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Analysis of Elementary School Student Attitudes to Mathematics, Accelerated Learning Cycle (ALC) and Mathematical Questions

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ABSTRACT

Many factors cause mathematics problems in elementary school students. Starting from learning, learning approaches, to questions related to mathematics. This research aims to analyze and describe students' attitudes towards mathematics, accelerated learning cycles, and mathematics questions. This research was conducted on fifth grade at one of the state elementary schools in Pekanbaru City, Riau Province. Data collection in this study used a Likert scale model by analyzing student responses through questionnaires on subject scores and neutral scores on teacher and student activity observation sheet data. Based on the results of research conducted on students, it shows that elementary school students show a positive attitude towards mathematics, learning using the Accelerated Learning Cycle (ALC) approach and mathematics questions. As for the findings obtained from the field, researchers suggest that teachers can use the ALC approach in the mathematics learning process, and get used to giving mathematical problems related to everyday life which can improve students' thinking abilities. The implication of this research is that the habituation of students' positive attitudes towards mathematics, the ALC approach and mathematics questions can improve students' learning achievement in mathematics at school.

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INTRODUCTION

Mathematics as one of the subjects studied in elementary school has an important role in everyday life that is familiar with students because mathematics is a very important science in solving problems that students will encounter to find solutions in their solutions (Novita & Putra, 2016) (Kenedi, Helsa, Ariani, Zainil, & Hendri, 2019). The importance of mathematics must be accompanied and supported by the provision of education that can optimise the ability of students in school (Zhang, Jie, & Pereira, 2023).

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The implementation of education at the elementary school level aims to provide provisions for students to live in society and can continue to a higher level of education (Suriswo, Aulia, & Utami, 2023). The purpose of learning mathematics at school is intended so that students are not only skilled at using mathematics but also can provide provisions to students to have the ability to think logical, analytical, systematic, critical and cooperative. Where this is in line with those listed in Depdiknas (2006) that students must have the ability to think logically, analytically, systematically, critically and the ability to cooperate from learning mathematics.

Mathematics learning for the elementary school level is not formal mathematics which is purely taught in tertiary institutions, but school mathematics is taught in primary and secondary education (Tatto & Senk, 2011). Where school mathematics or school mathematics according to (Marsigit, 2013) is an activity or activity of students finding patterns, conducting investigations, solving problems and communicating their results. From the brief explanation of school mathematics, it can be understood that learning mathematics is more concrete and can be understood by students, making mathematics more meaningful and enjoyable for students to learn in school through the process of learning mathematics.

However, based on observations in the field shows that the subject that is less liked by most students in schools is mathematics (Siregar, 2017); (Ukobizaba, Ndihokubwayo, Mukuka, & Uwamahoro, 2021), this applies to start from elementary school level up to college. Many students avoid mathematics when compared to other subjects. Besides, Indonesia's participation in the International Trends in International Mathematics and Science Study (TIMSS) and the Program for International Student Assessment (PISA) since 1999 shows that the achievements of Indonesian children have not been encouraging in several reports issued by TIMSS and PISA. Even though in 2015 the target population was grade IV elementary school students (Mullis, 2015), where Indonesia was ranked 45th with a score of 397 from the TIMSS participating countries, amounting to 50 and far below the internationally established average score, namely 500. Whereas TIMSS is one of the educational surveys that has been recognised by the world community to find out the mathematical and scientific competence of students from various parts of the world. Then the results of the PISA survey in 2022 showed Indonesian students were ranked 68 out of 81 countries who participated with an average of 379 points in mathematics competence. Though the benchmark for the field of mathematics is to identify and understand and use the basic mathematics needed by someone in dealing with daily life(Hasibuan, Saragih, & Amry, 2019). Many factors cause this problem to occur in Indonesian students, one of which is the attitude of students towards mathematics which already considers mathematics as a frightening and difficult subject for students so that it impacts on students to continue further education levels (Mazana, Montero, & Casmir, 2018); (Purnomo, 2017); (Hartanto, 2009).

Then from the mathematics learning process also requires learning that allows students to support their mathematical attitudes so that they can be maximised in the process of learning mathematics (Mutohir, Lowrie, & Patahuddin, 2017). One approach that can bridge this problem is the Accelerated Learning Cycle (ACL). The learning principles offered by the ACL approach include; learning involves the whole body and mind, learning is creating oneself, the learning process requires collaboration, learning takes place at many levels simultaneously, learning comes from doing the work itself, positive emotions help to learn, and the brain absorbs information directly and automatically. From this principle, it is clear the hope of implementing ACL learning is to be able to create meaningful learning and promote the emergence of positive emotions in students in an active learning process, enthusiasm, and enjoy the learning process (Schornack, 1996); (Amelia, 2015); (Fendrik, Ain, & Mulyani, 2018); (Yolanda & Amelia, 2018).

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Kinard & Parker (2007) state that ACL as an approach has five learning phases, namely: learner preparation phase (connection phase), connection phase, creative presentation phase, activation phase) and integration phase. Learning with ACL makes it possible to optimize the improvement of students' attitudes towards mathematics and answering mathematical questions. ALC learning creates an atmosphere of a well-established learning process and gives students positive feelings, thereby changing their views on mathematics learning and the secrets of students' abilities. At the evaluation, stage students are expected to be able to answer mathematical problems that are directly related to daily life. Where the mathematical questions are expected students can appreciate mathematical problems related to problem-solving as well as with mathematical connections. So that from this problem allows students to find the right and right answers in answering math questions.

The formulation of the problem in this study, namely "how are student' attitudes towards mathematics, accelerated learning cycle learning and mathematical questions?". While the purpose of this study is to analyse and describe student attitudes towards mathematics, accelerated learning cycle, and mathematical questions.

THEORETICAL FRAMEWORK

Attitude is an individual's ability to respond to or reject an object based on how they judge it. This attitude develops during learning and plays an important role in how individuals respond to situations and determine individual life goals (Julia, 2023). In the context of learning, attitudes act as "dynamic forces"; or a dynamic force that motivates each individual to learn(Riwahyudin, 2015). Attitude is defined as an example of behavior and is a person's response to certain stimuli. Attitudes towards maths learning include feelings or behaviours of accepting or rejecting learning, usually reflected in students' happy or unhappy attitudes towards the subject. Tengku Ihsanul Rabani,

The enjoyment of learning mathematics reflects the tendency of students to enjoy learning mathematics driven by high curiosity. When students have a positive attitude, they are better able to engage in math problem-solving strategies. Stated that "the enjoyment of learning mathematics is realized when students can design and implement problem-solving strategies using learning methods." In addition to teaching methods, classrooms are also an important factor that can increase students' enjoyment of learning mathematics (Astalini, Kurniawan, & Putri, 2018).

The attitude structure consists of three main components, namely. Cognitive, affective and conative components. According to Julia (2023), the cognitive component refers to an individual's beliefs about what is considered right or appropriate. The affective component includes emotional feelings such as liking, fear, anxiety, and others. At the same time, the conative component reflects the behavior and dominant tendency of the individual to act. Another factor that affects students' enjoyment of learning mathematics is the classroom environment. Comfortable classrooms can help develop students' skills and enhance their enjoyment of learning maths. A comfortable classroom atmosphere can make students more focused and enthusiastic in the mathematics learning process. Therefore, it is important to foster a classroom environment that encourages students to actively participate in their education. When students engage in challenging and meaningful projects, they feel in control of their education. In designing learning models, the selection of methods, strategies and approaches to achieve a meaningful active learning atmosphere is a requirement that must be met by teachers (Maharaj Sharma & Sharma, 2017). One model that can be used is the ALC (accelerated learning cycle) model, which is a learning model (Sari, 2022). Which creates a meaningful learning environment and prioritizes the emergence of positive

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emotions so that students can change their understanding of learning and uncover hidden opportunities (Kasem, Rohaendi, & Rahmah, 2018).

In addition, accelerated learning also makes students active and not stressed. Learning process. Learning process as a learning principle. The ALC model is an accelerated learning model, a term used to describe a number of practical approaches that aim to improve student outcomes and preferred learning conditions. The stages of ALC learning are described as follows: 1) conditioning students' minds and hearts before learning; 2) combining learning materials with different aspects; 3) create new knowledge by conveying concepts interestingly; 4) meaningfully emphasize student activity in mathematics; and 5) integrate the entire learning process reflective activities, the accelerated learning cycle affects students' ability to solve problems (Mardiani, 2019). Problem solving can be interpreted in a general sense, namely problem solving as a goal, problem solving as a process, and problem solving as a basic skill (Sumartini, 2016). Problem solving as a goal touches on the reason why mathematics is taught. In this interpretation problem solving is free of any particular problem, procedure, method or content, the main consideration is how to solve the problem which is why mathematics is taught. Problem solving as a process is an activity that prioritizes the importance of activities, students' strategic steps in solving problems, and ultimately the ability to find answers to questions, not just the answers themselves (Fajriah, Nursalam, Suharti, & Nur, 2021).

METHOD

This research uses a descriptive method by using an attitude scale to find out the attitude of 32 students towards mathematics, accelerated learning cycle (ACL), and questions. The attitude scale used in this study is a Likert model, where each statement is equipped with four answer choices namely strongly agree (SA), agree (A), disagree (D), and strongly disagree (SD). The reason for using the four choices is to avoid hesitation or security and not take sides with a statement submitted to students. The attitude scale score for each choice of answers in row 4, 3, 2, 1 for a positive statement and vice versa giving a score of 1, 2, 3, 4 for a negative statement.

There are two indicators of attitude towards mathematics, namely: showing interest in learning mathematics and showing perceptions of mathematics subjects. Then the two indicators are developed into three positive statements and two negative statements. Furthermore, student' attitudes towards ACL produce three indicators, namely: showing interest in learning mathematics using ALC, demonstrate the seriousness of learning mathematics using ALC, and show the perceived benefits to learning mathematics using ALC. From the three indicators, it produces six positive statements and five negative statements. While student' attitudes toward mathematical questions consist of one indicator that is corresponding to have adequately presented three positive statements and two negative statements. The indicator is to show an appreciation of problem-solving abilities and mathematical connections.

The attitude scale device that was made beforehand was tested for the validity of its contents to be an adequate device to be used. Content validity test is done by asking for expert judgment in their fields so that 20 statement items are used as research instruments. Test the content validity of the attitude scale given to several fifth-grade students aiming to make the language used on the attitude scale suitable for students.

Two types of response scores were compared, namely the student response score in the form of a questionnaire and the neutral response score used to analyse student responses on a given attitude scale. If the subject's score is greater than the total neutral score, then the subject has a

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positive attitude. Whereas if the subject's score is less than the total neutral score, then the subject has a negative attitude.

Research data collected was activity data during the learning process of teachers and students for each meeting. Then the activity data is collected using a focused observation sheet derived from observations and criticisms/suggestions during the learning process so that it can be reflected for further learning. This study also uses "sheets of my feelings as sheets of student" feelings after participating in the learning process. There are two symbols of happy and sad emotion added by the column entered on the 'sheet of my feelings' to be able to reflect on later learning.

Likert scale as data processing is used to measure student' attitudes towards mathematics, learning with ALC, and math problems. The scoring on each student's answer is done to calculate the overall score of student' attitudes. Likert is an interval scale (Subedi, 2016); (Brown, 2011); (Boone & Boone, 2012). Therefore, student' attitude score data can use arithmetic operations.

First, the ideal score is determined to answer the descriptive problem formulation. Where the ideal score is a score set with the assumption that each answer gives the highest score of a question from students, then do the method of dividing the total score of research results with an ideal score to answer a problem formulation (Sugiyono, 2019).

Hypothesis testing is done to find out the significance of positive or negative attitudes on students. Students are said to have a positive attitude if the average score of each question is greater than the neutral score. Whereas if the mean score of student attitudes is less than the neutral score, then it includes negative attitudes. The score used is 2.5 or 62.5% of the ideal score per statement item because it uses a score of 1-4 on the attitude scale. Furthermore, the one-sided test hypothesis tested is:

H0: $\mu = 62.5\%$
H1: $\mu > 62.5\%$

The test criterion is to accept H0 if the significance value> $\alpha = 0.05$ with the One-Sample T-Test used for the hypothesis test.

RESULTS

Student' attitudes toward mathematics, accelerated learning cycles, and math problems use attitude scales to analyse and describe them. Following is the description of student' attitudes towards the three indicators.

1. Student Attitudes towards Mathematics

Student' attitudes towards mathematics consist of two indicators, where the two indicators produce three positive statements and two negative statements. The results of calculating the score of student' attitudes towards mathematics both overall, per indicator, and per statement item, using Microsoft Office Excel 2010 software and can be presented in the following table.

Table 1. Distribution of Student Attitudes towards Mathematics

Indicator	No. Item	Score					
		Item	%	Indicator	%	Total	%
Showing interest in learning mathematics	2	80	62,5	175	68,36	461	72,03
	3	95	74,22				
Shows perception of mathematics subjects	4	117	91,41	286	74,48		
	5	81	63,28				
	6	88	68,75				

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From Table 1, it appears that the percentage of student' attitudes towards mathematics is 72.03% than expected. When observed based on indicators, the best attitude is found on indicators that show perceptions of mathematics subjects. While the indicators of interest in mathematics are not very good, which is only 68.36% of what was expected, then, is observed based on the item statement, the best student attitude is found in the statement "mathematics needs to be learned by everyone" (item no.4) while the statement items that were not agreed upon by students were item no.2, which discussed the boredom of learning mathematics.

In table 1 also gives a statement that students have a positive attitude towards mathematics. This is indicated by the percentage of student attitudes (72.03%) greater than the percentage of neutral scores (62.5%). Next, a one-sample t-test was conducted to see the significance of student' positive attitudes towards mathematics. However, it is first necessary to look at the normality of data distribution of student' attitudes towards mathematics before one-sample t-test is performed. Based on the Central Limit Theorem, if the sample size is large enough (more than 30), then the sample distribution approaches the normal distribution (Ruseffendi, 1993). In this case, the data of student' attitudes towards mathematics are assumed to be normally distributed, because the sample size is greater than 30.

The formulation of the statistical hypothesis tested is as follows:

H0: $\mu = 62.5\%$

H1: $\mu > 62.5\%$

By using the test criteria, namely: if the p-value (sig.) Is greater than 0.025, then H0 is accepted; for other conditions, H0 is rejected. The results of one sample t-test for student' attitude towards mathematics are presented in the following table.

Table 2. T-Test One Sample Data Student Attitudes towards Mathematics

T	*Sig. (2-tailed)*	H_0
6,012	0,000	Rejected

Based on Table 2, it shows that the significance value of one sample t-test is less than 0.025, meaning H0 is rejected. That is, student' attitudes towards mathematics are greater than the neutral score of 62.5%. Thus, it can be concluded that students have a positive attitude towards mathematics.

Table 1 and Table 2 show that students who received the Accelerated Learning Cycle had a positive attitude towards mathematics. If observing the acquisition of student' attitude scales on each item for aspects of mathematics learning, what is found is students realise the importance of learning mathematics for everyone (item no.4), most students also realise that learning mathematics can foster self-confidence (item no.3), and most students who have received this treatment also argue that mathematics makes them feel scared and anxious (item no.6).

However, students are also confronted with the difficulty of mathematics, as in item no.2 and item no.5 which is justified by most students. Students feel that mathematics is a boring subject and students feel that mathematics is too difficult to learn. The researcher believes that this is a reasonable student attitude. Mathematics is considered a difficult subject to make them bored is an expression of most students. Researchers realise that changing student' attitudes towards mathematics requires a short amount of time. At the very least, this accelerated learning cycle can make the paradigm of some students towards mathematics tend to be positive, as shown in Figure 1 below:

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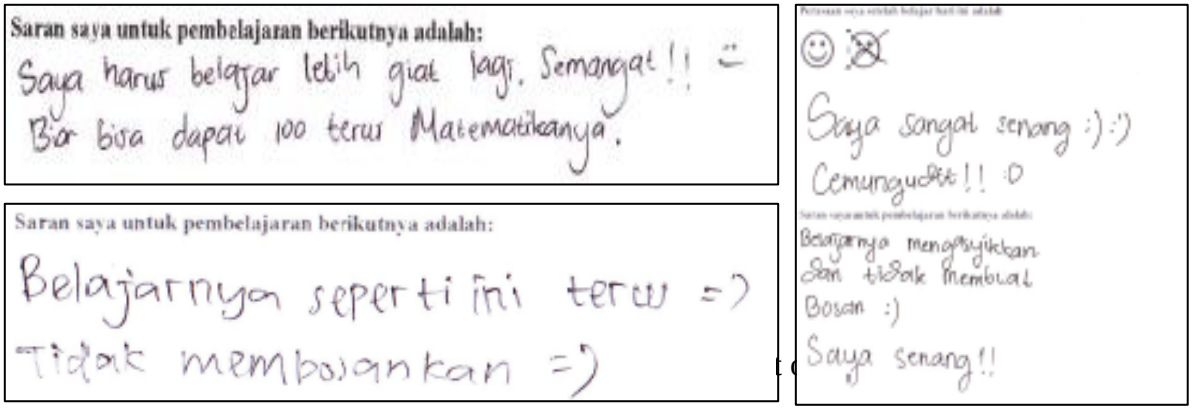

Students on the two passages of the student's feeling sheet above, showed an awareness of the importance of mathematics, thus making students have to be active again in learning mathematics. ALC learning also succeeded in overcoming the boredom of some students.

2. Student Attitudes towards Accelerated Learning Cycle

Student' attitudes towards the Accelerated Learning Cycle (ALC) consist of three indicators. Then the three indicators produce six positives and four negative statements, respectively. The results of the calculation scores of student' attitudes towards ALC both overall, per indicator, and per statement item, are shown in the following table.

Table 3. Distribution of Student Attitudes towards ALC

Indicator	No. Item	Score					
		Item	%	Indicator	%	Total	%
Showing interest in using ALC towards learning mathematics	7	75	58,59	351	68,55	960	75,00
	8	99	77,34				
	9	98	76,56				
	11	79	61,72				
Demonstrates the seriousness of learning mathematics by using ALC	12	114	89,06	309	80,47		
	13	89	69,53				
	14	106	82,81				
The perceived benefits of learning mathematics by using ALC	15	105	82,03	300	78,13		
	16	101	78,91				
	17	94	73,44				

From table 3, it appears that the percentage of student' attitudes towards ALC is 75.00% than expected. When observed based on indicators, the best attitude is found on indicators that show the seriousness of learning using the ALC approach. While the indicators of interest in learning mathematics using the ALC approach are not very good, which is only 68.55% of what was expected. Then, if observed based on the item statement, the best attitude of students is in the statement "I am very happy when I managed to find answers to questions that were given by the teacher and present them to the class" (item no.12). While the percentage of statement items that are not good is item no.7, which discusses their pleasure if the teacher explains all the subject matter and they (students) only listen and take notes. Table 3 also gives a statement that students have a positive attitude towards ALC. This is indicated by the percentage of student attitudes

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(75.00%) greater than the percentage of neutral scores (62.5%). Next, a one-sample t-test was performed to see whether the positive attitude of students towards the ALC approach was significant or not.

Then it is necessary to look at the normality of data distribution of student attitudes towards the ALC approach before one-sample t-test is performed. Based on the Central Limit Theorem, if the sample size is large enough (more than 30), then the sample distribution approaches the normal distribution (Ruseffendi, 1993). In this case, the data of student' attitudes towards ALC are assumed to be normally distributed, because the sample size is greater than 30.

With the formulation of the statistical hypothesis tested as follows:

H0: $\mu = 62.5\%$

H1: $\mu > 62.5\%$

With the testing criteria, namely: if the p-value (sig.) Is greater than 0.025, then H0 is accepted; then for other conditions, H0 is rejected. The results of one sample t-test for student' attitude towards ALC are presented in the following table.

Table 4. One Sample Data t-Test of Student Attitudes towards ALC

T	*Sig. (2-tailed)*	H_0
10,041	0,000	Rejected

From Table 4, it shows that the significance value of one sample t-test is less than 0.025, meaning H0 is rejected. That is, the attitude of students towards ALC is greater than the neutral score of 62.5%. Thus, it can be concluded that students have a positive attitude towards ALC.

Table 3 and Table 4 show that by using the Accelerated Learning Cycle approach students will have a positive attitude. If observing the acquisition of student' attitude scales on each item for the Accelerated Learning Cycle learning aspects, what is found is that students are happy if they succeed in finding answers to questions given by the teacher and presenting them in front of the class (item no.12), students also feel that learning and discussing in small groups makes them learn a lot from friends (item no.14), students also feel that accelerated learning cycles can improve their thinking abilities. However, students prefer the teacher to explain all the subject matter, and students only listen and take notes (item no.7), and students also prefer if the rules or mathematical formulas are no longer discussed in class but rather just written down and then followed by examples of problems (item no.11).

Researchers assume that some students still choose to learn casually, meaning they do not need to bother with learning activities that require them to think and find something. They sit quietly in class, and the teacher gives a formula then gives an example problem. However, it is different with some students who have views on the accelerated learning cycle obtained from the results of my feelings sheet data collection on each student for each meeting, here are some excerpts from the student feeling sheet:

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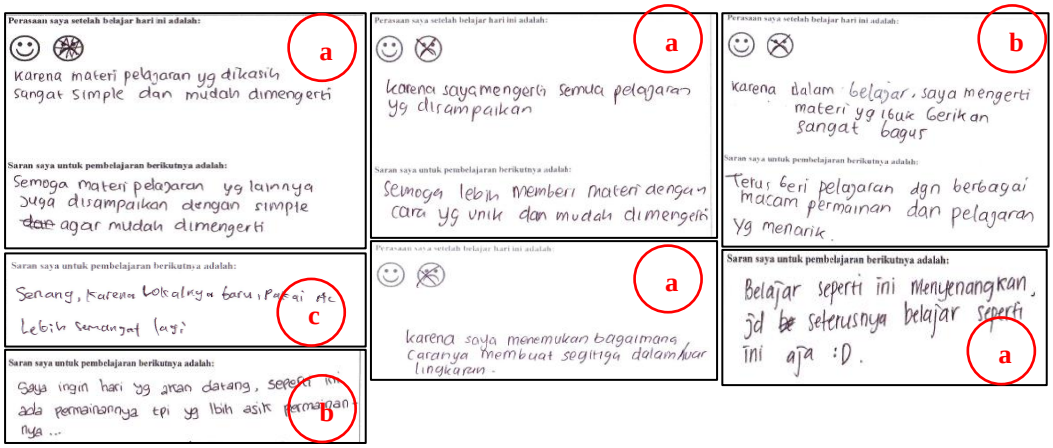

Figure 2. Student's "My Feelings" Excerpt from ALC

Figure 2 shows that students like the accelerated learning cycle approach. Some students are interested in learning that is simple and easy to understand, but some students enjoy the games or motivation provided in the first phase of this ALC, there are even students who enjoy research rooms that use AC.

3. Student' Attitudes towards Mathematical Problems

Student' attitudes toward questions consist of one indicator, from which an indicator spawned three positive statements and two negative statements. The results of calculating the score of student' attitudes towards the problem both as a whole, indicators, and per item statement, are shown in the following table.

Table 5. Distribution of Student' Attitudes toward Mathematical Questions

Indicator	No. Item	Score			
		Item	%	Total	%
Demonstrate appreciation of problems problem solving abilities and mathematical connections	1	114	89,06	468	73,13
	10	93	72,66		
	18	86	67,19		
	19	75	58,59		
	20	100	78,13		

From table 5, it appears that the percentage of student' attitudes toward the questions is 73.13% of the expectations. When observed based on the item statement, the best attitude of students is in the statement "I feel that mathematics is closely related to daily life" (item no.1) while the percentage of statement items that are not good is item no.19, which discusses the despair of students when working on difficult questions. Table 5 also gives a statement that students have a positive attitude towards the problem. This is indicated by the percentage of student attitudes (73.13%) greater than the percentage of neutral scores (62.5%). However, to see whether student' positive attitudes toward the questions were significant or not, a one-sample t-test was conducted.

Before one-sample t-test is performed first, it is necessary to see the normality of data distribution of student' attitudes toward the problem. Based on the Central Limit Theorem, if the sample size is large enough (more than 30), then the sample distribution approaches the normal distribution (Ruseffendi, 1993). In this case, the data of student' attitudes toward problems are

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assumed to be normally distributed, because the sample size is greater than 30. The formulation of the statistical hypothesis tested is:
H0: μ = 62.5%
H1: μ> 62.5%

The testing criteria used are: if the p-value (sig.) Is greater than 0.025, then H0 is accepted; for other conditions, H0 is rejected. The results of one-sample t-test of student' attitudes towards the questions are presented in the following table.

Table 6. One Sample Data T-Test Student Attitudes toward Questions

T	*Sig. (2-tailed)*	H_0
6,516	0,000	Rejected

From table 6, it appears that the significance value of one sample t-test is less than 0.025, meaning H0 is rejected. That is, the attitude of students towards the problem is greater than the neutral score of 62.5%. Thus, it can be concluded that students have a positive attitude towards the problem.

Table 5 and Table 6 show that students have a positive attitude towards the problem. If observing the acquisition of student' attitude scales on each item for aspects of the problem, what is found is that students realise that mathematics is closely related to daily life (item no.1), and students realise that math problems that have been given can improve student' thinking ability (item no.20). However, students often feel frustrated when working on difficult questions (item no.19).

DISCUSSION

Purpose of this study is to analyse and describe student attitudes towards mathematics, accelerated learning cycle (ALC), and mathematical questions. The discussion in this research can be explained as follows.

The percentage of students' attitudes towards mathematics was 72.03% of what was expected. If observed based on indicators, the best attitudes are found in indicators that show perceptions of mathematics subjects. Meanwhile, the indicator of interest in mathematics is not good, namely only 68.36% of what was expected. If we observe the results of students' attitude scales on each item for aspects of mathematics learning, what is found is that students realize the importance of learning mathematics for everyone. Most students also realize that studying mathematics can grow their self-confidence while making them feel afraid and anxious. Students feel mathematics is a boring subject and students feel mathematics is too difficult to learn. Researchers believe that this is a normal student attitude. Mathematics is considered a difficult subject that makes them bored is the expression of most students (Rohmah & Sutiarso, 2017); (Aguilar, 2021). Researchers realize that changing students' attitudes towards mathematics does not take long.

Based on the percentage of students' attitudes towards ALC, it was 75.00% of what was expected. When observed based on indicators, the best attitudes are found in indicators that show the seriousness of learning using the ALC approach. Meanwhile, the indicator of interest in learning mathematics using the ALC approach is not good, namely only 68.55% of what was expected. Then, if observed based on the statement items, the best student attitude is found in the statement "I was very happy when I managed to find the answer to the question given by the teacher and

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presented it in front of the class." Meanwhile, the percentage of statement items that are not good is discussing the pleasure if the teacher explains all the lesson material and they (students) just listen and take notes (Kharismawati & Susanto, 2014). Researchers assume that some students still choose to study casually, meaning they don't need to be bothered with learning activities that require them to think and discover something. They sit quietly in class, and the teacher explains how to answer the questions and then gives examples of questions. They sit quietly in class, and the teacher explains how to answer the questions and then gives examples of questions. This shows that students' attitudes and seriousness in learning are still lacking and learning is still dominated by the teacher. Therefore, it is important for teachers to improve and enhance student-oriented learning processes so that enthusiasm for learning can be seen in the mathematics learning process (Russo & Russo, 2019) ; (Ayuwanti, Marsigit, & Siswoyo, 2021).

Furthermore, the percentage of students' attitudes towards questions was 73.13% of expectations. If observed based on statement items, the best student attitude is found in the statement "I feel mathematics is closely related to everyday life", while the percentage of statement items that are less good is discussing students' hopelessness when working on difficult questions. This shows that students have a positive attitude towards problems with the percentage of student attitudes (73.13%) being greater than the percentage of neutral scores (62.5%). If we observe the results of students' attitude scales on each item for the problem aspect, what is found is that students realize that mathematics is closely related to everyday life and students realize that the mathematics questions given can improve students' thinking abilities (Pratama, 2020); (Widyani & Khotimah, 2023). However, students often feel frustrated when working on difficult questions. However, students often feel frustrated when working on difficult questions, this happens because students feel challenged by difficult questions and have to solve them. It can be seen that students' enthusiasm in answering questions that are closely related to their daily lives is a positive attitude that all students must have.

CONCLUSION

Based on the results of the research and discussion, it can be concluded that elementary school students show a positive attitude towards mathematics, with the Accelerated Learning Cycle (ALC) learning approach and students' mathematics questions in elementary schools. The percentage of students' attitudes towards mathematics was 72.03% of what was expected. If observed based on indicators, the best attitudes are found in indicators that show perceptions of mathematics subjects. Then the percentage of students' attitudes towards ALC was 75.00% of what was expected. When observed based on indicators, the best attitudes are found in indicators that show the seriousness of learning using the ALC approach. Apart from that, the percentage of students' attitudes towards questions was 73.13% of expectations. If observed based on the item statements, the best student attitude is found in the statement "I feel mathematics is closely related to everyday life". As for the findings obtained in the field, habituating students' positive attitudes towards mathematics, the ALC approach and mathematics questions can improve students' mathematics learning achievement at school. Meanwhile, the effectiveness and recommendations of this research are that the researcher suggests that teachers can use the ALC approach in the mathematics learning process, and get used to giving mathematical problems related to everyday life which can improve students' thinking abilities.

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REFERENCES

Aguilar, J. J. (2021). High School Students' Reasons For Disliking Mathematics: The Intersection Between Teacher's Role And Student's Emotions, Belief And Self-Efficacy. *International Electronic Journal of Mathematics Education*, *16*(3), em0658. https://doi.org/10.29333/iejme/11294

Amelia, S. (2015). Pengaruh Accelerated Learning Cycle Terhadap Kemampuan Pemecahan Masalah Matematis Siswa SMP. *Jurnal Pengajaran Matematika Dan Ilmu Pengetahuan Alam*, *6*(1), 122. https://doi.org/10.18269/jpmipa.v20i2.574

Astalini, A., Kurniawan, D. A., & Putri, A. D. (2018). Identifikasi Sikap Implikasi Sosial dari IPA, Ketertarikan Menambah Waktu Belajar IPA, dan Ketertarikan Berkarir Dibidang IPA Siswa SMP Se-Kabupaten Muaro Jambi. *Jurnal Tarbiyah : Jurnal Ilmiah Kependidikan*, *7*(2), 93–108. https://doi.org/10.18592/tarbiyah.v7i2.2142

Ayuwanti, I., Marsigit, M., & Siswoyo, D. (2021). Teacher-Student Interaction In Mathematics Learning. *International Journal of Evaluation and Research in Education (IJERE)*, *10*(2), 660. https://doi.org/10.11591/ijere.v10i2.21184

Boone, H. N., & Boone, D. A. (2012). *Analyzing Likert Data. Journal of Extension*. *50*(2). https://doi.org/https://www.joe.org/joe/2012april/pdf/JOE_v50_2tt2.pdf

Brown, J. D. (2011). *Likert Items And Scales Of Measurement?*. *SHIKEN: JALT Testing & Evaluation SIG Newsletter*. *15*(1), 10–14.

Fajriah, N. A., Nursalam, N., Suharti, S., & Nur, F. (2021). Efektivitas Penerapan Model Pembelajaran Accelerated Learning Cycle Dengan Pendekatan Visualisasi Terhadap Kemampuan Literasi Matematis Ditinjau Dari Mathematical Habits of Mind. *Jurnal Cendekia : Jurnal Pendidikan Matematika*, *5*(2), 1626–1639. https://doi.org/10.31004/cendekia.v5i2.634

Fendrik, M., Ain, S. Q., & Mulyani, E. A. (2018). Pengaruh Accelerated Learning Cycle Terhadap Kemampuan Koneksi Matematis Siswa Sekolah Dasar. *Tunjuk Ajar: Jurnal Penelitian Ilmu Pendidikan*, *1*(2), 116. https://doi.org/10.31258/jta.v1i2.116-128

Hartanto. (2009). Sikap Siswa SMP Terhadap Matematika Pada Pembelajaran Dengan Pendekatan Open-Ended. *Jurnal Pendidikan Matematika Dan Sains*, *1*(14), 1–8. https://doi.org/https://doi.org/10.21831/jpms.v14i1.178

Hasibuan, A. M., Saragih, S., & Amry, Z. (2019). Development Of Learning Materials Based On Realistic Mathematics Education To Improve Problem Solving Ability And Student Learning Independence. *International Electronic Journal of Mathematics Education*, *14*(1). https://doi.org/10.29333/iejme/4000

Julia, M. (2023). Analisis Sikap Terhadap Pembelajaran Matematika Siswa Kelas V SDN 20 Desa Langsat Hulu Kecamtan Sentajo Raya Kabupaten Kuantan Singingi. *Mahaguru: Jurnal Pendidikan Guru Sekolah Dasar*, *4*(2), 444–453. Retrieved from https://ummaspul.e-journal.id/MGR/article/download/6954/3402

Kasem, Rohaendi, S., & Rahmah, M. A. (2018). Penerapan Model Accelerated Learning Cycle (ALC) Untuk Meningkatkan Kemampuan Pemecahan Masalah Matematis Siswa Dan Dampaknya Pada Motivasi Siswa SMA. *Biormatika*, *4*(2), 2461.

Kenedi, A. K., Helsa, Y., Ariani, Y., Zainil, M., & Hendri, S. (2019). Mathematical Connection Of Elementary School Students To Solve Mathematical Problems. *Journal on Mathematics Education*, *10*(1), 69–80. https://doi.org/10.22342/jme.10.1.5416.69-80

Kinard, K., & Parker, M. (2007). The Accelerated Learning Cycle: Are You Ready to Learn? Am I Ready to Lead? *Proceedings: United States Conference On Teaching Statistics (USCOTS)*.

Vol. 6, No.1, February 2023, pp. 45 – 58
DOI: http://dx.doi.org/10.33578/ tlee.v7i1.8057
ISSN : 2615-4528 (Print) 2622-3023 (Online)

Maharaj Sharma, R., & Sharma, A. (2017). Using ICT In Secondary School Science Teaching-What Students and Teachers in Trinidad and Tobagto Say? *European Journal of Education Studies*, *3*(2), 197–211. https://doi.org/10.5281/zenodo.251163

Mardiani, D. (2019). Model Accelerated Learning Cycle Dalam Pembelajaran Pertidaksamaan Linear Dan Nilai Mutlak. *Mosharafa: Jurnal Pendidikan Matematika*, *8*(3), 483–492. https://doi.org/10.31980/mosharafa.v8i3.537

Marsigit. (2013). Pendidikan Karakter Melalui Pembelajaran Matematika. *Pidato Pengukuhan Guru Besar Disampaikan Di Depan Rapat Terbuka Senat UNY.* Yogyakarta.

Mazana, M. Y., Montero, C. S., & Casmir, R. O. (2018). Investigating Students' Attitude Towards Learning Mathematics. *International Electronic Journal of Mathematics Education*, *14*(1). https://doi.org/10.29333/iejme/3997

Mullis. (2015). TIMSS 2015 International Result In Mathematics. In *Boston College: TIMSS & PIRLS*.

Mutohir, T. C., Lowrie, T., & Patahuddin, S. M. (2017). The Development Of A Student Survey On Attitudes Towards Mathematics Teaching-Learning Processes. *Journal on Mathematics Education*, *9*(1). https://doi.org/10.22342/jme.9.1.4193.1-14

Novita, R., & Putra, M. (2016). Using Task Like Pisa's Problem To Support Student's Creativity In Mathematics. *Journal on Mathematics Education*, *7*(1). https://doi.org/10.22342/jme.7.1.2815.31-42

Pratama, M. A. (2020). Mathematical Critical Thinking Ability And Students' Confidence In Mathematical Literacy. *Journal of Physics: Conference Series*, *1663*(1), 012028. https://doi.org/10.1088/1742-6596/1663/1/012028

Purnomo, Y. (2017). Pengaruh Sikap Siswa Pada Pelajaran Matematika Dan Kemandirian Belajar Siswa Terhadap Prestasi Belajar Matematika. *JKPM (Jurnal Kajian Pendidikan Matematika)*, *2*(1), 93. https://doi.org/10.30998/jkpm.v2i1.1897

Riwahyudin, A. (2015). Pengaruh Sikap Siswa Dan Minat Belajar Siswa Terhadap Hasil Belajar IPA Siswa Kelas V Sekolah Dasar Di Kabupaten Lamandau. *Jurnal Pendidikan Dasar*, *6*(1), 11. https://doi.org/10.21009/jpd.061.02

Rohmah, M., & Sutiarso, S. (2017). Analysis Problem Solving In Mathematical Using Theory Newman. *EURASIA Journal of Mathematics, Science and Technology Education*, *14*(2). https://doi.org/10.12973/ejmste/80630

Ruseffendi, E. . (1993). *Statistika Dasar Untuk Penelitian Pendidikan*. Jakarta: Proyek Pembinaan Tenaga Kependidikan Pendidikan Tinggi.

Russo, J. A., & Russo, T. (2019). Teacher Interest-Led Inquiry: Unlocking Teacher Passion To Enhance Student Learning Experiences In Primary Mathematics. *International Electronic Journal of Mathematics Education*, *14*(3). https://doi.org/10.29333/iejme/5843

Sari, F. F. (2022). Sikap Siswa t\Terhadap Pembelajaran Matematika Pada Masa Pandemi Covid-19 di SD IT Al-Hilmi Dompu. *DIKSI: Jurnal Kajian Pendidikan Dan Sosial*, *3*(1), 71–80. https://doi.org/10.53299/diksi.v3i1.153

Schornack. (1996). Accelerated Learning Techniques For Adults: An Instructional Design Concept For The Next Decade. *Fourth Annual College of Career Education Faculty Symposium on Teaching Effectiveness*.

Siregar, N. R. (2017). Persepsi Siswa Pada Pelajaran Matematika: Studi Pendahuluan Pada Siswa Yang Menyenangi Game. *Prosiding Temu Ilmiah X Ikatan Psikologi Perkembangan Indonesia: Peran Psikologi Perkembangan Dalam Penumbuhan Humanitas Pada Era Digital*.

Vol. 6, No.1, February 2023, pp. 45 – 58
DOI: http://dx.doi.org/10.33578/ tlee.v7i1.8057
ISSN : 2615-4528 (Print) 2622-3023 (Online)

Subedi, B. P. (2016). Using Likert Type Data in Social Science Research: Confusion, Issues and Challenges. *International Journal of Contemporary Applied Sciences*, *3*(2), 36–49.

Sugiyono. (2019). *Metode Penelitian Pendidikan (Kuantitatif, Kualitatif, Kombinasi, R&D dan Penelitian Tindakan)*. Bandung: Alfabeta.

Sumartini, T. S. (2016). Peningkatan Kemampuan Pemecahan Masalah Matematis Siswa Melalui Pembelajaran Berbasis Masalah. *Jurnal Pendidikan Matematika STKIP Garut*, *5*(2), 148–158. https://doi.org/10.58258/jupe.v7i2.3555

Suriswo, Aulia, F., & Utami, W. . (2023). Development of the Life Skills Learning Model for Elementary School students as Strengthening the Pancasila Student Profile. *Jurnal Teknologi Pendidikan*, *25*(2), 315–322. https://doi.org/http://dx.doi.org/10.21009/JTP2001.6

Tatto, M. T., & Senk, S. (2011). The Mathematics Education of Future Primary and Secondary Teachers: Methods and Findings from the Teacher Education and Development Study in Mathematics. *Journal of Teacher Education*, *62*(2), 121–137. https://doi.org/10.1177/0022487110391807

Ukobizaba, F., Ndihokubwayo, K., Mukuka, A., & Uwamahoro, J. (2021). From what Makes Students Dislike Mathematics towards its Effective Teaching Practices. *Bolema: Boletim de Educação Matemática*, *35*(70), 1200–1216. https://doi.org/10.1590/1980-4415v35n70a30

Widyani, F. A., & Khotimah, R. P. (2023). Students' Mathematical Literacy in Solving Ethnomathematics-Based Problems Viewed from Self-Efficacy. *Mathline: Jurnal Matematika Dan Pendidikan Matematika*, *8*(3), 1207–1226. https://doi.org/http://doi.org/10.31943/mathline.v8i3.498

Yolanda, F., & Amelia, S. (2018). Peningkatan Kemampuan Koneksi Matematis Mahasiswa Melalui Accelerated Learning Cycle. *Jurnal Ilmiah Dikdaya*, *8*(2), 268. https://doi.org/10.33087/dikdaya.v8i2.109

Zhang, S., Jie, Q., & Pereira, J. (2023). Optimization Design and Thinking of New Knowledge of Primary School Mathematics Under the Perspective of High-Order Thinking Cultivation: Take the Surface Area of the Cylinder As An Example. *Journal of Teaching And Learning In Elementary Education*, *6*(2), 111–121. https://doi.org/http://dx.doi.org/10.33578/jtlee.v6i2.8023