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Learners' Engagement and Classroom Management Strategies in Mathematics of First Congressional District of Batangas Province

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Abstract

Learner engagement in Mathematics remains a persistent concern in Philippine secondary schools, where classroom management, resource limitations, and students' varied affective responses influence participation and learning. This study examined the relationship between teachers' classroom management strategies and their assessment of learners' cognitive, emotional, and behavioral engagement in Mathematics in the First Congressional District of Batangas.

Using a descriptive–correlational design, data were gathered from Junior High School Mathematics teachers through a validated researcher-made Likert-type questionnaire. Findings showed that learners were assessed as moderately engaged across cognitive ($M = 2.9813$), emotional ($M = 3.0054$), and behavioral ($M = 3.0301$) dimensions. Teachers reported a moderate extent of using routines and procedures ($M = 3.4578$) and behavior management ($M = 3.4910$), while promoting a positive environment ($M = 3.5187$) and maintaining teacher–student relationships ($M = 3.5740$) were practiced to a great extent.

Pearson's r indicated a highly significant positive relationship between engagement and all four management strategy domains, with r-values ranging from .380 to .492 and $p = .000$ across all dimensions. Teachers also agreed that they encountered challenges in implementing classroom management strategies, including student behavior issues, limited resources, and time constraints.

These results suggest that while teachers employ management strategies consistently, contextual barriers limit their full effectiveness. Strengthening professional development, providing school-level support systems, and adopting proactive and relationally grounded management approaches may enhance learner engagement and improve classroom experiences in Mathematics.

Keywords: *learner engagement, classroom management strategies, Mathematics education, teacher–student relationships, secondary education*

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Introduction

Education has long been recognized as a cornerstone of national development, shaping the competencies and values of learners to prepare them for future challenges. Globally, one of the enduring challenges in education is sustaining learners' engagement inside the classroom. Student disengagement often results in low academic performance, poor participation, and lack of persistence—issues that are particularly evident in Mathematics, a subject known for its abstract nature and high cognitive demand. As Mathematics serves as a foundation for critical thinking, problem-solving, and technological advancement, ensuring that learners remain actively engaged in this subject is essential for both personal growth and national competitiveness.

In the Philippines, legislative and policy frameworks have been established to address these educational concerns. Republic Act No. 10533, or the Enhanced Basic Education Act of 2013, emphasizes the need for a learner-centered, inclusive, and developmentally appropriate curriculum. This law requires schools to adapt instructional strategies that cater to diverse learners' needs, thereby fostering improved participation and performance. Complementing this, the Department of Education (DepEd) issued several policies to strengthen teaching and learning practices. DepEd Order No. 42, s. 2017, which institutionalized the Philippine Professional Standards for Teachers (PPST), underscored the role of teachers in applying effective classroom management strategies and creating environments conducive to meaningful learning. More recently, the MATATAG Curriculum was introduced, placing stronger emphasis on foundational skills, decongested content, and values formation—all of which require active learner engagement and effective classroom control to be realized.

Despite these legislative and curricular reforms, the Philippine education system continues to face pressing issues in Mathematics education. The 2018 Programme for International Student Assessment (PISA) revealed that the Philippines ranked the lowest among 79 countries in mathematical literacy, with only one in five students reaching the minimum proficiency level (OECD, 2019). This alarming result indicates that a large proportion of Filipino students struggle to understand and apply basic mathematical concepts.

Locally, these challenges are mirrored in schools within the First Congressional District of Batangas, where overcrowded classrooms, limited resources, and varying levels of learner readiness often contribute to poor engagement in Mathematics. Teachers in the district frequently reported difficulties in sustaining students' attention, overcoming math anxiety, and encouraging consistent participation in problem-solving activities.

Research suggested that classroom management strategies play a vital role in addressing these issues. Studies have shown that establishing clear routines, maintaining positive teacher–student relationships, and promoting supportive classroom climates can significantly increase learners' attentiveness, participation, and persistence (Marzban & Shahraki, 2022; Cambaya & Paglinawan, 2024). Similarly, effective classroom management reduces disruptions and creates an atmosphere where learners feel safe to express themselves, thereby improving their emotional and cognitive engagement (Asare et al., 2024; San Nicolas, 2022). However, much of the existing literature has either focused on learners' self-reports or examined engagement in broad

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terms, without giving sufficient attention to teachers' perspectives on how management strategies directly influence learners' behavioral, emotional, and cognitive involvement in Mathematics.

As a Mathematics teacher in a public secondary school, the researcher has observed firsthand that even with well-prepared lesson plans and aligned curricula, student disinterest in Mathematics often persists. Some classes respond well to group activities, while others display reluctance and inattentiveness. Routines that work effectively in one classroom may not be consistently followed in another. Moreover, visible signs of math anxiety—such as avoidance behaviors, lack of confidence, and disengagement during problem-solving tasks—remain common among students. These realities highlight the pressing need to investigate how teachers in the First Congressional District of Batangas manage their classrooms and how their strategies relate to learner engagement in Mathematics.

Therefore, this study seeks to explore the relationship between teachers' classroom management strategies and students' engagement in Mathematics within the district. Specifically, it aims to determine the levels of cognitive, emotional, and behavioral engagement of learners as assessed by teachers; identify the extent to which management strategies are utilized; examine the relationship between the two variables; and uncover challenges faced by Mathematics teachers. By addressing these objectives, the study intends to provide practical implications for developing innovative classroom activities that will foster deeper engagement in Mathematics and contribute to improved learner outcomes in the district and beyond.

Thus, this study seeks to investigate the relationship between teachers' classroom management strategies and students' engagement in Mathematics in the First Congressional District of Batangas province. Specifically, it seeks to answer the following questions:

1. What is the learners' level of engagement in Mathematics as assessed by teachers in terms of:
    1.1. cognitive engagement ;
    1.2. emotional engagement; and
    1.3. behavioral engagement?
2. What is the extent of utilization of classroom management strategies as assessed by the teachers themselves relative to:
    2.1. establishing routines and procedures;
    2.2. managing student behavior;
    2.3. promoting a positive classroom environment;
    2.4. maintaining teacher-student relationships
3. Is there any significant relationship between the teacher's assessment on the learner's level of engagement and on the extent of utilization of the teacher's classroom management strategies?
4. What are challenges faced by Mathematics teachers in implementing classroom management strategies?
5. Based on the results of the study, what innovative classroom activities may be proposed?

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Methodology

Research Design

This study used a descriptive – correlational research design of investigation. The design investigated the learner's level of engagement as assessed by the Mathematics teachers in terms of cognitive, behavioral and emotional engagement and the extent of the teachers' utilization of classroom management strategies among Junior High School teachers in the First Congressional District of Batangas. The correlational component is used to determine the strength and direction of the relationship between the teachers' classroom management strategies and the learners' engagement. A validated research-made and Likert type questionnaire is used as a major instrument in collecting data to answer some information on how effective classroom management is.

Participants

The respondents of the study are the Mathematics teachers from the Junior High School in the First Congressional District of Batangas. There are 289 Mathematics teachers and out of them, 166 teachers will serve as the respondents of the study, which are determined using the Raosoft Calculator with a 5% margin of error. The respondents are chosen using a stratified random sampling technique that will use proportionate allocation.

Research Instrument

The study used a validated researcher-made questionnaire as the primary data-gathering tool. It measured:

· Learners' level of engagement in Mathematics class

(cognitive, behavioral, and emotional engagement)

· Teachers' Classroom Management Strategies

(establishing routines and procedures, managing student behavior, promoting a positive classroom environment, and maintaining teacher-student relationship)

Data Collection Procedure

Permission was secured from the Schools Division Office and school heads before data collection. Questionnaires were distributed online via Google Forms to teacher-respondents. Ethical considerations such as informed consent, confidentiality, and voluntary participation were strictly observed.

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Data Analysis

The following statistical tools were used in analyzing the data. Frequency and ranking described participants' responses, while the weighted mean determined the level of learners' engagement and teachers classroom management strategies in Mathematics class. Pearson's *r* tested the relationship between variables, and the p-value determined its significance. This was used to determine the significant relationship between the assessments on learners level of engagement and on the extent of utilization of teacher's classroom management strategies

Results

1. Learner's Level of Engagement in Mathematics in Terms of Cognitive Engagement

This section presents the assessment of student engagement in Mathematics across three distinct dimensions: cognitive, emotional, and behavioral. The data reflects how educators perceive the mental effort students exert to master complex concepts, the emotional connection and interest they show toward the subject, and the observable behaviors—such as participation and attendance—that demonstrate their active involvement in the learning process. Collectively, these results provide a comprehensive view of the students' commitment to their mathematical studies.

1.1. Learner's Level of Engagement in Mathematics in Terms of Cognitive Engagement

The following section examines the depth of mental investment students apply to their Mathematics coursework as perceived by their educators. This dimension of engagement focuses on the internal strategic processing of learners, including their willingness to exert significant effort to understand complex concepts and their persistence when navigating challenging problem-solving tasks.

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Table 1

Assessment of Teachers in Learners' Engagement in Mathematics in term of Cognitive Engagement

Students…	Weighted Mean	Verbal Interpretation	Rank
1. are willing to exert effort to understand complex Mathematics concepts.	3.0542	Moderately Engaged	3
2. actively try to apply different strategies to solve Mathematics problems.	2.9518	Moderately Engaged	5
3. persist in trying to solve challenging Mathematics tasks even when they encounter difficulties.	3.0964	Moderately Engaged	1
4. ask clarifying questions to deepen their understanding of Mathematics.	2.9458	Moderately Engaged	6.5
5. engage in critical thinking when faced with mathematical problems.	2.9157	Moderately Engaged	8
6. try to make connections between new and prior Mathematics knowledge.	2.8976	Moderately Engaged	10
7. reflect on their own learning process in Mathematics	2.9458	Moderately Engaged	6.5
8. seek out additional resources to understand Mathematics concepts better	2.9096	Moderately Engaged	9
9. think deeply about the implications of mathematical solutions.	3.0602	Moderately Engaged	2
10. challenge their own misconceptions about Mathematics.	3.0361	Moderately Engaged	4
Composite Mean	2.9813	Moderately Engaged	

The data in the table 1 presents the teachers' assessment of learners' cognitive engagement in Mathematics. The overall composite mean of 2.9813, verbally interpreted as "Moderately Engaged," indicates that students demonstrate a moderate level of cognitive involvement in learning Mathematics. This suggests that while learners are making an effort to engage intellectually with mathematical concepts, there is still room for improvement in promoting deeper cognitive engagement.

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Among the listed indicators, the highest-rated statement is "Students persist in trying to solve challenging Mathematics tasks even when they encounter difficulties" with a weighted mean of 3.0964, ranked 1st, and verbally interpreted as "Moderately Engaged." This implies that learners show perseverance and determination in solving mathematical problems despite difficulties, reflecting a positive attitude toward overcoming challenges.

The second highest indicator is "Students think deeply about the implications of mathematical solutions" with a mean of 3.0602, followed closely by "Students challenge their own misconceptions about Mathematics" with a mean of 3.0361. These results suggest that students are making an effort to think critically and reflect on their understanding of mathematical concepts.

On the other hand, the lowest-rated indicator is "Students try to make connections between new and prior Mathematics knowledge" with a mean of 2.8976, ranked 10th, still interpreted as "Moderately Engaged." This indicates that learners have some difficulty in integrating new mathematical concepts with their previous knowledge, which is essential for meaningful learning.

Overall, the results reveal that learners in Mathematics exhibit moderate cognitive engagement. They show persistence, curiosity, and a willingness to understand Mathematical concepts.

Based on the literature linked to Skinner & Furrer's (2023) framework, assessing cognitive engagement in Mathematics classrooms where students rate statements about how much they plan, monitor, persist, reflect or use deeper strategies. For example, the student engagement in Mathematics scale offers a cognitive engagement subscale. When students feel supported, competent and connected, they are more likely to engage cognitively.

Students with higher cognitive engagement, for example; plan, monitor, reflect, use deeper strategies tend to perform better in Mathematics; how students engage cognitively but not merely attendance or participation in Mathematics classroom discussions.

1.2. Learner's Level of Engagement in Mathematics in Terms of Emotional Engagement

This presentation details the affective domain of student involvement, which is essential for sustaining long-term motivation in a high-demand subject like Mathematics. The data captures various indicators of students' emotional connection to the learning process, such as their level of interest, sense of belonging, and the enjoyment they derive from classroom activities.

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Table 2

Assessment of Teachers in learners' Engagement in Mathematics in term of Emotional Engagement

Students…	Weighted Mean	Verbal Interpretation	Rank
1. show interest in learning new Mathematics concepts.	3.0964	Moderately Engaged	1
2. express enjoyment when engaging in Mathematics activities.	3.0783	Moderately Engaged	2
3. appear comfortable and at ease in the Mathematics classroom.	2.9759	Moderately Engaged	8
4. express a sense of belonging in the Mathematics class.	2.9880	Moderately Engaged	6
5. demonstrate a positive attitude towards Mathematics.	3.0000	Moderately Engaged	4.5
6. show enthusiasm for solving Mathematics problems.	2.9819	Moderately Engaged	7
7. are not easily discouraged by difficulties in Mathematics.	2.9157	Moderately Engaged	10
8. feel a connection to their peers during collaborative Mathematics tasks.	3.0482	Moderately Engaged	3
9. feel excited about upcoming Mathematics topics.	3.0000	Moderately Engaged	4.5
10. look forward to attending Mathematics class.	2.9699	Moderately Engaged	9
Composite Mean	3.0054	Moderately Engaged	

Learners' level of engagement in Mathematics as assessed by teachers in terms of emotional engagement are presented in Table 2 with a composite mean value of 3.0054, verbally interpreted "moderately engaged".

Students were moderately engaged on showing interest in learning new Mathematics concepts ($\bar{x}$=3.0964); on expressing enjoyment when engaging in Mathematics activities ($\bar{x}$=3.0783); connecting to their peers during Mathematics tasks ($\bar{x}$=3.0482); demonstrating a positive attitude towards Mathematics and feeling excited about upcoming Mathematics topic ($\bar{x}$=3.000); expressing a sense of belongingness in Mathematic class ($\bar{x}$=2.9880); showing enthusiasm for solving Mathematics problems ($\bar{x}$=2.9829); appearing comfortable and at

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ease in the Mathematics classroom ($\bar{x}$=2.9759); looking forward to attending Mathematics class ($\bar{x}$=2.9699); and not easily discouraged by difficulties in Mathematics ($\bar{x}$=29157).

Reeve and Jang (2022) framed student engagement as multidimensional: behavioral, cognitive, emotional and emphasize that emotional engagement, students' interest, enjoyment and positive affect toward learning, is shaped strongly by teachers; interpersonal and instructional style.

They argue that teachers who are autonomy-supportive, who acknowledge feelings, offer meaningful choices, explain why tasks matter, and use invitational language create classroom conditions that increase students' emotional interest in new concepts. When teachers do this, students report greater curiosity, enjoyment and personal investment in learning activities, which in turn supports deeper learning.

1.3. Learner's Level of Engagement in Mathematics in Terms of Behavioral Engagement

The results provided here outline the observable actions and participation patterns of learners within the instructional setting. Behavioral engagement serves as a practical indicator of a student's commitment to the subject, manifesting through active participation in class discussions, consistent attendance, and the timely completion of academic assignments

Table 3

Assessment of Teachers in learners' Engagement in Mathematics in term of Behavioral Engagement

Students…	**Weighted Mean**	**Verbal Interpretation**	**Rank**
1. actively participate in class discussions related to Mathematics.	3.1205	Moderately Engaged	1
2. complete and submit Mathematics assignments on time.	3.0060	Moderately Engaged	6.5
3. follow classroom rules and procedures during Mathematics lessons.	2.9819	Moderately Engaged	9.5
4. are attentive during Mathematics instruction.	3.0904	Moderately Engaged	2
5. volunteer answers or ask questions in Mathematics class.	3.0000	Moderately Engaged	8
6. are organized with their Mathematics materials	3.0422	Moderately Engaged	3.5
7. readily transition between different Mathematics activities	3.0422	Moderately Engaged	3.5
8. remain on task during independent Mathematics work.	3.0060	Moderately Engaged	6.5
9. take notes or actively record information during Mathematics lessons.	3.0301	Moderately Engaged	5
10. participate willingly in group work for Mathematics tasks.	2.9819	Moderately Engaged	9.5
Composite Mean	**3.0301**	**Moderately Engaged**	

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In term of behavioral engagement, students were moderately engaged with a composite mean value of 3.0301, verbally interpreted as "moderately engaged".

Students were moderately engaged in actively participating in class discussions related to Mathematics ($\bar{x}$=3.1205); attentive during Mathematics instructions ($\bar{x}$=3.0904); organized with their Mathematics materials and has readily transition between different Mathematics activities ($\bar{x}$=3.0422); actively recorded information during Mathematics lessons ($\bar{x}$= 3.0301); completed and submitted Mathematics assignments on time and remained on task during independent Mathematics works ($\bar{x}$=3.0060); volunteered answers or ask questions in Mathematics class ($\bar{x}$=3.000); followed classroom rules and procedures during Mathematics lesson in participated willingly in group work for Mathematics class ($\bar{x}$=29819).

Cabansag (2020) discussed that behavioral engagement extends beyond more compliance, as it also involves active participation in classroom discussions, particularly in Mathematics.

This study emphasizes that behavioral engagement in the classroom is more than just following rules or participation in discussions; asking and answering questions; volunteering to explain one's solutions; demonstrating deeper conceptual understanding and designing task and problems that prompt students to think and communicate; not just compute.

2. Extent of utilization of Classroom Management Strategies

The following analysis examines the degree to which Mathematics teachers implement various classroom management strategies to facilitate learning. This assessment covers the establishment of structured routines and procedures, the monitoring of student behavior, the promotion of a supportive classroom environment, and the maintenance of positive teacher-student relationships. By evaluating these domains, the findings highlight the pedagogical approaches utilized to minimize disruptions and create a climate conducive to academic success.

2.1 Extent of utilization of Classroom management strategies in terms of establishing routines and procedures

This analysis evaluates the degree to which Mathematics teachers implement structured and consistent practices to manage daily classroom operations. By examining strategies such as the clear communication of daily tasks and the efficient management of transitions, the findings highlight how educators create an organized environment designed to maximize instructional time.

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Table 4

Extent of Utilization of Classroom Management Strategies in Terms of Establishing Routines And Procedures

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. I clearly communicate daily routines and procedures for Mathematics activities (e.g., starting lessons, collecting materials)	3.5783	Great Extent	1
2. I consistently implement classroom rules specific to Mathematics lessons.	3.4639	Moderate Extent	4
3. I have established clear transitions between different activities during Mathematics class.	3.4578	Moderate Extent	5
4. I use consistent signals or cues to get students' attention in Mathematics class.	3.4096	Moderate Extent	9
5. I model desired behaviors for Mathematics class activities.	3.3855	Moderate Extent	10
6. I provide visual aids or written instructions for routines in Mathematics class	3.4880	Moderate Extent	2
7. I teach and practice routines until students perform them automatically.	3.4217	Moderate Extent	8
8. I clearly define expectations for group work and collaborative Mathematics tasks.	3.4518	Moderate Extent	6
9. I have established a routine for distributing and collecting Mathematics materials efficiently	3.4759	Moderate Extent	3
10. I consistently start and end Mathematics lessons on time.	3.4458	Moderate Extent	7
Composite Mean	3.4578	Moderate Extent	

Table 4 presents the extent of utilization of classroom management strategies in term of establishing routines and procedures with a composite mean value of 3.4578, verbally interpreted as “moderate extent”.

It is to a “great extent” in clearly communicating daily routines and procedures for Mathematics activities like starting lessons or collecting materials with a weighted mean value of 3.5783.

Teachers modeled desired behaviors for Mathematics class activities; used consistent signals or cues to get students' attention in Mathematics class; taught and practice routines until students perform them automatically; consistently started and ended Mathematics lessons on time; clearly defined expectations for group work and collaborative Mathematics tasks; established clear transitions between different activities during Mathematics class; consistently implemented classroom rules specific to Mathematics lessons; established a routine for

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distributing and collecting Mathematics materials efficiently; provided visual aids or written instructions for routines in Mathematics class; and clearly communicated daily routines and procedures for Mathematics activities (e.g., starting lessons, collecting materials), with a weighted mean values ranging from 3.3855 to 3.5782, verbally interpreted as “moderate extent”.

Several sources emphasize that clearly defined, consistent daily routines and procedures are critical for effective Mathematics instructions.

According to the National Council of Teaches of Mathematics (NCTM), instructional routines are an essential art of Mathematics classroom because they give structure to time and interactions, letting students know what to expect, supporting classroom management and organization, and promoting productive classroom relationships for teaching and learning. (Locke & Latham, 2020)

Establishing clear, consistent classroom routines and procedures, will be a time-saver as well as creating a classroom climate of calm and focused productivity. Once procedures are explained and practiced consistently, they become habitual.

Another review of Mathematics classroom routines emphasized that routines like entering class, transitions, and material-handling reduce downtime, limit disruptions, and help students immediately engage in rich Mathematical thinking.

2.2. Extent of Utilization of Classroom Management strategies in terms of Managing student behavior

The following data set explores the proactive and reactive methods educators use to maintain a disciplined and productive learning atmosphere. It focuses on the utilization of positive reinforcement, the consistent application of classroom rules, and the monitoring of student conduct to ensure that disruptions are minimized and students remain on task.

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Table 5

Extent of Utilization of Classroom Management strategies in terms of Managing student behavior

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. I use proactive strategies to prevent disruptive behavior in Mathematics class.	3.5482	Great Extent	1
2. I provide immediate and consistent feedback on student behavior during Mathematics lessons	3.4337	Moderate Extent	9
3. I consistently enforce classroom rules and consequences for misbehavior in Mathematics class.	3.5181	Great Extent	3
4. I use positive reinforcement (e.g., praise, recognition) to encourage appropriate behavior in Mathematics class.	3.5120	Great Extent	4.5
5. I address student off-task behavior promptly and effectively during Mathematics lessons.	3.4759	Moderate Extent	7
6. I provide clear warnings before applying consequences for misbehavior.	3.4880	Moderate Extent	6
7. I involve students in setting some classroom rules for Mathematics.	3.5120	Great Extent	4.5
8. I differentiate my behavioral management strategies for individual student needs.	3.4699	Moderate Extent	8
9. I use proximity control to manage minor disruptions in Mathematics class.	3.4277	Moderate Extent	10
10. I maintain a calm and composed demeanor when addressing misbehavior.	3.5241	Great Extent	2
Composite Mean	3.4910	Moderate Extent	

It can be gleaned that the above table the managing student behavior on the extent of utilization of classroom management strategies with a composite mean value of 3.4910; interpreted as “moderate extent”.

Among the indicators, the highest mean ($\overline{x}=$ 3.5482) revealed that teachers greatly utilized proactive measures to prevent disruptive behavior in class. This was followed by maintaining a calm and composed demeanor when addressing misbehavior ($\overline{x}=$ 3.5241), and the consistent enforcement of rules and consequences for misbehavior ($\overline{x}=$ 3.5181), both interpreted as great extent. Teachers also frequently used positive reinforcement and involved students in establishing classroom rules, each obtaining a mean of $\overline{x}=$ 3.5120, indicating great extent of utilization.

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Meanwhile, moderate application was observed in strategies such as providing clear warnings before applying consequences (3.4880), addressing off-task behavior promptly ($\overline{x}=$ 3.4759), and differentiating behavioral management strategies for individual needs ($\overline{x}=$ 3.4699). Providing consistent feedback on student behavior ($\overline{x}=$ 3.4337) and using proximity control to manage minor disruptions ($\overline{x}=$ 3.4277) were the least utilized, though still to a moderate extent.

Overall, the findings show that teachers generally applied various classroom management strategies, with greater emphasis on preventive and rule-enforcing approaches.

The study of Ying yin & Rutab (2022), focused on middle school Mathematics classroom management; it investigates both teacher and student behavior and examine factors influencing effective classroom education – management in Mathematics settings.

It uses mixed-methods like surveys, observations, interviews to identify issues in classroom management discipline in Mathematics classes. They argue that improved teacher awareness of student engagement and behavioral patterns in Mathematics classroom helps reduce disruptions and fosters more productive learning time.

In addition, comparable findings were reported by Ali and Mahmood (2021), who revealed that effective classroom management in Mathematics involves consistent rule enforcement and positive reinforcement to sustain engagement and discipline. Likewise, Carter and Quinn (2020) emphasized that teachers who maintain composure and address misbehavior calmly are more likely to create a supportive learning atmosphere that encourages mutual respect and attentiveness. Moreover, Sarmiento et al. (2019) found that proactive strategies, such as establishing clear routines and expectations, reduce off-task behavior and increase students' participation in Mathematics lessons.

Overall, the data reflect that teachers in Mathematics classrooms applied various management strategies to maintain discipline and order, emphasizing preventive and rule-oriented approaches more than corrective or individualized techniques. This pattern reinforces prior research showing that consistent, proactive classroom management fosters positive student behavior and enhances the learning experience.

2.3. Extent of Utilization of classroom management strategies in terms of promoting a positive classroom environment

This section addresses the extent to which teachers cultivate a supportive and inclusive climate that encourages academic risk-taking. The indicators focus on fostering a growth mindset, celebrating student progress, and ensuring a safe space where learners feel valued and motivated to participate in mathematical inquiry

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Table 6

Extent of Utilization of Classroom Management Strategies in terms of Promoting a Positive Classroom Environment

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. I create a supportive and inclusive atmosphere where students feel safe to make mistakes in Mathematics.	3.5964	Great Extent	1.5
2. I encourage respectful interactions among students during group Mathematics activities.	3.5241	Great Extent	6
3. I provide opportunities for all students to participate and feel valued in Mathematics class.	3.5542	Great Extent	4
4. I celebrate students' effort and progress, not just correct answers, in Mathematics.	3.5181	Great Extent	7
5. I foster a growth mindset in students regarding their ability to learn Mathematics	3.5964	Great Extent	1.5
6. I decorate the classroom with student work and positive Mathematics-related visuals.	3.3735	Moderate Extent	10
7. I allow students to have a voice in classroom decisions when appropriate.	3.5602	Great Extent	3
8. I facilitate activities that build a sense of community among students in Mathematics class.	3.4639	Moderate Extent	8.5
9. I use humor appropriately to lighten the atmosphere in Mathematics class.	3.5361	Great Extent	5
10. I create a physically comfortable and organized learning space for Mathematics.	3.4639	Moderate Extent	8.5
Composite Mean	3.5187	Great Extent	

Utilization of classroom management strategies in terms of promoting a positive classroom environment obtained a composite mean value of 3.5187, verbally interpreted “great extent”

Respondents celebrated students’ effort and progress not just correct answers in Mathematics class and created a supportive and inclusive atmosphere where students feel safe to make mistakes in Mathematics; encouraged respectful interactions among students during group Mathematics activities; used humor appropriately to lighten the atmosphere in Mathematics class; provided opportunities for all students to participate and feel valued in Mathematics class; allowed students to have a voice in classroom decisions when appropriate; and fosters a growth mindset in students regarding their ability to learn Mathematics with a weighted mean values ranging from 3.5181 to 3.5964, interpreted to a “great extent”.

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Key findings from Rahadian and Budiningsih (2023) developed a classroom management application was found feasible. From the students; perspective, after the teacher used the application, there was an increase in learning attractiveness like students found the class more appealing compared to before.

By tailoring classroom management and implicitly instructions to students preferred learning styles, the environment becomes more inclusive. In a Mathematics context, this means students who learn differently examples visual vs kinesthetic vs auditory are supported and thus are more likely to try, ask questions and make mistakes rather than stay silent.

If students report higher attractiveness or enjoyment as in Rahadian and Budiningsih's study, that is a good sign that the environment is supportive. The students are cooperative, attentive and interested.

2.4. Extent of Utilization of classroom management strategies in terms of maintaining teacher-student relationships

The data presented here emphasizes the relational dimension of classroom management, focusing on the rapport and trust established between educators and their learners. It assesses interpersonal strategies such as empathetic communication and active listening, which serve as a foundational element for fostering student engagement and discipline.

Table 7

Extent of Utilization of Classroom Management Strategies in terms of Maintaining Teacher-Student Relationships

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. I build positive rapport and trust with my Mathematics students.	3.5723	Great Extent	3.5
2. I show empathy and understanding towards students' challenges in Mathematics	3.5181	Great Extent	8
3. I make an effort to communicate effectively with individual students about their learning in Mathematics.	3.5964	Great Extent	2
4. Students feel comfortable approaching me for help with Mathematics problems.	3.4639	Great Extent	10
5. I provide constructive feedback that strengthens students' confidence in Mathematics.	3.5361	Great Extent	6
6. I greet students by name and acknowledge their presence	3.5723	Great Extent	3.5
7. I listen attentively when students share their thoughts or concerns related to Mathematics.	3.6265	Great Extent	1

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8. I show genuine interest in students' lives outside of Mathematics class (within appropriate boundaries).	3.5241	Great Extent	7
9. I provide individual support or extra help to students struggling with Mathematics.	3.4880	Moderate Extent	9
10. I am fair and consistent in my interactions with all students.	3.5422	Great Extent	5
Composite Mean	3.5440	Great Extent	

In term of maintaining student-teacher relationships on the utilization of classroom management strategies are to a great extent on listening attentively when students share their thoughts or concerns related to Mathematics ($\overline{x}=3.6265$); making an effort to communicate effectively with individual with individual students about their learning in Mathematics ($\overline{x}=3.5964$); building positive rapport and trust with Mathematics students and greeting students by name and acknowledge their presence ($\overline{x}=3.5723$); consistent in interacting with all students ($\overline{x}=3.5422$); providing constructive feedback that strengthen students' confidence in Mathematics ($\overline{x}=3.5361$); sharing genuine interest in students' lives outside of Mathematics class ($\overline{x}=3.5241$); and showing empathy and understanding towards students' challenges in Mathematics ($\overline{x}=3.5181$).

The study of Bai and Liu (2022) focused on the quality of student-teacher relationship and how that relates to students' traits, academic performance, and well – being. While the emphasis is more on the relationship than on discrete classroom management techniques, it's highly relevant because strong teacher-student relationships are foundational to effective classroom management.

Similarly, Cruz and Dela Peña (2021) found that Mathematics teachers who fostered respectful and supportive relationships with students observed higher levels of motivation and reduced behavioral problems. In the same vein, Hernandez and Torres (2020) reported that acknowledging students' efforts and showing genuine concern strengthened emotional bonds that encouraged active participation in class discussions. Additionally, Li and Wang (2019) emphasized that mutual trust and consistent communication between teachers and learners improved the overall classroom environment, contributing to higher achievement and a sense of belonging.

In conclusion, the findings highlight that maintaining healthy teacher–student relationships is a key component of effective classroom management in Mathematics. Teachers who communicate well, listen actively, and provide emotional and academic support create a positive atmosphere that promotes student engagement, discipline, and success.

3. Relationship Between Respondent's Assessment on the Learners Level of Engagement and Teachers Extent of Utilization of Classroom Management Strategies

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This correlational analysis investigates the statistical link between the management practices employed by teachers and the resulting engagement levels of their students. By examining the significance of these relationships across all dimensions, the findings clarify the extent to which teacher-led strategies directly influence cognitive, emotional, and behavioral participation in Mathematics.

Table 8

Relationship Between Teachers Extent of Utilization of Classroom Management Strategies and Respondent's Assessment on the Cognitive Level of Engagement of Students

Level of Engagement	**Cognitive Engagement**		
Extent of Utilization	r-value	p-value	verbal interpretation
Establishing Routines and Behavior	0.416**	0.001	Highly Significant
Managing Students Behavior	0.424**	0.001	Highly Significant
Promoting a positive classroom environment	0.380**	0.001	Highly Significant
Maintaining a teacher-student relationships	0.381**	0.001	Highly Significant

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

The data demonstrates a highly significant positive relationship between all classroom management domains and students' cognitive engagement. With $r-$values ranging from 0.380 to 0.424, these results indicate that effective teacher-led strategies are critical drivers for students' mental effort and strategic investment in Mathematics.

The strong correlation with managing student behavior ($r=0.424$) suggests that a disciplined environment is the foundation for deep learning. This aligns with the work of Marzban and Shahraki (2022), who argued that classroom management reduces disruptions and creates an atmosphere where learners feel safe to express themselves, thereby improving cognitive involvement.

Furthermore, the significant link with routines and procedures ($r = 0.416$) reflects the findings of Simonsen et al. (2020), who noted that structured routines reduce transition times and off-task behaviors, allowing for increased "time-on-task" essential for mastering abstract mathematical concepts. Locally, this is reinforced by Santos (2020), who observed that such structured environments enable students to practice self-regulation and persist through complex problem-solving tasks.

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Table 9

Relationship Between Teachers Extent of Utilization of Classroom Management Strategies and Respondent's Assessment on the Emotional Level of Engagement of Students

Level of Engagement	**Emotional Engagement**		
Extent of Utilization	r-value	p-value	verbal interpretation
Establishing Routines and Behavior	0.492**	0.001	Highly Significant
Managing Students Behavior	0.443**	0.001	Highly Significant
Promoting a positive classroom environment	0.445**	0.001	Highly Significant
Maintaining a teacher-student relationships	0.387**	0.001	Highly Significant

Emotional engagement showed the strongest correlations with management strategies, particularly in establishing routines ($r=0.492$) and maintaining relationships ($r=0.387$). This highlights that the "human side" of classroom management is vital for the students' affective connection to the subject.

The high correlation with routines and procedures ($r=0.492$) suggests that predictability in the classroom provides a sense of security, which is critical in a high-anxiety subject like Mathematics. This supports the Control-Value Theory (Pekrun & Loderer, 2020), which posits that a sense of control over the learning environment fosters positive emotions and enhances motivation. Locally, Aguilar (2021) found that approachable teachers and supportive climates significantly reduce "math anxiety" among Filipino learners, thereby increasing their curiosity and enjoyment. Furthermore, De Castro (2021) corroborated these findings by observing higher performance among Batangas students who associated Mathematics with positive emotional experiences and strong teacher rapport.

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Table 10

Relationship Between Teachers Extent of Utilization of Classroom Management Strategies and Respondent's Assessment on the Behavioral Level of Engagement of Students

Level of Engagement	**Behavioral Engagement**		
Extent of Utilization	r-value	p-value	verbal interpretation
Establishing Routines and Behavior	0.470**	0.001	Highly Significant
Managing Students Behavior	0.461**	0.001	Highly Significant
Promoting a positive classroom environment	0.446**	0.001	Highly Significant
Maintaining a teacher-student relationships	0.407**	0.001	Highly Significant

Behavioral engagement displays a highly significant relationship with all management domains, with routines ($r = 0.470$) and behavior management ($r = 0.461$) serving as primary influences on observable student participation.

These findings imply that students are more likely to participate in discussions and complete assignments when management expectations are clear and consistently enforced. This is consistent with Cabansag (2020), who noted that organized, group-oriented problem-solving environments in the Philippines foster perseverance and cooperation among learners.

Moreover, Eren and Coskun (2019) emphasized that positive reinforcement within a managed classroom encourages productive learning behaviors. The data also aligns with Paynandos and Doronio (2025), whose research in the Philippine context showed that low classroom management scores directly correlate with weak study habits and disengagement, underscoring that teacher-led structure is the catalyst for consistent student action.

4. Challenges Encountered by the teachers in implementing classroom management strategies

This chapter identifies the various obstacles that Mathematics teachers face in the implementation of effective classroom management. The data categorizes internal and external barriers, such as student behavioral issues, time constraints, and resource limitations. Recognizing these challenges is essential for developing the proposed intervention activities and innovative strategies intended to enhance the instructional environment within the district.

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Table 11

Challenges Encountered by the teachers in implementing classroom management strategies

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Student behavior issues such as inattentiveness, lack of discipline, and talking during class.	3.4337	Agree	1
2. Lack of resources and support systems within the school to address behavioral problems.	3.1928	Agree	9
3. Difficulty in catering to the diverse needs of students (e.g., different learning styles).	3.2711	Agree	2
4. Poor time management and balancing instructional time with classroom management.	3.1988	Agree	8
5. Limited knowledge or training in effective classroom management techniques.	3.1627	Agree	10
6. Student resistance to authority and non-compliance with rules.	3.2289	Agree	6
7. Lack of parental involvement and communication.	3.2530	Agree	5
8. The negative influence of the home environment on student behavior.	3.2229	Agree	7
9. Difficulty in motivating unengaged or disengaged students.	3.2590	Agree	3.5
10. External factors like noise or distractions affecting the learning environment.	3.2590	Agree	3.5
Composite Mean	3.2482	Agree	

In the implementation of classroom management strategies, they agreed that they encountered challenges.

Limited knowledge or training in effective classroom management techniques, lack of resources and support systems with in the school to address behavioral problems; poor time management and balancing instructional time with classroom management; negative influence of the home environment on student behavior; student resistance to authority and non – compliance with rules; lack of parental involvement and communication external factors like noise or distractions affecting the learning environment and difficulty in motivating unengaged or disengaged students; difficulty in catering to the diverse needs of students; and student behavior issues such as talking during class with a weighted mean values ranging from 3.1627 to 3.4337.

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Consistent with these findings, Oestar and Oestar (2022) revealed that among the most common behavioral problems inside classrooms were inattentiveness, distraction, tardiness, and absenteeism. Their study also identified significant barriers hindering discipline implementation such as the influence of media and technology, peer pressure, and parental toleration of misbehavior. Similarly, Abdullah and Karim (2021) found that inadequate teacher preparation and lack of institutional support often result in poor classroom control and lower levels of student engagement. In another study, Sari and Pratama (2020) emphasized that overcrowded classrooms and insufficient training in behavioral intervention strategies lead to increased difficulty in managing disruptive students.

Furthermore, Lee and Chen (2023) reported that the absence of parental involvement and inconsistent communication between home and school contributes to persistent behavioral challenges among learners. Meanwhile, Mendoza and Ramos (2024), in a Philippine context, discovered that teachers often struggle with balancing instructional delivery and discipline management due to time constraints, diverse learner needs, and limited administrative support. Complementing these findings, Habib and Rahman (2020) asserted that external distractions such as noise, poor classroom facilities, and the use of gadgets during lessons significantly disrupt learning flow and affect classroom discipline.

In addition, Villarin and Santos (2025) highlighted that many educators experience difficulty motivating unengaged or disinterested learners due to socio-emotional issues, lack of home support, and the growing influence of social media. Finally, Nguyen and Tran (2019) found that effective classroom management requires not only clear behavioral expectations but also sustained professional development opportunities that empower teachers to handle diverse learning styles and behavioral tendencies.

Taken together, these studies affirm that the challenges encountered by teachers in implementing classroom management strategies stem from both internal (teacher-related and classroom-related) and external (environmental and parental) factors, underscoring the need for continuous professional development, strong home-school collaboration, and institutional support to promote effective teaching and learning.

5. Proposed Innovative Classroom Activities

The following innovative activities, titled **"Math-Engage: A Multi-Dimensional Approach,"** are designed as a proactive response to the challenges encountered by teachers in the First Congressional District of Batangas. These activities move beyond traditional lecture-based instruction by incorporating gamification, peer-mentoring, and real-world problem-solving. Each activity is strategically mapped to the three dimensions of engagement:

- **Cognitive:** By challenging students to apply mathematical concepts to real-life scenarios.
- **Emotional:** By fostering a supportive "low-stakes" environment that reduces math anxiety.
- **Behavioral:** By requiring active movement, collaboration, and adherence to gamified classroom routines.

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The goal is to provide teachers with ready-to-use frameworks that utilize existing classroom management strategies to maximize student interest and achievement.

Discussion

The research findings indicate that learners in the First Congressional District of Batangas demonstrate a consistent and moderate level of engagement across cognitive, emotional, and behavioral dimensions. Students show a commendable willingness to tackle complex mathematical concepts and maintain a positive attitude toward the subject, which suggests that local classrooms successfully foster a sense of belonging and manage to mitigate common anxieties associated with Mathematics. This holistic involvement is supported by teachers who "Greatly Utilize" various classroom management strategies, emphasizing professional competence in establishing structured routines and procedures. This balanced approach blends firm behavioral management with "relational pedagogy," prioritizing empathy and mutual respect to create a conducive learning atmosphere.

The study further establishes a highly significant positive relationship between teacher-led management strategies and student engagement, leading to the definitive rejection of the null hypothesis. Statistical analysis reveals that structured behavior management and predictable routines act as catalysts for higher-order thinking and emotional security, while strong teacher-student rapport directly drives behavioral participation. However, despite these effective practices, teachers still face notable obstacles, particularly regarding persistent student behavioral issues and limited instructional time. Systemic constraints, such as inconsistent parental involvement and a lack of technological resources, continue to impede optimal performance.

To address these challenges, the researcher developed "Math-Engage: Innovative Activity Framework," a practical instructional package designed to bridge the gap between management and engagement. This framework introduces ten high-impact, low-cost activity sheets that utilize gamification and collaborative structures, such as "Math-Detective Mysteries" and "Quizizz Battles." By transforming traditional routines into interactive learning experiences, these proposed activities provide Mathematics teachers with concrete tools to enhance cognitive persistence and sustain high levels of student involvement in the classroom.

Conclusion

Based on the findings, the following conclusions were drawn:

1. Results showed learner’s moderate level of engagement in Mathematics instruction can be attributed to a combination of factors that affect their cognitive, emotional and behavioral engagement.
2. Teacher’s self – assessment showed almost great extent of utilization of classroom management strategies. Mathematics teachers demonstrate a moderate extent of

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utilization of classroom management strategies particularly in establishing clear routines and procedures as it helps provide structure, predictability, and a smooth flow of Mathematics instructions. Through these routines, teacher ensure that students are aware of expectation and responsibilities during learning activities.

3. There is a highly significant relationship between the classroom management strategies employed by teachers and the resulting levels of student engagement. This confirms that the teacher's ability to manage the learning environment is a primary predictor of student success. Consequently, the low levels of learner engagement observed are not solely a student-based issue but are deeply intertwined with the pedagogical and management choices made within the classroom.
4. The challenges faced by teachers—specifically student behavioral issues, lack of time, and limited resources—serve as major inhibitors to effective classroom management. These obstacles prevent teachers from fully transitioning to innovative practices. It is concluded that unless these systemic and behavioral barriers are addressed through administrative support and creative instructional design, the potential for high student engagement will remain hindered.
5. The proposed "Math-Engage" innovative classroom activities are vital and timely interventions. By transforming management routines into gamified and collaborative experiences, these activities provide a practical solution to the identified gaps in cognitive, emotional, and behavioral engagement. It is concluded that the adoption of these innovative activity sheets can serve as a catalyst for improving the overall quality of Mathematics instruction and student involvement in the district.

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