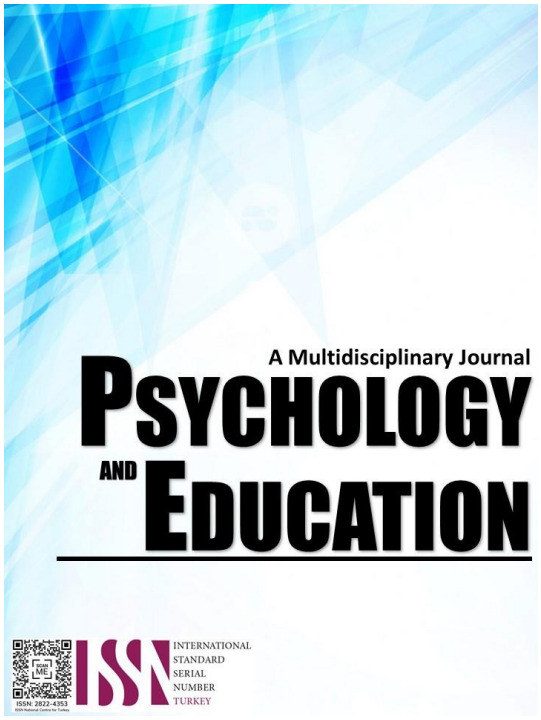
ANALYSIS OF STUDENTS' MISCONCEPTIONS AND ERRORS IN RELATION TOTHEIR PERCEIVED ANXIETY IN ALGEBRA: BASIS FOR THE DEVELOPMENT OF REMEDIAL INSTRUCTIONAL MATERIALS



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Research Article

Analysis of Students' Misconceptions and Errors in Relation to Their Perceived Anxiety in Algebra: Basis for the Development of Remedial Instructional Materials

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Abstract

Mathematics is a process that follows a sequence of steps. So, one can only move on to the next step in mathematics with acculturation to its prerequisites. As facilitators of learning, the teachers need to determine where students' problems in Math, specifically in Algebra, occur to determine how to solve them and help students move on to the next step. Thus, this study concerns students' misconceptions and errors concerning their anxiety in Algebra, which was the basis for developing remedial instructional materials. The respondents are grade 8 students (N= 201) in the Perez District, selected through purposive sampling.Based on the initial findings, more than half of the students have Misconceptions about Conceptual Knowledge in Learning Algebra, especially regarding cancellation followed by the correct usage of properties. Students committed Errors in the Application of Concepts on Computational Skills in Learning Algebra in more than half of the items. In addition, most students committed errors in terms of the correct usage of signs followed by the ruling. The results suggest that students' misconceptions and committed errors have a significantly moderate positive correlation. It implies that students with high misconceptions in Mathematics also committed the most errors in Algebra and vice versa. Furthermore, students' misconception significantly impacts their anxiety when learning Algebra.

Keywords: *algebra, anxiety, misconceptions, errors, remedial instructional materials*

Introduction

Mathematics is an essential subject. It is the reason why it is in the educational curriculum around the world. Mathematics education fosters a developing sense of confidence and ownership of the future as change agents (Koeno, 2017). It explained that, for students, Mathematics education includes values such as transforming difficulties into challenges as a form of self-satisfaction, stimulating appreciation of students' success, and developing self-confidence and reasoning.One of the primary areas of mathematics is Algebra, which has many practical applications in life. Additionally, Algebra has strong connections to other fields of Mathematics like probability, calculus, and geometry. As they progress through algebra in school, students move from arithmetic to abstract ideas and focus on graphs, representations, equations, symbols, relationships, and functions. Understanding the concepts of Algebra aids students in comprehending various fields of mathematics and other courses that mainly concern Algebraic calculations.

In addition, Algebra is also an area in which learners use prior knowledge about the concepts and apply them to their current topic. Having good conceptual knowledge helps students solve problems correctly. However, there exists the misconception, a mistaken idea or view resulting from a misunderstanding of something, as defined by the Encarta Online Dictionary. Unfortunately, those students with incorrect or incomplete knowledge or misconceptions about the basic concepts of Algebra may need help solving and computing problems on this subject and in other related areas. The mistakes they may commit are the errors that need to be corrected as early as possible.Misconception, as defined by the Encarta Online Dictionary, is a mistaken idea or view resulting from misunderstanding something. One facet of faulty thinking can cause learners unlimited trouble in grasping mathematics. It may become a habit if not remedied because students assume what they believe is true. On the other hand, errors can be as basic as arithmetic errors or a lack of precision, which we all experience from time to time, or they might result from gaps in attention or miscopying a formula or number. Making errors is not always bad because, at times, they can be eye-openers and be a step in learning, significantly if they are corrected immediately.

In his recent study, Obed (2019) observed four common misconceptions students have when completing addition problems in various situations. These misunderstandings included incorrect place value, incorrect operations, no regrouping, and incorrect regrouping. The term "wrong place value" refers to the misalignment of digits in place value when conducting addition. In this case, the incorrect operation was a left-to-right operation. The failure of carrying over was classified as no regrouping when the sum of a place value resulted in two numbers. Inattention to carrying over digits was classified as

incorrect regrouping. When students neglect to add after carrying over, this occurs.As Booth et al. (2017) cited, persistent mistakes generally indicate a student's undeveloped knowledge of a specific underlying concept. Analyzing errors that students make during problem- solving is one helpful method for learning more about the students' misconceptions hold.

Algebra is offered at every school level in the Philippines, where the K–12 curriculum is being implemented. Students are struggling with learning algebra. Some of the factors may also be the misconceptions and errors committed by the students. It is vital to address these concerns appropriately and immediately for them to lessen as the students ascend to the next grade level every year, where accurate concepts and understanding from the previous grade will be used carrying over digits was classified as incorrect regrouping. When students neglect to add after carrying over, this occurs.In today's scenario, the researcher observed that most students have difficulties learning Algebra. These days, most have misconceptions and errors in performing basic concepts and no mastery of the content. Moreover, the researcher is concerned about the ability of the students to understand the activities they encounter in the lesson.

The researcher was focused on highlighting the needs of the learners and their capabilities to perform the lesson in Algebra without misconceptions and errors. It provided remedial instructional materials in the classroom to make their learning more accessible.This research study is anchored on misconceptions and errors on essential topics, specifically in grade 8. It is necessary to help learners be remedied immediately to achieve better performances and successful learning of the succeeding topics in mathematics.Determining the misconceptions and errors committed by the learners in essential topics in grade 8 Algebra is necessary to ease difficulties in learning and aid in the better performances of the learners. Moreover, identifying the misconceptions and errors may help teachers construct and use appropriate remedial instructional materials to lessen the burden of the learners in studying mathematics and help them understand algebra accurately.The scenarios mentioned above motivated the researcher to conduct this study.

Research Questions

The study focused on determining the students' misconceptions and errors in relation to their perceived anxiety in Algebra, which served as the basis for the development of remedial instructional materials.

Specifically, it sought to answer the following questions:

1. What are the students' misconceptions of the conceptual knowledge in learning Algebra in terms of the following:
   1.1 ruling;
   1.2 cancellation;
   1.3 correct usage of properties; and
   1.4 correct usage of sign?
2. What are the students' errors in the application of concepts to computational skills in learning Algebra in terms of the following:
   2.1 ruling;
   2.2 cancellation;
   2.3 correct usage of properties; and
   2.4 correct usage of sign?
3. What are the students' perceived anxiety in Algebra?
4. Is there a significant relationship between students' misconceptions and their errors applied to the computational skills in learning Algebra?
5. Is there a significant impact of the students' misconceptions on their perceived anxiety in Algebra?
6. Based on the results of the findings, what remedial instructional materials may be developed to address misconceptions and eliminate errors in learning Algebra?

Literature Review

Misconceptions

Mathematics consists of several branches. Since the Philippines' newly implemented curriculum is spiral, each topic in Algebra is covered in all grade levels. According to Kilpatrick and Izsak (2008) in the book of Neidorf et al. (2019), Algebra is a foundation of knowledge needed in higher math and a prerequisite for opening a window to a window to higher education. One must move up to the next level with mastery of this subject. In order to deepen the knowledge of students in algebra, they must be knowledgeable about its fundamentals. However, the students' misconceptions and errors in solving related computations may hinder the success of learning algebra. Misconceptions and errors may be related, but it is vital to distinguish between them because learners may have varying experiences in solving algebra-related problems. Misconception could result in an error being committed by the learners. However, other factors such as carelessness, poor comprehension skills, interpreting questions, and a lack of knowledge of numbers may affect it. On the other hand, a

misconception may result from being unable to understand concepts and needing to be more knowledgeable about a topic, Spooner (2019).

The term misconception, as defined by Bamby (2009) and cited in the book of Hansen (2014), is a result of the conflicting ideas that the learners have about the standard and accepted meanings in Mathematics. It could result from misunderstanding how to apply rules and concepts, especially in Algebra.According to Mackel (2016), looking into misconceptions as a research subject may foster an understanding of how to address the misconceptions, especially in Algebra. Solving a problem like this is vital for students' progress, emphasizing preventing misconceptions. It will lead the researchers, especially the teachers, to have explanations and practical strategies for addressing the problem. It is better to have a proper intervention before it results in a more complex problem, including errors in solving Algebra.

Having misconceptions is inevitable in learning. Every learner can have these misconceptions in Mathematics, especially in Algebra. Despite it, teachers must always open the learners' minds to the fact that it is okay to have these misconceptions and give attention to remediating them correctly and quickly to avoid them in the future and help the learners achieve learning of the topics.Ojose (2015) stated in his book "Common Misconceptions in Mathematics: Strategies to Correct Them" that error is not dependent on the misconception in some instances. It may happen when students rely on rote learning and memorize rules without appropriate knowledge of the actual computation. However, a student might apply the memorized concepts inappropriately to the tasks related to Algebra, resulting in more mathematical misunderstanding. Thus, proper guidance for students must be established before misconceptions occur to avoid a more complex problem.Knowing the nature and source of an error could help teachers fathom ways of planning appropriate instructional materials that benefit learners.

The above literature bolsters the essentialness of this study. It is observable in the traditional classroom setting and today's setting that learners acquire difficulties in answering Mathematics questions. This study will help learners, especially eighth graders, address their difficulties and struggles in learning Mathematics. Through this study, teachers may realize there is a need to determine and identify if misconceptions hinder learning. Then, construct remedial materials that will address these misconceptions.Addressing misconceptions is entirely in the hands of the teachers. As cited by Graeber and Johnson (1991) in the book of Ojose (2015), understanding issues related to misconceptions is one crucial step in improving instruction in Math. After a teacher detects a misconception with learners, the teacher should devise strategies to help the learners overcome the misconceptions.It is helpful for teachers to know that misconceptions and buggy errors do exist, that errors resulting from misconceptions or systematic errors do not signify ignorance or the inability to learn, that such errors and misconceptions and the faulty reasoning they frequently signal can be exposed, that simply telling does not eradicate students' misconceptions or errors, and that there are instructional techniques that seem promising in helping students overcome or control the influence of misconceptions and errors.Some concepts in mathematics may cause learners' misunderstandings because of their nature, so the misconception is inevitable. To this, teachers must be aware of its existence to ensure that the students refrain from using misconceptions for longer, which may result in another problem. For example, it will be detrimental for grade 8 learners still misadding algebraic terms to move up to the ninth grade without an adequate remedy. Ojose, (2015).In addition, research suggests that misconceptions that persist for years, if undetected, would negatively affect the future learning of math. Woodward et al. (1994), in the book of Ojose (2015), stated that a misconception in math, if continued, may allow learners to appropriately use it for algorithms and computation, which may eventually result in a deeper problem in terms of mathematics.According to Holmes, Miedema, Nieuwkoop, and Haugen (2013), a mathematical misconception is part of the learners' perception and understanding, leading them to incorrect answers. Same as to Ojose (2015), misconceptions result from misunderstandings and misinterpretations, which are harmful as they may hinder students' progress in understanding new concepts. However, Karadeniz, Kaya, and Bozkus (2017) argued that some learners would stick to their existing interpretations. It will take much work for the teacher to resolve the problem.

Errors

An error can be a simple arithmetic error or a lack of accuracy in calculation due to a misconception. Spooner (2019) As cited in the book Hansen (2014), there are errors in Mathematics that can be made by any learner, regardless of their attainment level and age. An error could be made for many reasons, such as carelessness, symbol misinterpretations, and irrelevant concepts in Math. Consider different levels of

knowledge and view mathematical errors as being principally formed within surface levels of knowledge; as such, a learner's response to a task is procedural and can be corrected by the teacher providing correct remediation. By identifying misconceptions and discussing them with learners, the teacher can take advantage of these opportunities, which are excellent assessment and learning opportunities. As situated abstractions develop or as concretion occurs, learners will draw on their understanding of the world around them and unavoidably misconceive some ideas. Misconceptions can become rigid and resistant to revision later on. Therefore, it is the role of teachers to be aware of potential misconceptions and the possible reasons why they have developed.

This study is supported by the above literature, indicating that detecting and determining learners' misconceptions and errors in Mathematics is necessary. Several researchers have studied misconceptions and errors in Mathematics, but it must not be limited to those. It must be updated since Mathematics is a vast topic where mastery is needed to gain successful learning, specifically in Algebra, which is very important in the study of every learner, for it is needed to understand topics in higher Mathematics. Thus, teachers must determine these misconceptions and errors periodically and not only in the early stages of the learners' Development to have proper and appropriate remediation to prevent the learners' misconceptions from resisting being corrected.Neidorf et al. (2019) stated that, for classroom teachers, school heads, curriculum planners, and researchers, understanding how misconceptions and errors in the higher-grade levels relate to a lack of foundational understanding at earlier grades is essential.The above literature supports this study in the way that classifying between errors and misconceptions is vital in order to determine the nature of the learners' incorrect answers in Algebra, which will serve as a compelling basis for conducting remediation.

Anxiety

Math success level has been one of the crucial keys to school success and professional selection. Therefore, it is vital to know and eliminate obstacles to Math success. Math anxiety is one of the most significant obstacles to math success (Sevindir, Yacizi, & Yacizi, 2014). Educators need to identify anxiety in mathematics as a psychological dimension of learning (Zakaria, Zain, Ahmad, & Erlina, 2012).Moreover, it is a problem that can negatively affect children's academic achievement and future employment prospects (Ramirez, Chang, Maloney, Levine, & Beilock, 2016).Many factors can trigger anxiety, as it is multidimensional (Devine, Carey, & Szucs, 2018). Some students feel tense and anxious when they see numbers in their math class or when they are asked to perform calculations in Mathematics by their classroom teachers. Their anxiety, if triggered, may affect their cognitive dimensions, such as working memory. Thus, the more the students have anxiety about mathematical calculations, the harder it is for them to perform the calculation at hand (Maloney & Beilock, 2012; Shi & Liu, 2016).The challenge of determining whether mathematics anxiety causes a decline in mathematical performance or whether a lack of mathematical ability or acuity causes mathematics anxiety has created considerable discourse in research. A review of causal directions between mathematics anxiety and mathematics performance by Carey et al. (2015).

Methodology

Research Design

This study used a descriptive research design to answer the problem and attain the objectives of this paper. As a result, this research would be quantitative and employ a descriptive-correlational design. Descriptive research involves describing, recording, analyzing, and interpreting phenomenal processes' present nature and composition. The emphasis is on the current conditions that influence how a person, group, or item behaves or performs in everyday settings. It frequently includes some comparison or contrast. Calderon (2011). Correlational research, on the other hand, is an approach that explains and predicts how variables are naturally associated in the actual world without seeking to modify or assign causation between them. The main goal of descriptive research is to create a snapshot of the current situation, whereas correlational research facilitates the comparison of two or more entities or variables. Tulao (2021).This study employs a descriptive design since the researcher wishes to describe students' misconceptions and errors and their perceived anxiety in algebra for the school year 2022-2023.On the other hand, the study employs a correlational design to determine the significant relationship between students' misconceptions and errors applied to the computational skills in Algebra, between misconceptions and perceived anxiety in Algebra, and between errors and perceived anxiety in Algebra of grade 8 learners in Perez District.

Participants

The study's respondents are all grade 8 students in public secondary schools of Perez District, Schools Division of Quezon, during the School Year 2022-2023. It is composed of 172 students from Perez National High School and 29 students from Severo Tejada Integrated School.The grade 8 students as respondents were chosen through the purposive sampling technique. It is better to resolve possible problems at a lower level so that they will not result in a deeper one once the students move to the next level. In addition, grade 8 was the suited respondents since they already studied for a year in high school. It was enough to study their improvement in Algebra.

Instruments of the Study

Research instruments refer to different methods where the researcher obtains data from the respondents for a research study (Jaspheth, 2014). The research instrument of the study was a researcher-made questionnaire, which is divided into three parts: Part I is for determining misconceptions about conceptual knowledge; Part II is for determining errors in the application of concepts to computational skills, and Part III is to determine the students' perceived anxiety in algebra through a Likert scale.The first part of the questionnaire is a set of multiple-choice questions with 20 items that would determine students' misconceptions of Algebra. On the other hand, its second part is a set of problem-solving questions with 20 items that would determine the errors applied in solving Algebra. The Most Essential Learning Competencies (MELCs) are aligned for both questionnaire parts for a better study result. Specifically, the MELCS for both parts 1) Factors completely the different types of polynomials; 2) Simplifies rational algebraic expressions; 3) Performs operations on rational algebraic expressions; 4) Writes a linear equation; and 5) Solves a system of linear equations in two variables. The questions for both parts are written categorically in terms of the ruling, cancellation, correct usage of properties, and correct usage of signs. The third part of the questionnaire is a survey with 20 Likert- items that would determine the perceived anxiety of the students in Algebra. The instrument is extensively used to collect data for crafting remedial instructional materials to address misconceptions and eliminate errors in learning Algebra.The developed Remedial Instructional materials would address misconceptions and eliminate errors in Learning Algebra. It was researcher-made and developed through The Three Es Model of Module Writing of Manoos (2022). The elicit part will inform the learners of what is expected in the instructional material. The Explain part is the section where the teacher provides teaching-learning experiences. It includes the contents and competencies to be learned, non-linguistic representations, practice exercises, and tips on avoiding misconceptions and errors. The Evaluate section provides an assessment opportunity for the students. After using this material, students were expected to decrease Math anxiety, error, and misconceptions.

Procedure

The instrument's validity and reliability were ensured for this study's purposes. The initial drafts of the instruments were evaluated by an expert panel for review and content alignment. Those inputs aided in rigorous validation, ensuring instruments measured what they were supposed to measure in connection with the study hypothesis. The researcher delivered the instrument to ten (10) non-respondents and then examined its reliability using item analysis for the test questionnaire and Cronbach's alpha for the survey questionnaire. The findings are forwarded to the research adviser and statistician for any further action.The researcher secured a letter of approval from the Schools Division Office. Upon approval, the letter was sent to the Public-School District Supervisor of Perez District to disseminate information to the respected school heads and the selected students as respondents.The researcher personally distributed and administered the questionnaires to the respondents with the guidance of the students' Mathematics teacher. The data gathered are organized, analyzed, and carefully interpreted to obtain information that answers the identified problems. Lastly, the remedial instructional material was developed to lessen, if not eliminate, students' misconceptions and algebraic errors.

Ethical Considerations

It is important to adhere to ethical principles in order to protect the dignity, rights and welfare of research participants. Furthermore, all research data were treated with at most confidentiality

Results

This section presents the findings according to the study's research questions. The researcher used descriptive statistics to calculate the mean percentage scores and mode of the numeric data. To identify the misconceptions and errors committed to learning

Algebra, the researcher gets the frequency and percentage scores of each item on the first and second parts of the questionnaire. Meanwhile, the mode was used to determine the level of perception in respondents' anxiety in Algebra. The chi-square independence test was used to identify whether the significant relationship between students' misconceptions and their errors applied to the computational skills in learning Algebra existed. To determine the measure of association between variables that are both ordinal, like misconception and error, Goodman and Kruskal's Gamma was used. Lastly, Regression was utilized to determine the significant impact of the students' misconceptions on their perceived anxiety in Algebra.

Table 1. *Overall student's conceptual knowledge in learning Algebra.*

Students Misconceptions in terms of:	*N*	*F*	*%*
Rulling	1005	607	60.40
Cancellation	1005	629	62.59
Correcr Usage of Properties	1005	615	61.19
Correct Usafe of Signs	1005	608	60.50
Overall	4020	2459	61.07

Table 2. *Overall students' application of concepts on computational skills in learning Algebra.*

Students Errors in terms of:	*N*	*F*	*%*
Rulling	201	3.26	65.28
Cancellation	201	2.96	59.20
Correcr Usage of Properties	201	3.14	62.82
Correct Usafe of Signs	201	3.29	65.88
Overall	201	3.16	63.00

Table 3. *Students perceived anxiety in Algebra.*

Statement	*N*	*Mode*
I get tense when I prepare for the Algebra quiz.	201	5
I get nervous when I have to use my prior knowledge, especially related to Algebra	201	5
I worry that I will be unable to use Algebra in my future career when needed	201	5
I worry that I will not be able to get a good grade in Mathematics	201	5
I get nervous when my Mathematics teacher gives an unaannounced quiz	201	5
I feel stressed when listening to a mathematics teacher in class, especially in algebra	201	3
Working on algebra homework is stressful for me	201	4
I worry that I will bot be able to complete every assignment in Algebra	201	4
I worry that I will be able to understand the topics in algebra	201	5
I worry that I will be unable to manage my time learning mathematics	201	3

I worry when I do not review yesterday's lectures.	201	5
I get nervous when my Mathematics teacher calls me to perform board work.	201	5
I am afraid to give an incorrect answer during my mathematics class, especially in algebra.	201	5
I worry I cannot accomplished my task in algebra within the time allotment given by my teacher	201	3
I am not confident about raising my hand/volunteer during algebra class	201	5
I am not confident that I can answer my teacher's questions orally	201	5
I am not confident enough to ask my teacher about my difficulty with algebra lessons	201	4
I doubt that I can explain my answers in algebra	201	5
Mean	201	4.55

Table 4. *Correlation between students' misconceptions and their errors applied to the computational skills in learning Algebra.*

Variables	*Df*	*Critical(2-tailed)*	*Computed*	*p-value*
Rulling	9	16.92	22.86	0.007
Cancellation	12	21.03	29.25	0.004
Correct usage of Properties	9	16.92	10.74	0.294
Correct usage of Signs	12	21.03	27.17	0.007
Misconception Error	6	12.59	44.95	<0.001

Table 5. *Regression Analysis ANOVA Result*

Model	*Sum of Squares*	*DF*	*Mean Square*	*F*	*Sig.*
Regression	59.218	1	59.218	146.676	.000
Residual	80.342	199	.404		
Total	139.560	200			

Discussion

Students' Misconceptions of the Conceptual Knowledge in Learning Algebra

The students' misconceptions of the conceptual knowledge in learning Algebra in terms of the ruling, cancellation, correct usage of properties, and correct usage of signs were 60.40%, 62.59%, 61.19%, and 60.5%, respectively. The overall students' misconception of the conceptual knowledge in learning Algebra was 61.07%, meaning many students have misconceptions. In addition, the students had the most misconception in terms of cancellation, followed by the correct usage of properties.

Students' Errors on Application of Concepts on Computational Skills in Learning Algebra

The students' errors in the application of concepts on computational skills in learning Algebra in terms of ruling, cancellation, correct usage of properties, and correct usage of signs were 65.28%, 59.2%, 62.8%, and 65.88%, respectively. The overall students' misconceptions of the conceptual knowledge in learning Algebra was 63.00%, meaning many students have committed errors (Mean=3.16, SD=0.94). In addition, most students committed errors in terms of the correct usage of signs followed by the ruling.

Students' Perceived Anxiety in Algebra

The respondents' mode of perceived anxiety in Algebra was 4.55, with a verbal interpretation of Usually. The lowest mode is 3 (sometimes), while the highest is 5 (Usually). Fourteen 14) of the 20 indicators have a mode of 5 (usually), while the remaining six falls into either (4) Often or (3) Sometimes. Almost all of the indicators were deeply felt by the students. It can now be deduced that the respondents were experiencing great anxiety in Algebra.

On Relationship between Students' Misconceptions and Their Errors Applied on the Computational Skills in Learning Algebra

Overall, students' misconceptions and errors are moderately high and correlate significantly (2=44.95, p<0.001, γ=0.569). Students with more misconceptions about Algebra also committed the most errors and vice versa.

Impact of Students' Misconceptions of Their Perceived Anxiety in Algebra

The independent variable significantly predicts Anxiety, F (1,199) = 146.676, p<0.001. The misconception significantly impacts anxiety (B=0.230, t=12.11, p<0.001). The value (R =.651) implies a good level of prediction. Moreover, the R2=0.424 depicts that students' misconception in the model explains 42.4% of the variance in students' anxiety. The results further suggest that each increase in students' misconceptions (independent variable) means an increase of .230 in students' anxiety (dependent variable). It was found that student misconception is a predictor of Math Anxiety. Misconceptions among students are unavoidable due to the nature of some mathematical topics. As a result, students' misconceptions must be reduced in order to reduce the impact of Math Anxiety and, ultimately, students' Math performance.

Developed Remedial Instructional Materials to address Misconceptions and Eliminate Errors in Learning Algebra

The developed remedial instructional material in Algebra is an appropriate remediation material for grade 8 students. The Elicit, Explain, and Enhance (3E's) Module Writing Model has been adapted to present the learning modules' lessons and activities on the ruling, cancellation, proper use of properties, and proper use of signs. According to Manoos (2022), it was found to be highly acceptable in terms of its applicability as a model, its adaptability to different topics and disciplines to be taught, its adaptability to technology, and its Simplicity in preparation. With the help of this material, it is hoped that the students will feel confident in their ability to solve algebraic expressions correctly and efficiently.

Conclusion

Based on the initial findings, the following conclusions were drawn:

1. More than half of the students have Misconceptions about Conceptual Knowledge in Learning Algebra, especially in terms of cancellation followed by the correct usage of properties.
2. Students committed Errors in the Application of Concepts on Computational Skills in Learning Algebra in more than half of the items. In addition, most students committed errors in terms of the correct usage of signs followed by the ruling.
3. Almost all of the indicators were deeply felt by the students. It can now be deduced that the respondents were experiencing great anxiety in Algebra.
4. Students with more misconceptions about Algebra also have made errors, and vice versa.
5. Students' misconception has a significant positive impact on their anxiety when it comes to learning Algebra. It suggests that increase in students' misconceptions means an increase also of students' anxiety in Algebra.
6. The developed remedial instructional material in Algebra is an appropriate remediation material for grade 8 students. With the help of this material, the students will feel confident in their ability to solve algebraic expressions correctly and efficiently.

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