THE INFLUENCE OF MATHEMATICAL BELIEFS AND SELF-REGULATION ON LEARNING INTEREST IN MATHEMATICS AMONG TEACHER EDUCATION STUDENTS
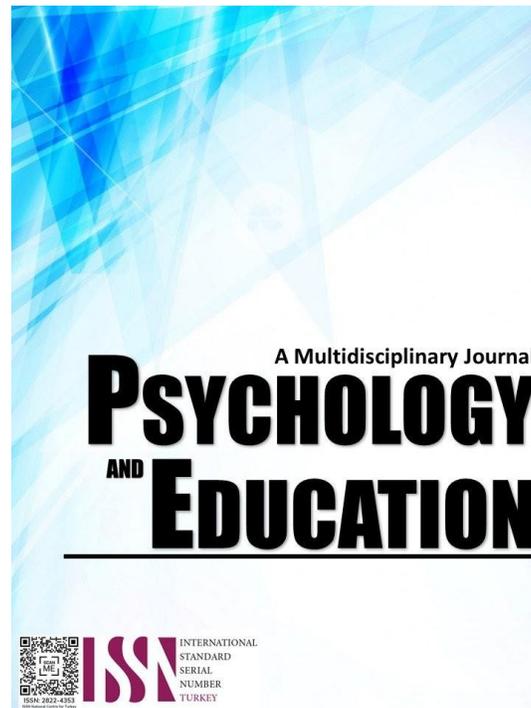
The Influence of Mathematical Beliefs and Self-Regulation on Learning Interest in Mathematics among Teacher Education Students

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Abstract

The purpose of the study is to determine the influence of mathematical beliefs and self- regulation on learning interest in mathematics among teacher education students. The study is quantitative research that utilizes descriptive-correlational approach. A sample of 150 randomly selected mathematics major students from 1st year to 4th year under teacher education program that was identified using stratified random sampling answered the surveys on the three variables. Results showed that the level of mathematical beliefs, self-regulation, and learning interest in mathematics were all high in level. Results also revealed that there is a significant relationship between mathematical beliefs and learning interest in mathematics. Likewise, there is also a significant relationship between self-regulation and learning interest in mathematics of the students. Moreover, results showed that domains of mathematical beliefs such as statements about mathematics, responses to mathematical tasks, attitudes towards mathematics, and self-efficacy can significantly influence learning interest in mathematics. Finally, it was revealed that domains of self-regulation such as active coping, planning, seeking for social support, and mental disengagement can significantly predict learning interest in mathematics of the respondents. Results imply that the variables are significant in improving the learning interest in mathematics among mathematics major students under teacher education program.

Keywords: *mathematical beliefs, self-regulation, learning interest, mathematics, Philippines*

Introduction

In the context of learning, interest is the state of engaging students in learning mathematics while enjoying the learning process. Also, interest is a key attitudinal factor that significantly influences students' motivation to either engage with or avoid learning mathematics. Mathematics is often perceived as an abstract subject, which can lead many students to lose interest and, consequently, experience lower achievement. In addition to the abstract nature of mathematics, anxiety related to learning the subject is another major factor that contributes to students' dislike of it. These challenges can create barriers to students' engagement and success in mathematics.

In Nigeria, maintaining students' interest in mathematics has proven to be a significant challenge. The persistent issue of poor performance is often linked to a lack of enthusiasm among students, many of whom perceive mathematics as a dull subject. Contributing factors include teachers' limited use of innovative teaching methods, the extensive scope of the curriculum, and insufficient practice by students. As a result, the pass rate for mathematics in the form four national examination stands at only 16%. Failure rates in the subject remain alarmingly high; for instance, research indicates that in 2012, 69% of form four students did not pass mathematics. Additionally, the Nigerian Ministry of Education has identified mathematics as an abstract and demanding subject, which can discourage students from engaging with it effectively (Ndume et al., 2020).

In the Philippines, interest in mathematics was notably low in 2020, with a significant portion of students (53.01%) scoring below average. This suggests that many educators struggle to create an engaging and enjoyable learning experience for mathematics. Additionally, Filipino students' performance in mathematics needs improvement, as indicated by the 2016-2017 report, which placed the Philippines 79th out of 138 countries in terms of math education quality. A significant number of students in the country find mathematics difficult and unengaging, which leads to a lack of motivation to perform well in the subject. The Department of Education (DepEd) has also noted an increasing disinterest among Filipino students toward mathematics (Peteros et al., 2020).

Moreover, findings from this study hold immense significance across various levels. For individual students, it can help cultivate a positive outlook on mathematics and strengthen their motivation and engagement. Additionally, at the educational level, it offers valuable insights for teachers and institutions to develop teaching methods and curricula that better support students' interest in math. On a societal level, it fosters a positive mathematical mindset among future teachers has far-reaching benefits, including enhancing overall math literacy, promoting educational equity, and building a foundation for economic growth. Furthermore, the urgency to undertake this research is paramount, given the need to empower educators, adapt to evolving educational challenges, and prepare students for a competitive, math-driven future.

In connection, there had been studies such as the study of Ganley, Usher, & Perry (2019) titled "The Influence of Mathematical Beliefs and Self-Regulation on Mathematics Achievement in Secondary School Students," and the study of Pajare, & Graham (1996) titled "The Role of Mathematical Self-Efficacy and Self-Regulation in Predicting Mathematics Interest and Achievement," which discussed that mathematical beliefs and self-regulation are important factors in mathematics achievement and interest. This suggests that educators should focus on helping students to develop positive mathematical beliefs and strong self-regulation skills in order to promote their success in mathematics. These studies are different from the certain study of the researcher, on account of, both are not exemplifying the influence of mathematical beliefs and self-regulation on learning interest in mathematics among teacher education

students, hence, those related studies have more focused on the relationship between mathematical beliefs, self-regulation, and students' achievement. Furthermore, this study was conducted in the municipality of Kapalong. These premises prompted the researcher to propose this study.

In addition, the researcher will execute a comprehensive dissemination plan for the research, ensuring broad accessibility and impact. Findings will be shared through peer-reviewed publications, conference presentations, and workshops within the academic community. Additionally, there is a plan to engage with wider audiences through social media platforms and targeted outreach to relevant industry stakeholders. This strategic approach aims to maximize the reach and significance of the research, fostering both academic discourse and real-world applications.

Research Objectives

This study aimed to investigate how mathematical beliefs and self-regulation affect the learning interest in mathematics among the teacher education students. Specifically, this study sought to answer the following objectives:

1. To determine the level of mathematical beliefs in terms of:
    1.1. statements about mathematics;
    1.2. responses to mathematical tasks;
    1.3. attitudes towards mathematics; and
    1.4. self-efficacy.
2. To determine the level of self-regulation in terms of:
    2.1. active coping;
    2.2. planning;
    2.3. seeking social support; and
    2.4. mental disengagement.
3. To determine the level of learning interest in mathematics in terms of:
    3.1. attention;
    3.2. participation;
    3.3. effort;
    3.4. persistence;
    3.5. curiosity; and
    3.6. enjoyment.
4. To determine the significant relationship between:
    4.1. mathematical beliefs and learning interest in mathematics; and
    4.2. self-regulation and learning interest in mathematics.
5. To determine which domain/s of mathematical beliefs and self-regulation that significantly predicts the learning interest in mathematics among teacher education students.

Methodology

Research Design

This study employed a quantitative methodology that focused on collecting and analyzing numerical data to assess and evaluate variables. By using statistical methods to interpret the data, it provided a systematic and objective approach for studying phenomena. This technique involved defining a problem or phenomenon by gathering numerical data and analyzing it with mathematical tools, especially statistics. It allowed the researcher to quantify and assess variables to draw conclusions about their interrelationships (Apuke, 2017).

In context, the utilization of a quantitative methodology in this study allowed for a systematic and objective approach to measuring and evaluating variables. By employing statistical methods to analyze numerical data, the study aimed to define and understand specific phenomena or problems. This method facilitated the collection of quantitative data, which could then be subjected to mathematical instruments, particularly statistics, for analysis and interpretation. Through this process, the researcher could quantify variables, examine their interrelationships, and draw meaningful conclusions based on empirical evidence.

Furthermore, this study employed a quantitative descriptive-correlational research design. The descriptive-correlational approach is a quantitative method that involves collecting and analyzing data on a specific topic without manipulating or influencing the subjects being studied. In scientific research, this method is used to observe and record behaviors and characteristics of both the phenomenon and the research participants. It is described as the process of defining a problem or phenomenon by gathering numerical data and analyzing it using mathematical tools, particularly statistics. This research design also focuses on identifying the relationships between variables within a population and measuring the statistical relationships among students majoring in teacher education in mathematics (Dudovskiy, 2018).

A descriptive correlation research design is appropriate when aiming to illustrate the present status of a situation and explore the

underlying causes of a particular phenomenon. The primary objective of descriptive research is to provide a comprehensive understanding of how the variables mathematical beliefs, self- regulation, and learning interest, are related. In addition, this study was conducted to provide valuable insights into the connections between these variables to deepen comprehension of the factors associated with students' interest in learning mathematics.

A regression is an analytical technique used to identify and measure the relationships between variables, enabling researchers to understand the areas where these relationships occur and to make predictions based on them (Bewick et al., 2003). Moreover, this method was used to determine the indicators of students' mathematical beliefs, and self-regulation that could significantly influence the learning interest in mathematics.

Respondents

In a process known as stratified random sampling, a random sample is chosen from each stratum after the population has been divided into smaller groups or strata based on relevant factors like age, gender, or academic ability. In order to maximize the generalizability of the results, stratified random sampling can ensure that the sample is adequate for each subgroup and representative of the population as a whole. The population must be characterized, though, and the pertinent criteria for stratification must be known to use strategy (Etikan & Bala, 2017).

In measuring the number of samples in this study, the researcher used Slovin's formula with a 5% or 0.05 margin of error. The total sample of this research was 150 out of 245 BSEd mathematics students enrolled in school year 2023-2024 in the 1st semester. The reason of choosing the BSEd mathematics students, was that, the purpose of the study involved mathematical beliefs and self-regulation on learning interest in mathematics, so, it would be fitting and valid to include BSEd mathematics students. Furthermore, the participants must be students enrolled in the specified semester under the teacher education program major in Mathematics, and those who were not, were excluded as the participants in this study.

Stratified random sampling is an effective method for selecting a sample that accurately reflects the population. This approach involves dividing the population into smaller groups, or strata, based on relevant characteristics to ensure each subgroup is well-represented in the sample. Proportional allocation, a key component of this technique, assigns sample sizes to each stratum according to their relative proportions in the population. To enhance the generalizability of the findings, it is important to clearly define the population and the criteria for stratification (Etikan & Bala, 2017).

Moreover, stratified random sampling is well-suited for this study as the participants will be selected randomly based on their strata. In this case, the strata are the BSEd mathematics students from all year levels. To compute for the sample, the researcher gathered first the data on the population of respondents. After gathering the data, the researcher relayed the information to her statistician for the computation of the study sample. Consequently, the statistician gave the following computed data including the sample appropriate for the study. The participants included in the study are those who can access the internet and Google form, and those who cannot are excluded.

Table 1. *Distribution of Respondents*

Year Level	Population	Sample	Percentage
1st Year	119	73	30%
2nd Year	50	31	13%
3rd Year	43	26	11%
4th Year	33	20	8%
Total	245	150	62%

Instrument

In conducting this study, the researcher utilized adapted questionnaires for the independent variable and dependent variable that was appropriate for the study's environment. The first set of questions included mathematical beliefs with its indicators: statements about mathematics, responses to mathematical tasks, attitudes towards mathematics, and self-efficacy. The second set of questions focused on the self- regulation, with its indicators: active coping, planning, seeking for social support, and mental disengagement. The last set of questions included the dependent variable which was the learning interest in mathematics among teacher education students, with its indicators: attention, participation, effort, persistence, curiosity, and enjoyment. A survey questionnaire was used to gather the desired data on this study, which consisted of three parts. The first part was the questionnaire of mathematical beliefs was adapted from Fennema and Sherman (1976). To make sure of the tool reliability, it was examined using the Cronbach – Alpha method. The reliability factor for the four dimensions were as follows: statements about mathematics (.81) which has the interpretation of good reliability, responses to mathematical tasks (.60) which means acceptable, attitudes towards mathematics (.71) which has the interpretation of good reliability, and self-efficacy (.63) which means acceptable.

Second part employed the self-regulation scale (SRS), developed by De Corte et al. (2011), to assess self-regulation among participants. A Cronbach – Alpha method was performed on their answers to the questionnaire in each of the chosen school-related settings. As an indication of the frequency of students' reported use of strategies, the factor means were calculated. The self-regulation scale

encompassed dimensions such as active coping, planning, seeking social support, and mental disengagement. The reliability factor reached in order as follows: (0.70, 0.71, 0.74, and 0.77) which all have a good reliability, and the total degree was (0.87) which means excellent.

Moreover, the third part included the learning interest in mathematics questionnaire for students regarding their perception of mathematics as learned, organized, and dynamic was utilized. This questionnaire was adapted by Hidi and Renninger (2006). The scale demonstrated an excellent reliability with a Cronbach's alpha coefficient of 0.90, indicating its effectiveness in accurately measuring the intended aspect of learning interest in mathematics.

The Likert scale typically offers five response options to a statement or question, allowing respondents to express the strength of their agreement or sentiment, ranging from positive to negative (Mcleod, 2023).

The study used a Five-point Likert Scale to assess the participants' mathematical beliefs, self-regulation, and learning interest in mathematics. The scores given by the participants to each statement were added up to calculate a total score, which represented their attitude score. This method allowed a quantitative analysis of the participants' opinions on their mathematical beliefs, self-regulation, and learning interest in mathematics. The results obtained from the Likert Scale could be used to draw conclusions about the influence of students' mathematical beliefs and self- regulation on learning interest in mathematics.

Procedure

In collecting data, the researcher did the following steps:

Formulation, Revision and Validation of Questionnaires. The researcher searched for questionnaires from reputable journal articles and related internet research that could be positively related to the two variables. Afterwards, the researcher submitted these to a panel of experts for evaluation and contextualization. The researcher followed the revision experts' advice until the questionnaires were approved for administration.

Requesting Permission to Conduct a Study. Once the questionnaires were ready for administration, the permission to administer the study in Kapalong College of Agriculture, Sciences, and Technology, would be secured from the college president, through a formal letter. Then, the conduct of the study would carefully perform by following the steps suggested by the IATF (Inter-Agency Task Force for the Management of Emerging Infectious Diseases Resolutions) in the prevention of COVID-19.

Distribution and Retrieval of Questionnaires. The research instruments were given directly to the respondents via survey questionnaires with permission, and the study was conducted by the researcher.

Collection and Tabulation of Data. After performing the survey, the researcher took and analyzed the research instrument to record and tabulate the collected data or the survey responses from the respondents. The statistical data were analyzed and the results were interpreted. From the final data, conclusions were drawn, and recommendations were presented based on the results obtained.

Data Analysis

The data collected from the questionnaires were processed and analyzed using various statistical tools. These tools were applied to the data to help identify patterns and relationships that could shed light on the objectives of the study. The results of this analysis were then used to draw conclusions and make recommendations based on the findings.

Mean. It is used to calculate the average or central tendency of a data set, offering a single value that represents the overall distribution of the data (Frost, 2023). This statistical tool assessed the level of the three variables in the study which were the mathematical beliefs, self-regulation, and learning interest in mathematics.

Pearson-r. Pearson's correlation coefficient, commonly represented as "r," measures the strength and direction of the linear relationship between two continuous variables. It assesses how well changes in one variable can be predicted by changes in another variable (Schober et al., 2018). This was used to determine the significant relationship of quality of students' mathematics beliefs and learning interest in mathematics, and self-regulation and learning interest in mathematics among teacher education students.

Regression. Regression is a statistical method used to identify and measure the relationships between variables, enabling researchers to understand the specific areas where these relationships occur and make predictions based on them (Bewick et al., 2003). This was used to determine the indicator(s) of students' mathematical beliefs, and self-regulation that could significantly influence the learning interest in mathematics.

Ethical Considerations

In conducting research which involved the participation of human participants, it was likewise required that researcher adheres to sound ethical standards. As such, this quantitative study applied measures to ensure the ethical soundness of the study which primarily aimed to protect the welfare of human participants. In this research, ethical standards of Denzin and Lincoln (2011) were adopted which focused on three core aspects: informed consent; risk of harm, anonymity, and confidentiality; as well as conflict of interest.

The first core aspect of ethical considerations is how to address informed consent. The participants must be informed of the nature of

the questions to be asked, the intended use of the data, and any possible consequences. In order to participate in the study, participants need to provide their informed permission, which includes acknowledging that they have the right to see their data and may withdraw at any time. To some extent, the informed consent procedure is a legal agreement between the researcher and the participants (Denzin & Lincoln, 2011).

In the survey questionnaires, the researcher included a section for informed consent, asking the participants if they are still willing to participate in the research given the potential risks and the nature of the study. Similarly, if the participants have doubts about the agreement, they had the option to decline. Looking back, no respondents refused to participate, and no student was coerced in the process.

The second core aspect of ethical considerations was how to avoid the risk of harm, maintaining confidentiality, and anonymity. This refers to the protection of a study participant so that even the researchers cannot link the subject with the information provided, as well as the prevention of disclosure of a participant's identity to anyone other than authorized individuals (Denzin & Lincoln, 2011).

The researcher adhered to the Data Privacy Act of 2012 by not collecting the names, phone numbers, and emails of the participants. This ensured that the results and findings were kept private and never made public, so that participants do not suffer psychological harm such as shame and embarrassment as a result of careless data disclosure. The careful disclosure of data to others may pose potential risks in terms of social liabilities. Therefore, it is essential to ensure the confidentiality and security of the study's data in order to prevent a recurrence of this incident. The researcher placed significant emphasis on ensuring the respondents safety, identity, and personal information would be safeguarded and that their participation in the study held considerable significance to the researcher. In order to establish a collection devoid of errors, the researcher eliminates personal identities from the data. The data will be retained and subsequently deleted three years following the completion of the study.

The third critical aspect of ethical considerations was how to avoid conflicts of interest. Existing relationships or prior actions of the researcher may result in a conflict of interest, which must be revealed in a transparent way in an application for ethical approval so that the committee may provide guidance on how to manage the conflict. It also occurs when a researcher prioritizes or is seen to prioritize their personal interests or commitments above their obligations and responsibilities. Actual, hypothetical, or imagined conflicts of interest might include both financial and nonfinancial benefits. Conflicts of interest may influence or be seen to influence the impartiality and judgment of a researcher, undermining confidence in the results (Denzin & Lincoln, 2011).

Furthermore, since the respondents were fellow students, the researcher maintained a neutral and unbiased role, ensuring that no conflict of interest influenced the study. A conflict of interest typically arises when a researcher holds power or authority over respondents, creating a situation where participants might feel coerced into participation under threat of negative consequences, such as blackmail, punitive measures, or the withdrawal of benefits. In this study, however, such dynamics were absent, as the researcher had no authority over the participants and could not impact their academic standing or well-being, ensuring voluntary and ethically sound participation.

Results and Discussion

Presented in the section below are the discussions of the data on the influence of mathematical beliefs and self-regulation on the learning interest in mathematics among teacher education students. This section presents the data results on the level of mathematical beliefs in terms of statements about mathematics, responses to mathematical tasks, attitudes towards mathematics, and self-efficacy; the level of self- regulation in terms of active coping, planning, seeking to social support, and mental disengagement; and the level of learning interest in mathematics in terms of attention, participation, effort, persistence, curiosity, and enjoyment. This also includes the significant relationship between mathematical beliefs and learning interest in mathematics; the significant relationship between self-regulation and learning in mathematics; the significant influence between mathematical beliefs and learning interest in mathematics; and the significant influence between self-regulation and learning interest in mathematics.

Level of Mathematical Beliefs in terms of Statements about Mathematics

Presented in Table 2 is the level of mathematical beliefs of teacher education mathematics major students in terms of statements about mathematics. The data revealed that the mathematical beliefs in terms of statements about mathematics had a total mean of 4.38, with a descriptive equivalent of very high. This indicated that the level of mathematical beliefs in terms of statements about mathematics is always manifested by the teacher education mathematics major students.

Table 2. *Level of Mathematical Beliefs in terms of Statements about Mathematics*

Statements about Mathematics	Mean	Description
1. Believing that mathematics is not a difficult subject	3.81	High
2. Believing that mathematics is useful in everyday life	4.61	Very High
3. Believing that mathematics is a creative subject	4.47	Very High
4. Believing that mathematics is a logical subject	4.63	Very High
5. Believing that mathematics is a fascinating subject	4.35	Very High
Overall	4.38	Very High

The highest mean score based on the survey is 4.63, with a descriptive equivalent of very high. This means that the item is always observed by the teacher education mathematics major students. This mean is from item no. 4 – Believing that mathematics is a logical subject. In contrast, the lowest mean score is 3.81, with a descriptive equivalent of high. This means that the item is oftentimes observed by the teacher education mathematics major students. This mean is from item no. 1 – Believing that mathematics is not a difficult subject.

Level of Mathematical Beliefs in terms of Responses to Mathematical Tasks

Presented in Table 3 is the level of mathematical beliefs of teacher education mathematics major students in terms of responses to mathematical tasks. The data revealed that the mathematical beliefs in terms of responses to mathematical tasks had a total mean of 4.16, with a descriptive equivalent of high. This indicated that the level of mathematical beliefs in terms of responses to mathematical tasks is oftentimes manifested.

Table 3. *Level of Mathematical Beliefs in terms of Responses to Mathematical Tasks*

Responses to Mathematical Tasks	Mean	Description
1. Feeling confident when solving math problems	3.73	High
2. Persevering solving on a difficult math problem	4.10	High
3. Asking for help when solving math problems	4.36	Very High
4. Using different strategies when solving math problems	4.20	High
5. Checking my work when solving math problems	4.42	Very High
Overall	4.16	High

The highest mean score is 4.42, with a descriptive equivalent of very high. This means that the item is always observed by the teacher education mathematics major students. This mean is from item no. 5 – Checking my work when solving math problems. In contrast, the lowest mean score is 3.73, with a descriptive equivalent of high. This means that the item is oftentimes observed by the teacher education mathematics major students. This mean is from item no. 1 – Feeling confident when solving math problems.

Level of Mathematical Beliefs in terms of Attitudes toward Mathematics

Presented in Table 4 is the level of mathematical beliefs of teacher education mathematics major students in terms of attitudes towards mathematics. The data revealed that the mathematical beliefs in terms of attitudes towards mathematics had a total mean of 4.39, with a descriptive equivalent of very high. This indicated that the level of mathematical beliefs in terms of responses to mathematical tasks is always manifested.

Table 4. *Level of Mathematical Beliefs in terms of Attitudes towards Mathematics*

Attitudes towards Mathematics	Mean	Description
1. Enjoying learning mathematics	4.31	Very High
2. Finding math challenging yet an amazing subject	4.46	Very High
3. Valuing math as I recognize its importance in my future endeavors	4.47	Very High
4. Looking for new challenges and opportunities to improve my math skills	4.37	Very High
5. Believing that math is fun	4.33	Very High
Overall	4.39	Very High

The highest mean score is 4.47, with a descriptive equivalent of very high. This means that the item is always observed by the teacher education mathematics major students. This mean is from item no. 3 – Valuing math as I recognize its importance in my future endeavors. In contrast, the lowest mean score is 4.31, with a descriptive equivalent of very high. This means that the item is always observed by the teacher education mathematics major students. This mean is from item no. 1 – Enjoying learning mathematics.

Level of Mathematical Beliefs in terms of Self-Efficacy

Presented in Table 5 is the level of mathematical beliefs of teacher education mathematics major students in terms of self-efficacy. The data revealed that the mathematical beliefs in terms of self-efficacy had a total mean of 4.04, with a descriptive equivalent of high. This indicated that the level of mathematical beliefs in terms of self-efficacy is oftentimes manifested.

Table 5. *Level of Mathematical Beliefs in terms of Self-Efficacy*

Self-Efficacy	Mean	Description
1. Believing that I can understand any math concept that is taught to me	4.01	High
2. Believing that I can solve any math problem	3.83	High
3. Believing that I can succeed in math class	4.13	High
4. Believing that I can get a good grade in math test	3.97	High
5. Believing that I can become a successful mathematics educator	4.25	High
Overall	4.04	High

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The highest means score is 4.25, with a descriptive equivalent of high. This means that the item is oftentimes observed by the teacher education mathematics major students. This mean is from item no. 5 – Believing that I can become a successful mathematics educator.

In contrast, the lowest mean score is 3.83, with a descriptive equivalent of high. This means that the item is observed by the teacher education mathematics major students. This mean is from item no. 2 – Believing that I can solve any math problem.

Summary of the Level of Mathematical Beliefs

Presented in Table 6 is the overall level of mathematical beliefs in terms of statements about mathematics, responses to mathematical tasks, attitudes towards mathematics, and self-efficacy. The data revealed that the level of mathematical beliefs as perceived by first to fourth-year mathematics education students has a total mean of 4.24, with a descriptive equivalent of high. This indicates that the level of mathematical beliefs as perceived by mathematics education students is oftentimes observed.

Further, the highest mean score is 4.39, with a descriptive equivalent of very high. This indicates that the level of mathematical beliefs as perceived by teacher education mathematics major students in terms of attitudes towards mathematics is always observed. In contrast, the lowest indicator is self-efficacy which obtained a mean score of 4.04, with a descriptive equivalent of high. This indicates that the level of mathematical beliefs in terms of self-efficacy is oftentimes observed.

Moreover, responses to mathematical tasks obtained a mean score of 4.16, with a descriptive equivalent of high. This indicates that the level of mathematical beliefs in terms of responses to mathematical tasks is oftentimes observed. Lastly, statements about mathematics obtained a mean score of 4.38, with a descriptive equivalent of high. This indicates that the level of mathematical beliefs in terms of statements about mathematics is observed.

Table 6. *Level of Mathematical Beliefs*

Indicators	Mean	Description
Statements about Mathematics	4.38	Very High
Responses to Mathematical Tasks	4.16	High
Attitudes towards Mathematics	4.39	Very High
Self-Efficacy	4.04	High
Overall	4.24	High

Level of Self-Regulation in terms of Active Coping

Presented in Table 7 is the level of self-regulation of teacher education mathematics major students in terms of active coping. The data revealed that the self- regulation in terms of active coping had a total mean of 4.25, with a descriptive equivalent of high. This indicated that the level of self-regulation in terms of active coping is oftentimes manifested.

The highest mean score is 4.30, with a descriptive equivalent of very high. This means that the items are always observed by the teacher education mathematics major students. These are from item no. 4 – Trying to come up with a strategy about what to do; and item no. 5 – Looking for something good in what is happening.

Table 7. *Level of Self-Regulation in terms of Active Coping*

Active Coping	Mean	Description
1. Concentrating my efforts on doing something about the problem	4.23	High
2. Taking action to try to make the situation better	4.23	High
3. Taking additional action to try to get rid of the problem	4.20	High
4. Trying to come up with a strategy about what to do	4.30	Very High
5. Looking for something good in what is happening	4.30	Very High
Overall	4.25	High

In contrast, the lowest mean score is 4.20, with a descriptive equivalent of high. This means that the item is oftentimes observed by the teacher education mathematics major students. This mean is from item no. 3 – Taking additional action to try to get rid of the problem.

Level of Self-Regulation in terms of Planning

Presented in Table 8 is the level of self-regulation of teacher education mathematics major students in terms of planning. The data revealed that the self- regulation in terms of planning had a total mean of 4.03, with a descriptive equivalent of high. This indicated that the level of self-regulation in terms of planning is oftentimes manifested.

The highest mean score is 4.22, with a descriptive equivalent of high. This means that the item is oftentimes observed by the teacher education mathematics major students. This mean is from item no. 1 – Thinking hard about what steps to take.

In contrast, the lowest mean score is 3.85, with a descriptive equivalent of high. This means that the item is oftentimes observed by the teacher education mathematics major students. This mean is from item no. 3 – Missing trouble sticking to my plan.

Table 8. *Level of Self-Regulation in terms of Planning*

Planning	Mean	Description
1. Thinking hard about what steps to take	4.22	High
2. Managing my time effectively	3.95	High
3. Missing trouble sticking to my plan	3.85	High
4. Trying to anticipate problems and make plans to deal with them	4.06	High
5. Staying on track and accomplish my goals	4.10	High
Overall	4.03	High

Level of Self-Regulation in terms of Seeking Social Support

Presented in Table 9 is the level of self-regulation of teacher education mathematics major students in terms of seeking social support. The data revealed that the self-regulation in terms of seeking social support had a total mean of 4.16, with a descriptive equivalent of high. This indicated that the level of self-regulation in terms of seeking social support is oftentimes manifested.

The highest mean score is 4.31, with a descriptive equivalent of very high. This means that the item is always observed by the teacher education mathematics major students. This mean is from item no. 5 – Getting the help and support I need from my family.

In contrast, the lowest mean score is 4.04, with a descriptive equivalent of high. This means that the item is oftentimes observed by the teacher education mathematics major students. This mean is from item no. 3 – Getting emotional support from others.

Table 9. *Level of Self-Regulation in terms of Seeking Social Support*

Seeking Social Support	Mean	Description
1. Asking people who have had similar experiences what they did to resolve it	4.26	Very High
2. Talking to someone about how I feel	4.09	High
3. Getting emotional support from others	4.04	High
4. Getting sympathy and understanding from someone	4.11	High
5. Getting the help and support I need from my family	4.31	Very High
Overall	4.16	High

Level of Self-Regulation in terms of Mental Disengagement

Presented in Table 10 is the level of self-regulation of teacher education mathematics major students in terms of mental disengagement. The data revealed that the self-regulation in terms of mental disengagement had a total mean of 4.06, with a descriptive equivalent of high. This indicated that the level of self-regulation in terms of mental disengagement is oftentimes manifested.

Table 10. *Level of Self-Regulation in terms of Mental Disengagement*

Mental Disengagement	Mean	Description
1. Avoiding daydreaming about things other than this	3.84	High
2. Refraining from going to give up on solving my problems	4.17	High
3. Failing from attempting to ignore the entire situation	4.09	High
4. Letting my emotions out	3.92	High
5. Trying to see the situations in a different light, to make it seem more positive	4.29	Very High
Overall	4.06	High

The highest mean score is 4.29, with a descriptive equivalent of very high. This means that the item is always observed by the teacher education mathematics major students. This mean is from item no. 5 – Trying to see the situations in a different light, to make it seem more positive.

In contrast, the lowest mean score is 3.84, with a descriptive equivalent of high. This means that the item is oftentimes observed by the teacher education mathematics major students. This mean is from item no. 1 – Avoiding daydreaming about things other than this.

Summary of the Level of Self-Regulation

Presented in Table 11 is the overall level of self-regulation in terms of active coping, planning, seeking social support, and mental disengagement. The data revealed that the level of self-regulation as perceived by first to fourth-year mathematics education students has a total mean of 4.13, with a descriptive equivalent of high. This indicates that the level of self-regulation as perceived by students is oftentimes observed.

Further, the highest mean score is 4.25, with a descriptive equivalent of high. This indicates that the level of self-regulation as perceived by teacher education mathematics major students in terms of active coping is oftentimes observed. In contrast, the lowest indicator is planning which obtained a mean score of 4.03, with a descriptive equivalent of high. This indicates that the level of self-regulation in terms of planning is oftentimes observed.

Moreover, mental disengagement obtained a mean score of 4.06, with a descriptive equivalent of high. This indicates that the level of self-regulation in terms of mental disengagement is oftentimes observed. Lastly, seeking social support obtained a mean score of 4.16, with a descriptive equivalent of high. This indicates that the level of self-regulation in terms of seeking social support is oftentimes observed.

Table 11. *Level of Self-Regulation*

Indicators	Mean	Description
Active Coping	4.25	High
Planning	4.03	High
Seeking Social Support	4.16	High
Mental Disengagement	4.06	High
Overall	4.13	High

Level of Learning Interest in Mathematics in terms of Attention

Presented in Table 12 is the level of learning interest in mathematics of teacher education mathematics major students in terms of attention. The data revealed that the learning interest in mathematics in terms of attention had a total mean of 3.98, with a descriptive equivalent of high. This indicated that the level of learning interest in mathematics in terms of attention is oftentimes manifested.

The highest mean score is 4.23, with a descriptive equivalent of high. This means that the item is oftentimes observed by the teacher education mathematics major students. This mean is from item no. 1 – Paying attention in math class most of the time.

Table 12. *Level of Learning Interest in Mathematics in terms of Attention*

Attention	Mean	Description
1. Paying attention in math class most of the time	4.23	High
2. Finding it easy to stay focused in math class	3.87	High
3. Refraining from daydreaming in math class	3.95	High
4. Having no trouble understanding what the teacher is saying in math class	3.79	High
5. Finding math class to be interesting	4.07	High
Overall	3.98	High

In contrast, the lowest mean score is 3.79, with a descriptive equivalent of high. This means that the item is oftentimes observed by the teacher education mathematics major students. This mean is from item no. 4 – Having no trouble understanding what the teacher is saying in math class.

Level of Learning Interest in Mathematics in terms of Participation

Presented in Table 13 is the level of learning interest in mathematics of teacher education mathematics major students in terms of participation. The data revealed that the learning interest in mathematics in terms of participation had a total mean of 3.86, with a descriptive equivalent of high. This indicated that the level of learning interest in mathematics in terms of participation is oftentimes manifested.

The highest mean score is 4.15, with a descriptive equivalent of high. This means that the item is oftentimes observed by the teacher education mathematics major students. This mean is from item no. 4 – Enjoying working with other students on math problems. In contrast, the lowest mean score is 3.66, with a descriptive equivalent of high. This means that the item is oftentimes observed by the teacher education mathematics major students. This mean is from item no. 2 – Unwilling to fear of raising my hand in math class.

Table 13. *Level of Learning Interest in Mathematics in terms of Participation*

Participation	Mean	Description
1. Participating in math class discussions and activities	4.05	High
2. Unwilling to fear of raising my hand in math class	3.66	High
3. Feeling comfortable asking questions in math class	3.72	High
4. Enjoying working with other students on math problems	4.15	High
5. Leading math class discussions	3.71	High
Overall	3.86	High

Level of Learning Interest in Mathematics in terms of Effort

Presented in Table 14 is the level of learning interest in mathematics of teacher education mathematics major students in terms of effort. The data revealed that the learning interest in mathematics in terms of effort had a total mean of 4.15, with a descriptive equivalent of high. This indicated that the level of learning interest in mathematics in terms of effort is oftentimes manifested.

The highest mean score is 4.32, with a descriptive equivalent of very high. This means that the item is always observed by the teacher education mathematics major students. This mean is from item no. 5 – Trying my best to solve all of the math problems on my

assignments and tests.

Table 14. *Level of Learning Interest in Mathematics in terms of Effort*

Effort	Mean	Description
1. Putting a lot of effort to complete my math assignments and tests	4.25	High
2. Avoiding from procrastinating on my math homework	3.87	High
3. Getting help from my teacher or classmates when I need it in math	4.23	High
4. Spending extra time studying for math tests	4.09	High
5. Trying my best to solve all of the math problems on my assignments and tests	4.32	Very High
Overall	4.15	High

In contrast, the lowest mean score is 3.87, with a descriptive equivalent of high. This means that the item is oftentimes observed by the teacher education mathematics major students. This mean is from item no. 2 – Avoiding from procrastinating on my math homework.

Level of Learning Interest in Mathematics in terms of Persistence

Presented in Table 15 is the level of learning interest in mathematics of teacher education mathematics major students in terms of persistence. The data revealed that the learning interest in mathematics in terms of persistence had a total mean of 4.28, with a descriptive equivalent of very high. This indicated that the level of learning interest in mathematics in terms of persistence is always manifested.

Table 15. *Level of Learning Interest in Mathematics in terms of Persistence*

Persistence	Mean	Description
1. Restraining from giving up easily on difficult math problems	4.25	High
2. Trying to solve math problems even if they are difficult	4.23	High
3. Looking for a place that is quiet in doing assignments, so that nothing can bother me	4.31	Very High
4. Keeping encouraged when I make mistakes in math	4.13	High
5. Believing that I can succeed in math if I work hard	4.47	Very High
Overall	4.28	Very High

The highest mean score is 4.47, with a descriptive equivalent of very high. This means that the item is always observed by the teacher education mathematics major students. This mean is from item no. 5 – Believing that I can succeed in math if I work hard.

In contrast, the lowest mean score is 4.13, with a descriptive equivalent of high. This means that the item is oftentimes observed by the teacher education mathematics major students. This mean is from item no. 4 – Keeping encouraged when I make mistakes in math.

Level of Learning Interest in Mathematics in terms of Curiosity

Presented in Table 16 is the level of learning interest in mathematics of teacher education mathematics major students in terms of curiosity. The data revealed that the learning interest in mathematics in terms of curiosity had a total mean of 4.21, with a descriptive equivalent of high. This indicated that the level of learning interest in mathematics in terms of curiosity is oftentimes manifested.

The highest mean score is 4.27, with a descriptive equivalent of very high. This means that the item is always observed by the teacher education mathematics major students. This mean is from item no. 3 – Learning new math concepts.

In contrast, the lowest mean score is 4.08, with a descriptive equivalent of high. This means that the item is oftentimes observed by the teacher education mathematics major students. This mean is from item no. 1 – Asking questions about math in class.

Table 16. *Level of Learning Interest in Mathematics in terms of Curiosity*

Curiosity	Mean	Description
1. Asking questions about math in class	4.08	High
2. Exploring my surroundings	4.21	High
3. Learning new math concepts	4.27	Very High
4. Believing that the pursuit of challenging math problems fuels my curiosity and keeps my mind active	4.25	High
5. Willing to explore new applications of math and expand my understanding about it	4.23	High
Overall	4.21	High

Level of Learning Interest in Mathematics in terms of Enjoyment

Presented in Table 17 is the level of learning interest in mathematics of teacher education mathematics major students in terms of enjoyment. The data revealed that the learning interest in mathematics in terms of enjoyment had a total mean of 4.38, with a descriptive equivalent of very high. This indicated that the level of learning interest in mathematics in terms of enjoyment is always manifested.

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The highest mean score is 4.46, with a descriptive equivalent of very high. This means that the item is always observed by the teacher education mathematics major students. This mean is from item no. 4 – Feeling good about myself when I succeed in math.

In contrast, the lowest mean score is 4.32, with a descriptive equivalent of very high. This means that the item is always observed by the teacher education mathematics major students. This mean is from item no. 3 – Applying math to real- world problems.

Table 17. *Level of Learning Interest in Mathematics in terms of Enjoyment*

Enjoyment	Mean	Description
1. Enjoying learning mathematics	4.36	Very High
2. Finding math to be a challenging and rewarding subject	4.35	Very High
3. Applying math to real-world problems	4.32	Very High
4. Feeling good about myself when I succeed in math	4.46	Very High
5. Learning more about math in the future	4.41	Very High
Overall	4.38	Very High

Summary of the Level of Learning Interest in Mathematics

Presented in Table 18 is the overall level of learning interest in mathematics in terms of attention, participation, effort, persistence, curiosity, and enjoyment. The data revealed that the level of learning interest in mathematics as perceived by first to fourth-year mathematics education students has a total mean of 4.14 with the descriptive equivalent of high. This indicates that the level of learning interest in mathematics as perceived by students is oftentimes observed.

Further, the highest mean score is 4.38, with a descriptive equivalent of very high. This indicates that the level of learning interest in mathematics as perceived by teacher education mathematics major students in terms of enjoyment is observed. In contrast, the lowest indicator is participation which obtained a mean score of 3.86, with a descriptive equivalent of high. This indicates that the level of learning interest in mathematics in terms of participation is oftentimes observed.

The indicator attention obtained a mean score of 3.98, with a descriptive equivalent of high. This indicates that the level of learning interest in mathematics in terms of attention is oftentimes observed.

Moreover, effort obtained a mean score of 4.15, with a descriptive equivalent of high. This indicates that the level of learning interest in mathematics in terms of effort is oftentimes observed.

Curiosity obtained a mean score of 4.21, with a descriptive equivalent of high. This indicates that the level of learning interest in mathematics in terms of curiosity is oftentimes observed. Lastly, persistence obtained a mean score of 4.28, with a descriptive equivalent of very high. This indicates that the level of learning interest in mathematics in terms of persistence is observed.

Table 18. *Level of Learning Interest in Mathematics*

Indicators	Mean	Description
Attention	3.98	High
Participation	3.86	High
Effort	4.15	High
Persistence	4.28	Very High
Curiosity	4.21	High
Enjoyment	4.38	Very High
Overall	4.14	High

Significant Relationship between Mathematical Beliefs and Learning Interest in Mathematics

Presented in Table 19 is the result of the significant relationship between mathematical beliefs and learning interest in mathematics, mean scores= 4.24 and 4.14, r (148) = .785, p<.001. The mean score of the mathematical beliefs is 4.24, while the mean score of the learning interest in mathematics is 4.14, suggesting generally high levels in both areas. In addition, the r-value is 78% due to the variation of 22% other factors not covered in the study. Since the probability value (p<.001) is less than the level of significance (α=0.05), the null hypothesis is being rejected in this context. This means that there is a significant relationship between mathematical beliefs and learning interest in mathematics. In other words, higher level of mathematical beliefs tends to be associated with greater learning interest in mathematics.

Table 19. *Significant Relationship between Mathematical Beliefs and Learning Interest in Mathematics*

Variable	Mean	R-Value	P-Value	Decision @=0.05
Mathematical Beliefs	4.24			
		.785	<.001	Ho Rejected
Learning Interest in Mathematics	4.14			

Significant Relationship between Self-Regulation and Learning Interest in Mathematics

Presented in Table 20 is the result of the significant relationship between self- regulation and learning interest in mathematics, mean scores= 4.13 and 4.14, r (148)= .837, p<.001. The mean score of the self-regulation is 4.13, while the mean score of the learning interest is 4.14, suggesting consistently high levels in both areas. Moreover, the r-value is 83% due to the variation of 17% other factors not covered in the study. Since the probability value (p<.001) is less than the level of significance (α=0.05), the null hypothesis is being rejected in this context. This means that there is significant relationship between self-regulation and learning interest in mathematics. In other words, higher level of self-regulation tends to be associated with greater learning interest in mathematics.

Table 20. *Significant Relationship between Self-Regulation and Learning Interest in Mathematics*

Variable	Mean	R-Value	P-Value	Decision @=0.05
Self-Regulation	4.13			
		.837	<.001	Ho Rejected
Learning Interest in Mathematics	4.14			

Significant Influence between Mathematical Beliefs and Learning Interest in Mathematics

Presented in Table 21 is the significant influence of the domains of mathematical beliefs that can considerably influence the learning interest in mathematics among teacher education students. The results showed that statements about mathematics, a domain of mathematical beliefs, appear to be a statistically significant predictor of the level of learning interest in mathematics among teacher education students, (β=-.1567, p=.027). At 0.05 level of significance, the null hypothesis is not accepted. This means that the mathematical beliefs of students have significant influence on their learning interest in mathematics. The negative beta value indicates that for all unit increases of statements about mathematics, the level of learning interest in mathematics among teacher education students will also decrease by -.1567 units.

Table 21. *Significant Influence between Mathematical Beliefs and Learning Interest in Mathematics*

Independent Variable Mathematical Beliefs	Unstandardized Coefficients		Standardized Coefficients Beta	P- value	Decision @=0.05
	β	SE			
Statements about Mathematics	-.1567	.0701	-.1557	.027	Ho Rejected
Responses to Mathematical Tasks	.2734	.0705	.2666	.001	Ho Rejected
Attitudes towards Mathematics	.1059	.0741	.1162	.155	Ho Accepted
Self-Efficacy	.0345	.0607	.0411	.570	Ho Accepted
Dependent Variable: Learning Interest in Mathematics					

Note: R= .785, R^2=.749, F-ratio= 66.5 P-value= < .001

Moreover, the results showed that responses to mathematical tasks, a domain of mathematical beliefs, appear to be a statistically significant predictor of the level of learning interest in mathematics among teacher education students, (β=.2734, p=.001). At 0.05 level of significance, the null hypothesis is rejected. The beta value (β=.2734) indicated that for every unit increase of responses to mathematical tasks, level of learning interest in mathematics will also increase by .2734 units. Therefore, this leads to the rejection of the second null hypothesis states that there is/are no domains/s of statements about mathematics that can significantly influence the learning interest in mathematics of the respondents.

The p-values for the remaining two domains, attitudes towards mathematics (β=.1059, p=.155), and self-efficacy (β=.0345, p=.570). At 0.05 level of significance, the p-values of the two domains exceeded 0.05. This suggests that the two domains which are attitudes towards mathematics and self-efficacy do not have significant influence on students' learning interest in mathematics.

Moreover, mathematical beliefs explained a significant proportion of variance in learning interest in mathematics, R^2= .749, F= 66.5, p<.001. The R^2 of .749 shows that the model predicts 74.9% of the statistical variation observed in the level of learning interest in mathematics among the respondents. The coefficient of alienation which 25.1% points to the extent at which other indicators or domains not included in the study may explain the variance observed in the level of learning interest in mathematics among the respondents.

Significant Influence between Self-Regulation and Learning Interest in Mathematics

Presented in Table 22 is the significant influence of the domains of self- regulation that can considerably influence the learning interest in mathematics among teacher education students. The results showed that planning, a domain of self- regulation, appear to be a statistically significant predictor of the level of learning interest in mathematics among teacher education students, (β=.1856, p=.010). At 0.05 level of significance, the null hypothesis is rejected. This means that the self-regulation of the students has a significant influence on their learning interest in mathematics. The beta value indicates that for all units increase of planning, the level of learning interest in mathematics among teacher education students will also increase by .1856 units.

The results showed that active coping, a domain of self-regulation, appear to be a statistically significant predictor of the level of

learning interest in mathematics among teacher education students, (β=.2139, p=.004). At 0.05 level of significance, the null hypothesis is rejected. The beta value (β=.2139) indicated that for every unit increase of active coping, level of learning interest in mathematics will also increase by .2139 units. Therefore, this leads to the rejection of the second null hypothesis states that there is/are no domains/s of active coping that can significantly influence the learning interest in mathematics of the respondents.

Table 22. *Significant Influence between Self-Regulation and Learning Interest in Mathematics*

Independent Variable Mathematical Beliefs	Unstandardized Coefficients β	SE	Standardized Coefficients Beta	P- value	Decision @=0.05
Active Coping	.2139	.0737	.2349	.004	Ho Rejected
Planning	.1856	.0713	.1933	.010	Ho Rejected
Seeking Social Support	.0774	.0524	.0862	.142	Ho Accepted
Mental Disengagement	.2186	.0670	.2314	.001	Ho Rejected
Dependent Variable: Learning Interest in Mathematics					

Note: R= .837, R2=.713, F-ratio= 93.6 P-value= < .001

Mental disengagement, a domain of self-regulation, appear to be a statistically predictor of the level of learning interest in mathematics among teacher education students, (β=.2186, p=.001). At 0.05 level of significance, the null hypothesis is rejected. The beta value (β=.2186) indicated that for every unit increase of mental disengagement, level of learning interest in mathematics will also increase by .2186 units. Therefore, this leads to the rejection of the second null hypothesis states that there is/are no domains/s of mental disengagement that can significantly influence the learning interest in mathematics of the respondents.

The p-value for the remaining one domain, seeking social support (β=.0774, p=.142). At 0.05 level of significance, the p-value of the one domain exceeded 0.05. This suggests that the remaining domain which is seeking social support do not have significant influence on students' learning interest in mathematics.

Moreover, self-regulation explained a significant proportion of variance in learning interest in mathematics, $R2$=.713, F= 93.6, p<.001. The $R2$ of .713 shows that the model predicts 71.3% of the statistical variation observed in the level of learning interest in mathematics among the respondents. The coefficient of alienation which 28.7% points to the extent at which other indicators or domains not included in the study may explain the variance observed in the level of learning interest in mathematics among the respondents.

Conclusions

Based on the findings of the study, conclusions were drawn in answer to questions raised in the previous chapter. The respondents from the teacher education program major in mathematics reported a high level of mathematical beliefs which means that the variable is oftentimes observed by the students.

Based on the results in self-regulation among teacher education mathematics major students, it can be also drawn that the level self-regulation was in high. This means that the students oftentimes manifested the variable.

Moreover, based on the results in learning interest in mathematics among teacher education mathematics major students, it can be also drawn that the level of learning interest in mathematics was in high. Also, this means that the students oftentimes manifested the variable.

Overall correlation of two variables reveals a significant relationship between the two variables which was mathematical beliefs and learning interest in mathematics among teacher education students. The study shows that the mathematical beliefs has a high, positive, and significant relationship with learning interest in mathematics, which means that the first null hypothesis proposed in the study is rejected.

Furthermore, overall correlation of two variables reveals a significant relationship between the two variables which was self-regulation and learning interest in mathematics among teacher education students. The study shows that the self- regulation has a high, positive, and significant relationship with learning interest in mathematics, which means that the first null hypothesis proposed in the study is rejected.

Based on the result of regression analysis, two domains have shown significant influence to the mathematical beliefs. This means that the two domains – statements about mathematics, and responses to mathematical tasks – are the significant predictors of learning interest in mathematics among teacher education students. This also indicates the rejection of the second null hypothesis proposed in the study. Accordingly, the model describes 74.9% of the statistical variation in the level of learning interest in mathematics of the respondents, while the remaining 25.1% refers to other variables that have not been included in the study that also affect the learning interest in mathematics of the respondents.

Moreover, based on the result of regression analysis, three domains have shown significant influence to the self-regulation. This means that the three domains – active coping, planning, and mental disengagement – are the significant predictors of learning interest in mathematics among teacher education students. This also indicates the rejection of the second null hypothesis proposed in the study.

Accordingly, the model describes 71.3% of the statistical variation in the level of learning interest in mathematics of the respondents, while the remaining 28.7% refers to other variables that have not been included in the study that also affect the learning interest in mathematics of the respondents.

Also, the findings from this study reaffirm the significance of mathematical beliefs and learning interest in mathematics, supporting Bandura's Self-Efficacy theory. Additionally, the results align with the Expectancy-Value theory of Eccles et al., and to Vygotsky's Socio-Constructivist theory. Moreover, Zimmerman's Self- Regulated Learning theory and Deci's and Ryan's Self-Determination theory, find support, showing that engagement in the subject and learning experiences promote self-regulated learning and self-determination of students which can effectively stimulate their learning interest in mathematics and problem-solving abilities. Based on the results, this study firmly anchors the theories of Zimmerman, Fyfe et al., and Janz and Becker, in the context of learning the importance of self-regulation, and learning interest in education.

Among the indicators of mathematical beliefs, it was determined that self- efficacy garnered the lowest mean. Consequently, it is hereby recommended that the institution and teachers may encourage students to keep understanding the concepts in mathematics to develop self-confidence in participating in math class. Thus, developing the efficacious in mathematics is functional in fostering students' learning interest in the certain subject.

Additionally, for all the domains of self-regulation, the researcher discovered that planning accumulated the lowest mean. It is hereby recommended that the institution and teachers may encourage students to develop planning a goal specifically in school. Furthermore, helping students to keep learning while having goals can promote learning interest specifically in mathematics.

Moreover, since the result of learning interest in mathematics in terms of participation obtained the lowest mean, it is hereby recommended that the institution and teachers may encourage students to participate in mathematics subject as it can boost their confidence and can help them to understand the concept. In addition, encouraging students to keep participating in math can enhance their learning interest and it can also maintain the firm relationship between the students and the teacher.

Overall, based on the result of the regression analysis, it can be seen that there is a correlation between mathematical beliefs and learning interest in mathematics. It is hereby recommended that the school institution and teachers may promote mathematics by encouraging students to view mathematics positively specifically in terms of giving statements about mathematics, responding to mathematical tasks, giving attitudes towards mathematics, and developing self-efficacy. Moreover, fostering interest in learning mathematics encourages students to question, analyze, and evaluate information. Incorporate activities and assignments that require students to think critically, solve problems, and make connections between different concepts.

Furthermore, based on the result of the regression analysis, it can be also seen that there is a correlation between self-regulation and learning interest in mathematics among teacher education students. It is hereby recommended that the school institution and teachers may consider to create an inquiry-based learning environment where students are encouraged to explore mathematical concepts through hands-on activities, problem-solving tasks, and open-ended questions. This will stimulate their curiosity, explore different strategies, set goals, and foster interest in learning mathematics. By highlighting the connections between mathematics and other fields, such as science or economics, students will develop a deeper curiosity for the subject and recognize its importance in everyday life. This will encourage them to exchange ideas, challenge assumptions, and reflect on their own thinking processes, further enhancing their learning interest in mathematics as well as regulating oneself. Ultimately, these recommendations aim to create a learning environment that promotes both self-regulation and learning interest in mathematics, empowering students to become lifelong learners.

Finally, it is recommended for future researchers to explore the same topic using various methodologies, such as mixed methods, qualitative approaches, or case studies, in order to provide a more comprehensive understanding of the importance of the relationships between the variables. They are also encouraged to apply alternative variables or factors that the investigation was unable to address. Also, they might do it with a larger number of participants or in different locations.

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