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# Effect of Anxiety and Disposition on Student Mathematics Learning Achievement in Indonesia


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**Abstract:** This research took the title of effect of anxiety and disposition on student mathematics learning achievement in medan state 28 junior high school, Indonesia. In this study, anxiety and disposition as independent variables and mathematics learning achievement as a dependent variable. Anxiety when learning mathematics owned by students tend to be influenced by the image of mathematics lessons that are already famous scary. This is because students recognize mathematics subjects are difficult subjects and complicated, so it triggers the fear of students to learn math and resulted in anxiety when faced with mathematics subjects. Contrary to that, mathematical disposition is a change in the tendency of students to see and behave towards mathematics, and to act when learning mathematics. For example, when students can solve non-routine problems, their attitudes and beliefs as a student become more positive. The more mathematical concepts are understood, the more sure the students that mathematics can be mastered. Mathematical disposition can also be interpreted as a desire, awareness and a strong dedication to students to learn math and carry out various mathematical activities. Based on the theory, that there are many factors that affect student's mathematics learning achievement. In this study, researchers took the two factors above, namely anxiety and mathematical disposition. This research takes place in medan state 28 junior high school which is located at North Sumatera. The research method used in this study is a quantitative method with a sample of all students class VIII which each class average amounted to 35 people. The data taken are questionnaires, using Pearson Correlation analysis, Spearman Correlation and Kendal's tau. Data analysis was performed using SPSS 21 for Windows software tool. From the results of this study, it can be concluded that: (1) there is no influence of anxiety on student learning achievement. Or in other words, student learning achievement is not at all affected by the student's anxiety in facing examinations, especially in mathematics; (2) there is an effect of disposition on student learning achievement. Or in other words, student learning achievement is influenced by the disposition attitudes that students have in mathematics learning; (3) simultaneously, anxiety and disposition are proven to have a contribution to influence student achievement, although individually, anxiety does not affect student learning achievement.



**Keywords:** Anxiety, Disposition, Achievement of Mathematics Learning.


## INTRODUCTION

Mathematics learning is one part of the whole process of education in schools. When examined closely, it is very clear that the mathematics courses in each curriculum are always taught in every educational unit and at every grade level with much less hours of instruction than other subjects. It shows that educational experts and curriculum designers are aware that mathematics courses can meet expectations in the provision of reliable human resources potentials, ie human beings who have logical, critical, systematic, rational and meticulous reasoning abilities; have the ability to be honest, objective, creative and open; have the ability to act effectively and efficiently; and have the ability to work together, so have the ability to answer the challenges of the globalization era and the rapid development of Science and Technology (IPTEK) today and the future.

In the process of learning mathematics subjects, there are many factors that affect student's mathematics learning achievement; two of them are student's anxiety and disposition of mathematics. One form of a student's feelings when facing exams, especially math exams, is the occurrence of unpleasant feelings or fear and tension. Some students sometimes encounter the test as a problem in their life either because later he will be embarrassed for not getting

good grades or because they feel not confident with the preparation it has. Feelings of fear or tension in the face of a problem are often called anxiety.

This anxiety is usually caused by the presence of some students who cannot absorb the material learned quickly or even very difficult to be together in understanding the material being studied. This has an impact on the occurrence of anxiety in students who tend to have a negative impact on which anxiety experienced by students will increasingly instill doubt on students because they feel left behind and hard to understand next, thus affecting student learning achievement mathematics.

In addition to anxiety, mathematical disposition is also one of the factors that affect student's mathematics learning achievement. Mathematical disposition is the linkage and appreciation of the matematics, a tendency to think and act in a positive way. The student's disposition of mathematics is manifested through attitudes and actions in choosing an approach to accomplish the task. The mathematical disposition of students is said to be good if the student likes problems that are a challenge and involve him directly in finding / resolving the problem. In addition, students feel themselves experiencing the learning process while completing the challenge. In the process students feel the emergence of confidence, hope and awareness to see again the results of his thinking.

Mathematical disposition is one factor that is considered in determining the success of student learning. Students need dispositions that will make them persistent in facing more challenging issues, to be responsible for their own learning and to develop good habits in mathematics. Unfortunately, teachers often tend to reduce the burden of learning mathematics with the intent to help students, but it is something that is important for students.

## LITERATURE REVIEW

One form of a student's feelings when facing exams, especially math exams is the occurrence of unpleasant feelings or feels scared and tense. Some students have an exam as a problem in their life either because later on they will be ashamed of not getting good grades or because they feel not confident with the preparations they have.

Feelings of fear or tension in the face of a problem are often called anxiety. There are several definitions of anxiety according to some experts such as Crow and Crow [1] suggests that anxiety is something unpleasant conditions experienced by individuals who can affect his physical condition. According Rathus [2] anxiety is defined as a psychological state characterized by the presence of pressure, fear, turmoil and threat coming from the environment. Meanwhile, according to Zakiyah Degrees [1] anxiety is a manifestation of various mixed emotional processes, which occur when the individual is experiencing the pressure of feeling or frustration and inner conflict or conflict.

Nawangsari [2] expresses anxiety as an unpleasant condition including fear, tension, worry, confusion, dislike of being subjective and arising from insecurity against the perceived danger. Relation to learning especially math lessons, many psychologists learn to teach the term math anxiety mathematics (anxiety mathematic). These experts also provide different definitions related to mathematical anxiety. Among them are:

- Harding [3], for example, defines math anxiety as a learned emotional response which usually comes from negative experiences in working with teachers, tutors, classmates, parents or siblings.
- Terrell [4] focuses on the physical manifestation of math anxiousness in defining math anxiousness, fear, nausea, frustration, and uncertainty are brought about by a request to perform mathematics operations or use mathematics to problem solve.
- Tobian S [5] defines mathematical anxiety as a tense and anxious feeling that interferes with the process of numerical manipulation and the process of solving mathematical problems in ordinary and academic life and can eliminate a person's confidence.

From the above definition, it can be said that mathematical anxiety is a form of a person's feelings either in the form of feelings of fear, tension or anxiety in the face of mathematical problems or in implementing mathematics learning with various forms of symptoms. People who have mathematical anxiety tend to regard mathematics as unpleasant. The feeling arises because some good factors taste From personal experience related to the teacher or mockery of friends for not being able to solve mathematical problems.

**According to Freud [6] there are three kinds of anxiety**

- Realistic anxiety is the fear of danger from the external world, and the level of anxiety corresponds to the threat. In everyday life this type of anxiety is referred to as fear. This is exactly what Freud speaks in German, but his interpreter is considered "fear" (fear) seems too general. The example is very clear, if someone throws a venomous snake in the fore person, then the person will definitely experience this anxiety.
- Moral anxiety, this anxiety will be felt when the threat comes not from the outside world or from the physical world, but from the social world of super ego that has been internalized into a person. This moral anxiety is another word of shame, guilt or fear of getting sanctioned. The anxiety of this form is a fear of one's own conscience.

- Neurotic anxiety, this kind of fear of fear arises from the stimulation of ideas, if one has ever felt 'lost an idea, is nervous, unable to control oneself, behavior, mind and even mind, then that person is experiencing neurotic anxiety. Neurotic is another word of nervous feeling. This last type of anxiety is the one that interests Freud most, and is usually called anxiety only.

**Lahey & Ciminero [7], mentions the types of anxiety based on its nature are**

- Anxiety is afersif. Anxiety is an unpleasant experience so someone who experiences it with high intensity usually try hard to reduce or avoid anxiety by avoiding the various stimuli that can produce anxiety.
- Anxiety is annoying. Anxiety can be an experience that interferes with cognitive and motor skills.
- Psychophysiological anxiety. Anxiety is related to experience of psychological and biological aspects, meaning that during anxiety periods there is a change in behavior patterns or psychological changes and physiological symptoms.

**According to Kartono [8] there are various kinds of anxiety, among others**

- Super ego anxiety. This anxiety is special about each person, in the sense of his own body and his own psychic condition, for example worrying that later he fails, sick, dies, laughs, accused, punished, lost face, loss of goods or loved ones.
- Neurotic Anxiety. An anxiety closely related to the negative escape mechanisms caused by guilt or sin, and serious and chronic emotional conflicts are continuous, and frustrations-fustration and inner tensions.
- Psychotic Anxiety. Anxiety because it felt threatened his life and chaotic if coupled with great confusion, caused by the dispersonalisasi and disorganisasi psychic.

**According to Richard & lazarus [9] anxiety has 2 meanings:**

- Anxiety as a response. This anxiety is an individual reaction to events or events that happen to him. it can be seen from what it does, what it says, and the physical changes that occur. Almost all individuals feel anxiety as an unpleasant feeling characterized by anxiety, anxiety, and fear and so on. Anxiety is seen as a response to certain conditions. Because it is a subjective state it cannot be observed directly. This can only be known by drawing a conclusion through the causes and consequences.
- Anxiety as an intermediate variable. The reactions and circumstances caused by some stimulius can have a certain effect and are felt by the further dindividu, or a condition that affects the stimulus and response sequences. This anxiety cannot be known directly, from precedence and its consequences. So what can be observed is the condition of stimulus and anxiety behavior that precedes and concerns the physiological consequences of anxious state. This is supported by the theory of crow and crow [10] that anxiety experienced by individuals can affect the physical individual concerned. This anxiety is not always based on reality, but can also be only an individual's imagination.

**Darajat [11] mentions that there are various or forms of anxiety, among others:**

- Anxiety arising from seeing and knowing the danger that threatens him.
- Anxiety in the form of disease and seen in some form.
- The anxiety of feeling guilty or guilty for doing things contrary to the conviction of conscience. In the implementation of learning, especially learning mathematics, some students cannot absorb mater i learned quickly or even very difficult to be together in understanding the material being studied. It affects the occurrence of anxiety in students who tend to have a negative impact on which anxiety experienced by students will increasingly instill doubt on students because they feel left behind and hard to understand next.

The symptoms of anxious reactions that arise according to Spielberger [12] can be divided into state anxiety and trait anxiety. State anxiety is an anxiety symptom that arises when an individual is exposed to a particular situation and the phenomenon will appear as long as the condition exists, whereas trait anxiety is anxiety seen as a settled state in the individual that means the individual is inclined to be anxious in the face of various situations.

Research conducted by Godbey [13] with the title mathematic anxiety and the underprepared student mentions that there are some symptoms of math anxiety. These symptoms include nausea, body feeling hot, excessive tension, inability to listen to the teacher, easily disturbed by voices, inability to concentrate, negative self-talk, stomach pain, sudden thoughts of empty and sweaty.

Furthermore, Elliot [14] states there are 3 types of people who feel anxious about math, namely:

- People who memorized mathematics but they did not apply the concept obtained (the mathematics memorizer)
- People who avoid mathematics (the mathematic avoider)
- People who feel incompetent in the field of mathematics studies (the self-professed mathematics incompetent).

Several studies have been done by experts to address anxiety especially mathematical anxiety. Some experts use brain imaging technology for the first time against people who experience anxiety in working on math problems, scientists have gained new knowledge how some students are able to overcome their fears and succeed in mathematics.

Researchers from the University of Chicago found a strong link between success in doing mathematical problems with activity in the brain area network in the frontal and parietal lobes that are involved in controlling attention and regulating negative emotional reactions. This response arises when people find it difficult to solve math problems.

According to Sian Beilock, professor of psychology at the University of Chicago, teachers and students can use this information to improve performance in mathematics. Beilock and Ian Lyons, PhD students reported their findings in the article, Mathematical Anxiety: Separating Mathematics from Anxiety, published in the journal Cerebral Cortex.

The study found that for students with high levels of anxiety in mathematics who can do mathematical tasks well, their brain activity working during the anticipatory phase begins a cascade of brain activity while completing math tasks. This brain activity does not involve areas normally associated in numerical calculations. Instead, this activity is more related to motivation.

The study also highlights how people who are nervous about math problems can be casual in everyday situations, such as balancing a checkbook. Taking a breather before doing something can help a person become more focused on doing math, and more on what it really needs to do. "When you let your brain do its work, usually he will do it.If doing math makes you anxious, then your first task is to calm down," Lyons said. (Laksmi I.R./KlikHeadline)

According to Professor Freedman there are 10 ways to overcome mathematical anxiety (Ten Ways to Reduce Math Anxiety)

- Overcome negative self-talk.
- Ask questions.
- Consider math a foreign language - it must be practiced.
- Do not rely on memorization to study mathematics.
- READ your math text.
- Study math according to YOUR LEARNING STYLE.
- Get help the same day you do not understand.
- Be relaxed and comfortable while studying math.
- "TALK" mathematics.
- Develop responsibility for your own successes and failures. (Freedman, 2012)

From the above description of opinion, some of these things may be able to minimize mathematical anxiety:

- Give rational explanations to their students why they should learn math;
- Instill self-confidence in students that they can learn math, teachers can provide easy-to-do exercises so they can work on them;
- Eliminate negative prejudices against mathematics, by providing simple, complex examples to the complexity of mathematical purposes;
- Math learning with various methods that can accommodate various models of student learning;
- Not prioritize rote learning in mathematics;
- At the time of mathematics learning, make the mathematics class a fun and comfortable class;
- When meeting with students everywhere, do not hesitate to insert a conversation that is about learning mathematics to them;
- Embedding a sense of responsibility to students to decide their success.

NCTM [15] states mathematical disposition is the relationship and appreciation of mathematics is a tendency to think and act in a positive way. The student's disposition of mathematics is manifested through attitudes and actions in choosing an approach to accomplish the task. It's done with confidence, curiosity to find an alternative, diligent, and challenged and tendencies of reflecting the way he thinks. Reflection is a way of thinking about what's just being learned or thinking back about what has been done in the past. Reflection is a response to newly received events, activities, or knowledge [16]. Student reflection will be seen when students discuss, direct statements about the subject matter obtained today, notes, and work results.

In line with the above, Wardani [17] defines mathematical disposition is the interest and appreciation of math is the tendency to think and act with positive, including confidence, curiosity, perseverance, enthusiasm in learning, persistent problems, flexible, willing to share with others, reflective in mathematical activities (doing math). Meanwhile, according to Mulyana [18] the disposition of mathematics is a change in the tendency of students in view and behaves towards mathematics, and act when learning mathematics. For example, when students can solve non-routine problems, their attitudes and beliefs as a student become more positive. The more mathematical concepts are understood, the more convinced that mathematics can be mastered. According to Sumarmo [19], mathematical disposition is a strong desire, awareness, and dedication to students to learn math and carry out various mathematical activities.

According to Maxwell [20], disposition consists of (1) inclination (tendency), namely how

students' attitudes toward tasks; (2) sensitivity (sensitivity), namely how the readiness of students in dealing with tasks; and (3) ability, ie how students focus to complete the task completely; and (4) enjoyment (pleasure), which is how the student's behavior in completing the task.

The mathematical disposition of students is said to be good if the student likes problems that are a challenge and involve him directly in finding / resolving the problem. In addition, students feel themselves experiencing the learning process while completing the challenge. In the process students feel the emergence of confidence, hope and awareness to see again the results of his thinking. Polking [21] states that mathematical dispositions include: (1) confidence in using mathematics to solve problems, to communicate ideas, and to give reasons; (2) flexibility in investigating mathematical ideas and trying to find alternative methods of solving problems; (3) persevering to do math tasks; (4) have interest, curiosity, and maturity in doing mathematical work; (5) the tendency to monitor and reflect on their own performances and reasoning; (6) assessing mathematical applications to other situations arising in math and daily experience; (7) appreciation of the role of mathematics in culture and values, both mathematics as a tool, as well as mathematics as a language.

To measure student's mathematical disposition some indicators are needed. Some of the indicators expressed by NCTM [22] are:

- Confidence in solving math problems, communicating ideas, and giving reasons.
- Flexibility in exploring mathematical ideas and trying different alternative methods to solve problems.
- Determined to complete math tasks.
- Interest, curiosity, and ability to find in mathematics.
- The tendency to monitor and reflect on the thinking process and self-performance.
- Assess mathematical applications in other fields and in everyday life.
- The appreciation of the role of mathematics in culture and its value, both mathematics as a tool as well as mathematics as a language.

Meanwhile, according to Syaban [21] states, to measure the mathematical disposition students used indicators are as follows:

- Showing passion / enthusiasm in learning mathematics.
- Demonstrate serious concerns in learning math.
- Show persistence in facing problems.
- Demonstrate confidence in learning and problem solving.
- Demonstrate high curiosity.
- Demonstrate the ability to share with others.

Meanwhile, according to Wardani [17], the aspects measured in mathematical dispositions are (1) confidence with self-confident indicators of ability / confidence; (2) curiosity consists of four indicators: often ask questions, conduct investigations, enthusiasm / enthusiasm in learning, reading many / looking for other sources; (3) perseverance with persistent / diligent indicator / attention / seriousness; (4) flexibility, consisting of three indicators: cooperation / knowledge sharing, respect for different opinions, seeking other solutions / strategies; (5) reflective, consisting of two indicators of acting and relating to mathematics, liking / feeling good about mathematics.

Based on the mathematical disposition indicators outlined above, mathematical disposition indicators can be summarized as (1) confidence in solving mathematical problems, communicating ideas, and giving reasons; (2) flexible in exploring mathematical ideas and trying various methods to solve problems; (3) determined to complete mathematical tasks; (4) interest and curiosity to discover something new in mathematics; (5) the tendency to monitor and reflect on thinking and performance processes; (6) applying mathematics in other fields and and in everyday life; and (7) an appreciation of the role of mathematics in culture and values, both mathematics as a tool, as well as mathematics as a language.

To express the student's mathematical disposition, it can be done by making the scale of disposition and observation. The disposition scale contains the statements of each disposition component. For example "for a deeper understanding, I try to solve math problems in other ways". Through observation, the disposition of students can be known whether or not there are changes at the time students obtain or perform tasks. For example, when the learning process is underway can be seen whether students in solving difficult mathematical problems students continue to try to get the right answer.

There is a strong relationship between mathematical disposition and learning. Mathematics learning in addition to improving the ability of mathematical thinking or cognitive aspects of students, must also consider the affective aspects of students, namely mathematical disposition. Mathematics learning in the classroom should be specially designed so that in addition to improving student learning achievement can also improve mathematical disposition. Furthermore, NCTM [23] states that student's attitudes in dealing with mathematics and their beliefs can affect their achievement in mathematics.

Mathematical disposition is one of the factors that determine the success of student learning. Students need dispositions that will make them persistent with more challenging issues, to be responsible for their own learning, and to develop good habits in mathematics.

Unfortunately, teachers tend to reduce the burden of learning math with the intent to help students when it is something that is important for students.

Mathematics learning basically adheres: the principle of learning along the paragraph, the principle of active learning students, and the principle of "learning how to learn". The principle of active learning is active, referring to the notion of learning as something done by the student, and not something done to the student. The statement embraces the constructivist view that students as individuals actively build knowledge and not just recipients of ready-made information. In view of constructivism learning is a process, situation, and effort designed by the teacher in such a way that makes students learn according to the principles of learning how to learn. In other words, in teacher learning acts as a facilitator, motivator, and manager of learning for his students. Teacher's job is to select new information / tasks / problems related to the student's initial knowledge, and create a learning environment (the role of facilitator) in order to interact between the new information with the initial knowledge (unbalanced condition). Then the teacher helps students through accommodation and association a new equilibrium (role as motivator) so that new knowledge is formed on the students. The teacher's activity of selecting new information, creating the environment, and motivating the students as a whole describes the role of teachers as the learning manager of UNESCO detailing the learning how to learn principles on the four pillars of education as follows.

- Learning to understand (Learning to know) Learn to understand the knowledge of mathematics (concepts, principles, ideas, theorems, and relationships among them).
- Learning to do or implement (Learning to do) Learning to carry out the process of mathematics (in accordance with basic math skills of the school level concerned)
- Learning to be yourself (Learning to be) Learning to be himself, learn to understand and appreciate the product and process mathematics by showing the attitude of hard work, tenacious, disciplined, honest, have achievement motives and mathematical disposition
- Learning to live in togetherness (Learning to live together). Learn to understand others, work together, appreciate and understand different opinions, and contribute to each other's opinions.

From some definitions of mathematical disposition is a strong desire, awareness, and dedication in students to learn math and carry out various activities of mathematics. Having a mathematical disposition is not enough to be shown simply by liking learning math. For example, a student enjoys learning mathematics and he has the belief that in solving mathematical problems there is always one way and the right answers. Though in mathematics there is not only one way of completion and one right answer. This suggests that being happy with math is not enough?

Learning achievement means a lot of how far the results have been achieved students in the mastery of tasks or subject matter received within a certain time. Learning achievement is generally expressed in numbers or letters so that it can be compared with one criterion [24].

Achievement learn a person's ability in high achievement of thinking. Learning achievement should have three aspects, namely cognitive, affective and psychomotor. Learning achievement is the best achieved outcome of a child in either a working education or a scientific field. Students' learning achievement is the result achieved by the students gained from the learning process. Learning achievement is the result of maximum achievement according to the ability of the child at a certain time to something that is done, studied, understood and applied.

All education actors (students, parents and teachers) will want to achieve a high learning achievement, because high learning achievement is one indicator of the success of the learning process. But in reality not all students get high learning achievement and there are students who get low learning achievement. The high and low learning achievement obtained by the students is influenced by many factors.

Learning achievement is defined as the level of student interconnection in the learning process as a result of the evaluation conducted by the teacher. According to Sutratinah Tirtonegoro [25], suggests that: Learning achievement is an assessment of learning activity results expressed in the form of symbols of numbers, letters and sentences that can reflect the results achieved by each student within a certain period.

According to Siti Partini [26], "Learning achievement is the result achieved by someone in learning activities ". In line with the opinions achieved by someone in the learning activities ". In line with that opinion Sunarya [27] states "Learning achievement is a behavioral change that includes the cognitive, affective, and psychomotor aspects that are measures of student success". Haditomo *et al*. [7], said, "The learning achievement is the ability of Dewa Ketut Sukardi [28], stating" To measure learning achievement using achievement test as a tool to reveal actual ability as learning result or learning ". According to Sumadi Suryabrata [29], "Value is the last formulation that can be given by the teacher about progress or student achievement during a certain period". With the value of report cards, we can know student achievement. Students who have good grades are said to have high achievement, while those with poor grades are said to have low learning achievement.

Based on the above description it can be concluded that the learning achievement is a measure of the success of student learning activities in mastering a number of subjects during the period of students in mastering a number of subjects during a certain period expressed in the learning achievement.

Learning achievement is a measure of success obtained by students during the learning process. Success is determined by various interrelated factors. According to Dimyati it is determined by various interrelated factors.

According to Dimyati Mahmud [30], said that the factors that affect student achievement include: "internal factors and external factors", as follows:

- Internal factor is a factor that comes from within the self itself, which consists of N. Ach (Need for Achievement) is the need or encouragement or motive for achievement.
- External factors are factors that come from outside the learner. This can be a means of infrastructure, environmental situation be it family environment, school and community environment. In Rooijakkers's opinion translated by Soenoro [31], says that "Factors that affect learning achievement are factors derived from the learner, factors derived from the teacher". The two factors can be explained as follows:
- Factors derived from the student (student)

This factor includes motivation, attention to the ongoing subject, and the level of acceptance and remembrance of the material, the ability to apply what is learned, the ability to reproduce and the ability to generalize.

- Factors derived from the teacher (Teachers)

This factor includes the ability to build relationships with the student, the ability to move the interest of the lesson, the ability to explain, the ability to mention the subject matter taught, the ability to direct attention to the ongoing lesson, the ability to provide responses to reactions. From Rooijakkers opinion about the factors that affect student achievement can be given the conclusion that student achievement is influenced by two factors that are factors derived from the student self and factors derived from the teacher (teacher).

Meanwhile, according to Ngalim Purwanto [32], suggests that "Factors that affect learning achievement is external factors and factors from within." From this expert opinion can be explained that the understanding of external factors and factors from within that affect learning achievement that is as follows:

**Factors from outside**

This external factor is a factor that comes from outside the student (student) which includes:

- Natural environment and social environment
- Instrumentation in the form of curriculum, teachers or teachers, facilities and facilities and administration.

**Factor from within**

This inner factor is a factor that originated in the student itself (student) itself which includes:

- Physiology in the form of physical condition and condition of the senses,
- Psychology in the form of talent, interest, intelligence, motivation and cognitive ability.

From some of the opinions of the experts mentioned above it can be concluded that the achievement of student learning generally influenced by two f actors are the first factor that comes from within the student itself and the second factor comes from outside the student self that is doing the learning process.

According Slameto [33] the factors that affect learning achievements of many types, but can be classified into two, namely:

- Internal Factors

That is the factors that exist in the individual who is learning, internal factors consist of:

- Physical factors (health and disability)
- Psychological factors (intelligence, attention, interest, talent, motive, maturity and readiness)
- Factors fatigue.

**External factors**

That is the factor from outside the individual. External factors consist of:

- Family factors (how to educate parents, relationships between family members, home atmosphere, family economic conditions, understanding of parents, and cultural background)
- School factors (teacher teaching method, curriculum, teacher relation with student, student relation with student, school discipline, learning tool, school time, learning standard above measure, state of the building , learning methods and home tasks)
- Community factors (student activities in society, mass media, social friends, and life forms of society)

According to Muhibbin Syah [34] that students' learning achievement is influenced by at least three factors namely:

- Internal factor

That is the factors that exist in the individual who is learning, internal factors consist of:

- Physical factors that include health and disability.
- Psychological factors that include the level of intelligence, attention, interest, talent, motive, maturity and readiness.
- Factors fatigue,

**External Factor**

That is the factor from outside the individual. External factors consist of:

- Family factors that are the way parents educate the relationship between family members, s home environment, family economy, parents' understanding, and cultural background.
- Factors of the school environment are teacher teaching method, curriculum, and teacher relation with student, student relation, school discipline, learning tool, school time, learning standard above size, state of the building, learning methods and home tasks.
- Community factors are student activities in the community, mass media, social friends, and life forms of society.

**Factors approach to learning (approach to learning)**

Namely the type of student learning efforts that include strategies and methods used by students to conduct learning activities lesson material.

From the description above, it can be concluded that mathematics learning achievement is the result that has been achieved by students in mastering assignments or mathematics learning material received within a certain period of time. So that in this study, the data on students' mathematics learning achievements were obtained from the value of the latest report cards from students who were used as research samples.

**Method and Research Design**

This research method is quantitative. The research subject in this research is this population is population is whole unit or individual in scope to be studied; population is limited as population or number of individual which have at least one common trait [35]. Therefore the population is taken learners of all classes VIII SMP Negeri 28 Medan. The sample of this research using Purposive Sampling is sampling technique which is used based on certain characteristics or considerations [36].

With so many variables in this study there are 3 variables, independent variable (free) is anxiety and disposition and dependent variable (bound) is student's mathematics learning achievement. From the above explanation research design used is correlation design (associative).

Thus to determine the effect of anxiety and disposition on student achievement in SMP Negeri 28 Medan then used a Likert-scale questionnaire. Internet use questionnaire consists of 30 items of statement and a conformity questionnaire consisting of 20 items of statement. In this study, the two questionnaires were made into one, so this study only has one questionnaire with 50 items statement.

Based on the design of the research design, the data analysis used in this research is Pearson Correlation and Spearman Correlation and Kendall's tau. Data analysis was done by using SPSS 21 for windows.

**RESEARCH RESULTS**

Based on the results of simple regression analysis, it can be seen that the significant value between the variables of anxiety about mathematics learning achievement is 0.429, which is greater than the significance level, which is 0.05, so it can be concluded to accept H0, which means there is no influence on anxiety student mathematics learning achievements. Or in other words, students' mathematics learning achievements are not influenced by the anxiety experienced by these students both during the exam and when the mathematics learning takes place.

Based on the results of simple regression analysis, it can be seen that the significant value between the disposition variables on the mathematics learning achievement variable is equal to 0,000, which is smaller than the significance level, which is 0.05, so it can be concluded to accept Ha, which means there is an influence of disposition on learning achievement student mathematics. Or in other words, students' mathematics learning achievements are influenced by the disposition attitudes found in these students.

Based on the results of multiple linear regression analysis, it can be seen that there is a significance value between the variables of anxiety and disposition towards student learning achievement of 0,000 which is smaller than the significance level, which is 0.05, so that conclusions can be taken to accept Ha, which means there is significant influence variable anxiety and disposition towards students' mathematics learning achievement simultaneously. Meanwhile, the determination coefficient obtained was 0.071 in the R Square column. This value shows the magnitude of the influence of anxiety and disposition simultaneously on students' mathematics learning achievement of 7.1%. Or in other words, students' mathematics learning achievements are influenced simultaneously by 7.1% by the anxiety experienced by these students when they learn and the disposition attitudes that students have.

## CONCLUSIONS

Based on the description of the results of the research in the previous chapter, conclusions can be drawn from this study:

- There is no influence of anxiety on student learning achievement. Or in other words, student learning achievement is not at all affected by the student's anxiety in facing exams, especially in mathematics.
- There is a disposition effect on student learning achievement. Or in other words, student learning achievement is influenced by the disposition attitude that students have in mathematics learning.
- Simultaneously, anxiety and disposition are proven to have a contribution to influence student learning achievement, although individually, anxiety does not affect student achievement.

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