

# Motivation and Mathematics Anxiety Among College Students

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## Abstract

This study attempted to determine the relationship between motivation in pre-service teachers' mathematics anxiety, particularly elementary educators. It aims to describe the pre-service perceived motivation regarding intrinsic and extrinsic and mathematics anxiety as psychological and behavioral. A descriptive-correlational research design was utilized in this study, and survey questionnaires were disseminated using Google forms participated by sixty-one (61) Elementary Educators. It was conducted on thirty (30) second-year and thirty-one (31) third-year students taking Bachelor of Elementary Education at Laguna State Polytechnic University-San Pablo City Campus, using a purposive sampling technique. Survey questionnaires were used in this study. This study employed mean, standard deviation, and Pearson product-moment correlation. The data showed a significant relationship between pre-service teachers' perceived motivation and mathematics anxiety.

Keywords: behavioral; extrinsic; intrinsic; psychological

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## 1. Introduction

Mathematics is one of the critical factors in developing and improving science and technology (Pangan, 2010). However, mathematics cannot help our society enhance students with low performance. Kim & Frick (2011) emphasized that many students have mathematics problems. They said that students considered inadequate to below average when discussing their numerical capabilities. Students have a reason for having difficulties learning mathematics, and one of the reasons is for they to have low confidence. They thought that they could not solve any problem even without trying it. That is why Boaler (2015), a famous author, wrote another book titled "What is Math Got to Do with It" for the students who need to grow their mindset about mathematics. There are two kinds of mindset; a growth mindset and a fixed mindset. According to (Blackwell et al., 2017; McCutchen et al., 2016; Sriam 2014), several studies say growth mindset students can result in more outstanding performances. That is because fixed-minded students never grab challenging opportunities because of the fear of having possible failures.

Avoiding mathematics courses severely restricts the fields for a particular student, while finding a job for a student who studies mathematics is easy. (Espinosa, Jorgenson & Tikhonov, 2016) When facing math-related situations, people who experience stress might suffer from a condition known as "math anxiety." It is linked to low math performance in school and later in life. It affects many people or students. (Ansari & Sokolowski 2017) Mathematics anxiety is widespread in K-12 and tertiary education (Ashcraft & Moore, 2009). Math

anxiety is a real problem for students (Ashcraft, 2009). It is more than a dislike for a subject. (Picha, 2018). Also, (Das G. & Das R., 2013; Jackson, 2008; Plaisance, 2009; Woodard, 2004) said that psychological and behavioral characteristics are symptomatic of math anxiety. Anxiety is a severe problem that blocks students' ability to perform well. (Hong 2010; Mallow 2006) To overcome anxiety, Mehmood et al. (2013) suggest that student performance must be improved to change their behaviors and mindset. There is a tool that we can use: motivation. The purpose of motivation is to attract talented individuals. The motivation strategy is to manipulate and influence people's behavior and performances.

## 2. Review of Related Literature

### 2.1 Motivation

Motivation is essential in education, especially in learning and academic achievement or performance. It lasts from childhood to adolescence. According to Ryan and Deci's (2000) Self-determination theory, there are two kinds of motivation: intrinsic and extrinsic. A motivated individual feels invigorated or inspired to act, while an uninspired person has no urge to perform. According to findings from the following year's research on the most well-known types of Motivation, People vary in the quantity and kind of motivation, intrinsic and extrinsic motivation. Most of the study is based on Ryan and Deci's notion of self-determination. Self-determination theory (SDT) is a macro theory of human motivation that grew out of intrinsic and extrinsic motivations. Intrinsic motivation is a form of motivation that comes from the inside. This is a subset of autonomous inspiration. It applies to behaviors where the incentive is derived from the action itself. The random encounters of curiosity and pleasure that are inherently inspired and extrinsic motivation are a form of motivation that comes from outside oneself. Extrinsic motivation entails engaging in action to achieve a distinct outcome, whether real or tangible (Deci et al., 2017).

According to Ryan and Deci (2020), intrinsic and extrinsic motivation predicts many positive outcomes across educational and cultural contexts. Both are improved by addressing students' basic psychological needs for autonomy, competence, and relatedness. As previously mentioned in their previous studies, intrinsic motivation refers to an individual's activities for enjoyment, enjoyment, or interest. It gives one a sense of accomplishment and joy. There are also clear advantages to intrinsic motivation informal education regarding academic performance.

On the other hand, extrinsic motivation concerns behavior performed for reasons other than an individual's interest instead of intrinsic motivation. Understanding and fostering the conditions under which teachers can be supportive or assistive is also a paramount practical concern, given the importance and benefits of providing essential psychological support. Despite knowledge about conditions that promote motivation in education, policies that could help with these issues have yet to be implemented. Their findings also indicate a link between teacher and student motivation, as teachers control and facilitate a class.

### 2.2 Mathematics Anxiety

A study verified that mathematics anxiety is related to mathematics performance (Siebers, 2015). Anyone experiencing this kind of anxiety avoids taking courses connected to mathematics. Therefore, mathematics anxiety is a problem for long-term learning that takes away students in mathematics significant opportunities and paths (Buckley, Reid, Good, Lipp & Thomson, 2016).

As a result of PISA 2012, out of a hundred percent of 15- year-old Australian students, 25 percent feel helpless in doing mathematics problems (Thomson, DeBortoli & Buckley, 2013). This anxiety is also a problem in teaching mathematics. For every teacher experiencing a high level of anxiety, more of them decided to avoid introducing this subject matter, especially when they got an option. (Gresham, 2017). Based on the study of McMinn (2019) cited from Peker (2006), mathematics teaching anxiety is defined as

instructors' concern or tension while teaching mathematical ideas and skills and solving problems. According to Brown, Westenskow, and Moyer-Packenham (2011), anxiety about teaching mathematics can exist regardless of a person's mathematics history or background. As a result, a person may not have mathematics anxiety and doubt their mathematics knowledge. Still, they may have mathematics teaching anxiety because they are unsure of their ability to teach mathematics to their students. Beilock (2015) stated that anxiety affects individuals' academic performance. In mathematics anxiety, he introduced psychological and behavioral anxiety. Both impede pupils' learning abilities and keep them from great intellectual accomplishment. Psychological anxiety is a negative response to tasks requiring numerical operations marked by dread, apprehension, a lack of confidence, and tension. People are concerned because it harms the lives of people's mathematical knowledge, math grades, and standardized test outcomes. Behavioral anxiety refers to when individuals are afraid of mathematics and typically perform at a level below their actual aptitude. Their apprehension of mathematics causes them to fail and causes them to avoid it.

Bursal & Pasnokas (2006) studied the mathematics anxiety and confidence levels of 65 pre-service primary teachers in teaching introductory mathematics and science were assessed. According to the findings, low mathematics anxiety pre-service teachers are more confident in their ability to teach primary mathematics and science than their peers with greater levels of math anxiety. Negative associations were observed between pre-service teachers' math anxiety and their confidence in teaching primary mathematics. Zakaria and Nordin's (2008) research showed a connection between mathematics anxiety and achievement and mathematics anxiety and motivation. It can be concluded that motivation is a crucial factor in one's level of anxiety. Motivation is the value that predicts the apprehension level, as it makes tasks easier by internally or externally driving learners to do more. Başpınar and Peker (2016) studied the relationship between mathematics teaching anxiety and mathematics learning and teaching. The findings show that the anxiety of primary school teachers towards mathematics teaching was found to have a negative moderate significant correlation with their perceptions about mathematics learning and instruction. As a result, it can be claimed that as the anxiety levels toward mathematics teaching rise, the belief levels in mathematics teaching and learning lesson; moreover, as the anxiety level toward mathematics teaching decreases, the level of belief in mathematics teaching and learning increases. Buckley, Reid, Good, Lipp & Thomson (2016) stressed that anxiety in learning mathematics among students and instructors is usually caused by frightening situations, such as unfamiliar problems, problems considered excessively complicated, or the impression of hostile attitudes and expectations (Onwuegbuzie & Wilson, 2003).

Instrumentally motivated students are engaged in studying mathematics because they see the value of mathematics in achieving their long-term objectives. Mathematics anxiety is another element that emerges early in a student's academic development and persists throughout college. According to research, students feel mathematics anxiety because they are underprepared for the present course material, which leads students to question their abilities to manage assignments and exams (Buri, 2015; Kargar, Tarmizi, & Bayat, 2010; Lee, 2009; Maloney, Sattizahn, & Beilock, 2014). Zakariya (2018) created a new instrument for assessing students' mathematics anxiety, including 20 questions and two subcategories with good psychometric properties and concise.

### **3. Methodology**

#### **3.1 Research Design**

This study utilized a descriptive-correlational research design to describe how the Elementary Education Teachers perceived motivation and mathematics anxiety. Descriptive research refers to various survey methods used better to understand people's perceptions, judgments, and intentions. (Mittal, 2020) The

descriptive analysis describes a phenomenon and its characteristics, focusing on what occurred rather than how or why it happened. This study aims to know the relationship between the Elementary Education Teacher's motivation and mathematics anxiety perception.

### 3.2 Respondents of the Study

The study's respondents comprised sixty-one (61) students. A purposive sampling technique was used to determine the sample for thirty (30) second-year and thirty-one (31) third-year students taking Bachelor of Elementary Education at Laguna State Polytechnic University San Pablo City Campus. The purposive technique was employed in selecting the student respondents for this study. The researcher used the purposive technique in the two-year level of Elementary Education. This entails identifying and selecting people or groups of competent and knowledgeable persons about a phenomenon of interest. (Cresswell & Plano 2011).

### 3.3 Instrumentation

The Motivation Questionnaire is a 4-point Likert Scale 20-item researcher-made questionnaire as the instrument in the independent variable. The questionnaire was intended to know the respondents' perceptions regarding the use of motivation. It was composed of intrinsic and extrinsic motivation, as Deci et al. (2017) proposed. The researcher contextualized the sources of motivation based on the needs and characteristics of the learners and in the Anxiety Questionnaire, which was made up of an adapted-modified survey questionnaire. The researcher adapted the questionnaires to assess the pre-service teachers' mathematics anxiety from the study of Zakariya's (2018) Mathematics Anxiety Scale. 10-item Likert-type questionnaire for psychological anxiety and another 10-item questionnaire for behavioral anxiety. The researcher used 4-point Likert Scale 20-item questionnaires as the research instrument in the dependent variable. The survey questionnaire was intended to be used to measure the anxiety of the respondents regarding the study. As Jasofsky (2010) proposed, mathematics anxiety was composed of psychological and behavioral anxiety. This survey questionnaire was administered to the 2nd - and 3rd - year college students at Laguna State Polytechnic University San Pablo City Campus.

### 3.4 Data Collection Procedure

After preparations, the researcher asked the research adviser and the research panelists to conduct the study. The following letter was addressed to the College of Teacher Education associate dean requesting authorization to perform the analysis. The researcher sought the help of three individuals from the three target sections: the third-year A and B BEED and second-year BEED. They were asked to forward the provided instrument on their group chat and answer the following data.

After the respondents answer the data, it will automatically go back to the researcher. Since the research respondent is also talking about the study, it's not easy to accomplish. The data collection lasted two weeks. The researcher prepared a data matrix based on the results. The research statistician then evaluated the data before analyzing and concluding the research. Pearson Product Moment Correlation was used to answer whether there is a significant relationship between the elementary educator's perception of motivation through Intrinsic and Extrinsic and their Mathematics Anxiety.

#### 4. Results and Discussion

This chapter includes the tables that present the findings of this study and the interpretation and analysis of the data gathered. The course of the performance and investigation was guided by the problem statement in Chapter 1 to draw conclusions and recommendations.

**Table 1. Motivation of the Respondents**

Indicators	Mean	SD	Interpretation
1. I enjoy solving mathematics problems and activities.	3.19	0.57	Agree
2. I always think positively whenever I want to learn something.	3.44	0.57	Agree
3. I want to collaborate with others than do activities alone.	3.27	0.61	Agree
4. I prefer to share my ideas than listen.	3.27	0.52	Agree
5. I enjoy participating in group activities.	3.32	0.63	Agree
6. I am confident enough to answer Mathematics equations.	2.93	0.61	Agree
7. I feel relaxed during my Mathematics class.	2.88	0.62	Agree
8. I always ask questions when I do not understand the topic.	3.20	0.66	Agree
9. I am happy when the teacher asks me to answer questions I know very well.	3.95	5.34	Strongly Agree
10. I feel contented when I know how to solve some problems.	3.39	0.56	Agree
<b>Overall (Intrinsic)</b>	<b>3.28</b>	<b>0.74</b>	<b>Agree</b>
1. My teacher's method of instruction is precise.	3.51	0.54	Strongly Agree
2. My teacher uses appropriate style and strategy in teaching Mathematics.	3.56	0.53	Strongly Agree
3. My teacher takes time to assist students that need help.	3.51	0.50	Strongly Agree
4. My teacher's technique of instruction is specific.	3.51	0.54	Strongly Agree
5. My teacher demonstrates or illustrates the instruction when it is possible to do.	3.59	0.50	Strongly Agree
6. Relating topics to real-life scenarios keep the class interested.	3.54	0.50	Strongly Agree
7. The online class materials are helpful and accurate.	3.29	0.59	Agree
8. My teacher uses adequate teaching and learning materials.	3.46	0.54	Agree
9. The online environment improves my ability to learn.	3.17	0.65	Agree
10. My teacher relates learning with prior knowledge and real-life situations to understand the lesson.	3.54	0.50	Strongly Agree
<b>Overall (Extrinsic)</b>	<b>3.47</b>	<b>0.44</b>	<b>Agree</b>

**Legend:** 3.50-4.00- Strongly Agree (Very High); 2.50-3.49- Agree (High); 1.50-2.49- Disagree (Moderate); 1.00-1.49- Strongly Disagree (Low)

The overall mean of motivation shows that students agree that they are intrinsically motivated in learning. Students work motivated because they find interest in studying to catch the lessons quickly and favor the subjects. These findings show that the respondents are intrinsically motivated and enjoy their surroundings. They feel comfortable with their classmates or even teachers. This enjoyment leads them to be successful as an individual.

Moreover, the result of the highest mean is interpreted as the substantial agreement of the respondents in their intrinsic motivation. Respondents expressed an interest in being motivated. This implies that individuals are inwardly motivated. Possessing a high quality of motivation is an advantage. In this case, it is vital for aspiring educators like the respondents. The teachers are the ones who facilitate and monitor the

class, and having a high degree of motivation can help themselves and their students. Attitude and personality are crucial in producing a good interaction between learners and students.

As Ryan and Deci (2020) said, intrinsic motivation refers to an individual's activities for enjoyment or interest. It refers to an individual's inherent desire to acquire and absorb information via experience. Individual participation enhances the activity's pleasure and fulfillment. This implies that an internal element, such as a desire to do something, is needed to attain a high level of motivation. As per the results, the students think positively whenever they want to learn something or get a good job. This implies that they are intrinsically motivated to discover new things through learning motivation.

On the other hand, the lowest mean is interpreted as the low agreeableness of the respondents in their intrinsic motivation. As per the query, the students lowly think they feel relaxed during mathematics class. A study explains that mathematics anxiety can interrupt working and hinder joining mathematics. (Ashcraft & Kirk, 2001; Eden, Heien & Jacobs, 2013; Ma, 1999). This implies that they are not that relaxed during mathematics class. They cannot express themselves during classes and may be affected by factors such as anxiety. Being relaxed equates to one's ability to focus on something, and learners expressing a level of discomfort may be a sign of existing disruptors, in this case, cognitive disruptions.

Likewise, as a result of the average mean of their motivation, it can be concluded that students agree that they are extrinsically motivated in learning. This means that the respondents are extrinsically motivated by their teachers during mathematics. The strategy or way of teaching extrinsically benefits the student's learning course. The facilitator in the subject matter executes helpful methodologies and principles in education that pique the learners' motivation. In such a way, students are emotionally boosted by external factors like rewards or incentives to aid them in learning. Item number 5 has the highest average mean of 3.59, which is interpreted as the agreeableness of the respondents in their extrinsic motivation. As per the results, the respondent's teacher demonstrates or illustrates the instruction when possible. This implies that they are extrinsically motivated because the facilitator of learning is supportive. Respondents learn and study to accomplish their objective, but their environment influences their behavior, including their parents, friends, relatives, teacher, and school. According to Legault (2016), when individuals engage in extrinsic benefits activities, they depend on their surroundings rather than themselves.

On the contrary, the lowest average mean, interpreted as the respondents' low agreeableness in their extrinsic motivation, reveals that the learners must have a better environment. Per the query, the online environment does not improve their learning ability. This implies that despite the teacher supporting students to learn more, the online environment is not conducive to learning. A case study of adult students enrolled in a graduate-level distance education program found that almost half of those who dropped out of an online graduate course cited unhappiness with the learning environment as the cause based on the study by Kim, K. J., & Frick, T. W. (2011). This implies that many students are struggling in the online educational system. Some of them are uncomfortable in an environment and may get a lot of distraction that is hard to absorb and learn.

**Table 2. Anxiety of the Respondents**

Indicators	Mean	SD	Interpretation
1. I always have difficulty learning Mathematics.	2.73	0.74	Agree
2. I am always under a terrible strain in Mathematics class.	2.49	0.68	Disagree
3. I do not know if I can do well in Mathematics.	2.53	0.75	Agree
4. Mathematics is complex for me.	2.68	0.71	Agree
5. Mathematics confuses me.	2.73	0.76	Agree
6. I always have trouble with Mathematics.	2.56	0.68	Agree
7. In Mathematics, it is hard for me to decide what to do.	2.56	0.68	Agree
8. I do not know how to study Mathematics.	2.20	0.69	Disagree
9. No matter what I do, still, it is hard for me to understand Mathematics.	2.31	0.68	Disagree
10. I am not good at Mathematics.	2.58	0.77	Agree
<b>Overall (Psychological)</b>	<b>2.54</b>	<b>0.58</b>	<b>Agree</b>
Indicators	Mean	SD	Interpretation
1. Math is one of the most boring subjects.	1.95	0.54	Disagree
2. I do not feel comfortable studying Math like I feel with other subjects.	2.14	0.66	Disagree
3. I feel more nervous in Mathematics than most of the other students.	2.47	0.88	Disagree
4. I am afraid to ask questions in Mathematics class.	2.37	0.74	Disagree
5. Usually, I am unable to solve Mathematical problems.	2.29	0.79	Disagree
6. I do not think I could handle more challenging Mathematics.	2.31	0.81	Disagree
7. I am not the type to do well in Mathematics.	2.49	0.82	Disagree
8. I am one of those people who were not born to learn math.	2.27	0.85	Disagree
9. I hate studying Mathematics, even the most manageable parts	2.07	0.74	Disagree
10. Except for a few cases, no matter how much effort I put out, I cannot understand Mathematics.	2.08	0.77	Disagree
<b>Overall (Behavioral)</b>	<b>2.24</b>	<b>0.63</b>	<b>Disagree</b>

**Legend:** 3.50-4.00- Strongly Agree (Very High); 2.50-3.49- Agree (High); 1.50-2.49- Disagree (Moderate); 1.00-1.49- Strongly Disagree (Low)

The overall mean of the level of anxiety of the respondents in terms of psychological can then be concluded that students agree that they are experiencing psychological anxiety. This implies that the pre-service teachers display negative responses to tasks requiring numerical operations marked by dread, apprehension, a lack of confidence, and tension. According to (Hong 2010; Mallow 2006), anxiety is a severe problem that blocks students' ability to perform well. Learning mathematics among students and instructors is usually caused by frightening situations, such as unfamiliar problems, excessively complicated issues, or the impression of hostile attitudes and expectations (Onwuegbuzie & Wilson, 2003). As per the results, the students have difficulty learning math, and the subject confuses them. This implies that they are experiencing high psychological anxiety in mathematics subjects.

It is implied that respondents agree that they always have difficulty learning Mathematics. Also, it



happens that Mathematics confuses them. These findings indicate that as pre-service teachers, the learners experience psychological anxiety in Mathematics. This is worrisome, especially since future teachers will teach the subject itself. Psychological anxiety has caused educators to worry about its detrimental effects on young people's mathematics understanding, math grades, and standardized test results. (Chang & Beilock, 2012; Rubinsten & Tannock, 2010).

On the contrary, the lowest average mean, interpreted as the respondents' disagreeableness in their psychological anxiety, reveals that the students do not know how to study math. Rattanamong (2015) said that learners utilize their prior knowledge as a framework to unlock difficulties. This implies that they do not have any problems when learning the components of the mathematics subject. They may display cognitive and psychological anxiety, but this does not necessarily mean they cannot study the lesson's contents.

The overall mean of the level of behavior of the respondents concluded that students disagree that they are experiencing behavioral anxiety. The respondents are not afraid nor display any hardship about Mathematics, and they typically perform at a level above their actual aptitude. Mathematics is a subject that does not cause any cognitive disturbance for them, and they can study well in the scope of this subject. Based on their perception, their behavior toward the teacher and learning is not affected by their anxiety about the subject matter.

In addition, the respondents disagree about their behavioral anxiety. Per the query, they are not the type to do well in Mathematics. This implies that they do well in mathematics, sufficient to understand the components of the subject. Moreover, pre-service elementary teachers can easily teach the subject without displaying noticeable behaviors during class that may affect the quality of the teaching-learning process. Furthermore, the lowest average was interpreted as the disagreeableness of the respondents in their behavioral anxiety. As per the results, the respondents disagree that math is one of the most boring subjects. According to Freitag (2014), mathematics is based on addition, subtraction, multiplication, and division operations in most primary schools. Students learn mathematics through their surroundings, including the classroom, study room, school yards, natural park, and market. Buying candies is an example of how students learn mathematics and how teachers use their surroundings to teach students.

According to Bursal & Pasnokas (2010), pre-service primary teachers' mathematics anxiety and confidence levels in teaching introductory mathematics and science were assessed. According to the findings, low mathematics anxiety pre-service teachers are more confident in their ability to teach primary mathematics and science than their peers with greater levels of math anxiety. This implies that they find the subject interesting and that it lessens their level of anxiety.

**Table 3. Relationship between the Motivation and Mathematics Anxiety**

<b>Motivation</b>	<b>Mathematics Anxiety</b>	
	Psychological	Behavioral
Intrinsic	-.314*	-.269*
Extrinsic	-.348**	-.356**

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

The table presents the correlation between motivation and the students' mathematics anxiety. It shows a significant negative relationship between motivation and mathematics anxiety.

There is a significant relationship between intrinsic motivation and psychological and behavioral anxiety. Moreover, there is a significant association between extrinsic motivation and psychological and behavioral anxiety. This implies that when a learner is intrinsically motivated, their psychological and behavioral factor in anxiety is negatively affected. The same principle applies to extrinsically motivated learners with lower psychological and behavioral anxiety levels. Indeed, as supported by most literature and



study, motivation is a decisive factor in predicting the learning probability of learners. In this case, learners who exhibit such behavior are less anxious when high motivation levels for both factors are present.

According to the study by Zakaria and Nordin (2008), research showed a connection between mathematics anxiety and achievement and mathematics anxiety and motivation. It can be concluded that motivation is a crucial factor in one's level of anxiety. If they are motivated, the probability of attaining a good quality of input is high, thus increasing the chance of producing a good output quality. Students and teachers contribute to the discussion to meet learning outcomes in the teaching-learning process. Teachers may employ teaching methodologies to boost learners' motivation in this case. This indicates that motivation is mainly affected, whereas anxiety is highly dependent. If motivation is high, the anxiety level of learners in Mathematics is low. However, if motivation is low, a high level of anxiety is expected.

According to Zakariya (2018), research on mathematics anxiety and its connection to student performance, working memory, and accomplishments has been published. For example, Rattanamong (2015) said that learners utilize their prior knowledge as a framework to unlock difficulties. Suppose their background knowledge or schema is low. In that case, there is a high chance that they will not perform mathematical tasks, thus contributing to their motivational and anxiety levels. As mentioned by multiple studies, mathematics anxiety is just a symptom of poor math performance. Indeed, math anxiety is linked with problems in fundamental numerical processing, which is believed to be the foundation for more sophisticated arithmetic abilities, as expounded by Maloney, Ansari & Fugelsang (2011).

As mentioned by Turner et al. (2012), unsupportive attitudes on the part of teachers lead to avoidance on the side of students. When students are concerned about Mathematics, they usually perform lower than their natural ability. Their Mathematics fear leads them to fail and avoid it (Beilock and Maloney, 2015). Moreover, in connection to previous findings, if their motivational level is low, their level of anxiety increases. Many factors and indicators contribute to such, and the facilitators can remediate this. It can also be supported by other external factors such as the social of a learner. However, due to the pandemic, such connection is limited and is not primarily present at all times. The supportive structure of learners relies heavily on their families, as communication is only through virtual means, which is not considered as effective as real-life interaction.

Motivation is the value that predicts the apprehension level, as it makes tasks easier by internally or externally driving learners to do more. Higher motivation predicts lower anxiety, while low motivation predicts a high-stress level. Moreover, being motivated lessens the level of anxiety of students. The findings are congruent to earlier discussions, supporting the notion that motivation is still an essential aspect of modern education. Teachers may employ different styles to maximize learners' intrinsic and extrinsic motivation to lessen their anxiety behaviorally and psychologically.

The findings gathered there is no sufficient statistical evidence to support the claim that there is no significant relationship between the respondent's motivation to mathematics anxiety symptoms. Therefore, the hypothesis is not supported.

## 5. Conclusion

The main purpose of this research is to determine the relationship of motivation in pre-service teachers' mathematics anxiety, particularly elementary educators. It aims to describe the pre-service perceived motivation regarding intrinsic and extrinsic and mathematics anxiety as to content psychological and behavioral. It was found that the study's respondents are intrinsically motivated to learn. The students think positively whenever they want to learn something. They are driven to discover new things through learning motivation. The students also lowly feel that they feel relaxed during the mathematics class. Also, extrinsically motivated in learning. The respondent's teacher demonstrates or illustrates the instruction when it is possible to do. This implies that they are extrinsically motivated because the facilitator of learning is

supportive. Nevertheless, despite the teacher supporting students to learn more, the online environment is not conducive to learning.

Likewise, results from this study revealed that the respondents experienced psychological anxiety. Students have difficulty in learning math, and the subject confuses them. This implies that they are experiencing high psychological anxiety in mathematics subjects. On the contrary, they are not experiencing behavioral anxiety. This is because they are doing well in the subject, and their knowledge is sufficient. The students also find the subject interesting and that it lessens their level of anxiety. It was manifested in the findings that there is a significant relationship between motivation and mathematics anxiety. There is a significant relationship between intrinsic motivation and psychological and behavioral anxiety. There is also a significant association between extrinsic motivation and psychological and behavioral anxiety.

The outcome of this study recommends that future researchers continue to study the other areas or focus on different ways to maintain students' motivation since the study focused on students' motivation and mathematics anxiety. It is therefore recommended to discover other fields of specialization since the study population comprises only Bachelor of Elementary Education students. The prospective researcher may also focus on high school students as their respondents, wherein the learners may have already begun to experience mathematics anxiety.

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