are encouraged to express unique ideas (Breslin, 2019). In addition, the education system must help students acquire knowledge, abilities, and traits that will help them become successful, productive individuals who can explain new ideas and insights by interacting to improve their thinking skills (Heong et al., 2020). Students use problem analysis and synthesis skills and apply previously learned concepts so that students' critical thinking skills develop (McCormick et al., 2015).

Learning that combines collaboration systematically can add cognitive and social components to each activity, building student collaboration and indirectly affecting their creativity (Romero et al., 2012). One way to make this happen is to try out a learning model, the talking stick-type cooperative model assisted by a question box. The Talking Stick model positively affects the creative thinking skills and scientific literacy of fourth-grade elementary school students (Nilayati et al., 2019). The talking stick cooperative learning model is suitable for learning. As social beings, humans cannot live alone, so they need the help of others. Because of this, humans must interact with other humans. This concept is used in the cooperative learning model, which emphasizes joint learning activities in groups to optimize the interaction between students and students, students with teachers, and students with their environment.

Learning media also greatly influences the learning process so that students more easily understand the material to activate students. The existence of learning media can help students think in real terms through the media used in learning processes because it can be seen directly. According to Karina and Puspasari (2017), learning media is a technology for carrying messages and means of communication in a printed or visual form to convey information from educators to students. One media that can be used to improve learning outcomes is the media question box. A media question box is a simple learning media made in the form of a box containing a number of questions that each group member will randomly take. "A question box is a medium that provides a collection of questions related to the material that has been presented" (Herpratiwi et al., 2019). Question box learning media is a medium for a collection

of questions related to the subject matter that has been delivered. The information conveyed is changed in the form of questions contained in one box. The various questions are quizzes in the learning process (Zulherman et al., 2021). This question box media attracts students' interest in learning and condition group members to be active and complete assignments. A question box is media with a box shape that can be seen from all directions.

Based on the explanation presented, it is necessary to conduct research on the effectiveness of using the talking stick learning model assisted by the question box media on the results of elementary school science learning. Previous research on the Talking Stick learning model affected science student learning outcomes (Fajrin, 2018). Media Question Box is suitable for an application because this model can train students to think critically in solving each problem creatively to achieve learning objectives (Dewi & Widiana, 2020). The application of the talking stick learning model assisted by the question box media is expected to improve the science learning outcomes of elementary school students. Based on this description, this study aimed to determine the effectiveness of using the talking stick learning model assisted by the question box media on science learning outcomes in elementary schools.

2. METHODS

This research is quantitative research with an experimental type, where the application or use of the talking stick learning method was tested in science learning to know the effectiveness of the application of the talking stick learning method in science learning for fifth-grade elementary school students in Purwodadi District, Grobogan Regency. The design that will be used is the One-Group Pretest-Posttest Design. The design plan to be used is as follows:

$$\boxed{O_1 \text{ X } O_2}$$

(1)

Description:

O1: Pretest (Before treatment)

X: Treatment

O2: Posttest (After treatment)

The research design used was "One Group Pretest-Posttest Design," which only involved one group without a comparison group. So this research is experimental research involving samples taken as an experimental group and a control class, namely class V of SD Negeri in Purwodadi District, Grobogan Regency. The population in this study were fifth-grade students at SD Negeri Nambuhan, totalling 36 students. The sample used was class V with a total of 30 students. The sample selection used simple random sampling. This sampling technique allows each student to become a research sample. Sampling using lottery numbers.

Data collection using observation and test techniques. Data on the participation and activity of students while participating in the science learning process activities carried out in this study were taken or collected using observation guide sheets. Meanwhile, data on science learning outcomes achieved by students were collected through the implementation of a learning achievement test using a written test sheet containing science questions with a total of 15 numbered questions. The indicators for science questions and item items are presented in table 1 below:

Table 1. Indicators of natural science questions on the respiratory organ systems of humans and animals

num	Question Indicator	Question Item Number
1	Presented questions in the form of pictures, students can explain the function of the human respiratory organ system.	1,2,4
2	Presented questions, students can explain the process in the human respiratory phase.	9
3	Presented questions, students can explain the process in the human respiratory phase.	11, 13
4	Presented questions, students can explain the function of the respiratory organs of animals.	3, 6, 7, 8, 10
5	Presented pictures and text questions, students can explain the various respiratory organs of animals.	14, 15
6	Presented a statement text, students can analyze how to maintain organ health	5
7	human breathing.	12

The test measures students' ability before and after treatment to determine the method's effectiveness. The test was carried out twice: the Pretest and the posttest. Data analysis techniques used to analyze the data obtained in this study are descriptive statistical analysis techniques and inferential statistical analysis.

The formula for the hypothesis test for the normality of the data for the Pretest is as follows:

H₀: Pretest data is normally distributed

H₁: Pretest data is not normally distributed

The formula for the hypothesis test for the normality of the data for the posttest is as follows:

H₀: Pretest data is normally distributed

H₁: Pretest data is not normally distributed

The hypothesis formula in sentence form is:

H0: The variance of the value data for PA learning in the Pretest is the same as the data variance for the value in science learning in the final test.

H1: The data variance of science learning outcomes in the initial test is not the same as that of science learning outcomes in the final test.

The research hypothesis test in this study used the SPSS 25 program. The Paired Sample T-Test was tested by comparing the initial test results (Pretest) scores with the final test (posttest). In the analysis of hypothesis testing, the formulation of statistical hypotheses in sentence form used is:

H0: There is no difference in the average value of science learning outcomes achieved in the posttest and on the Pretest.

H1: There is a difference in the average value of science learning outcomes achieved in the posttest and the Pretest.

3. RESULTS AND DISCUSSION

3.1 Result

The results of the Descriptive Statistical Analysis for the pretest results can be described as follows:

Table 2. Description of Pretest Distribution of student learning outcomes on human and animal respiratory organ systems

statistics	Statistical Value
Sample Size	30
Maximum Score	85
Minimum Score	35
Score Range	48
Average Score	69
Median	70
mode	64
Standard Deviation	11,76
Variance	138, 34

(Source: Primary Data)

Based on the Pretest, the frequency distribution list is grouped into five categories as follows:

Table 3. Distribution of Frequency and Percentage of Values of Natural Science Learning Outcomes on the respiratory organ systems of humans and animals

Value Interval	Category	Frequency	Percentage (%)
0 – 32	Very low	0	0
33 – 64	Low	11	36,66
65 – 76	Currently	10	33, 34
77 – 88	Tall	9	30
89 – 100	Very high	0	0
	Amount	30	

Based on the learning outcomes above, it can be concluded that the learning outcomes obtained by students in the Pretest obtained scores in the low category. The results of the Descriptive Statistical Analysis for the posttest results can be described as follows:

Table 4. Description of the Posttest distribution of student learning outcomes on the respiratory organ systems of humans and animals

Statistics	Statistical Value
Sample Size	30
Maximum Score	85
Minimum Score	65
Score Range	33
Average Score	85,5
Median	88
mode	80
Standard Deviation	7,8
Variance	61,7

(Source: Primary Data)

Based on the Posttest, the frequency distribution list is grouped into five categories as follows:

Table 5. Distribution of Frequency and Percentage of Values of Natural Science Learning Outcomes on the respiratory organ systems of humans and animals

Value Interval	Category	Frequency	Percentage (%)
0 – 32	Very low	0	0
33 – 64	Low	0	0
65 – 76	Currently	3	10
77 – 88	Tall	18	60
89 – 100	Very high	0	0
	Amount	30	

Based on the learning outcomes obtained by class students, it can be concluded that after applying the talking stick learning method with the help of the questions box, it has increased so that the majority of student scores fall into the high category.

3.1 Results of Inferential Statistical Analysis

The hypothesis test used is the Independent Sample T Test which tests the significance of the difference in the average (mean) between the 2 data groups, namely between the learning outcomes achieved by students on the initial test and the learning outcomes achieved by students on the final test after being given treatment in learning. In testing the hypothesis of this study, a significant level of 95% was used or with a value of $\alpha = 0.05$. So, the data to be tested in this hypothesis test is the average value of science learning outcomes achieved by students in the final test (posttest) or after being treated with the talking stick learning model assisted with the media question box learning method and the average score learning outcomes achieved by students in the initial test (Pretest) without using this method. The average Pretest and Posttest results achieved by students are as follows:

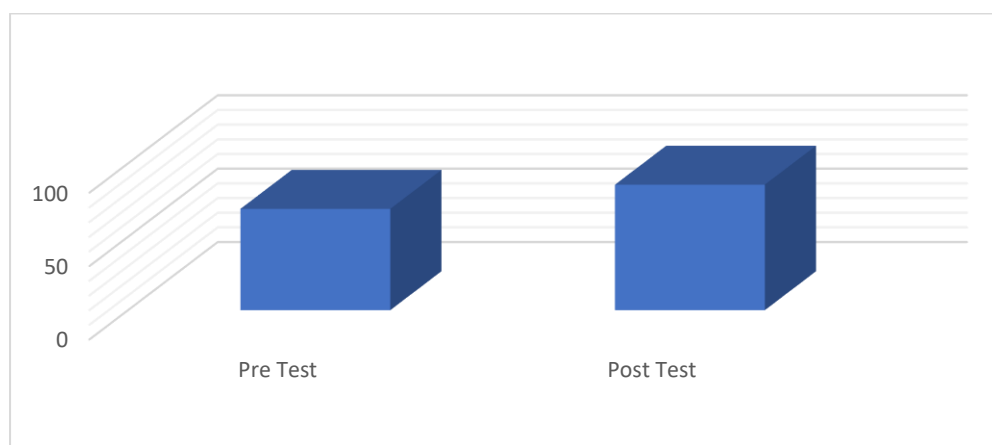


Figure 1. Average Pretest and Posttest results achieved by students in learning natural sciences on human and animal respiratory organ systems

The average science learning result in the Pretest was 69, while the average science learning result in the posttest was 85.5. The learning outcomes achieved by students from the Pretest to the posttest increased by 16.5%. Following the statistical data analysis technique used in hypothesis testing (before conducting inferential analysis), a requirements analysis test is first carried out on the research data obtained. The analysis requirements test referred to is the normality test and homogeneity test described in detail. The test is the normality of the data group, and the Kolmogorov-Smirnov test was used with a significant level of $\alpha = 0.05$. This normality test aims to see whether the data on the learning outcomes achieved by students is normally distributed or not. The results of the data analysis "Pretest of 0.413 and posttest of 0.414 have a significance value of more than 0.05, then H_0 is accepted and normally distributed.

The output in the Test of Homogeneity of Variances table shows that the resulting significance is 0.191, which is more significant than 0.05 ($0.191 > 0.05$), then H_0 is accepted. So it can be concluded that the variances of the two data groups, namely the initial test result data group and the final test result data group, are the same or homogeneous. The Independent Sample T Test output is known to be Sig's value. (2-tailed) of 0.000, then H_0 is accepted, so it can be concluded that there is an average difference between the pretest and posttest results. So that the talking stick learning model, assisted by the question box media, is effectively used in improving science learning outcomes for students.

3.2 Discussion

The analysis results show a difference in the average learning outcomes between the pretest and posttest using the talking stick learning model assisted by the question box media, effectively used to improve science learning outcomes for students. In the process of learning activities, applying the talking stick learning model can make students more active in learning, build cooperation between group members, and test student readiness in mastering learning material so that students become more active in learning and are more active (Murtiningsih, 2013).

The effectiveness of using the talking stick learning model assisted by questions boxes is in line with research which results in the advantages of the talking stick model, namely that it can test the readiness of students to master learning material, train students to understand the material quickly, encourage students to be more active in learning and encourage students to be brave. Express opinions. There is a significant influence on the application of the talking stick model and audio-visual media to the thematic learning outcomes of class V students at SDN 8 Metro Timur (Habibi et al., 2020). The talking stick type of cooperative learning model significantly influences science learning outcomes for fifth-grade students of SD Inpres 16 Sorong Regency in the 2018/2019 school year. The talking stick type of collaborative learning model affects science learning outcomes (Hasrudin & Asrul, 2020). The use of talking sticks and question boxes has a significant effect on science learning outcomes.

When combined with learning media, the talking stick learning model will make learning more effective and optimize the applied model. In line with what states that learning media can be used to convey messages (learning material) to stimulate students' attention, interest, thoughts, and learning feelings in learning activities to achieve specific learning goals. The quality of education will not be optimal if it is not supported by learning media as an intermediary, making it easier to explain a subject matter (Anggara, 2018; Karunia, 2017). The talking stick learning model is a learning model that can provide the widest opportunity for students to explore their

knowledge and express ideas or opinions that exist within themselves and train students to be active in learning activities because the talking stick learning model has advantages in the learning process. The advantage of applying the talking stick learning model in the learning process: it creates motivation and enthusiasm for students to participate in learning and creates a challenge for students so that all members of the group can express their opinions or ideas (Muhammad, 2017; Apriyanti, 2017). The talking stick model is a strategy that can spur students to understand the material carefully and be physically and mentally ready during the teaching and learning process in class to increase students' confidence in solving existing problems.

The influencing factor is increasing student motivation after using a new learning model because learning is fun. This is consistent with research that the talking stick learning model that invites students to learn and play has the potential to increase student motivation so that student learning outcomes increase due to fun learning and trains students' readiness to accept learning quickly because this learning models test the readiness of students in mastering the material so that students are involved in answering questions (Arianti et al., 2019; Megita Rani et al., 2019; Pour et al., 2018; Seika Ayuni et al., 2017; Trianti Lestari et al., 2018).

The use of selected media is the next factor. Learning media helps the learning process so that students understand learning material easily to overcome space and time limitations. The media questions box involves students' emotional and intellectual conditions and makes it easier to share questions. The use of question boxes in the classroom learning process must involve all students' potentials and abilities optimally and reduce student dependence on teachers so that students are more independent and reduce teacher centres (Asmara et al., 2014; Seika Ayuni et al., 2017). The learning motivation of the two classes after treatment showed differences. Implementing continuous learning shows effectiveness, and teacher questions should increase student motivation. According to problem-solving, they can activate their critical thinking and predict a logical way to solve problems. Their problem-solving can activate their critical thinking and predict a logical way to solve the problem (Lee et al., 2021; Lemos & Veríssimo, 2014; Malekian et al., 2013). Motivation is evident, suggesting that students' extrinsic motivation does impair (and may even cooperate with) intrinsic interest and academic achievement.

4. CLOSING

Based on the analysis results, the output of the Independent Sample T Test is known to be the value of Sig. (2-tailed) of 0.000, then H₀ is accepted. So it can be concluded that there is an

average difference between the pretest and posttest results. So that the talking stick learning model, assisted by the question box media it, is effectively used in improving science learning outcomes for students.

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