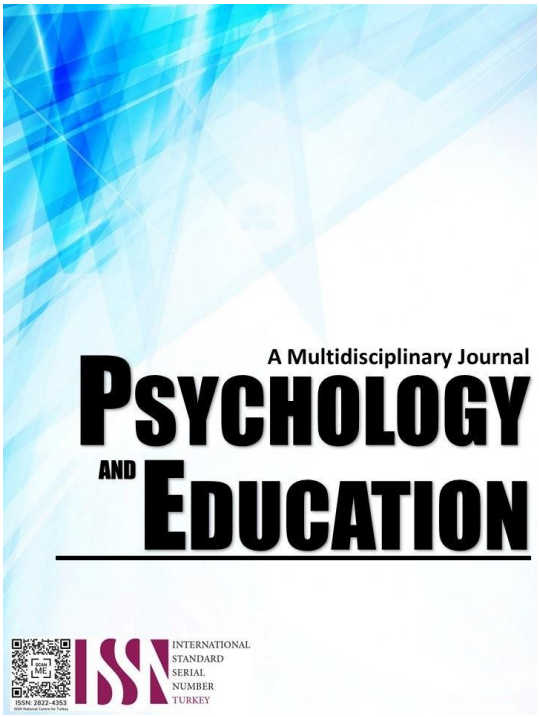
MEASURING THE EFFECTS OF LEARNING ENVIRONMENT AND TEACHER EFFECTIVENESS ON STUDENT WELL-BEING AMONG MATHEMATICS STUDENT



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Research Article

Measuring the Effects of Learning Environment and Teacher Effectiveness on Student Well-Being among Mathematics Student

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Abstract

The purpose of the study is to determine the impact of learning environment and teacher effectiveness to the student well-being of mathematics education students in a local college in Davao del Norte. The study is quantitative research that utilizes a descriptive-correlational approach. A sample of 245 randomly selected mathematics education students who were identified using stratified random sampling answered the surveys on the three variables. The collected data underwent statistical analysis, and the findings were subsequently evaluated. The statistical tools used in the study included the mean, Pearson-r, and regression. Results showed that the level of learning environment and teacher effectiveness were all very high in level while student well-being was high in level. Results also revealed that there is a significant relationship between learning environment and student well-being. Likewise, there is also a significant relationship between teacher effectiveness and student well-being of the mathematics students. Moreover, results show that domain of learning environment such as structure and steer can significantly influence student well-being. Finally, it was revealed that domain of teacher effectiveness such as subject matter knowledge can significantly predict student well-being of the respondents. Results imply that the variables are significant in improving the student well-being of mathematics education students.

Keywords: *learning environment, teacher effectiveness, student well-being, mathematics education student, Philippines*

Introduction

In the realm of education, student wellbeing is becoming increasingly important, covering emotional, social, and psychological dimensions that are essential for both quality of life and academic success. It involves more than the absence of negative experiences, focusing on fostering positivity, motivation, resilience, and engagement. In mathematics education, where anxiety and stress are common, understanding key factors such as the learning environment and teacher effectiveness is important. Despite the acknowledged significance of student wellbeing, there is a gap in comprehending how these factors impact students, particularly in mathematics education. Bridging this gap is essential for fostering a positive learning environment and enhancing overall student wellbeing (Suldo & Shaffer, 2018).

In Australia, student wellbeing has gained prominence as a critical concern, characterized by a noticeable increase in stress, anxiety, and mental health issues among students. These challenges often stem from academic pressures and the dynamics of the learning environment, reflecting broader global trends. The specific challenges faced by students in Australia are particularly pertinent to mathematics education. Mathematics anxiety and the dynamics of the mathematics learning environment significantly impact student wellbeing and academic performance in Australia. Consequently, exploring the intricate relationships between these variables within the context of mathematics education in Australia provides valuable insights into global challenges and offers the potential to inform evidence-based policies and interventions with broader implications (Muir et al., 2021; Blue, 2021).

Student well-being is a significant concern contributing to mental health issues among students in Laguna, Philippines. The educational system often prioritizes academic excellence at the expense of students' overall well-being. This leads to high expectations from parents, teachers, and society, placing immense pressure on students to excel in their studies. The competitive nature of the education system, reliance on standardized tests, and parental aspirations add to the burden. Consequently, students may struggle to maintain a healthy work-life balance and may experience heightened stress, anxiety, and depression as they grapple with the fear of not meeting these demanding expectations. Recognizing the importance of student well-being, it is imperative to adopt a holistic approach to education that values mental health alongside academic achievements (Aligada, 2020).

In an era marked by increasing academic pressures, rapid technological advancements, and unprecedented global challenges, the need to prioritize student well-being in education has never been more critical. Student well-being is socially relevant because it directly influences academic success and future life outcomes. When students are physically and mentally healthy, they engage better in learning, increasing their chances of success in education and employment. Moreover, it fosters a safe and inclusive environment, reduces bullying, and contributes to overall community well-being. This study delves into the intricate interplay between learning environments, teacher effectiveness, and student well-being with a sense of urgency for several compelling reasons. Moreover, the urgency to prioritize student well-being extends beyond individual students. It ripples through families, communities, and society at large. This study is deemed urgent and relevant because it can shed light on how the learning environment and teacher effectiveness impact students' mental health and overall well-being, helping to address mental health issues among students. Understanding and improving student well-being is not merely an academic pursuit but an urgent societal imperative.

There were studies conducted that is somewhat related to this study such as the study entitled "Teacher-Student Relationships and Student Well-being in Mathematics Education"; this study explored the impact of teacher-student relationships on student well-being within the context of mathematics education. Additionally, "Assessing Classroom Environment and Student Well-being" focused on assessing the classroom environment's influence on student well-being across various subjects, including mathematics. However, their study primarily employed qualitative methods and did not delve deeply into the specific role of teacher effectiveness in enhancing student well-being. Moreover, "Teacher Effectiveness in Mathematics Education" focused on an extensive study on teacher effectiveness in mathematics education, with an emphasis on its impact on students' academic achievement. These related studies offer valuable contributions to the field of education and student well-being, but they differ from the researcher's proposed research in terms of their primary focus, methodologies, and the comprehensiveness of their investigation. The study offers a fresh perspective by exploring how the learning environment, teacher effectiveness in math education, and student well-being interact. It aims to fill gaps in current research and provide practical insights to improve educational practices and student outcomes. To address this gap, the researcher's study aims by examining the broader dynamics of the learning environment and teacher effectiveness in mathematics education and their combined effects on student well-being.

The dissemination plan for this study involves a multifaceted approach to ensure widespread reach and impact. Firstly, the findings will be disseminated through publication in reputable peer-reviewed journals, targeting both academic and practitioner audiences. Additionally, presentations at national and international conferences will provide opportunities for direct engagement with educators and researchers. In addition, digital avenues such as institutional websites and social media platforms will be used in sharing main discoveries and observations. Furthermore, targeted workshops and seminars will be organized in collaboration with educational institutions and professional organizations to facilitate dialogue and implementation of research-informed practices. Using these various means, this study hopes to transform learning environments by instituting changes that guarantee student wellbeing alongside improving mathematics education outcomes for students' benefit in general.

Research Objectives

The aim of this study was to determine the effects of learning environment and teacher effectiveness on student wellbeing among mathematics student. To be more precise, this study aimed to address the following objectives:

1. To determine the level of learning environment of mathematics education student in terms of:
    1.1. motivate to exert learning effort;
    1.2. activate towards self-regulated learning;
    1.3. give feedback and coach; and
    1.4. structure and steer.
2. To determine the level of teacher effectiveness of mathematics education student in terms of:
    2.1. subject matter knowledge;
    2.2. instructional planning and strategies;
    2.3. assessment; and
    2.4. learning environment.
3. To determine the level of student well-being of mathematics education student in terms of:
    3.1. school connectedness;
    3.2. joy of learning;
    3.3. educational purpose; and
    3.4. academic efficacy.
4. To determine the significant relationship between:
    4.1. learning environment and student well-being; and
    4.2. teacher effectiveness and student well-being.
5. To determine which domain/s of learning environment and teacher effectiveness that can considerably influence the student well-being of mathematics education student.

Methodology

Research Design

The study employed a quantitative research design utilizing a descriptive-correlational research technique and regression analysis to assess the impact of the learning environment and teacher effectiveness on the well-being of mathematics education students. This approach involved gathering and analyzing numerical data to thoroughly examine and quantify the variables, ultimately extracting valuable insights. Descriptive quantitative research facilitated the collection and evaluation of numerical data, enabling the identification of patterns, the computation of averages, the prediction of trends, and the testing of relationships between variables, with the goal of generalizing findings to a larger population (Bhandari, 2020).

The research design was non-experimental, allowing for the exploration of natural occurrences within educational settings without manipulating the environment or behaviors. A quantitative research design was suitable to be utilized because of its ability to measure

and analyze numerical data, which was essential for identifying trends, forming hypotheses, and examining the causality of various correlations between variables. Statistical analyses enhanced the external validity of the study, supporting broader generalizations and providing a systematic, objective examination. The research adhered to ethical principles by maintaining an authentic investigation of the variables within their natural context.

Furthermore, a descriptive-correlational research approach represents a quantitative methodology entailing the collection and examination of data pertaining to a specific subject matter without directly manipulating or impacting the subjects under study. Data collection from the sample population was followed by statistical analysis to uncover correlations among the variables. While this method provided valuable insights into the interrelationships between the learning environment, teacher effectiveness, and student well-being, it did not offer conclusive evidence of causality due to the potential influence of unexamined variables (Quaranta, 2017).

Moreover, the decision to employ a descriptive-correlational research methodology proved to be particularly effective in capturing the current landscape of the field. This approach facilitates a comprehensive examination of the various variables influencing the well-being of BSEd-Mathematics students within college settings. By utilizing a correlational design, the study adopts a quantitative lens that allows for the exploration of significant linkages in this educational context. Specifically, it focuses on establishing statistical connections between the learning environment, teacher effectiveness, and student well-being. This methodology not only provides insights into the interplay among these variables but also highlights how they collectively contribute to the overall educational experience of the students.

Respondents

The research took place at Kapalong College of Agriculture, Sciences and Technology (KCAST) situated in the Province of Davao del Norte. The researcher employed a random sampling approach to recruit participants. Among the 245 mathematics education students across all year levels in the first semester of the 2023-2024 academic year, 152 students were chosen as the study's sample. In the first year, there were two sections, while there was one section each for second, third, and fourth-year levels. The selection of these students as respondents was based on the study's focus, which was on evaluating the impact of the learning environment and teacher effectiveness on student well-being. Specifically, because the study was centered around student well-being, it was considered appropriate and justified to include students from the mathematics education program at the chosen local college.

The researcher utilized a stratified random sampling technique to choose participants for the study. This method involved dividing a larger population into smaller groups based on specific characteristics relevant to the research. Instead of randomly selecting from the entire population, samples were picked from each of these categorized groups. This approach improved the sample's representativeness by ensuring that each subgroup was proportionately represented, resulting in more precise and broadly applicable findings. The choice of this method was driven by the research's specific objectives and the aim to reduce potential biases in participant selection (Hayes, 2023).

The study employed stratified random sampling using proportional allocation through Slovin's formula with a margin of error of 0.05 to ensure participants were selected from various levels of mathematics education, guaranteeing representation from each year level. This approach involved dividing the larger population into smaller groups or strata based on a relevant characteristic, allowing the researchers to obtain a more precise representation of the overall population because each group was proportionally included in the sample.

The table provided data on how respondents were distributed across different academic years within the mathematics education student population. It showed that out of a total of 245 students, 30.13% were in their first year, 12.66% were in their second year, 10.89% were in their third year, and 8.36% were in their fourth year.

The dataset comprises 152 respondents, including 119 first-year students, 50 second-year students, 43 third-year students, and 33 fourth-year students.

Table 1. *Distribution of Respondent*

BSED Mathematics Programs	*Population*	*Sample*	*Percentage*
1A	63	39	15.92%
1B	56	35	14.29%
2A	50	31	12.65%
3A	43	27	11.02%
4A	33	20	8.16%
Total	245	152	62.04%

Instrument

The researcher utilized adapted questionnaires from web sources to measure the variables. These adapted questionnaires that were used in the study underwent thorough expert validation before the dissemination of the research questionnaires towards the students. The first set of questions evaluated mathematics education students' views on the learning environment. This assessment included a reliability test with a score of 0.76, 0.83, 0.78, and 0.77 along with its corresponding indicators: motivation to exert learning effort,

activation towards self-regulated learning, giving feedback and coaching, and structuring and steering (Schelflout et al., 2006). The second set of questions concentrated on assessing the effectiveness of teachers. This evaluation involved a reliability test yielding a score of 0.84, along with the associated indicators: subject matter knowledge, instructional planning and strategies, assessment, learning environment, and effective communication (Liakopoulou, 2011; Darling-Hammond, 2000; Stronge, 2010). The third set of questions centered on examining the well-being of students. This inquiry included a reliability test that yielded a score of 0.72, along with its respective indicators: school connectedness, joy of learning, educational purpose, and academic efficacy (Törneke, 2010).

The Likert scale, a five-point measuring instrument, allowed individuals to communicate their level of agreement or disagreement with a particular statement. It typically presented five response choices, permitting respondents to indicate the intensity of their agreement or emotions regarding the statement. In this research, we employed the 5-point Likert scale to evaluate the levels of respondents' perceptions of their learning environment, the effectiveness of their teachers, and the well-being of students (McLeod, 2023).

The Likert scale was utilized to assess the degree of agreement or disagreement with statements regarding the effectiveness and benefits of the learning environment. This scale facilitated the collection of data that was not only straightforward to analyze but also easy to comprehend. It played a critical role in evaluating participants' readiness for self-directed learning, an essential component of mathematics education. Participants received clear instructions to indicate their responses by marking a checkbox corresponding to a numerical value. They utilized a five-point Likert scale, which ranged from "strongly agree" to "strongly disagree." Subsequently, the scores from these responses were aggregated across all items, yielding an overall score for each participant. This comprehensive approach allowed for a nuanced understanding of the participants' perspectives on their learning environment.

Procedure

The following steps were taken to collect the data for this study.

Questionnaire Formulation and Development. The researcher searched the questionnaires from reputable journal articles and related internet research which can be positively related to the three variables.

Revision and Validation of Questionnaires. Afterwards, it was submitted to the panel of experts to be evaluated and be contextualized towards mathematics learning. The researcher followed the advice of those revision experts until it was for administration.

Requesting Permission to Conduct a Study. Once the questionnaires were ready for administration, the permission to administer the study in the concerned institution was secured from Vice President for Academic Affairs of the college through a formal letter.

Distribution of Questionnaires. The research instruments were given directly to the respondents via Google forms and face-to-face surveys with permission, and the study was conducted by the researcher herself.

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 following statistical tools were used to calculate the data in this study.

Mean. This was used to determine the level of quality of learning environment, teacher effectiveness, and student well-being among the respondents.

Pearson-r. This was used to determine the significant relationship between quality of learning environment and student well-being as well as teacher effectiveness and student well-being of the respondents.

Regression. This was used to determine the significant influence of learning environment and teacher effectiveness on the student well-being of the respondents.

Ethical Considerations

In the process of conducting research involving human participants, it was imperative for a researcher to uphold robust ethical principles. Therefore, this quantitative study has implemented various measures to ensure the ethical integrity of the research, with the primary objective of safeguarding the well-being of the individuals involved. In this study, we have embraced the ethical guidelines put forth by Denzin and Lincoln in (2011). These guidelines predominantly revolved around three key areas: obtaining informed consent, mitigating the potential for harm, ensuring anonymity and confidentiality, and addressing any conflicts of interest.

Informed Consent. The participants received clear information about the nature of the questions, the intended purpose of the data, and any potential repercussions before they took part in the study. To participate, individuals must grant informed consent, which entails recognizing their right to access their data and the option to withdraw from the study at any time. In a way, the informed consent process serves as a legal agreement between the researcher and the participants (Denzin & Lincoln, 2011).

In the Google survey forms that was used for this research, the researcher included an informed consent question, inquiring whether

participants remained willing to take part in the study considering the possible risks and the study's purpose. Additionally, participants were provided with the opportunity to decline if they had any reservations about the agreement.

As part of the informed consent procedure, participants were educated about their various rights. They were informed that they could discontinue their participation in the study without providing any reasons. Furthermore, they had the option to decline answering sensitive questions. Additionally, participants were entitled to inquire about any aspects of the study they were unclear about. Lastly, they had the right to receive information about the study's results once the research had been completed.

Risk of Harm, Anonymity and Confidentiality. It ensures that the personal information of respondents, such as their names and identifying details, remain confidential throughout the study. This serves as a critical protective measure to prevent potential harm or negative consequences arising from the exposure of their personal details. Anonymity also plays a crucial role in preventing any biases from affecting the study, as the researcher was not influenced by participants' individual traits or identities. To maintain participant anonymity, researchers often use codes or pseudonyms instead of participants' actual names and took measures to secure the confidentiality of any personal information collected (Denzin & Lincoln, 2011).

To maintain data confidentiality, the researcher refrained from gathering participants' phone numbers and email addresses through Google Forms. Additionally, measures were taken to guarantee that research outcomes and findings remained confidential and were not disclosed publicly. This precaution was put in place to prevent participants from experiencing psychological distress, including feelings of shame and embarrassment, that could result from inadvertent or unauthorized data sharing. It was also stipulated that the data would be securely stored and ultimately disposed of three years after the completion of the study.

Conflicts of Interest. When a researcher has preexisting relationships or past actions that could lead to a conflict of interest, it was imperative to transparently disclose these in an application for ethical approval. This transparency allows the ethics committee to provide guidance on how to effectively manage such conflicts. Conflict of interest can also arise when a researcher either prioritizes or appears to prioritize their personal interests or commitments over their professional obligations and responsibilities. These conflicts can encompass both financial and non-financial benefits, whether they are real, potential, or even perceived. Such conflicts of interest may influence or be perceived as influencing a researcher's impartiality and judgment, which in turn can erode confidence in the integrity of the research outcomes (Denzin & Lincoln, 2011).

Moreover, since the respondents were fellow students, the researcher did not have any conflict of interest within the study. A conflict of interest only arose when the researcher possessed the capability to compel respondents to participate by means of coercion, withholding benefits, or imposing penalties (for example, a student-researcher within the same institution could have created a conflict of interest if they employed any form of pressure or authority to coerce other students into participating in the survey, or if the student-researcher held a leadership role in a student organization or wielded influence among their peers, and they exploited this position to exert pressure on other students to join the study, possibly offering incentives or threatening social consequences for non-compliance).

Results and Discussion

Level of Learning Environment in Terms of Motivate to Exert Learning Effort

The level of learning environment of mathematics education students was measured through the survey questionnaire with the indicator, motivate to exert effort. The responses of mathematics major students on each indicator were presented and analyzed below.

Table 2 presents the level of learning environment of mathematics education students in terms of motivate to exert effort. The data revealed that the level of learning environment in terms of motivate to exert learning effort had a total mean of 4.33 with a descriptive equivalent of very high. This indicated that the level of learning environment of mathematics education students in terms of motivate to exert learning effort is always manifested.

The highest mean is 4.37 which descriptively means very high. This means that the item is always manifested by the respondents. This is from item no. 4 – Feeling that the subject matter will be useful to me later.

In contrast, the lowest mean is 4.30 with a descriptive equivalent of very high. This means that the item is always manifested by the respondents. This is from item no. 2 - Observing the teacher utilizing a pleasing array of teaching approaches, promoting an enjoyable diversity in instruction and item no. 5 – Being motivated to exert extra effort in my learning due to the teacher's approach to teaching.

Table 2. Level of Learning Environment in Terms of Motivate to Exert Learning Effort

	Motivate to Exert Learning Effort	*Mean*	*Description*
1.	Finding that the teacher ensures my engagement by making sure I am interested in the subject matter	4.32	Very High
2.	Observing the teacher utilizing a pleasing array of teaching approaches, promoting an enjoyable diversity in instruction	4.30	Very High
3.	Working in a pleasant manner	4.36	Very High
4.	Feeling that the subject matter will be useful to me later	4.37	Very High
5.	Being motivated to exert extra effort in my learning due to the teacher's approach to teaching	4.30	Very High
	Overall	4.33	Very High

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Level of Learning Environment in Terms of Activate Towards Self-Regulated Learning

The level of learning environment of mathematics education students was measured through the survey questionnaire with the indicator, activate towards self-regulated learning. The responses of the respondents on each indicator were analyzed below.

Presented in Table 3 is the level of learning environment of mathematics education students in terms of activate towards self-regulated learning. The data revealed that the level of learning environment in terms of activate towards self-regulated learning had a total mean of 4.32 with a descriptive equivalent of very high. This indicated that the level of learning environment of mathematics education students in terms of activate towards self-regulated learning is always manifested. The highest mean is 4.42 which descriptively means very high. This means that the item is always manifested by the respondents. This is from item no. 4 – Appreciating the teacher providing examples of situations in daily life where the subject matter can be applied.

On the other hand, the lowest mean is 4.23 with a descriptive equivalent of high. This means that the item is oftentimes manifested by the respondents. This is from item no. 2 - Noticing that when we begin a new subject, the teacher dedicates time to revisiting previous subject matter that will be pertinent to the upcoming topic.

Table 3. *Level of Learning Environment in Terms of Activate Towards Self-Regulated Learning*

	Activate Towards Self-Regulated Learning	*Mean*	*Description*
1.	Receiving tasks that inspire me to continuously seek solutions, encouraging a persistent approach to problem-solving	4.24	High
2.	Noticing that when we begin a new subject, the teacher dedicates time to revisiting previous subject matter that will be pertinent to the upcoming topic	4.23	High
3.	Encountering situations that are described and can occur in the real world, requiring a mathematical solution	4.32	Very High
4.	Appreciating the teacher providing examples of situations in daily life where the subject matter can be applied	4.42	Very High
5.	Valuing how the teacher offers subtle clues that assist us in finding solutions on our own	4.38	Very High
	Overall	4.32	Very High

Level of Learning Environment in Terms of Give Feedback and Coach

The level of learning environment of mathematics education students was measured through the survey questionnaire with the indicator, give feedback and coach. The responses of the respondents on each indicator were presented and analyzed below.

Presented in Table 4 is the level of learning environment of mathematics education students in terms of give feedback and coach. The data revealed that the level of learning environment in terms of give feedback and coach had a total mean of 4.34 with a descriptive equivalent of very high. This indicated that the level of learning environment of mathematics education students in terms of give feedback and coach is always manifested.

The highest mean is 4.49 which descriptively means very high. This means that the item is always manifested by the respondents. This is from item no. 3 – Finding it helpful that the teacher explains the solution after each exercise.

In contrast, the lowest mean is 4.22 with a descriptive equivalent of high. This means that the item is oftentimes manifested by the respondents. This is from item no. 4 - Receiving the solutions on paper after a test.

Table 4. *Level of Learning Environment in Terms of Give Feedback and Coach*

	Give Feedback and Coach	*Mean*	*Description*
1.	Observing the teacher revisiting the subject matter whenever some students do not properly understand it, ensuring clarity for everyone	4.38	Very High
2.	Appreciating how the teacher clarifies errors in tests, providing valuable feedback for improvement	4.36	Very High
3.	Finding it helpful that the teacher explains the solution after each exercise	4.49	Very High
4.	Receiving the solutions on paper after a test	4.22	High
5.	Being encouraged to contemplate the reasons behind problems occurring in assignments or tests and brainstorm potential solutions to rectify them	4.25	High
	Overall	4.34	Very High

Level of Learning Environment in Terms of Structure and Steer

The level of learning environment of mathematics education students was measured through the survey questionnaire with the indicator, structure and steer. The responses of the respondents on each indicator were presented and analyzed below.

Presented in Table 5 is the level of learning environment of mathematics education students in terms of structure and steer. The data revealed that the level of learning environment in terms of structure and steer had a total mean of 4.32 with a descriptive equivalent of very high. This indicated that the level of learning environment of mathematics education students in terms of structure and steer is always manifested.

The highest mean is 4.41 which descriptively means very high. This means that the item is always manifested by the respondents. This is from item no. 2 – Appreciating how the teacher presents new topics in a clear and well-organized manner and item no. 5 - Appreciating how the teacher maintains control over the class.

On the other hand, the lowest mean is 4.13 with a descriptive equivalent of high. This means that the item is oftentimes manifested by the respondents. This is from item no. 3 - Getting the opportunity to explain our solution to the teacher.

Table 5. *Level of Learning Environment in Terms of Structure and Steer*

	Structure and Steer	*Mean*	*Description*
1.	Thanking my teachers approach that I understand the subject matter well	4.30	Very High
2.	Appreciating how the teacher presents new topics in a clear and well-organized manner	4.41	Very High
3.	Getting the opportunity to explain our solution to the teacher	4.13	High
4.	Finding that the teacher helps us comprehend new subject matter by asking questions to the class and following up with explanations	4.36	Very High
5.	Appreciating how the teacher maintains control over the class	4.41	Very High
	Overall	4.32	Very High

Summary of the Level of Learning Environment

Presented in Table 6 is the overall level of learning environment of mathematics education students in terms of motivate to exert learning effort, activate towards self-regulated learning, give feedback and coach, and structure and steer. The data revealed that the level of learning environment of mathematics education students has a total mean of 4.33 with the descriptive equivalent of very high. This indicates that learning environment is always manifested as perceived by the respondents.

Further, the highest mean is 4.34 with the descriptive equivalent of very high. This indicates that the level of learning environment in terms of give feedback and coach is always manifested.

In contrast, the lowest indicators are activate towards self-regulated learning and structure and steer which obtained a mean of 4.32 with a descriptive equivalent of very high. This indicates that the level of learning environment in terms of active towards self-regulated learning and the level of learning environment in terms of structure and steer is always manifested.

Moreover, motivate to exert learning effort obtained a mean of 4.33 which means very high. This indicates that the level of learning environment in terms of motivate to exert learning effort is always manifested.

Table 6. *Level of Learning Environment*

Indicators	*Mean*	*Description*
Motivate to Exert Learning Effort	4.33	Very High
Activate Towards Self-Regulated Learning	4.32	Very High
Give Feedback and Coach	4.34	Very High
Structure and Steer	4.32	Very High
Overall	4.33	Very High

Level of Teacher Effectiveness in Terms of Subject Matter Knowledge

The level of teacher effectiveness of mathematics education students was measured through the survey questionnaire with the indicator, subject matter knowledge. The responses of the respondents on each indicator were presented and analyzed below.

Presented in Table 7 is the level of teacher effectiveness of mathematics education students in terms of subject matter knowledge. The data revealed that the level of teacher effectiveness in terms of subject matter knowledge has a total mean of 4.35 with a descriptive equivalent of very high. This indicates that the level of teacher effectiveness of mathematics education students in terms of subject matter knowledge is always manifested.

The highest mean is 4.40 which descriptively means very high. This means that the item is always manifested by the respondents. This is from item no. 1 – Demonstrating accurate knowledge according to subject matter while teaching.

Table 7. *Level of Teacher Effectiveness in Terms of Subject Matter Knowledge*

	Subject Matter Knowledge	*Mean*	*Description*
1.	Demonstrating accurate knowledge according to subject matter while teaching	4.40	Very High
2.	Linking present content with past and future learning experiences	4.26	Very High
3.	Teaching content through a variety of teaching skills	4.38	Very High
4.	Making the subject matter accessible to me	4.38	Very High
5.	Linking the content with practical life	4.33	Very High
	Overall	4.35	Very High

On the other hand, the lowest mean is 4.26 with a descriptive equivalent of high. This means that the item is always manifested by the respondents. This is from item no. 2 - Linking present content with past and future learning experiences.

Level of Teacher Effectiveness in Terms of Instructional Planning and Strategies

The level of teacher effectiveness of mathematics education students was measured through the survey questionnaire with the indicator, instructional planning and strategies. The responses of the respondents on each indicator were presented and analyzed below.

Presented in Table 8 is the level of teacher effectiveness of mathematics education students in terms of instructional planning and strategies. The data revealed that the level of teacher effectiveness in terms of instructional planning and strategies has a total mean of 4.36 with a descriptive equivalent of very high. This indicates that the level of teacher effectiveness of mathematics education students in terms of instructional planning and strategies is always manifested.

The highest mean is 4.45 which descriptively means very high. This means that the item is always manifested by the respondents. This is from item no. 1 – Using different teaching strategies to enhance students' understanding and item no. 5 - Engaging, motivates, and maintains students' attention to their lesson.

Table 8. *Level of Teacher Effectiveness in Terms of Instructional Planning and Strategies*

	Instructional Planning and Strategies	*Mean*	*Description*
1.	Using different teaching strategies to enhance students' understanding	4.45	Very High
2.	Changing his/her teaching methodology to make topics relevant to students' lives	4.31	Very High
3.	Teaching the students according to their individual differences	4.22	High
4.	Using the appropriate material, technology and resources while teaching	4.36	Very High
5.	Engaging, motivates, and maintains students' attention to their lesson	4.45	Very High
	Overall	4.36	Very High

In contrast, the lowest mean is 4.22 with a descriptive equivalent of high. This means that the item is oftentimes manifested by the respondents. This is from item no. 3 - Teaching the students according to their individual differences.

Level of Teacher Effectiveness in Terms of Assessment

The level of teacher effectiveness of mathematics education students was measured through the survey questionnaire with the indicator, assessment. The responses of the respondents on each indicator were presented and analyzed below.

Presented in Table 9 is the level of teacher effectiveness of mathematics education students in terms of assessment. The data revealed that the level of teacher effectiveness in terms of assessment has a total mean of 4.34 with a descriptive equivalent of very high. This indicates that the level of teacher effectiveness of mathematics education students in terms of assessment is always manifested.

The highest mean is 4.41 which descriptively means very high. This means that the item is always manifested by the respondents. This is from item no. 5 – Encouraging the students to do better next time.

On the other hand, the lowest mean is 4.26 with a descriptive equivalent of very high. This means that the item is always manifested by the respondents. This is from item no. 2 - Evaluating students' performance and provides timely feedback on their errors.

Table 9. *Level of Teacher Effectiveness in Terms of Assessment*

	Assessment	*Mean*	*Description*
1.	Conducting class tests to monitor students' performance regularly	4.30	Very High
2.	Evaluating students' performance and provides timely feedback on their error	4.26	Very High
3.	Maintaining a record of students' results	4.38	Very High
4.	Using multiple assessment strategies	4.34	Very High
5.	Encouraging the students to do better next time	4.41	Very High
	Overall	4.34	Very High

Level of Teacher Effectiveness in Terms of Learning Environment

The level of teacher effectiveness of mathematics education students was measured through the survey questionnaire with the indicator, learning environment. The responses of the respondents on each indicator were presented and analyzed below.

Table 10. *Level of Teacher Effectiveness in Terms of Learning Environment*

	Learning Environment	*Mean*	*Description*
1.	Creating a climate of mutual trust and respect in the classroom	4.43	Very High
2.	Emphasizing continuous improvement towards students' achievement	4.38	Very High
3.	Maintaining a classroom setting that minimizes disruption	4.26	Very High
4.	Creating an attractive and friendly classroom environment	4.44	Very High
5.	Ensuring students' participation in the learning process	4.43	Very High
	Overall	4.39	Very High

Presented in Table 10 is the level of teacher effectiveness of mathematics education students in terms of learning environment. The data revealed that the level of teacher effectiveness in terms of learning environment has a total mean of 4.39 with a descriptive equivalent of very high. This indicates that the level of teacher effectiveness of mathematics education students in terms of learning

environment is always manifested.

The highest mean is 4.44 which means very high. This means that the item is always manifested by the respondents. This is from item no. 4 – Creating an attractive and friendly classroom environment.

In contrast, the lowest mean is 4.26 with a descriptive equivalent of very high. This means that the item is always manifested by the respondents. This is from item no. 3 - Maintaining a classroom setting that minimizes disruption.

Summary of the Level of Teacher Effectiveness

Presented in Table 11 is the overall level of teacher effectiveness of mathematics education students in terms of subject matter knowledge, instructional planning and strategies, assessment, and learning environment. The data revealed that the level of teacher effectiveness of mathematics education students has a total mean of 4.36 with the descriptive equivalent of very high. This indicates that teacher effectiveness is always manifested as perceived by the respondents.

Table 11. *Level of Teacher Effectiveness*

Indicators	*Mean*	*Description*
Subject Matter Knowledge	4.35	Very High
Instructional Planning and Strategies	4.36	Very High
Assessment	4.34	Very High
Learning Environment	4.39	Very High
Overall	4.36	Very High

Furthermore, the highest mean is 4.39 with the descriptive equivalent of very high. This indicates that the level of teacher effectiveness in terms of learning environment is always manifested.

On the other hand, the lowest indicator is assessment which obtained a mean of 4.34 with a descriptive equivalent of very high. This indicates that the level of teacher effectiveness in terms of assessment is always manifested.

Moreover, instructional planning and strategies obtained a mean of 4.36 which means very high. This indicates that the level of teacher effectiveness in terms of instructional planning and strategies is always manifested.

Lastly, subject matter knowledge obtained a mean of 4.35 which means very high. This indicates that the level of teacher effectiveness in terms of subject matter knowledge is always manifested.

Level of Student Well-Being in Terms of School Connectedness

The level of student well-being of mathematics education students was measured through the survey questionnaire with the indicator, school connectedness. The responses of the respondents on each indicator were presented and analyzed below.

Presented in Table 12 is the level of student well-being of mathematics education students in terms of school connectedness. The data revealed that the level of student well-being in terms of school connectedness has a total mean of 4.08 with a descriptive equivalent of high. This indicates that the level of student well-being of mathematics education students in terms of school connectedness is oftentimes manifested.

Table 12. *Level of Student Well-Being in Terms of School Connectedness*

	School Connectedness	*Mean*	*Description*
1.	Feeling like I belong at this school	4.34	Very High
2.	Being really myself at this school	4.13	High
3.	Feeling like people at this school care about me	3.95	High
4.	Being treated with respect at this school	4.32	Very High
5.	Experiencing sometimes no stress related to schoolwork	3.69	High
	Overall	4.08	High

The highest mean is 4.34 which descriptively means very high. This means that the item is always manifested by the respondents. This is from item no. 1 – Feeling like I belong at this school.

In contrast, the lowest mean is 3.69 with a descriptive equivalent of high. This means that the item is oftentimes manifested by the respondents. This is from item no. 5 - Experiencing sometimes no stress related to schoolwork.

Level of Student Well-Being in Terms of Joy of Learning

The level of student well-being of mathematics education students was measured through the survey questionnaire with the indicator, joy of learning. The responses of the respondents on each indicator were presented and analyzed below.

Presented in Table 13 is the level of student well-being of mathematics education students in terms of joy of learning. The data revealed that the level of student well-being in terms of joy of learning has a total mean of 4.25 with a descriptive equivalent of high. This

indicates that the level of student well-being of mathematics education students in terms of joy of learning is oftentimes manifested. The highest mean is 4.35 which descriptively means very high. This means that the item is always manifested by the respondents. This is from item no. 1 – Getting excited about learning new things in class.

On the other hand, the lowest mean is 4.17 with a descriptive equivalent of high. This means that the item is oftentimes manifested by the respondents. This is from item no. 3 - Enjoying working on class projects and assignments.

Table 13. *Level of Student Well-Being in Terms of Joy of Learning*

	Joy of Learning	*Mean*	*Description*
1.	Getting excited about learning new things in class	4.35	Very High
2.	Being really interested in the things I am doing at school	4.29	Very High
3.	Enjoying working on class projects and assignments	4.17	High
4.	Feeling happy when I am working and learning at school	4.24	High
5.	Finding meaning and satisfaction in my academic pursuits	4.20	High
	Overall	4.25	High

Level of Student Well-Being in Terms of Educational Purpose

The level of student well-being of mathematics education students was measured through the survey questionnaire with the indicator, educational purpose. The responses of the respondents on each indicator were presented and analyzed below.

Presented in Table 14 is the level of student well-being of mathematics education students in terms of educational purpose. The data revealed that the level of student well-being in terms of educational purpose has a total mean of 4.42 with a descriptive equivalent of very high. This indicates that the level of student well-being of mathematics education students in terms of educational purpose is always manifested.

Table 14. *Level of Student Well-Being in Terms of Educational Purpose*

	Educational Purpose	*Mean*	*Description*
1.	Feeling like the things I do at school are important	4.43	Very High
2.	Thinking school matters should be taken seriously	4.42	Very High
3.	Feeling it is important to do well in my classes	4.41	Very High
4.	Believing the things I learn at school will help me in my life	4.45	Very High
5.	Having a clear understanding of the purpose of my education	4.40	Very High
	Overall	4.42	Very High

The highest mean is 4.45 which descriptively means very high. This means that the item is always manifested by the respondents. This is from item no. 4 – Believing the things I learn at school will help me in my life.

In contrast, the lowest mean is 4.40 with a descriptive equivalent of very high. This means that the item is always manifested by the respondents. This is from item no. 5 - Having a clear understanding of the purpose of my education.

Level of Student Well-Being in Terms of Academic Efficacy

The level of student well-being of mathematics education students was measured through the survey questionnaire with the indicator, academic efficacy. The responses of the respondents on each indicator were presented and analyzed below.

Presented in Table 15 is the level of student well-being of mathematics education students in terms of academic efficacy. The data revealed that the level of student well-being in terms of academic efficacy has a total mean of 4.24 with a descriptive equivalent of high.

This indicates that the level of student well-being of mathematics education students in terms of academic efficacy is oftentimes manifested.

Table 15. *Level of Student Well-Being in Terms of Academic Efficacy*

Academic Efficacy	*Mean*	*Description*
Feeling successful in accomplishing all easy and difficult academic tasks	4.39	Very High
Doing good work at school	4.27	Very High
Doing well on my class assignments	4.22	High
Getting good grades in my classes	4.18	High
Being always feel confident in my ability to succeed academically	4.14	High
Overall	4.24	High

The highest mean is 4.39 which descriptively means very high. This means that the item is always manifested by the respondents. This is from item no. 1 – Feeling successful in accomplishing all easy and difficult academic tasks.

On the other hand, the lowest mean is 4.14 with a descriptive equivalent of high. This means that the item is oftentimes manifested by the respondents. This is from item no. 5 – Being always feel confident in my ability to succeed academically.

Summary of the Level of Student Well-Being

Presented in Table 16 is the overall level of student well-being of mathematics education students in terms of school connectedness, joy of learning, educational purpose, and academic efficacy. The data revealed that the level of student well- being of mathematics education students has a total mean of 4.25 with the descriptive equivalent of high. This indicates that student well-being is oftentimes manifested as perceived by the respondents.

Further, the highest mean is 4.42 with the descriptive equivalent of very high. This indicates that the level of student well-being in terms of educational purpose is always manifested.

In contrast, the lowest indicator is school connectedness which obtained a mean of 4.08 with a descriptive equivalent of high. This indicates that the level of student well-being in terms of school connectedness is oftentimes manifested.

Moreover, joy of learning obtained a mean of 4.25 which means high. This indicates that the level of student well-being in terms of joy of learning is oftentimes manifested.

Additionally, academic efficacy obtained a mean of 4.24 which means high. This indicates that the level of student well-being in terms of academic efficacy is oftentimes manifested.

Table 16. *Level of Student Well-Being*

Indicators	*Mean*	*Description*
School Connectedness	4.08	High
Joy of Learning	4.25	High
Educational Purpose	4.42	Very High
Academic Efficacy	4.24	High
Overall	4.25	High

Significant Relationship Between Learning Environment and Student Well-Being

Presented in Table 17 is the result of the relationship between learning environment and student well-being, r (150) = .726, p<.001. Since the probability value (p<.001) is less than the level of significance (α=0.05), the null hypothesis is rejected. This means that there is a positive, and significant relationship between learning environment and student well-being.

Table 17. *Significant Relationship Between Learning Environment and Student Well-Being*

Variables Correlated	*Mean*	*r-value*	*p-value*	*Decision α=0.05*
Learning Environment	4.33			
		.726	p<.001	Ho Rejected
Student Well-Being	4.25			

Significant Relationship Between Teacher Effectiveness and Student Well-Being

Presented in Table 18 is the result of the relationship between learning environment and student well-being, r (150) = .759, p<.001. Since the probability value (p<.001) is less than the level of significance (α=0.05), the null hypothesis is rejected. This means that there is a positive, and significant relationship between teacher effectiveness and student well-being.

Table 18. *Significant Relationship Between Teacher Effectiveness and Student Well-Being*

Variables Correlated	*Mean*	*r-value*	*p-value*	*Decision α=0.05*
Teacher Effectiveness	4.36			
		.759	p<.001	Ho Rejected
Student Well-Being	4.25			

Domain/s of Learning Environment that can Considerably Influence the Student Well-Being of Mathematics Education Student

Presented in Table 19 is the significant influence of the domains or indicators of learning environment towards the level of student well-being among mathematics education students. The results showed that one domain of learning environment, structure and steer, appear to be statistically significant predictors of the level of student well-being of mathematics education students – structure and steer (β=.353, p<.001). At 0.05 level of significance, the null hypothesis is rejected.

The beta value, β= .353, indicates that for every one unit increase of structure and steer, the level of student well-being among mathematics education students will also increase by .353 units. Therefore, structure and steer is the only indicator of learning environment that can significantly influence the student well-being of mathematics education students.

On the other hand, the other three domains – give feedback and coach (β=-.190, p=.059), motivate to exert learning effort (β=.138, p=.138), and activate towards self-regulated learning (β=.087, p=.351) – do not have a significant influence on student well-being. At

0.05 level of significance, the probability values of the three domains exceeded. This suggests that the three domains were not a significant predictor/s of student well-being.

Table 19. *Domain/s of Learning Environment that can Considerably Influence the Student Well-Being of Mathematics Education Student*

Independent Variable Learning Environment	*Unstandardized Coefficients*		*Standardized Coefficients*	*t-stat*	*p-value*	*Decision @ α= 0.05*
	B	*SE*	*Beta*			
(Constant)						
Motivate to Exert Learning Effort	.138	.093	.144	1.493	.138	Ho Accepted
Activate Towards Self-Regulated Learning	.087	.093	.091	.935	.351	Ho Accepted
Give Feedback and Coach	.190	.100	.186	1.903	.059	Ho Accepted
Structure and Steer	.353	.088	.389	4.005	<.001	Ho Rejected
Dependent Variable: Student Well-Being						
Note: R= .736		R2 = .542	F-ratio= 43.521		P-value= <.001	

Moreover, learning environment explained a significant proportion of variance in student well-being, $R2$= .542, F= 43.521, p<.001. The $R2$ of .542 shows that the model predicts 54.2% of the statistical variation observed in the level of student well-being among the respondents. The coefficient of alienation which is 45.8% points to the extent at which other indicators or domains not included in the study may explain the variance observed in the level of student well-being among mathematics education students.

Domain/s of Teacher Effectiveness that can Considerably Influence the Student Well-Being of Mathematics Education Student

Presented in Table 20 is the significant influence of the domains or indicators of teacher effectiveness towards the level of student well-being among mathematics education students. The results showed that three domains of teacher effectiveness, subject matter knowledge, instructional planning and strategies and learning environment, appear to be statistically significant predictors of the level of student well-being of mathematics education students – subject matter knowledge (β=.367, p<.001), instructional planning and strategies (β=.245, p<.001) and learning environment (β=.213, p<.001). At 0.05 level of significance, the null hypothesis is rejected.

Table 20. *Domain/s of Teacher Effectiveness that can Considerably Influence the Student Well-Being of Mathematics Education Student*

Independent Variable Teacher Effectiveness	*Unstandardized Coefficients*		*Standardized Coefficients*	*t-stat*	*p-value*	*Decision @ α= 0.05*
	B	SE	Beta			
(Constant)						
Subject Matter Knowledge	.367	0.081	.382	4.531	<.001	Ho Rejected
Instructional Planning and Strategies	.245	.083	.247	2.944	.004	Ho Rejected
Assessment	.049	.089	.050	0.559	.577	Ho Accepted
Learning Environment	.213	.085	.192	2.495	.014	Ho Rejected
Dependent Variable: Student Well-Being						
Note: R= .769		R2 = .592	F-ratio= 53.267		P-value= <.001	

The beta value, β=.367, indicates that for every unit increase of subject matter knowledge, the level of student well-being among mathematics education students will also increase by .367 units. Likewise, the beta value, β=.245, indicates that for every unit increase of instructional planning and strategies, the level of student well-being among mathematics education students will also increase by .245 units. Moreover, the beta value, β=.213, indicates that for every unit increase of learning environment, the level of student well-being among mathematics education students will also increase by .213 units. Therefore, subject matter knowledge is the only indicator of teacher effectiveness that can significantly influence the student well-being of mathematics education students.

On the other hand, one domain – assessment (β=.049, p=.577) – do not have a significant influence on student well-being. At 0.05 level of significance, the probability values of one domain exceeded. This implies that one domain did not significantly predicts student well-being.

Moreover, teacher effectiveness explained a significant proportion of variance in student well-being, $R2$= .592, F= 53.267, p<.001. The $R2$ of .592 shows that the model predicts 59.2% of the statistical variation observed in the level of student well-being among the respondents. The coefficient of alienation which is 40.8% points to the extent at which other indicators or domains not included in the study may explain the variance observed in the level of student well-being among mathematics education students.

Conclusions

Drawing upon the results, conclusions were formulated in response to the questions posed in the preceding chapter. The respondents consistently reported a significant prevalence of learning environment, indicating that this variable is always observed by students.

Based on the result of learning environment as perceived by students, it was determined to be very high. This means that the students

always observe the presence of the variable. Moreover, based on the result of the teacher effectiveness as perceived by students, it can be also drawn that the level of teacher effectiveness among mathematics education students was very high. This means that the students always manifest the variable. In addition, the students were assessed the preparedness level for student well-being, and it was determined as high. This means that the student well-being of mathematics education students is oftentimes manifested.

Furthermore, the correlation between the learning environment and student well-being revealed a significant relationship between one variable. The study shows that learning environment has a positive and significant relationship with the student well-being among mathematics education students. This means that the first null hypothesis proposed in the study is rejected.

In addition, the correlation between the teacher effectiveness and student well-being also revealed a significant relationship between three variables. The study also shows that teacher effectiveness has a positive and significant relationship with the student well-being among mathematics education students. This means that the first null hypothesis proposed in the study is rejected.

Based on the result of regression analysis, in learning environment one domain have shown significant influence to the student well-being. This means that the domain -- structure and steer -- is significant predictors of student well-being of mathematics education students. This also indicates the rejection of the second null hypothesis proposed in the study. Accordingly, the model describes 54.2% of the statistical variation in the level of student well-being of the respondents, while the remaining 45.8% refers to other variables that have not been included in the study that may also affect the student well-being of the respondents.

Lastly, the regression analysis of teacher effectiveness has three domain that significantly influence the student well-being of the respondents. This means that the domain -- subject matter knowledge, instructional planning and strategies, and learning environment – are significant predictors of student well-being. This also indicates the rejection of the second null hypothesis proposed in the study. Accordingly, the model describes 59.2% of the statistical variation in the level of student well-being of the respondents, while the remaining 40.8% refers to other variables that have not been included in the study that may also affect the student well-being of the respondents.

The study's findings resonate with Bandura's Social Cognitive Theory, which emphasizes the reciprocal interaction between personal factors, environmental influences, and behavior. The significant positive correlations observed between learning environment, teacher effectiveness, and student well-being align with SCT's notion that environmental factors play a crucial role in shaping individual behavior and outcomes. Bandura's theory suggests that individuals learn from observing others, and in an educational context, students' perceptions of their learning environment and teacher effectiveness can significantly impact their well-being and academic performance. Therefore, the study's results provide empirical support for the relevance of SCT in understanding the dynamics of student well-being within mathematics education.

The suggestions of the researcher are established based on the results and the wholeness of the paper. Among the learning environment indicators, it was found that activate towards self-regulated learning has the lowest mean. Therefore, the following recommendations are given.

It is hereby recommended that teachers adopt a multifaceted approach to enhance self-regulated learning (SRL) in the classroom, fostering metacognitive awareness, promoting autonomy, providing timely feedback, and integrating instructional strategies. Similarly, institutions may offer faculty development, and implement policies supporting autonomy and metacognitive development. Creating a culture valuing self-directed learning empowers students to become lifelong, independent learners. Additionally, students are advised to enhance SRL through proactive strategies like goal-setting, progress monitoring, effective study techniques, and fostering a growth mindset.

The findings also revealed that structure and steer resulted in the lowest mean in learning environment. Consequently, a set of targeted recommendations was formulated to improve and strengthen this specific aspect. Several targeted recommendations were proposed to address and enhance this aspect.

Therefore, it is hereby recommended that in structure and steer in the learning environment, both teachers and students collaborate to strike a balance between guidance and autonomy. Teachers may provide a clear framework with learning objectives and organized materials while allowing flexibility for student exploration and individualized learning paths. Students, in turn, are encouraged to actively engage with the provided structure, setting goals, monitoring progress, and seeking guidance when needed.

Based on the results, assessment has been identified as having the lowest mean among the teacher effectiveness indicators. The findings emphasize the need for improvement and strengthen this specific aspect. Therefore, the following recommendations are given.

It is hereby recommended that institutions, teachers, and students collaboratively prioritize a comprehensive approach to assessment within the educational framework. Institutions may establish clear assessment guidelines and provide professional development opportunities for teachers to enhance their assessment literacy. Teachers, in turn, may implement varied assessment methods aligned with learning objectives, ensuring a holistic understanding of student progress. Furthermore, students are encouraged to actively engage in self-assessment and reflection, fostering a culture of continuous improvement and contributing to their own academic development.

The findings also revealed that school connectedness resulted in the lowest mean among student well-being indicators. Consequently,

a set of targeted recommendations was formulated to improve and strengthen this specific aspect. Therefore, the following recommendations are given.

It is hereby recommended that teachers, and students actively prioritize fostering a sense of school connectedness as a foundational aspect of student well-being. Teachers can actively endeavor to establish mentoring connections with students, cultivate a classroom climate that promotes emotional safety and belonging, and form supportive relationships with them. In a same vein, students are encouraged to actively engage in school communities, look to their classmates and teachers for assistance, and contribute to a welcoming and good school climate in order to improve their overall well-being and academic achievement. Additionally, it is hereby recommended for future researchers to contemplate the utilization of a mixed-method approach when exploring the intricate relationship between learning environment, teacher effectiveness, and student well-being. While this study primarily employed a quantitative research design involving 245 students, incorporating a mixed-method approach offers several advantages. Combining quantitative data from surveys with qualitative insights gathered through interviews or focus groups can provide a comprehensive understanding of students' perspectives and attitudes. This approach allows for a more nuanced exploration of the topic, enriching the depth of analysis and yielding valuable insights for both research and practice.

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