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Learning Science with Numbered Heads Together (NHT) based on Growth Mindset Improving Science Literacy and Learning Agility of Elementary School Students

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Abstract

The low scientific literacy in students is due to several factors such as lack of motivation, negative attitudes towards teachers, low self-esteem, and lack of confidence in self-ability. This study aims to analyze the effectiveness of the Numbered Head Together (NHT) learning model based on the Growth Mindset of scientific literacy and learning agility of elementary school students. This type of research is quasi-experimental (quasi-experimental). The research design is a post-test-only control group design. The population of this study were fifth-grade students who found 137 people. Samples were taken using random sampling obtained 59 students. The data collection method used is a test. The instrument used in collecting data is test questions. Data analysis using descriptive statistics and inferential statistics, namely with Manova. The Manova analysis was preceded by several prerequisite tests: normality test, homogeneity test of variance and multivariate, variable multicollinearity test. The results showed a significance value of 0.00 (<0.05) for the scientific literacy variable, which means that there is a significant effect of learning using the Numbered Head Together (NHT) cooperative model based on the Growth Mindset on students' scientific literacy. The significance value of 0.00 (<0.05) for the learning agility variable shows that there is a significant effect in learning using the Numbered Head Together (NHT) cooperative model based on the Growth Mindset on student learning agility. It is concluded that the Numbered Head Together (NHT) cooperative model based on the Growth Mindset can improve scientific literacy and the Agile Learner of elementary school students

Keywords: numbered head together (nht); growth mindset; scientific literacy; agile learner.

Introduction

Entering the era of globalization, which is full of very tight competition, every country needs to master Science and Technology (IPTEK). Countries with high mastery of science and technology have a good quality of human resources (HR) (Chauhan, 2017; Geng et al., 2019; Sailer et al., 2021). Education is one thing that plays an important role in preparing quality human resources. Based on that, it is necessary to make improvements in the field of education, starting from the lowest to the highest level of education (Chai & Kong, 2017; Isdaryanti et al., 2018). Education significantly affects the progress of science and technology, which requires a person to master information and knowledge (Fernández-Gutiérrez et al., 2020; Geng et al., 2019; Reyes et al., 2017)technology readiness, and learning motivation on the three presences (social, teaching, cognitive. The Indonesian government strives to improve the quality of education, especially in science learning. One of the government's strive is through the Ministry of National Education to renew the curriculum by implementing the Education Unit Level Curriculum (KTSP) as the result of a revision of the Competency-Based Curriculum (Suantara et al., 2019; Wahyudin, 2018). Based on this Permendiknas, the learning process is carried out interactively, inspiring, fun, challenging, motivating students to participate actively, and providing sufficient space for the initiative, creativity, and independence following the talents, interests, and physical and psychological development of students (Akib et al., 2020; Mitra & Purnawarman, 2019; Setiawan et al., 2020)schools must view education as a process of developing the abilities needed in life, especially in facing 21st-century life challenges, not discrete subjects that are divided into different fields. Integrated learning will provide the opportunity for students to understand the complex problems that exist in the surrounding environment with a complete view. With this integrated learning, students are expected to have the ability to identify, gather, assess, and use information that is around them meaningfully. This can be obtained not only through the provision of new knowledge to students but also through the opportunity to strengthen and apply it in a variety of increasingly diverse new situations. The

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main focus of this article is to analyze the implementation of integrated learning in the curriculum in Indonesia. The integrated curriculum developed by Robin Fogarty has many advantages that can be adapted in the development of education in Indonesia, including the revised Curriculum 2013. Academics and practitioners must comprehensively understand the nature of the ten curriculum models (Robin Fogarty. This activity is carried out systematic and systematically through the process of exploration, elaboration, and confirmation (Ningsih & Maulida, 2019; Wulandari, 2020). Through science learning, every student is expected to have good scientific literacy skills.

Science is related on how to find out about nature systematically. Thus, science is not only the mastery of knowledge in the form of concepts, facts, or principles through a process of discovery (Hairida, 2016; Hillmayr et al., 2020; Isdaryanti et al., 2018; Parmiti et al., 2021). Science is knowledge about natural phenomena obtained through scientific experiments (Aiman et al., 2020; Iskandar, 2014; Parmiti et al., 2021; Suryani et al., 2019). Literacy is defined as the ability to read and write or communicate (Chan et al., 2017; Putri et al., 2021). Scientific literacy can also be interpreted as understanding science and being able to apply it in everyday life (Putri et al., 2021; Taruh et al., 2019). Nowadays, students are not only required to understand knowledge but must be able to apply their knowledge well as a result of learning. Scientific literacy can also be said to be natural science literacy. Therefore, students who have scientific literacy know that science is in their environment and use scientific knowledge to find a fact (Anggriani et al., 2020; Jufrida et al., 2019). Scientific literacy ability is the result of learning. Students who have scientific literacy can use scientific concepts and have scientific process skills. Thus, they can make decisions related to the environment, technology, social and economic development (Berndt et al., 2021; Cigdemoglu et al., 2017). Science literacy is very important to be mastered by students, which is expected that students become agile learners who can build themselves and be helpful to the community.

Students need to have learning agility skills in order to increase agile resources. Agility is related to the way students face difficulties with agility and flexibility in providing solutions (Karre et al., 2019; Saputra et al., 2022). Learning agility is the ability of students to learn from experience and apply what they have learned to new situations (Hammami & Khemaja, 2019; Ren et al., 2022). Students who have high agility take lessons appropriately, so, that they can apply the learning to new situations. In addition, students also tend to seek new challenges and active in learning to grow and develop well. Students who are agile learners also tend to reflect on themselves and evaluate experiences to conclude (Riemann et al., 2020; Yang et al., 2019). Learning agility consists of four dimensions, namely people agility, results in agility, mental agility, and change agility (Annosi et al., 2020; Anseel, 2017). People agility are students who know themselves well, treat others constructively, and learn from experience (Lee & Shim, 2019; Longmuß & Höhne, 2017). Results agility are students who can survive in difficult conditions, inspire others, and build the confidence of other students with their presence (Karre et al., 2019). Mental agility is defined as students who can think about a problem from a new perspective and feel comfortable with ambiguity can explain their thoughts to others (Karre et al., 2019). Change agility is a student who has ideas and is fully involved in skill development activities (Karre et al., 2019). Important aspects in learning agility are innovation, performing, reflecting, and risking. Based on this description, it can be concluded that science learning expects to improve students' scientific literacy and agile learners. It is very much needed in the era of the industrial revolution 4.0 that they can compete and have the knowledge and skills needed.

However, the problem of low-quality of learning outcomes, especially in science subjects, arises because several personality factors do not support learning, such as lack of motivation, negative attitudes toward teachers, low self-esteem, and lack of confidence in self-ability (Ambross et al., 2014; Dwi Lestari & Putu Parmiti, 2020; Hairida, 2016; Setianingsih et al., 2019). The most important factor that also greatly affects the low science learning outcomes is the teacher's view of how to package learning has only been seen based on the completeness of learning achieved by students without paying attention to the learning process (Arisantiani et al., 2017; Seika Ayuni et al., 2017; Suryani et al., 2019)3 > ttabel = 2,009. The problems that occur in learning are also caused by students who are less enthusiastic when learning takes place (Handayani et al., 2017; Widiantini et al., 2017)Environment, Technology, Society. During learning hours, most students do not concentrate on learning. It is due to the unattractive way of delivering learning material. In the learning process, the teacher actively presents information related to students' learning concepts (Arissantianti et al., 2017; Pramana & Suarjana, 2019).

Based on the description, the focus of the problem is the low learning outcomes of students in science subjects obtained during observation and document recording at SD Gugus V, Buleleng District, in class IV. The achievement of the average semester test scores is still below the Minimum Completeness Criteria, which is 65. Based on the results of data analysis, it is found that the average test scores in SD No. 1 Petandakan and SD No. 2 Petandakan are 64. The average test scores in SD No. 1 Sari Mekar and SD No. 1 Nagasepaha is 63, and SD No. 2 Sari Mekar is 62. It indicates that students have difficulty in learning science. In addition, students tend to be passive and lack of students' thinking processes. The conventional learning model, which is dominated by the lecture method, is still mostly done by teachers in the learning process, which is not suitable to be applied to improve scientific literacy and agile learners in elementary school students. The students do not have to carry out various learning activities. However, they can also cooperate with their friends to understand and master the concepts given by the teacher. Generally, students will find it easier to master a concept if they can exchange ideas with their classmates or groups (Astiti et al., 2017; Ayuni et al., 2017){“id”:”ITEM-2”,”itemData”:{“DOI”:”10.23887/jet.v1i2.11744”,”ISSN”:”2549-4856”,”abstract”:”Penelitian ini bertujuan untuk mengetahui pengaruh model pembelajaran children learning in science berbasis budaya penyelidikan terhadap kompetensi pengetahuan IPA siswa kelas V SD Gugus Srikandi Denpasar Timur. Penelitian ini termasuk penelitian eksperimen semu dengan desain non-equivalent control group design. Populasi dalam penelitian adalah seluruh siswa kelas V di SD Gugus Srikandi Denpasar Timur tahun pelajaran 2016/2017 yang berjumlah 344 siswa. Sampel penelitian ini ditentukan dengan teknik random sampling. Data hasil kompetensi pengetahuan IPA dikumpulkan dengan menggunakan tes objektif tipe pilihan ganda biasa yang dianalisis dengan menggunakan teknik analisis statistik deskriptif dan statistik inferensial dengan uji-t. Berdasarkan hasil analisis diperoleh thitung = 3,95 dengan dk = 67 dan taraf signifikansi 5% diperoleh ttabel = 2,00. Dengan demikian, nilai thitung > ttabel. Selain itu, nilai rata – rata kompetensi pengetahuan IPA siswa yang dibelajarkan melalui model pembelajaran children learning in science berbasis budaya penyelidikan lebih dari rata – rata siswa yang tidak dibelajarkan melalui model pembelajaran children learning in science berbasis budaya penyelidikan yakni (80,51 > 71,03.

The solution to these problems is that teachers need to work out a learning model that can make students happy to learn science. One of the way is by applying the cooperative learning model (Candra Lestari, 2018; Paramita et al., 2016). In cooperative learning, students can learn and work together in solving a problem, and this will further increase interaction between each other and help students to build good social relationships with their colleagues (Antari et al., 2019; Dharmayanti et al., 2017; Permatasari, 2017). To improve the quality and student learning outcomes. As the spearhead of education, teachers need to choose effective and efficient learning strategies and models (Dharsana & Sidabutar, 2018; Seika Ayuni et al., 2017)3 > ttabel = 2,009. Effective management of the learning process is the starting point for successful learning, which improves student learning outcomes, especially in science subjects using the Numbered Head Together (NHT) cooperative learning model.

Numbered Head Together (NHT) is a type of cooperative learning model developed by Spencer Kagan (1993) to involve more students in studying the material covered in a lesson and check their understanding of the lesson content (Candra Lestari, 2018; Jampel et al., 2018). The general steps of the Numbered Head Together (NHT) type of cooperative learning model are (1) students are divided into groups, (2) the teacher gives assignments, and each group does it, (3) the group decides the answer that is considered the most correct and ensures each group member knows this answer, and (4) the teacher calls a number, students with the number called to report the results of their cooperation (Dadri & Putra, 2017; Lagur et al., 2018; Ratih, 2017). This learning model emphasizes a special structure designed to influence student interaction patterns (Candra Lestari, 2018; Jampel et al., 2018; Menaka & Japa, 2016). This NHT type of learning model divides students into several small groups consisting of 3-5 students (Sastrawan, 2014; Yanti, 2016). Each group member will be responsible for studying the material provided by the teacher. The advantages of this NHT learning model are: first, all students must be active and ready to learn (Hartarto, 2015; Selamet, 2017). Second, students can engage in earnest discussions among their friends (Hurianti & Tastra, 2018; Muliandari, 2019). Third, students who have good learning abilities can teach students who do not understand the learning material well (Dewi et al., 2014; Witari et al., 2017).

The NHT learning model is combined with the Growth Mindset approach. This approach is carried out by giving confidence to students that students abilities and intelligence can continue to develop by continuing to practice by learning (Kismiantini et al., 2021; Muenks et al., 2021). The application of a growth mindset in learning is the right strategy that can be applied to improve the quality of education. The findings of previous studies also state that applying a growth mindset can improve the quality of students (Lewis et al., 2020; Zhao et al., 2021). This learning strategy will help students realize their potential and encourage them to develop their talents and abilities (Kim et al., 2022; Sahagun et al., 2021). Students who have a Growth Mindset will tend to want to get learning activities that are meaningful and have an impact on their lives (Burnette et al., 2020; Kwok & Fang, 2022). The method that will be used to build a Growth Mindset in the classroom is to praise the students' efforts, not the results, and to build a culture that prioritizes processes over results.

Previous research findings also stated that the Numbered Head Together (NHT) cooperative learning model could help students learn (Arsini et al., 2015; Diah Purwati et al., 2019). Other findings also state that the Numbered Head Together (NHT) type of cooperative learning model can increase student activity and affect student learning outcomes (Dewi et al., 2014; Hurianti & Tastra, 2018; Witari et al., 2017). Other findings also state that the NHT learning model increases students‘ enthusiasm for learning (Dadri & Putra, 2017; Selamet, 2017). There is no study on the Growth Mindset-based Numbered Head Together (NHT) learning model for agile learners and science literacy for elementary school students. This study aims to analyze the effectiveness of the Growth Mindset-based Numbered Head Together (NHT) learning model on scientific literacy and agile learners of elementary school students. It is hoped that the Numbered Head Together (NHT) cooperative learning model can help students learn science so that they can improve agile learning and scientific literacy in students.

Method

The type of research used is quantitative research with the Ex-Post Facto method (Sugiyono, 2014). The stages carried out in the study are: First is the preparation stage, namely observing the population and determining the research sample, creating a group with students who are the research samples to facilitate communication, compiling a questionnaire, testing the validity of the contents of the questionnaire by six validators, testing item validity using SPSS, variable reliability test using SPSS. Second, the implementation stage is distributing online questionnaires using google forms to the research sample. Third, the evaluation stage is carrying out data analysis using two methods, namely descriptive statistical analysis and inferential statistical analysis.

The population in this study amounted to 600 people who are students of the Faculty of Education, Ganesha University of Education semester 5 and 7 who have participated in the Merdeka Belajar program. The random sampling technique uses the Slovin formula with an error tolerance limit of 5% with a population of 600 students. A sample of 240 students of the Faculty of Education, Ganesha Education University, has participated in the Merdeka Belajar program. Of the 240 students, students with the same percentage were taken in each program. The total students in each program sampled were 50 students who took part in the teaching assistant program, 50 students who took part in the independent student exchange program, 30 people who took part in entrepreneurial activities, 30 students who took part in the internship program, 25 students who took part in the thematic KKN program, 20 some students take part in humanitarian projects, 20 people who take part in independent projects, and 15 people who take part in research programs. So that the total sample in this study is 240 students of the Faculty of Education, the Ganesha University of Education, who have participated in the Merdeka Belajar program.

The data collection method used in this study is a non-test method. The non-test method used is a questionnaire. Questionnaires were used to find out the opinions of students of the Faculty of Education, the Ganesha University of Education, who had participated in the Merdeka Belajar program on five variables related to research. The questionnaire contains ten statements on each variable so that the questionnaires answered are 50 statement items. The indicators for each variable are presented in Table 1.

Table 1: Dimensions of Science Literacy and Agile Learner

No.	*Variable*	*Dimension*
1	Science Literacy	Competencies/Skills
		Content/Science Knowledge
		Science Context
		Science Attitude
2	Learning Agility	People Agility
		Result Agility
		Mental Agility
		Change Agility

This research is research in the field of education using a quantitative research approach and adopting a quasi-experimental research type (Widnyana & Sujana, 2017), with a post-test-only control group design. The place of implementation of this research is in SD Gugus V, Buleleng District, Buleleng Regency. In this study, the research population was distributed in intact classes, which makes this research categorized as a quasi-experimental. The population in this study were all fifth-grade students in Gugus V, Buleleng District, Buleleng Regency. It includes 137 people from five elementary schools, namely SD No. 1, 2 Petandakan, SD No. 1, 2 Sari Mekar, and SD No. 1 Nagasepaha. The samples are done by using a random sampling technique. Based on this technique, the researcher obtained a sample of 59 students, consisting of 30 students in the experimental group and 29 people in the control group.

The data collection method used is test and non-test. The instruments used in collecting scientific literacy data are test questions and agile learner data collected through questionnaires. The test used to measure scientific literacy is a test in the form of a description consisting of 10 questions. The questionnaire used to measure learning agility contains 20 statements related to student agility in dealing with problems in learning. The dimensions measured in the scientific literacy and agile learner instruments are presented in Table 1.

This research instrument will be tested first to determine the level of validity and reliability. Testing the validity of the scientific literacy test and learning agility questionnaire was conducted using CVR. The results of the scientific literacy test validity test showed that the CVR score for each question was 1.00, and the CVI score for the scientific literacy test instrument as a whole was 1.00, so it can be declared valid. Testing the validity of the learning agility questionnaire shows that the CVR score for each question is 1.00, and the CVI score for the learning agility questionnaire as a whole is 1.00, so the learning agility questionnaire instrument is declared valid. The instrument reliability test was carried out using the Alpha-Cronbach formula, with the results obtained being 0.879 for the scientific literacy test and 0.966 for the learning agility questionnaire. Based on these scores, both instruments are at a very high level of reliability.

The technique used to analyze the data is descriptive and inferential analysis. Hypothesis testing was carried out using the Manova analysis technique. Before testing the hypothesis, several analysis prerequisite tests were carried out. First is the normality test for the data distribution. The second is the homogeneity of variance test. Third, the multivariate homogeneity test, and last the dependent variable multicollinearity test. The data analysis process was carried out using the help of the IBM SPSS Statistics 21.00 application. This analysis is used to analyze the high and low quality of scientific literacy and agile learners using the Numbered Head Together cooperative learning model based on the Growth Mi.

Findings And Discussions

Findings

The results of the descriptive analysis of the experimental and control group data in this study are presented in Table 2.

The analysis prerequisite tests in this study include the normality test of the data distribution, the homogeneity of variance test, the multivariate homogeneity test, and the dependent variable multicollinearity test. The first prerequisite test is the Kolmogorov-Smirnov normality test. The results showed that all data were normally distributed (Sig. > 0.05). The following prerequisite test is the homogeneity test, consisting of a homogeneity test of variance with Levene's Test of Equality and a multivariate normality test with Box's Test of Equality of Covariance Matrices. The analysis results showed that the research data came from homogeneous data (Sig. > 0.05). Then, the data is continued to analyze with the multicollinearity test. The aim of this test is to determine whether there are symptoms of multicollinearity in the analyzed dependent variable. The presence or absence of multicollinearity symptoms can be seen from the VIP and Tolerance values. The analysis results show that the VIP value is 1.218 and the Tolerance is 0.742, meaning there is no symptom of multicollinearity between scientific literacy data and learning agility. Based on these results, all the prerequisites for the Manova analysis have been met and carried out. The results of the Manova analysis are presented in Table 3 and Table 4.

Table 2: Descriptive Analysis Results

	Experimental Group		*Control Group*	
Statistics	*Scientific Literacy*	*Learning Agility*	*Scientific Literacy*	*Learning Agility*
N	30	30	29	29
Mean	77.67	75.33	67.31	64.82
Std. Deviation	9.04	7.61	8.90	7.79

Table 3 shows that Pillai's Trace, Wilks' Lambda Hotelling's Trace, and Roy's Largest Root have a significance value of 0.00. It means that there are simultaneous differences in scientific literacy and learning agility between groups of students who study using the Numbered Head Together (NHT) cooperative learning model based on Growth Mindset and groups of students who use conventional learning models in science subjects.

The results of the Tests of Between-Subjects Effects analysis in Table 4 show a significance value of 0.00 (<0.05) for the scientific literacy variable. It indicates a significant effect of learning using the Numbered Head Together (NHT) cooperative model based on the Growth Mindset on students' scientific literacy. The significance value of 0.00 (<0.05) for the learning agility variable indicates that there is a significant effect of learning using the Numbered Head Together (NHT) cooperative model based on the Growth Mindset on students' learning agility.

Discussions

Numbered Head Together (NHT) cooperative learning model, which was applied to the experimental group and the conventional learning model applied to the control group in this study, showed different effects and was effectively used in learning. Several factors cause it. First, the Numbered Head Together (NHT) cooperative learning model can improve students' scientific literacy. Science is concerned with systematically finding out about nature (Hairida, 2016; Hillmayr et al., 2020; Isdaryanti et al., 2018).

Table 3: Manova Analysis Results

Effect		*Value*	*F*	*Hypothesis df*	*Error df*	*Sig.*
(1)		*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Intercept	Pillai's Trace	0.991	2996.969	2.00	56.00	0.00
	Wilks' Lambda	0.009	2996.969	2.00	56.00	0.00
	Hotelling's Trace	107.035	2996.969	2.00	56.00	0.00
	Roy's Largest Root	107.035	2996.969	2.00	56.00	0.00
Treatment	Pillai's Trace	0.367	16.241	2.00	56.00	0.00
	Wilks' Lambda	0.633	16.241	2.00	56.00	0.00
	Hotelling's Trace	0.580	16.241	2.00	56.00	0.00
	Roy's Largest Root	0.580	16.241	2.00	56.00	0.00

Tabel 4: Results of Analysis of Tests of Between-Subjects Effects

Source	*Dependent Variable*	*Type III Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
Corrected Model	Scientific Literacy	1581.533	1	1581.533	19.653	0.00
	Learning Agility	1627.500	1	1627.500	27.423	0.00
Intercept	Scientific Literacy	309931.364	1	309931.364	3851.444	0.00
	Learning Agility	289681.738	1	289681.738	4881.115	0.00
Treatment	Scientific Literacy	1581.533	1	1581.533	19.653	0.00
	Learning Agility	1627.500	1	1627.500	27.423	0.00
Error	Scientific Literacy	4586.874	57	80.471		
	Learning Agility	3382.805	57	59.347		
Total	Scientific Literacy	316940.000	59			
	Learning Agility	295512.000	59			
Corrected Total	Scientific Literacy	6168.407	58			
	Learning Agility	5010.305	58			

In learning activities using the NHT learning model, each student is allowed to study science and support his team to get the maximum score. Thus, each student gets tasks and responsibilities so that they can improve scientific literacy in students (Putri et al., 2021; Taruh et al., 2019). Using the NHT learning model can also improve scientific thinking in students. It is supported by previous research that states that students with scientific literacy skills can apply them in everyday life (Putri et al., 2021; Taruh et al., 2019). Knowledge of natural phenomena is obtained by students through experiments using scientific methods (Aiman et al., 2020; Iskandar, 2014; Suryani et al., 2019). It is based on the demands of the 2013 curriculum, which stated that students are not only required to understand knowledge but must be able to apply their knowledge well as a result of learning. In learning, the learning steps of the NHT model also emphasize active learning activities. It causes students who have scientific literacy to use science concepts and scientific process skills to make decisions related to learning (Berndt et al., 2021; Cigdemoglu et al., 2017). The findings of previous studies also state that the NHT model can improve students' abilities (Dadri & Putra, 2017; Hurianti & Tastra, 2018).

Second, the Numbered Head Together (NHT) cooperative learning model can make students agile learners. Agility is related to the way students face difficulties with agility and flexibility in providing solutions (Karre et al., 2019; Saputra et al., 2022). Judging from the learning steps with the Numbered Head Together (NHT) cooperative learning model, which emphasizes student activities through the steps, namely Numbering, Questioning, Head Together, and Answering (Dewi et al., 2014; Witari et al., 2017). n the Numbering stage, the teacher divides the students into several groups and gives them a number so that each student in the group has a different number. At the Questioning stage, the teacher asks a question to the students. At the Head Together stage, students think together to answer the questions contained in the LKS and make sure that each member knows and understands the answers from the LKS. It causes students to have the People agility dimension, which is students who know themselves well, treat others constructively and learn from experience (Lee & Shim, 2019; Longmuß & Höhne, 2017). If there are members who do not understand, other group members are obliged to help explain so that their friends understand the answer. Activities like this will also result in agility, which means that students can survive under challenging conditions and build the confidence of other students with their presence (Karre et al., 2019). This learning strategy will help students realize their potential and encourage them to develop their talents and abilities (Kim et al., 2022; Sahagun et al., 2021).

Third, the Numbered Head Together (NHT) cooperative learning model can improve students' scientific literacy and agile learners. Students who follow the cooperative learning model Numbered Head Together (NHT) have higher scientific literacy and agile learners than the group of students who follow the conventional learning model. It is due to the treatment in learning activities and the process of delivering material. This learning model involves all students studying and checking their understanding of learning to improve their scientific literacy (Anggriani et al., 2020; Berndt et al., 2021; Cigdemoglu et al., 2017). During the learning activities, students are not only required to understand knowledge but must be able to apply it well. As a result, learning this can certainly improve students' scientific literacy (Fuadi et al., 2020; Latifah et al., 2019; Putri et al., 2021). The NHT learning model is group learning, and each member is responsible for their duties so that there is no separation between students from one another (Candra Lestari, 2018; Dadri & Putra, 2017). It also causes each student to give and receive opinions from one another and impacts agile learners (Jampel et al., 2018; Menaka & Japa, 2016; Ratih, 2017). Other findings also state that NHT cooperative learning is a type of cooperative learning that emphasizes a special structure designed to influence students' interactiveness so that it can improve academic mastery (Hartarto, 2015; Sastrawan, 2014; Selamet, 2017; Yanti, 2016).

In the learning process in the Numbered Head Together (NHT) type cooperative learning model, students are more involved in studying the material covered in a lesson and checking their understanding of the lesson content (Lagur et al., 2018; Paramita et al., 2016). This type ensures the full involvement of all students, making this random assignment aims to give students responsibility and participation in learning. Previous research findings also state that students with high agility take lessons appropriately to apply the learning to new situations (Karre et al., 2019; Saputra et al., 2022). The NHT learning model is also integrated with the Growth Mindset approach. This approach is carried out by giving students confidence that their abilities and intelligence can continue to develop by continuing to practice learning (Kismiantini et al., 2021; Muenks et al., 2021). Teachers praise students' efforts during learning activities and build a culture that prioritizes process over results. This will certainly build a Growth Mindset in students. Other findings also state that students who are agile learners also tend to reflect on themselves and evaluate experiences to conclude (Riemann et al., 2020; Yang et al., 2019). Thus, these factors that affect cooperative learning type Numbered Head Together (NHT) are suitable for use in learning. This research implies that the Numbered Head Together (NHT) type of cooperative learning model can be used by teachers in learning for fifth-grade students, especially in science subjects, to improve scientific literacy and agile learners in students. Based on these findings and discussions, this study contributes to research in science learning in elementary schools, focusing on integrating the Growth Midset-based NHT learning model.

Conclusions

There is a significant difference in science learning outcomes between the group of students who learn to use the Numbered Head Together (NHT) cooperative learning model and the group of students who learn to use the conventional learning model. Based on these findings, it is concluded that learning science with Numbered Head Together (NHT) based on Growth Mindset affects scientific literacy and learning agility.

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