

**STUDENT'S PERSPECTIVE: REMEDIAL MATH PHENOMENON**  
**CABUYAO INTEGRATED NATIONAL HIGH SCHOOL**

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## Table of Contents

List of Tables .....	v
List of Figures .....	vi
<b>Chapter 1: Introduction to the Study .....</b>	
<b>Background to the Study .....</b>	
<b>Theoretical Framework .....</b>	
<b>Conceptual Framework .....</b>	
<b>Statement of the Problem .....</b>	
<b>Research Question .....</b>	
<b>Purpose of the Study .....</b>	
<b>Significance of the Study .....</b>	
<b>Definition of Terms .....</b>	
<b>Chapter 2: Literature Review .....</b>	
<b>Synthesis .....</b>	
<b>Chapter 3: Research Method .....</b>	
<b>Methodology .....</b>	
<b>Research Design .....</b>	
<b>Respondents of the Study .....</b>	
<b>Sampling Technique .....</b>	
<b>Research Instrument .....</b>	
<b>Data Gathering .....</b>	
<b>Timeframe and Procedure .....</b>	

<b>Validity and Reliability</b> .....	
<b>Scope and Limitation</b> .....	
<b>Chapter 4: Results, Finding, Solution</b> .....	
<b>Results</b> .....	
<b>Findings</b> .....	
<b>Discussions</b> .....	
<b>Chapter 5: Conclusion and Recommendations</b> .....	
<b>Conclusion</b> .....	
<b>Recommendations</b> .....	
<b>REFERENCES</b> .....	
<b>APPENDIX</b> .....	

## LIST OF FIGURES

<b>The Research Paradigm of the Study</b> .....	
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**CHAPTER 1**  
**INTRODUCTION**  
**BACKGROUND**

Students experience difficulties in academics, especially in mathematics. To solve the issue, schools are offering a remedial program which is used to address gaps in basic skills. Remedial instruction helps struggling learners shore up their basic skills and extra support to help them catch up to others.

Every student should not only have the right to approach mathematics equally but should also learn and understand mathematics equally. School teachers must ensure that all students receive equivalent education, especially those students who need extra attention. Because students don't have the same cognitive reasoning to be able to understand the math competence that they face. Some students that are on the remedial program in school, are those who don't pay attention in class and those who have a low-performance level in class. Students' experiences studying and learning mathematics in a remedial program, particularly those of younger children, was lacking in the literature base.

This study explores what motivate students to learn, particularly students in a remedial mathematics program. The researchers used a qualitative approach to analyze the mathematics through the eyes of those students who, have been enrolled in a remedial mathematics program due to repeated failure in mathematics, as determined by poor performance on standardized tests, and in mathematics classes.

This study sought to reveal, through the experiences of students, how remedial mathematics students feel about the study of mathematics and the basis for these feelings. From this study, a potential outcome might change in the remedial mathematics program that will help motivate and engage students in ways that will lead to academic achievement.

Academic performance in a particular subject and student perceptions about that subject are often seen in cycles. For instance, poor mathematical performance often leads to negative feelings towards things related to mathematics. In turn, if a student thinks 4 negatively about the study of mathematics, it will often lead to poor academic performance (Kim, 2005). It was expected that the participants of the study would recall evidence of poor academic performance or frustrations with some aspect of the study of mathematics. A tentative connection between remedial mathematics students and the presence of negative, anxious feelings toward the study of mathematics warrants a comprehensive literature review on mathematics anxiety. Through this, indicators of mathematics anxiety are recognized. However, there are no assumptions were made that all remedial mathematics students suffer from forms of mathematics anxiety. This research study focused on experiences and the interpretation of those experiences, of middle school students to reveal some essence or shared beliefs about the study of mathematics.

This study sought to reveal the effectiveness of remedial mathematics in their academic performance. It will show in the further process the outcome of the remedial mathematics.

## **THEORETICAL FRAMEWORK**

Studies found a positive relationship between completing remedial courses and academic success. Findings indicated that those who accepted placement advice and enrolled in remedial courses did better in English, and math than those who did not enroll in remedial courses.

Feingold's (1994) comparison of remedial and nonremedial students sought to validate the purpose of remedial education to serve as an equalizer so that student needing and completing remediation would do as well academically as students not needing remediation. She concluded that students completing remediation did have comparable success to those students not requiring remediation.

Another study found out that, students who completed all indicated remedial courses were more likely to succeed in English and math than those who took only some of the recommended remedial coursework. Sinclair Community College in Dayton, Ohio (1994) though, that the underprepared students who completed all remedial coursework did not perform better than non-remedial students.

Seybert and Soltz (1992) reported that students who took remedial courses typically received passing grades in higher level classes related to their remedial work, although their grades and course completion rates were lower than the college-wide averages for the same courses.

## CONCEPTUAL FRAMEWORK

The research is grounded in theories that helped explain the perspective of the students in mathematics. Serving as the conceptual framework related to the problem of perceptions of the study of mathematics by remedial mathematics students, the prominent motivation theories in educational psychology were studied. Many of these originate from the students' own attitudes about mathematics, that is, their confidence in their ability levels, how they view the relevance of mathematics and its implications for future endeavors. Other factors that may lead to the degree of student engagement and motivation are external factors, primarily the learning environment.

The image (Figure 1.) represents the perspective of the students towards remedial mathematics.

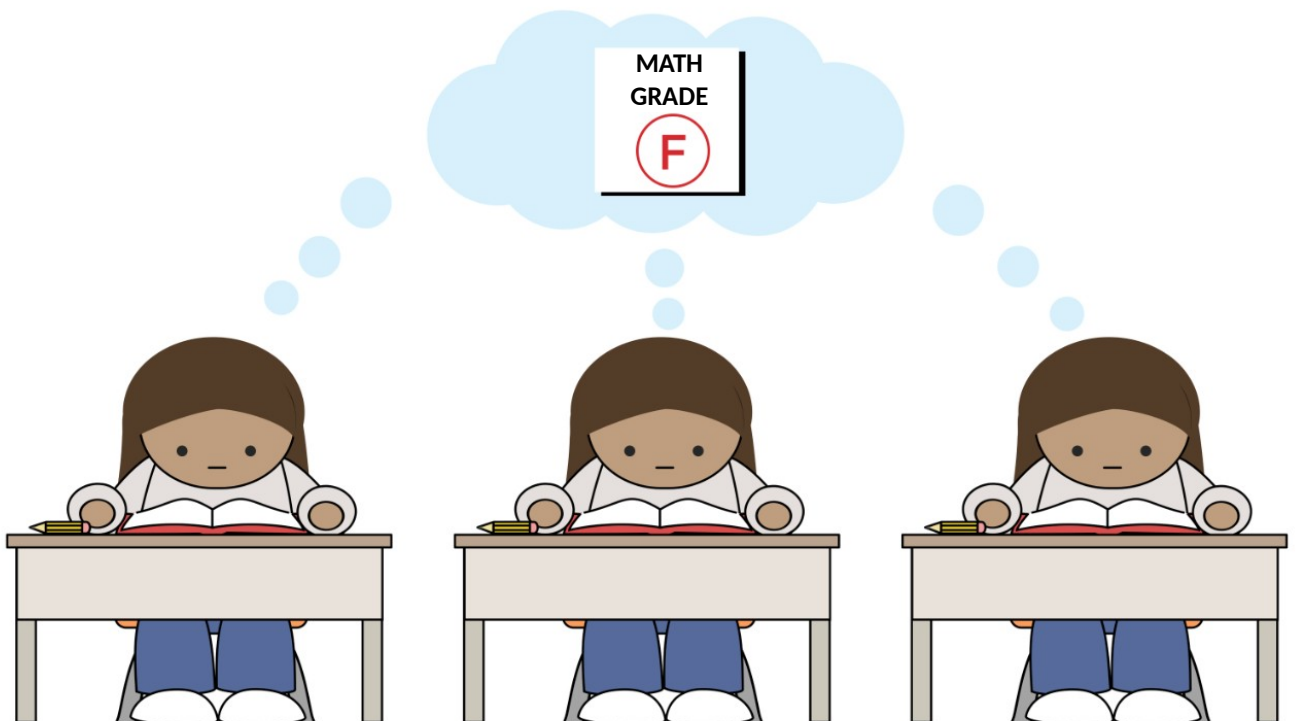


Figure 1. The Research Paradigm of the Study

### **STATEMENT OF THE PROBLEM**

The problem that this study addressed is the perceptions that middle school mathematics students may have in regard to the study of mathematics. Current perceptions may have been formed partly as a result of years of repeated academic failures and the lack of proficiency in mathematics.

The following are the problems that the researchers address regarding the perspective of the middle school mathematics students may have in regard to the study of mathematics and remedial mathematics.

- 1.** To explore the particular topic in math where the students face difficulties.
- 2.** To know the effectiveness of remedial classes.
- 3.** To describe the difficulties that the student faces taking remedial classes.
- 4.** To know if remedial mathematics improve the performance of the students who took it.
- 5.** To understand student's perspective towards remedial math phenomenon.
- 6.** To understand student's feelings toward remedial math

## RESEARCH QUESTION

A wealth of research in the field of mathematics instruction focuses on understanding mathematics instruction in general and understanding how to design instruction to meet the needs of special education, low socio economic, and urban populations. The research databases examined contained very few studies designed to help mathematics educators understand instructional practices for struggling general education students. Although teacher-based teaching has been successful for some students (Mullins, Rummel, & Spada, 2011), this approach to teaching does not attend to the varying learning styles of students fully, especially basic skills students who may need concrete learning experiences. Past researchers focused on examining how cooperative learning activities, in which students constructed mathematics knowledge through student-centered problem-solving tasks, impacted mathematics performance (McEwin & Greene, 2010). Research results indicated that teachers need to use a variety of practices including lecture-based and student-centered learning to increase the likelihood that mathematics instruction meets the needs of each type of learner (Bottge & Grant et al., 2010). Based on research, basically, students of Junior High School of Cabuyao Integrated National High School (CINHS) who undergo remedial lesson have low of computing or low of mathematical ability. Researchers also explore ways of how to lessen the students struggling in math to improve mathematical struggling students.

As well, research is needed to address the needs of mathematical ability of students who attempt to help these struggling students. One planned outcome

of this study was to provide positive and with a resource to help motivate students, thereby increasing academic achievement.

This study used individual students interviews to answer the overarching research question:

1. What particular topic in math, where the student face difficulties?
2. How to know the effectiveness of math remedial classes ?
3. What difficulties that the students faces taking remedial classes?
4. Does remedial mathematics improve the performance of the students?
5. What are the student's perspective towards remedial math phenomenon?
6. What does the students feel towards remedial math phenomenon?

### **PURPOSE OF THE STUDY**

The purpose of this study was to examine the various, particular mathematical experiences of the Junior High School students of Cabuyao Integrated National High School as expressed through their attitudes and feelings towards remedial. The goal of this study was to understand the perspectives of individual students' and how these perspectives shape future experiences in mathematics. By capturing and seeing the essence of these experiences, this study in mathematics should benefit students. Generalizing the meaning of these experiences provided a greater understanding of the research problem. The purpose was to make it successful in the study of mathematics. Understanding

how past or present experiences have affected the Junior High School students of Cabuyao Integrated National High School in learning of mathematics provided a basis for concrete learning, tangible recommendations for seeking to make gain mathematics performance.

### **SIGNIFICANCE OF THE STUDY**

Research of instructional practice in mathematics provides understanding to junior students by decision making, examines student's quality, and disseminates results to their past remedial. Past studies in mathematics education have compared novice and experienced students by remedial in math classes, but little work for the students whose been experienced remedial classes. Results from each of our research questions will be useful for researchers who do further study to improve questioning in the context of classroom mathematical discussion. The results of the study are intended to promote understanding about learning mathematics in overall aspect and benefit students' who need remedial learning. In addition, the result from research reveal how effective their foundation in learning the discussion. As a result, the study highlights the ways in which the students can gain and easily catch up their lessons.

### **DEFINITION OF TERMS**

**Student's Perspective-** The point of view of the students who take remedial.

**Student's Perception-** It is the ability of a student to organize, identify, and interpret sensory information towards remedial mathematics.

**Student's Experience-** Is the knowledge or skill that the remedial students obtained from doing remedial mathematics.

**Performance-** to determine the student attitudes as they experienced remedial class and learning mathematics is related to student performance in mathematics.

**Remedial-** is a part of education which is concerned with the prevention, investigation, and treatment of learning from any source they may emanate and which hinder the normal development of the student.

**Problem-solving-** the process by which in remedial classes it is the finding of solutions to every difficult problem or intricate.

**Computation-** Skills comprise what it needs for students to learn basic arithmetic: addition, subtraction, multiplication, and division. Generally speaking, computations entails finding an answer to every problem in math or logic.

## **CHAPTER II**

### **LITERATURE REVIEW**

Over the past years, the number of students in need of remedial mathematics continued to increase. Despite a rising number of students enrolled in remedial classes, the success and retention rate of the students remained low (Bailey,2009). While a number of studies have been conducted in an effort to examine remedial education, there is still sparse research available to fully address the issue of the success' and retention rate of students enrolled in remedial math class. Therefore, the purpose of this study was to examine remedial math barriers from the students' perspectives so that efforts can be made to improve success and retention rates.

In this chapter, literature relevant to this chapter is discussed. Although there is a deficit of literature regarding educational factors that inhibit remedial math students' ability to complete their essential math sequences, there is a vast amount of scholarly research which investigates how access, student characteristics, different types of services, and the effectiveness of those services impact the success and retention rate of students enrolled in remedial math classes.

#### **RELATED LITERATURE:**

Mathematics has historically been used as a culling ground to divide students into those who will have the opportunity to attend college and those who will not attend college (Aughinbaugh, 2012). The culling of students into separate mathematics tracks has been supported by the high school graduation requirements (Reys, & Reys, 2011). Basic arithmetic and remedial math classes were used to meet mathematics requirements for high school. Students who could not learn with traditional lecture model were relegated to the basic or remedial classes.

Math instruction in the classroom has changed little throughout the years (Woodward, 2013). Additionally, mathematics achievement as reported in the Trends in International Mathematics and Science Study (TIMSS) reports that student mathematic achievement in the United States has also not significantly changed or improved over time (Valverde, & Schmidt, 2017). Improving mathematics achievement of secondary school students has been identified as needed (Rasmussen, 2011).

The factors that impact learning originate from the students' own attitudes about mathematics, that is, their confidence in their ability levels, how they view the relevance of mathematics, and its implications for future endeavors. Other factors that may lead to the degree of student engagement and motivation are external factors, primarily the learning environment.

Mathematics anxiety is commonly recognized as "a person's negative affective reaction to situations involving numbers, math, or mathematical calculations" (Ashcraft & Moore, 2009). These reactions may range in their

severity and are experienced in academic, private, and social settings. Physical symptoms include rapid heart rate, sweaty palms, inability to eat or sleep, tense muscles, irregular breathing patterns, feelings of nausea, and headaches.

A necessary skill which can significantly predict mathematical achievement, working memory can be reduced by anxiety, especially when students begin to understand that their aptitude is often associated with a standardized test score (Chinn, 2009).

Students had to verbally provide answers to mathematical problems while recalling a series of unrelated letters in their working memory. This was especially noticeable among the high math-anxious participants. This finding was important to the research as it revealed that individuals tapped into their limited working memory resources when they were worried about their anxiety while performing a mathematical task. When mathematical problems become more difficult, the tax on memory is even more intense. While the settings of these studies differed, the conclusions were similar concerning how performance may suffer as a result of the effects on working memory.

Teachers who are afraid of mathematics are not as likely to use instruction that involves tasks which allow students to create their own ideas and strategies to solve problems. Student-centered lessons that relay mathematical concepts and higher-order thinking are replaced with more traditional, rote teaching practices (Gresham, 2008).

Anxiety as a factor that affects student achievement, the second indicator of student learning is the environment in which instruction takes place. Several environmental elements have a major influence on achievement and motivation in the classroom, no matter the age or grade level of the child (Armstrong, 2008). (Bruah, 2010) revealed that mathematics performance of school are positively correlated with (a) the academic performance of school indicated by school leaving pass percentage and also (b) with the performance in subjects other than mathematics.

According to Sanchez (2012) found out that poor performance in mathematics may emanate from difficulties in comprehending mathematical competencies; the teacher that the way they teach, the covering of competencies and topics in the syllabus or course outline, lack of family support and mathematical materials, the qualification and field study of the teachers, the teaching and assessment of learners, and the perception of the subject, the teacher preference and homework. The learners suggested that the teacher should spend more time in explaining, giving more examples, using more teaching and learning materials such as posters and pictures, and teachers should offer extra classes after school.

According to Ashcraft and Moore (2009), many questions arise when considering how mathematics anxiety and student achievement are related. Most important of those questions is how to discern whether poor test scores are the result of a lack of content knowledge or the effects of mathematics anxiety.

Lee (2009) sought to examine if distinctions exist between the theories of selfconcept, self-efficacy, and mathematics anxiety when they were employed to measure mathematical performance. Beilock (2010) also revealed that after spending 1 year with a math-phobic elementary teacher, females displayed an increased belief in stereotypes about female mathematical ability. Several factors contribute to the idea that young girls are more likely than boys to notice their teacher's negative feelings toward mathematics. In general, children are more likely to imitate the behavior, attitudes, and beliefs of an adult of the same gender (Beilock, 2010). Because they are exposed to many more female teachers than male, young girls notice any negative feelings or attitudes that their teacher may have regarding mathematics (National Educators Association, 2008). Results from a recent study (Beilock, 2010) showed how female elementary teachers' mathematics anxiety and negative attitudes toward mathematics affect achievement.

According to Lee (2009), the theoretical base indicated overlapping dimensions among these theories of self-constructs. For example, cognitive aspects are woven in self-concept and self-efficacy theories because each of these measures the way in which an individual assesses his or her own worth or ability to perform a task. Similarly, selfconcept and mathematics anxiety are influenced by emotional aspects.

Burks (2009) noted that outlining clear expectations builds trust with the student. Students cease to be motivated if expectations are unclear or unreasonable. In a typical classroom, students are often not taught how to

approach the study of mathematics. When teachers explain problem-solving processes in ways students can understand, student motivation to learn increases (Burks, 2009).

Also, enthusiasm for learning affects a student's level of engagement and motivation, creating a cause-and-effect cycle (Burks, 2009). When students disengage, the instructor is sometimes tempted to stop motivating them. This, in turn, causes the student to become more unmotivated, causing the teacher to become resentful.

Almarode and Almarode (2008) suggested the use of energizers to maximize student input and attention levels. Physical movement increases blood flow and oxygen to the brain, both of which are needed for brain functioning (Ratey & Hagerman, 2008). Through a process known as angiogenesis, this increased blood flow makes processing information more effective and clears the brain of toxins (Medina, 2008). A student being involved in activities as simple as walking to a new place in the classroom after one instructional chunk allows for better processing and readies the brain for the next instructional piece.

Repetitive movement, exercise, celebrations, and confirmations all contribute to the release of dopamine, a neurotransmitter that is implicated in the learning process (Ratey et al, 2008). When dopamine is released in the brain, our ability to use information and then transfer and hold it in our long-term memory increases. In turn, students could be more likely to pay attention and learn. Whether it is allowing the brain a short rest break to prepare for more information, or having a very active classroom, these energizers are needed by

the brain (Almarode, et al, 2008). Rather than taking away from instructional time, they are used as a part of the lesson.

## **SYNTHESIS**

Overall, the study is supported by numerous studies that tackled the factors affecting the learning of students towards mathematics as well as their perspective in mathematics. The problem of this research study is the perceptions that middle school mathematics students may have about themselves in regards to the study of mathematics.

The literature review explored several factors that affects students learning in different aspects. These are students learning motivation, mathematics anxiety, and perceptions of the relevance of the study of mathematics. These literature reviews help to build a strong foundation towards the study.

## **CHAPTER 3**

### **METHODOLOGY**

The problem that this qualitative study addressed is the perceptions that middle school mathematics students may have about themselves in relation to the study of mathematics. The possible poor perceptions that students have about themselves may be due to their struggles in mathematics. These problems impact the school because, despite using the expertise of mathematics specialists and the use of data to drive instruction, school data show that some students are still not successful in high-stakes standardized tests.

This section describes the data collection and analysis methods used to address the problem in this study. First, the research design will be described, justifying the use of a qualitative approach as the most appropriate for this particular study. Next, the context of the study will be described, along with the participant selection procedures of the study. Further, the data collection, organization, and storage procedures will be explained along with the role that the researcher will play in the data collection process.

## **RESEARCH DESIGN**

The research study is considered as a grounded theory qualitative study. This study seeks to understand the essence of the experience of studying mathematics from the perspective of seventh through tenth-grade students placed in a remedial mathematics program. The methodological orientations help frame the research questions of the study. Initially establishing the research design will help ensure that the qualitative research questions will fit within the paradigm. Although research questions vary depending upon the philosophical

assumption, they should be answerable through detailed description and analysis in a specific context.

### **RESPONDENTS OF THE STUDY**

In this study, 4 students of Cabuyao Integrated National High School (CINHS) will be selected to participate in the process. Each student will represent each grade level (seventh-grade, eight -grade, ninth-grade, tenth-grade). The researchers will randomly choose 1 student from each grade level that is a participant in the school's remedial program.

### **SAMPLING TECHNIQUE USED**

In this study, purposive sampling was adopted which is a method of sampling where the researcher deliberately chooses who to include in the study based on their ability to provide the necessary data. The rationale for choosing this approach was that the researcher was seeking knowledge about the perspective of remedial mathematics students, which the participants would provide their experience.

The selected participants are the participants of the school's remedial mathematics program. There will be 4 participants, each participant will be a representative for each grade level ( 7, 8, 9, 10). The students that were chosen as candidates for the remedial mathematics program primarily based upon their past testing data to considering student's overall score on past tests, attention

was given to their level of success in grade-specific categories. These elements provide indicators that a student was a candidate for the remedial mathematics class.

### **RESEARCH INSTRUMENT**

The researchers will be conducting an interview with the participants. The data were recorded with the use of an interview, a form that includes a list of guiding questions and enables one to take notes during the interview. The researchers will be having a Technical competence in organizing the interview. Where the researchers need to find participants, make arrangements for the interview, explain matters of confidentiality, make your interview participant feel comfortable, and find the right words to open the interview situation.

### **DATA GATHERING**

On-site interviews were the main data collection techniques for the study. Interviews were conducted based on questions listed in Interview Guide (see Appendix \_\_). However, participants were allowed the freedom to talk about their experiences in a way in which they were comfortable. Two focus group sessions will be held, one for the seventh and tenth-grade students, and one for the eighth and ninth-grade students. Grouping them will allow the researchers to gain insights not have been available from the individual interviews. The advantage of groups is each participant will be able to share information more freely and

honest Feedback. In addition, participants will more willing to express opinions. The duration of the interview was approximately 30 minutes.

The group session will be held in \_\_\_\_\_ inside CINHS campus. Each was held outside regular school hours. Each session is audiotaped and any notable facial expression, and emotions will be captured.

### **TIMEFRAME AND PROCEDURE**

Four individual interviews will take place in central location, inside the campus. Each of these was held outside of regular school hours and in no way took away from instructional time. Each meeting was audiotaped. Any notable facial expressions, nonverbal communications, and emotions were captured as field note records. Analysis procedures were to begin immediately after collection. The nature of data collection and analysis often led to these processes occurring simultaneously during the research study. Another form of data collection derived from the process is the bracketed notes of the researcher of impressions that come to mind during the interviews. By taking notes, the researchers, will be able to support the data means to check for accuracy and consistency throughout the interview process. Specifically, comparisons were made between the bracketed notes and the audiotape to serve as concrete measure to assure that all data were captured correctly and in an ethical manner.

## **VALIDITY AND RELIABILITY**

One-on-one interviews data was used evidence from each to support and justify the findings of the study. The detailed description of the participants and the context of their experience allow the readers and the researchers to have a better understanding of what it is like for someone to experience being a part of a remedial mathematics program.

The researches included the discrepant cases that encountered during the process of data collection, to strengthen the study. Initial findings and the quotation from the students that supports the discrepancies to other students are indicated as well.

The reliability level of the data collected by the researchers is high. Data that will be gathered from the participants by answering the questions from the interview, sharing the experiences of the participants in being part of the remedial mathematics program in school given that the data is reliable because it is personally experienced by the participants.

## **SCOPE AND LIMITATIONS**

This study was seeing the potential of the study was that the data collection and analysis are relied upon the perception of every selected students from grade 7, 8, 9, and 10 in Cabuyao Integrated National High School. These perspective may not be an accurate reflection of what occurred. The researchers will examine and ask how the selected students feel towards taking math remedial. But it can reflect for Junior High as they undergo of remedial and the

result or findings will tell how the selected students understand and know the remedial well. Also, the content of this research is limited for those selected students from grade 7, 8, 9, and 10 in Cabuyao Integrated National High School who have previously been involved in a remedial mathematics class.

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