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THE MEDIATING EFFECT OF MINDFULNESS SKILLS ON THE RELATIONSHIP BETWEEN PARENTAL EXPECTATIONS AND ENGAGEMENT IN MATHEMATICS AMONG GRADE 11 STUDENTS

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ABSTRACT

The study aimed to establish the mediating role of mindfulness skills in the relationship between parental expectations and students' mathematics engagement. It employed descriptive-correlational research design and utilized stratified random sampling techniques to recruit 328 Grade 11 secondary students within five selected secondary public high schools in the New Corella District, under the Department of Education (DepEd), Davao del Norte Division as the respondents. The study used three adapted questionnaires to gather the data, namely the Parental Expectations Perception Inventory (PPEI) developed by Sasikala and Karunanidhi (2011), the Kentucky Inventory on Mindfulness Skills (KIMS) developed by Baer et al. (2004), and the Student Engagement in the Mathematics Classroom Scale (SEMCS) developed by Kong et al. (2003). The data was analyzed using the Mean, standard deviation, Pearson r, regression analysis, and Sobel test. The findings suggested that the overall mean of parental expectations in terms of personal expectations, academic expectations, career expectations, and parental ambition is highly extensive. Student engagement in mathematics in terms of cognitive engagement, affective engagement, and behavioral engagement are observed. Moreover, mindfulness skills in terms of observing, describing, acting with awareness, and accepting without judgement are evident. Further, the test of correlations revealed that there is a significant positive relationship between parental expectations and student engagement in mathematics, mindfulness skills and student engagement, and parental expectations and mindfulness skills of the student. Lastly, the mediation analysis revealed a significant partial mediation of mindfulness skills on the relationship between parental expectations and student engagement. With these, educational leaders and school administrators are encouraged to adopt and implement mindfulness-based programs in the curriculum to help students manage academic pressure from parental expectations.

KEYWORDS: *Mathematics Education, Parental Expectations, Mindfulness Skills, Student Engagement In Mathematics, Mediation Analysis, Philippines*

INTRODUCTION

Student engagement is the voluntary participation and active involvement of learners in the learning process that serves a crucial component influencing academic success, personal growth, and overall well-being (Thompson, 2023). Furthermore, literature demonstrated that more engaged students are better able to learn, retain, and recall information than those who are not (Chen et al., 2024). However, notable data on declining levels of student engagement in mathematics has resulted in significant challenges to modern education systems nowadays. Research indicates that teachers worldwide still face challenges in dealing with student disengagement manifested in several issues such as lack of interest, easily distracted and unmotivated towards learning math subjects, which in turn resulted in poor learning outcomes (Skilling, 2021).

Meanwhile, student disengagement was evident in the Philippines. The study by Chi et al. (2023) revealed that around 18.6% Filipino youth aged 5 to 24 are not attending school, many of whom disengage specifically from subjects like mathematics, which many perceive as a challenging subject. This problem contradicts to the Department of Education's "No Child Left Behind" policy, emphasizing inclusive and equitable quality education for all learners. The author also noted that during the pandemic, remote learning increased disengagement, with 50% of students struggling in answering self-learning modules. In addition, this supports the study by Maamin et al. (2022) that without direct teacher support, students had difficulty grasping abstract concepts, leading to cognitive disengagement, resulting in weaker performance during assessments like Program for International Student Assessment (PISA). Further, surveys show that 66% of students struggle with connectivity issues during online math lessons, and the fear of failure in math exams leads to emotional disengagement due to the subject's perceived difficulty (Lobo & Zimmer, 2023). Thus, this supports the study conducted at Santiago National High School found that approximately 70% of Grade 11 students are disengaged from mathematics due to factors like perceived difficulty, insufficient motivation, and

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ineffective teaching strategies, leading to low participation, incomplete assignments, and declining academic performance (Guzman, 2023).

Locally, similar concerns regarding student disengagement in mathematics were evident in one of the secondary schools in New Corella District. In the school year 2023-2024, evidence reported from the school mathematics coordinator that out of 110 enrolled grade 11 students, only 35% was able to meet the minimum competency level in mathematics during quarterly examinations. This was supported by a study carried out in Davao del Norte Division that since the pandemic began, secondary students' level of engagement has dropped by 40% (Corpuz and Casocot, 2022). Also, the author mentioned that two out of five students weren't taking part in online courses, which prevented them from finishing assignments and tests related to their mathematics modules.

This study aims to bridge the gap, focusing on parental expectations and how it affects engagement in mathematics among Grade 11 students within the locality of New Corella-Davao del Norte, with the interpolation of mindfulness skills that could possibly serve as intermediary factor. The urgency and relevance of this study is anchored on the existing issues on student disengagement in mathematics which can lead to stress even resulting in poor academic achievement. Through exploring this study, its findings could assist the academic community in creating interventions based on the identified variables. The results are particularly significant for students struggling with low engagement in mathematics. In addition, there is a possibility that perceived expectations of the parent and mindfulness skills might be necessary in improving students' engagement and promoting better learning results in mathematics. Moreover, to effectively meet the demands and challenges of 21st century education, mathematics instructors may learn new learning approaches in exploring innovative strategies based on this study on engaging students in mathematics.

OBJECTIVES

This research targets to address the following queries:

1. What is the extent of parental expectations in terms of personal expectations, academic expectations, career expectations, and parental ambitions?
2. What is the level of student engagement in mathematics in terms of cognitive engagement, affective engagement, and behavioral engagement?
3. What is the level of mindfulness skills of students in terms of observing, describing, acting with awareness, and accepting without judgement?
4. Is there a significant relationship between (a) parental expectations and student engagement in mathematics, (b) mindfulness skills and student engagement in mathematics, and (c) parental expectations and mindfulness skills?
5. Do mindfulness skills significantly mediate the relationship between parental expectations and student engagement in mathematics?

METHODOLOGY

Descriptive and correlational approaches were used in this quantitative non-experimental design. Quantitative research is designed to test hypotheses, explore relationships between variables of the study, and generate findings that can often be generalized to broader populations (Creswell, 2018). However, a study collected data without introducing any treatment on the subjects is applying a non-experimental design (Guerin, 2019). In this study, the researcher did not manipulate or control the variables.

Furthermore, a descriptive approach is a suitable option in this study since the aim is to describe and interpret the conditions and relationships among the variables. A descriptive approach is fact-finding research that scrutinizes the participants' characteristics, behaviors, and experiences (Misa, 2024). Also, this approach analyzes data that guides the researcher to characterize, show or summarize data in a meaningful way (Bhat, 2023).

Moreover, a correlational approach was utilized in this study to evaluate the degree of association between variables under studied. Cook (2008) emphasizes the application of correlational approach, accordingly it is applied without implementing any interventions that might alter misconception to the findings. Also, without alterations to any of the variables, the correlational approach is applicable since its target is to look for direction and strength of the relationship between two or more variables (Fraenkel et al., 2011).

To attain the objective of this study's research, the primary investigator used a descriptive research design to draw a conclusion on whether mindfulness skills mediate the relationship between parental expectations and student engagement in mathematics. In addition, the researcher employed a descriptive research approach to describe the extent of parental expectations, level of student engagement in mathematics, and level of mindfulness skill. Also, to investigate the connection between variables under study, the researcher utilized correlational research approaches. Linking parental expectations to student engagement, correlating parental expectations to mindfulness skills, and linkage between mindfulness skills to student engagement. The result of these correlations serves as a basis in applying mediation analysis.

RESULTS

1. Parental expectations obtained a highly extensive overall mean of 3.92, generated from the following indicators arranged from highest to lowest: Career expectation got the highest mean (4.21) and followed by personal expectations with a mean (4.20), both of which have descriptive equivalent of very highly extensive. While academic expectations have a mean (3.66), and parental ambitions got a mean (3.61) rank the least with a descriptive equivalent of highly extensive.

2. Student engagement had an overall mean score of 3.67, with a descriptive equivalent of high. This was derived from computing the mean scores of each indicator as follows: Behavioral engagement got the highest mean (3.75). It was followed by cognitive engagement with a mean (3.70). Then,

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affective engagement got the lowest mean (3.57). All these three indicators are described as high.

3. Mindfulness skills obtained an overall mean (3.75), with a descriptive equivalent of high. This was generated by calculating the mean scores of each indicator, as follows: The indicators observing and accepting without judgement got the highest mean (3.91). While acting with awareness and describing got the lowest mean of 3.62 and 3.55 respectively. All these four indicators had a descriptive equivalent of high.

4. The relationship between parental expectation (r=.599, p=0.000) to student engagement in mathematics had a moderate positive correlation, and the relationship between mindfulness skills (r=.599, p=0.000) to student engagement in mathematics had a high positive correlation. Furthermore, the relationship between parental expectation (r=.480, p=0.000) to mindfulness skills of the students has a moderate positive correlation. These values were tested using 0.05 level of significance. Since the p-values were less than the alpha level, therefore, the null hypothesis is rejected. Meaning, the relationship between variables is significant.

5. Step 1 Path C (IV and DV) has a beta coefficient of (β=0.589, p=0.000); Step 2 Path B (MV and DV) has a beta coefficient of (β=0.611, p=0.000); Step 3 Path A (IV and MV) has a beta coefficient of (β=0.486, p=0.000). The total effect of the independent variable (parental expectations) on the dependent variable (student engagement) is 0.599, which has a direct effect of 0.386 and an indirect effect of 0.213.

SUGGESTIONS

Administrators are encouraged to strengthen partnerships with parents to communicate and align expectations for students' mathematical achievement. The researcher recommends to the educational leaders and school administrators the integration of mindfulness practices into mathematics curricula and classroom activities. Also, teachers are encouraged to have adequate training and resources to implement mindfulness strategies effectively and encouraged to actively integrate mindfulness practices into their daily routines. Parents are encouraged to prioritize setting realistic and supportive expectations, focusing on fostering a growth mindset and valuing effort over mere achievement. Lastly, future researchers may design and implement intervention studies that would enhance mathematics engagement of the learners.

CONCLUSIONS

The perceived parental expectations of the students are observed. The student engagement in mathematics is observed. The mindfulness skills of the students are evident. There is a significant positive relationship between parental expectations and student engagement in mathematics. Also, there is a significant relationship between mindfulness skills and student engagement in mathematics. There is a significant relationship between parental expectations and the mindfulness skills of the students. Moreover, parental expectation has a positive effect on student engagement in mathematics both directly and indirectly through increasing mindfulness skills, while mindfulness skills partially mediate the relationship, parental expectation has a significant direct impact on students' engagement in mathematics.

TABLES

Table 1. Summary on the Extent of Parental Expectations of the Students

Indicators	SD	Mean	Descriptive Equivalent
Personal expectations	0.64	4.20	Very Highly Extensive
Academic expectations	0.66	3.66	Highly Extensive
Career expectations	0.67	4.21	Very Highly Extensive
Parental ambitions	0.73	3.61	Highly Extensive
Overall	0.52	3.92	Highly Extensive

Table 2. Summary on the Level of Student Engagement

Indicators	SD	Mean	Descriptive Equivalent
Cognitive engagement	0.59	3.70	High
Affective engagement	0.48	3.57	High
Behavioral engagement	0.73	3.75	High
Overall	0.52	3.67	High

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Table 3. Summary on the Level of Mindfulness Skills

Indicators	SD	Mean	Descriptive Equivalent
Observing	0.63	3.91	High
Describing	0.67	3.55	High
Acting with awareness	0.60	3.62	High
Accepting without judgement	0.71	3.91	High
Overall	0.53	3.75	High

Table 4. Significance of the Relationship Between Parental Expectations, Student Engagement and Mindfulness Skills in

Variables Correlated	r	p-value	Decision on H_o	Decision on Relationship
Parental Expectation & *Student Engagement*	0.599	0.000	Rejected	Significant
Mindfulness Skills & *Student Engagement*	0.628	0.000	Rejected	Significant
Parental Expectation & Mindfulness Skills	0.480	0.000	Rejected	Significant

Mathematics

Table 5. Steps in Mediation Analysis

Independent Variable Dependent Variable Mediating Variable	Parental Expectation Student Engagement Mindfulness Skills
Step 1. Path C (IV and DV)	
Unstandardized Beta (B)	0.589
Standard Error (e)	0.044
p-value	0.000
Step 2. Path B (MV and DV)	
Unstandardized Beta (B)	0.611
Standard Error (e)	0.042
p-value	0.000
Step 3. Path A (IV and MV)	
Unstandardized Beta (B)	0.486
Standard Error (e)	0.049
p-value	0.000
Step 4. Combined influence of IV and MV on DV	
Parental Expectation	
Unstandardized Beta (B)	0.380
Standard Error (e)	0.044
Standardized Beta	0.386
Part Correlation	0.339
Mindfulness Skills	
Standardized Beta	0.431
Part Correlation	0.043
Total R-squared	0.509

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