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Teaching at The Right Level Approach: Implementation Guide Inquiry & Cooperative Learning with Feedback on the Learning Outcomes of Students

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Abstract: The research aims to determine whether or not there is an influence from the results of teaching practice to improve student learning outcomes in science material on the classification of living things by implementing the learning model Guide Inquiry Learning using Kahoot.it with gifts Feedback and Cooperative Learning TGT Type (Teams Games Tournament) TaRL-based (Teaching at The Right Level). This research focuses on student learning outcomes during two cycles. The research method used is a mixed method with a research design sequential explanatory in the form of a combination of two studies in the form of qualitative and quantitative in a systematic and coherent manner. Analysis of the data used Paired Sample t-Test & test Group Pretest-Posttest To obtain quantitative data, meanwhile the data will also be described qualitatively and additional instruments will be used such as observation, interviews with teacher and student resource persons. The main instrument in research is questions pre-test and post-test. The research was conducted in the same semester at a State Junior High School in Malang City. The research subjects were 29 students in one class who had never studied the material tested by integrating the variables in the research. 1) the results show that the treatment provided in the experimental class shows that there is significant progress in student learning outcomes; 2) students are more active, able to search for information and improve their scientific literacy, increased learning outcomes from working on analytical type questions which are balanced with good understanding of concepts, and students' collaboration & communication skills are getting better; 3) the normality test carried out shows that the data is normally distributed and the t test carried out shows the value themselves. (2-tailed) < 0.05 which indicates the influence of the variables tested with the experimental class.

Keywords: Inquiry, Feedback, Kahoot.it, Cooperative Learning, TaRL.

Introduction

Natural science is an important lesson that can improve logical thinking, literacy and numeracy skills with various concepts that can be implemented in everyday life (Gao et al 2022; Hardiansyah 2022). Various existing concepts can improve students' realm of thinking at the analysis stage, of course, with the implementation of an *Kurikulum Merdeka*, teachers also act as facilitators to create effective learning using student-centeredness by considering the nature of nature and the times, as well as 21st century skills for students. (Syahbana et al 2024; Menap et al 2021; Nurhayati et al 2024; Secretary 2019). However, previous research found problems in science learning such as misclassifying living things, not understanding the meaning of learning, low interest in scientific literacy so that knowledge is less mature, and not being able to search for information independently. (Manishimwe et al 2021; Agustina et al 2020a; Justine 2024; Judean 2024). This problem is supported by observation and interview data from one of the junior high schools in Malang City, including low student literacy levels and preferring to be given lecture

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material, diverse backgrounds and initial abilities, low motivation, learning style needs (mostly visual and kinesthetic), the need to use learning media attracts students' interest.

The existing problems can be caused by several factors including: low support in the learning process, lack of involvement in learning in the context of social or daily life, and still focusing on mastering the material but not yet implementing and reasoning (Anggraini 2014; Putra 2016; Setiawan 2019; Septian 2019). Apart from that, learning using the lecture method makes students less enthusiastic which can increase students' enthusiasm apart from giving rewards and praise, of course by considering activities and media that are memorable for students (Ayu & Ningsi 2024; Barus, A Rusilowati 2024; Nengsih et al 2024; Tunnisa et al 2024). Based on existing problems, the solution that can be offered is the use of models *guide inquiry* which can significantly increase students' scientific literacy in hypothesizing, positive thinking, providing contextual learning, and forming a critical attitude in collecting data (Yessi 2019; Wijaya et al 2021; Yulianawati et al 2021). To attract enthusiastic students interactively, they can use game-based media, which can also improve learning outcomes (Kusumawati 2022). The first media used was a quiz *Kahoot*.it can increase students' interest in learning, be interactive and support the learning process which fits the guided inquiry model in giving *feedback* (Darwan & Saleh 2023; Abdillah et al 2022). Giving, feedback is suitable to be given after using kahoot.it in the first learning cycle using guided inquiry because it has the potential to increase student knowledge and positive evaluation of material, as well as expand science concepts which are able to remediate errors both in concepts and analysis of wrong answers (Nurin Handini & Budiyanto 2023; Oktafianti et al 2021; Siregar 2020; Reksi et al 2024). Then, in the next cycle using integrated media *Cooperative learning* TGT type (*Teams Games Tournament*) which is able to increase students' learning completeness, increase student enthusiasm and competition, and encourage collaboration between students in small groups (Nurhayati et al 2022; Nurin Handini & Budiyanto 2023; Salim 2024). From diverse backgrounds and abilities approach. TaRL (Teaching at The Right Level) can increase learning motivation and good learning results in terms of cognitive and student interest as in previous research (Cahyono 2022; Avianti et al 2023; Nisa et al 2023)

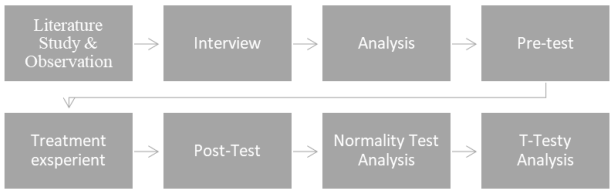
From the results of literature studies and field data, the focus of this research is to improve students' skills according to the independent curriculum and 21st century skills and the influence of innovative learning. TaRL-based learning uses the Model *Guide Inquiry Learning* with Kahoot.it and Giving *Feedback* as well as *Cooperative Learning* Types of TGT on the learning outcomes of class VII science students. It is hoped that this research will be an output for reflection and evaluation of future learning and research. This research is expected to provide the output of learning tools and media that are integrated with students' learning needs

Materials and Methods

Study area

This research is focused on finding out the effect of the Guide Inquiry Learning model using Kahoot.it by providing TaRL-based Feedback and Cooperative Learning Type TGT to students in class VIII of a State Middle Schools in Malang City. With the condition that the class is homogeneous and has never received game-based learning treatment. This research was conducted in the even semester of the 2024 academic year. The research instruments used were Pre-test & Post-test questions which had been validated by expert validators, Spreadsheets, Observation Sheets and teacher and student interview sheets as learning tools and supporting instruments for this research.

Procedures



Pic. 2.1. Research Procedure

Data analysis

This research is a type of descriptive research using

mixed methods. The design of this research is sequential explanatory by combining two studies in the form of qualitative and quantitative in a systematic and coherent manner. There are two stages in this design, first by applying quantitative numerical methods, then followed by qualitative methods for descriptive data. The research design used has a character where quantitative data is more important than qualitative results, so that the qualitative method is a supporter and explanation for the quantitative data that has been obtained (Agustina et al 2020; Rokhmat et al 2020). Quantitative data will be obtained from the t-test using SPSS by using Paired Sample t Test. Analysis of this research data uses tests Group Pretest-Posttest in the form of an initial test to determine the initial abilities of the sample before learning and after giving treatment to the experimental class as in table 3.1.

Table 2.1. Test Group Pre-test & Post-test

	Pre test	**Treatment**	**Posttest**
Experimental Class	T1	X	T2

Description of Hypothesis Determination with:

- H_0 = there is no difference in learning outcomes before and after treatment.
- H_1 = there are differences in learning outcomes before and after treatment.
- significant level (α) of 0.05 with then H_0 accepted if the value is significant or Sig. (2-tailed) $\geq$ 0.05 and then H_0 rejected if the value is significant or Sig. (2-tailed) $\leq$ 0,05
- X is a model Guide Inquiry Learning using Kahoot.it by giving Feedback and Cooperative Learning TGT Type (Teams Games Tournament) based on TaRL (Sugiyono 2015).

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Results should be clear and concise. The results of research at one of the State Middle Schools in Malang City related to implementation guide inquiry & cooperative learning with feedback on the learning outcomes of class VII students using the TaRL approach which has been implemented with 29 research subjects over 2 learning cycles giving the following results:

Results and Discussion

3.1. Implementation of learning used models Guide Inquiry Learning with Kahoot.it, Feedback, Cooperative Learning TGT type, all based on TaRL.

At this stage, the research class treatment uses two cycles with different learning models. For the first cycle the model has been applied to Guide Inquiry Learning using Kahoot.it with gifts Feedback. Use Guide Inquiry Learning in the experimental class is intended to provide knowledge to students regarding the topics being studied about the material of the classification, of course by forming small groups that have been adapted to diagnostic tests at the beginning as an application TaRL. When forming groups, of course, pay attention to the learning background, initial abilities and learning styles of students to make it easier for students so that students get solid material until they take the quiz. The quizzes that have been given in class using Kahoot are intended to provide a trigger at the beginning of learning, then strengthen students' knowledge and provide Feedback as mentoring regarding concepts and knowledge that need to be refined. Feedback given directly during the quiz when students' answers open on the page Kahoot.it. The teacher will provide reinforcement or feedback in the form of praise to students who can answer correctly, provide explanations to students who make mistakes or misconceptions and provide the correct answer along with the reasons. The results obtained in the experimental class show that students are able to create hypotheses, search for their own knowledge, learning models and strategies can make it easier for teachers to provide feedback to students improve some of the knowledge that needs to be improved. During the learning process, students' enthusiasm was very high and they were able to improve students' scientific literacy skills by making them read various references when working on student worksheets given to them in groups. This is in accordance with previous research (Yessi 2019)(Yulianawati 2021)(Abdillah 2022)(Siregar 2020).

After that, give the second treatment using Cooperative Learning TGT type using student worksheets and questions adapted to students' abilities with a game of collecting questions and answers. Implementation cooperative learning also shows that the models and approaches provided are able to improve student learning outcomes not only in the cognitive domain but also in other abilities such as communication which is demonstrated by correctly and appropriately completing tasks given by the teacher as well as students' readiness to answer questions during the game of collecting questions and answers, collaboration. Not only students have the ability to think critically, but also analyze and create product output according to their interests. From the results of learning reflection, it was found that students felt learning became more exciting, enjoyable, gained knowledge and feedback. This is in accordance with previous research (Nisa 2023)(Nurhayati 2022)(Salim 2024)(Handini 2023). However, most students choose infographics or power points as their final product output so that students' other talents are less displayed. The students chose graphic design because it was easier and suited the assignment deadline. The reflection of this learning is in the form of students' readiness to complete the challenges given to be more creative, work quickly and precisely.

3.2. Giving Pre-Test & Post-Test

Table 3.2.1 Results of Pre-test & Post-test

Test	Number (N)	Minimum Value	Maximum Value	Mean	Std. Deviation	Std. Error Mean
Pretest	29	53	100	76.1034	13.58398	2.52248
Posttest	29	72	100	88.4828	7.71187	1.43206

The initial stage of the research provides pre-test results which can be used to determine students' initial cognitive abilities before being given model treatment Guide Inquiry Learning using Kahoot.it with gifts Feedback and Cooperative Learning TGT Type (Teams Games Tournament) based on TaRL. The pre-test results can be seen in table 3.2.1. The pre-test results show that the average student score is 76.10 and there is a minimum score of 53 which shows that the minimum completeness criteria 78 requirements for research subjects are still not completed. Some students contributed incomplete learning scores due to the lack of explanation and confirmation regarding the concept of the material being tested. Therefore, the first time when learning is carried

out, students are given material first using a model Guide Inquiry Learning Students are then given 10 practice questions to use Kahoot.it with every wrong question given feedback directly by the teacher. Not only, the learning provided also applies TaRL by focusing on indicators of student achievement that need to be developed but also product differentiation as student learning outcomes, so students will gain a deeper understanding of the material using various media such as videos, images and various reading references as follows. the needs of students' diverse learning styles.

In the second cycle students are invited to play games by the model Cooperative Learning TGT type. This learning is used to strengthen knowledge and there are also analysis question types so that students really understand the material being studied more excitingly, students can also choose easy, medium or high question types to increase their score in learning so that they can develop their thinking from the questions. from easy to higher analysis.

The results of providing this treatment can show higher average results than the results pre-test previously it was 88.48 and the minimum score was 72. The results showed that there was an increase in students' cognitive scores at post-test after administering the two learning models. From the pretest posttest data obtained, it shows that there is an influence of giving treatment to the experimental class.

3.3. Impact Used Guide Inquiry Learning Models, Kahoot.it Incorporation Feedback and Cooperative Learning TGT type on TaRL based.

There is an influence on implementation guide inquiry & cooperative learning incorporation feedback on TaRL approach of the learning outcomes in student's class VII which can be seen in table 3.3.1 for the data normality test and table 3.3.2 regarding the t-test using SPSS, as follows:

Table 3.3.1 Normality Test Results

Test	Shapiro- Wilk		
	Statistic	Df	Say.
Pre-test	0,932	29	0,062
Post-test	0,933	29	0,066

From this table it can be seen the results of the normality test using the Shapiro-Wilk method where the data is less than 35 indicating a significance value pre-test amounting to 0.062 is greater than the significance value of 0.05, thus the data pre-test can be said to be normally distributed. Then, the second one on Post-test A significance value of 0.066 can be obtained which shows a value of more than 0.05 as in the pre-test so that the post-test data can be said to be normally distributed. From the data obtained, you can proceed to the next stage to test the hypothesis using the T test as in table 3.3.2

Table 3.3.2 t-test results

	Paired Differences					t	df	Sig. (1-tailed)	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
				Lower	Upper				
Pretest & Posttest	-12.38	15.15	2.81	-18.14	-6.61	-4.40	28	<0.01	-12.38

From the t-test results in table 3.3.2 shows the value sig. (2-tailed) of less than 0.01. The significant result is less than 0.05 so H_1 accepted and H_0 rejected. From the t-test that has been carried out, the research results from the data that have been obtained show that there is a significant influence from the implementation of the model Guide Inquiry Learning using Kahoot.it with incorporate Feedback and Cooperative Learning TGT type on TaRL-based for student learning outcomes, especially on the material of classification of living things. Thus, the selected model and approach can be applied to a relatively homogeneous class as an experimental class. Selection of methods, strategies

and approaches or learning media. The implementation of this research model and method can be used by teachers to create learning that encourages active students with a conducive learning environment as in previous research (Nabillah & Abadi, 2019). The feedback given is also able to provide good conceptual knowledge to students so as to improve their final learning results as per research Reksi, (M., Sitompul, S. S., & Hamdani, H 2024). Providing learning Cooperative Learning The TGT type is also able to provide increased learning outcomes as per research (Purba et al 2023) both qualitatively from students' enthusiasm when learning and quantitatively students' final learning results related to the material being addressed, especially the classification of living things.

Discussion

The learning outcomes that have been obtained are an important aspect that gives students a role in the learning process and will provide information to the teacher when teaching in the next class. These learning outcomes are influenced by internal factors that can be controlled and external factors of students that cannot be controlled, with external factors including learning standards and time constraints, therefore the results of this research are expected to be material for consideration in teacher learning in the same or similar classes. characteristics with the experimental class so that opportunities for successful learning can occur.

Conclusions

The results of this study are in line with hypothesis H_1 there will be an influence on the implementation of the model Guide Inquiry Learning using Kahoot.it incorporate feedback and Cooperative Learning TGT type on TaRL-based for the learning outcomes of class VII students at one of the Malang State Middle Schools on the material of classification of living things using Kahoot.it and feedback which is able to provide students with knowledge related to conceptual material correctly and precisely so that there is an increase in post-test where students can answer analysis questions. In the application of TGT and differentiation learning to create output products from the knowledge they have in accordance with the interests and talents of students so as to add various skills, for example 21st century abilities (creative, collaborative, critical and communication) as well as several other student skills including: abilities social emotional, teamwork, responsibility and developing non-cognitive talents such as design. Enthusiastic students in the experimental class also felt happy and impressed that they were not bored during the evaluation. However, the results of product differentiation for student groups are in the form of infographic designs or power point because students feel comfortable, easy and fast within the given time duration. In the future, it is hoped that the next treatment can be carried out as TaRL in differentiating products can be varied by more time for each cycle.

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