International Journal of Science and Research Archive
eISSN: 2582-8185
Cross Ref DOI: 10.30574/ijsra
Journal homepage: https://ijsra.net/

(RESEARCH ARTICLE)

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Teachers' and Students' Perceptions of the 45-Minute Mathematics Class Period in Junior High School: A Quantitative Study

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International Journal of Science and Research Archive, 2026, 18(02), 506-515

Publication history: Received on 05 January 2026; revised on 11 February 2026; accepted on 14 February 2026

Article DOI: https://doi.org/10.30574/ijsra.2026.18.2.0276

Abstract

This study investigated junior high school teachers' and students' perceptions of the 45-minute mathematics class period, finding that both groups rate its effectiveness as neutral to disagree, Teachers: 2.66; Students: 3.00, suggesting it is insufficient for quality instruction. Qualitative data revealed that while the 45-minute duration supports student focus and engagement "Attention Optimization", it critically causes "Pacing and Cognitive Overload", a "Mastery Deficit", and an "Interaction Deficit", preventing adequate time for practice, questioning, and addressing the needs of slow learners. To overcome these time constraints, the study recommends transitioning to a "Fast-Cycle Learning" model that utilizes Micro-Timing, Strategic Practice e.g., "Two-Day Split, and "Digital Extension" or flipped classroom resources to ensure deep conceptual mastery and address unanswered questions outside the compressed class time.

Keywords: 45-Minute Class Period; Mathematics Instruction; Teacher Perception; Student Perception; Fast-Cycle Learning; Interaction Deficit

1. Introduction

Time matters in the crucial processes of teaching and learning. Instructional time is essential to teaching and learning in mathematics since students must acquire conceptual understanding, procedural fluency, and problem-solving abilities (Darling-Hammond et al., 2021). This process is uncomfortable, especially given the variety of students and the size of the classes. Around the world, including in the Philippines, secondary school math classes typically last 45 minutes (OECD, 2023). The topic of whether the Department of Education's implementation, which is part of the new Matatag Curriculum, provides sufficient opportunities for student participation in cognitively challenging material, supervised practice, and clarification continually comes up.

Theoretical perspectives highlight the importance of both the quantity and quality of teaching time. According to Van der Sluis et al. (2024), teachers frequently neglect assignments demanding higher-order thinking due to time constraints, which has an impact on the quality of learning. Giving students higher-order thinking skills requires more time for critical and creative analysis. It enables students to imagine scenarios in problem-solving exercises, but because there is not enough time to end the conversation, the ability is occasionally overlooked. Students become incompetent as a result. Reduced instructional time is associated with worse student accomplishment, according to Kuhfeld et al. (2021), especially in core disciplines like mathematics where practice and cognitive effort are high. According to Kisida and Wolf (2022), students who attended shorter classes were less engaged and had less opportunities to ask questions and contribute in a meaningful way.

Researchers found that the 45-minute math class period was an inadequate amount of time. The department must address this significant issue since pupils with average or high IQs are not the only ones who have the right to education.

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The times have left slow learners behind. Systemic learning gaps and lowered student engagement have been associated with time limits and interrupted scheduling in Philippine mathematics classrooms (Dictado & Dagdag, 2025). Teachers of mathematics in the Philippines state that they don't have enough time to teach the material, which results in hurried classes and fewer opportunities for learning (Ignacio & Bajet, 2025). Similarly, they acknowledge that teaching time beyond regular class periods is necessary to help students develop their critical thinking and problem-solving skills in mathematics (Siwagan & Ubayubay, 2025). Teachers' and students' perceptions of the Revised Matatag Curriculum were gathered through the researchers' observations.

This study looks at how teachers and students perceive the 45-minute math class period in an effort to bridge this gap. It focuses on differences based on academic and demographic criteria as well as the effect of class size. By providing factual data from both perspectives, the study aims to enhance instructional planning, classroom management, and policy decisions about the effectiveness of time allocation in mathematics education. Understanding how time is perceived in the classroom helps improve student learning and make the most of limited teaching time.

2. Methods

2.1. Research Design

This study utilized a quantitative research design, specifically a descriptive and correlational approach, to investigate the perceptions of junior high school mathematics teachers and students regarding the effectiveness of the 45-minute mathematics class period. A descriptive design was used to characterize the demographic profile of the teacher-respondents and to establish the mean perceptions of both groups on the effectiveness of the class time. A correlational component was implicitly used to compare and align the perceptual means and shared areas of disagreement between the two groups. Additionally, qualitative data, transcribed using the "Clean Verbatim Transcription Approach," was collected through open-ended responses from both students and teachers and analyzed thematically to identify challenges, strengths, and recommendations, providing rich context for the quantitative findings.

2.2. Respondents and Sampling

The study involved 27 junior high school mathematics teachers and 30 students. The teacher-respondents were characterized by their teaching experience, educational attainment, grade levels taught, and class size. The teaching force surveyed was predominantly young, with about 53.4% aged 20–30 years, largely female, handling multiple grade levels from Math 7 to Math 10, and teaching mid- to large-sized classes of about 31–40 students. The student participants provided qualitative insights regarding their experiences. The selection of participants aimed to capture a diverse representation of the teaching and learning environment impacted by the 45-minute time constraint.

2.3. Research Locale

The study was conducted in the Bislig City Division and Surigao del Sur Division of the Department of Education (DepEd) in the Philippines. Data were gathered through an online survey participated in by junior high school mathematics teachers and students from both divisions. These locales were selected to represent diverse teaching and learning environments affected by the 45-minute class period constraint under DepEd's K–12 curriculum.

2.4. Research Instruments

The study employed a survey instrument to gather quantitative data on the perceived effectiveness of the 45-minute class allotment, yielding composite weighted means for both teachers and students. Open-ended questions were also used to elicit qualitative data on the challenges, strengths, and recommendations experienced by both teachers and students during the 45-minute class period.

2.5. Data Gathering Procedure

The researchers developed a researcher-made questionnaire to address the study's objectives, aligned with the research title: *Teachers' and Students' Perceptions of the 45-Minute Mathematics Class Period in Junior High School: A Quantitative Study*. The instrument consisted of three parts: (1) demographic profile (e.g., age, teaching experience, educational attainment, grade levels taught, class size); (2) a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) for quantitative ratings on perceived effectiveness of the 45-minute period; and (3) open-ended questions for qualitative insights.

The questionnaire underwent content validation by two experts: a Master Teacher I in mathematics from Surigao del Sur Division and a university professor in mathematics education. Revisions were made based on their feedback to ensure clarity, relevance, and alignment with DepEd's junior high school mathematics competencies (MELCs).

Prior to distribution, informed consent was secured from 27 teachers, and 30 students, following DepEd ethical protocols. The online survey was administered via Google Forms in December 2025 and shared through official DepEd Messenger group chats with teachers in Bislig City and Surigao del Sur Divisions.

Quantitative data like demographic profiles and Likert-scale ratings were analyzed using descriptive statistics (frequencies, percentages, weighted means). Qualitative data from open-ended responses underwent thematic analysis, involving initial open coding, clustering into axial codes, and refining into themes.

3. Results and discussions

The following section presents the findings of research conducted on the Teachers' and Students' Perceptions of the 45-Minute Mathematics Class Period in Junior High School: A Quantitative Study.

3.1. Respondents' Demographic Profile

This section examines the demographic profile of junior high school mathematics teachers, focusing on teaching experience, educational attainment, and grade levels taught.

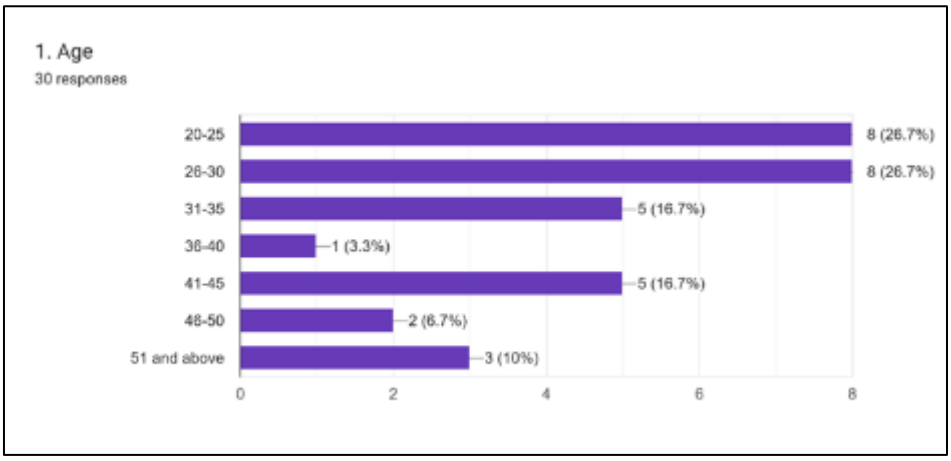

Figure 1 Respondents' Age

The data indicate a predominantly young teaching force, with 53.4% of the teachers falling within the age range of 20 to 30. Conversely, there is a significantly smaller representation of middle-aged teachers in the 36-40 range (only 3.3%).

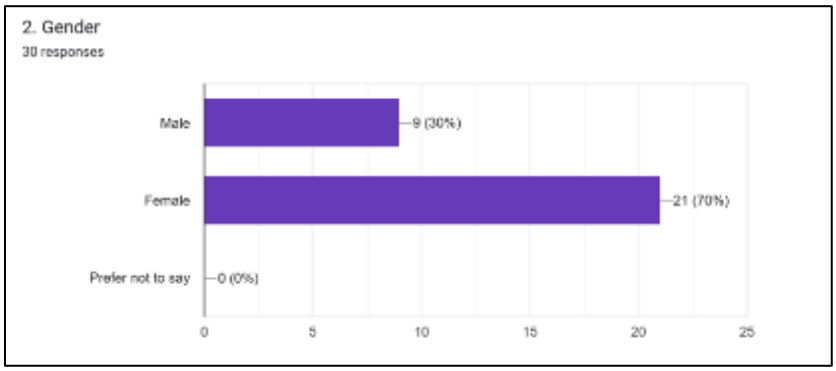

Figure 2 Respondents' Gender

The teaching force surveyed is predominantly female, representing more than double the number of male respondents. The teaching force is largely composed of relatively new to mid-career educators, with 53.4% (more than half) of the

teachers having 7 years of experience or less. However, there is also a notable segment of veteran teachers, with one in five respondents having 16 or more years in the profession.

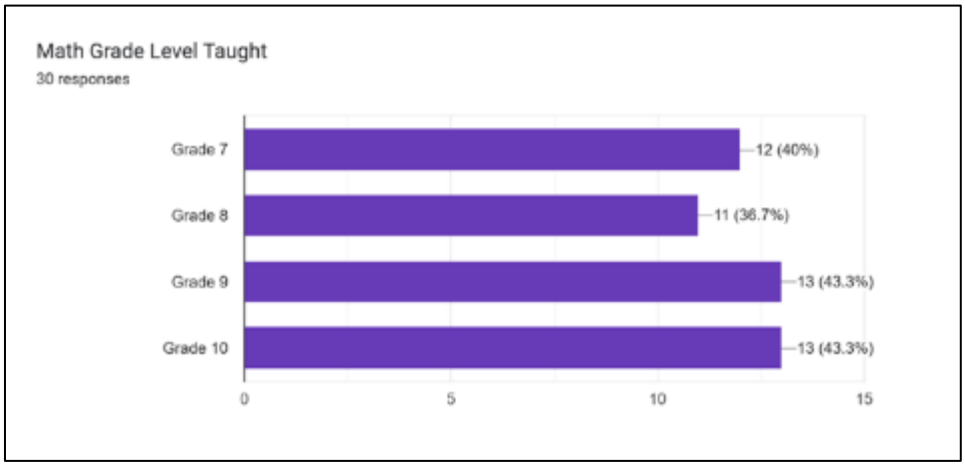

Figure 3 Math Grade level Taught

Teachers teach Math 7 to Math 10. It shows that many teachers teach all grade level especially when they are assigned to a school with only one section per grade level.

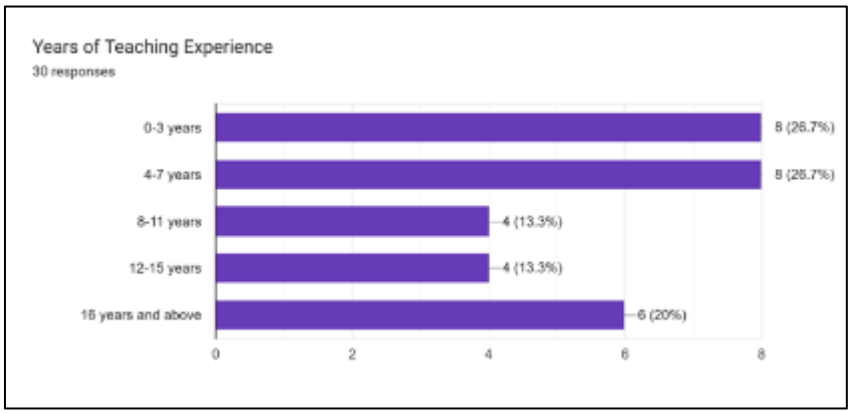

Figure 4 Years of Teaching Experience

The data shows that Grade 9 and Grade 10 are the most frequently taught levels, with each being handled by over 43% of the surveyed teachers. Because the percentages total more than 100%, it indicates that many teachers in this group are responsible for instruction across multiple grade levels simultaneously. This is true if the teacher is assigned to a small school with only one section per year level.

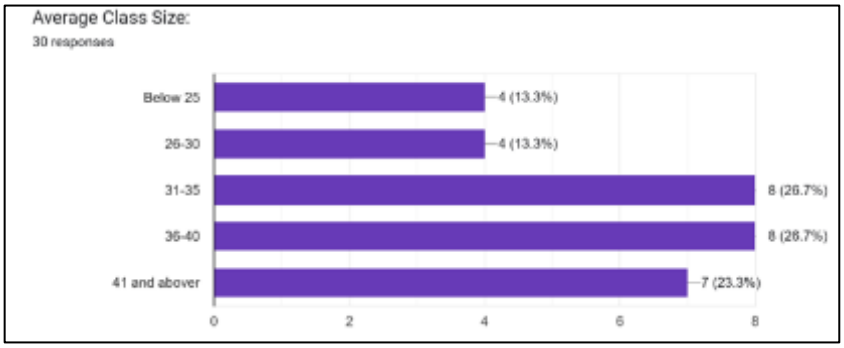

Figure 5 Average Class Size

The data indicates that most teachers (53.4%) handle mid-to-large-sized classes, ranging from 31 to 40 students. Furthermore, nearly a quarter of the respondents (23.3%) are responsible for very large classes of 41 students or more, highlighting a significant instructional load that may impact the 45-minute teaching period.

3.2. Is there a significant relationship between the perceptions of the junior high school mathematics teachers and the perceptions of the students regarding the effectiveness of the 45-minute class allotment?

Table 1 Students' Perceptions of 45-Minute Math Class Time Adequacy

Indicators	Weighted Mean	Descriptive Equivalent
I have enough time to comprehend the math lesson.	3.08	Neutral
I can finish activities in 45 minutes class.	3.10	Neutral
I have sufficient time to ask questions during class.	2.53	Disagree
I can actively participate in class activities within the 45 minutes.	2.98	Neutral
The pace of the class is manageable and comfortable.	3.10	Neutral
I can efficiently learn math throughout the 45-minute session.	3.20	Neutral
	3.00	**Neutral**

Table 2 Teachers' Perceptions of 45-Minute Math Class Time Adequacy

Indicators	Weighted Mean	Descriptive Equivalent
The 45-minute allotment provides ample time for clear delivery of the course.	2.67	Neutral
There is enough time for problem-solving and guided practice.	2.47	Disagree
I can efficiently assess comprehension in the allocated time.	2.68	Neutral
The 45 minute period is sufficient for giving feedback to students.	2.80	Neutral
Within the allotted 45-minute, classroom management is manageable.	2.83	Neutral
Lessons are placed to fit within a 45-minute class period.	2.63	Neutral
The desired learning outcomes can be mastered by students in 45 minutes.	2.57	Disagree
	2.66	**Neutral**

3.3. Alignment of Perceptual Means

Both teachers and students perceive the 45-minute class period as neutral to disagree, with teachers at a composite weighted mean of 2.66 (Neutral) and students averaging 3.00 (Neutral, ranging from 2.53 to 3.10). Neither group finds it inherently effective for mathematics instruction.

3.4. Shared Areas of Disagreement

Both identify interaction deficits as key issues: teachers disagree (2.47) on time for problem-solving and guided practice, while students disagree (2.53) on time to ask questions. This connection shows teachers' lost facilitation time directly limits students' clarification opportunities, forming a synchronized learning barrier.

3.5. Qualitative Confirmation

Teachers report "45 mins is not enough because math needs more time to explain," aligning with students' notes that "slow learners have a hard time coping with the pacing." Teachers disagree (2.57) on mastery in 45 minutes, mirroring students' questioning struggles (2.53), viewing it as discussion-only without essential practice and feedback.

4. Summary

A significant descriptive relationship exists between junior high school mathematics teachers' mean of 2.66 Neutral and students' mean of 3.00 Neutral perceptions of the 45-minute class allotment's effectiveness, shown through aligned neutral-to-disagree ratings and shared concerns over interaction deficits—teachers disagree on time for problem-solving 2.47 and mastery 2.57, mirroring students' disagreement on questioning time 2.53. Qualitative insights confirm mutual views of rushed sessions lacking practice and feedback essential for math proficiency.

4.1. What challenges and strengths do teachers and students experience during teaching and learning mathematics within the 45-minute class period?

4.1.1. Students Perception

The responses of the student participants were transcribed using the “Clean Verbatim Transcription Approach”, wherein grammatical errors were made to enhance the clarity while also preserving the original meaning and intention of the respondents.

The researchers used thematic analysis where initial coding was conducted to identify the ideas across the responses. Similar codes were clustered and refined into a broader theme reflecting the shared meaning among the participants. The researcher also includes representative excerpts to substantiate each theme. Each of the Participants was assigned as L1 to L30, ensuring confidentiality.

4.2. Challenges experienced when learning math in a 45-minute class

The primary struggle for students is the tension between the complexity of Mathematics and the limited time available for processing.

4.2.1. Theme 1: Pacing and Cognitive Overload

Students L7, L11, L24, and L30 consistently used the word "rushed." The short duration makes complex concepts feel "overwhelming" L18 and L24, leading to a "sense of being overwhelmed." The recurring use of the word "rushed" among the participants indicates a significant disconnect between the density of the mathematical curriculum and the time allocated to process it. When complex concepts are delivered within a restricted 45-minute window, students often experience cognitive overload, where the brain's working memory becomes saturated before the information can be successfully transferred to long-term memory. This leads to the "overwhelming" sensation described by learners, as they are forced to move on to new steps of a problem before they have mentally stabilized the previous ones, resulting in a fragmented understanding of the lesson.

4.2.2. Theme 2: Procedural Speed vs. Understanding

There is a specific struggle with "how to solve fast" and "shorter time to think" as stated by L12 and L17. This suggests that students are prioritizing speed over deep conceptual grasp. The 45-minute constraint appears to shift the student's primary objective from conceptual mastery to procedural haste. Because learners feel the pressure of the ticking clock, they focus heavily on "how to solve fast" rather than "why the solution works," essentially prioritizing rote memorization of steps over deep mathematical inquiry. When classes are too short, students stop trying to understand why math works and just start memorizing the steps to get the answer quickly. This makes them look like they are doing well, but it’s a trap. Because they didn't learn the "why" behind the "how," they will get completely stuck when they face a tricky problem that isn't exactly like the one the teacher showed them. They become good at "fast math," but bad at "real math."

4.2.3. Theme 3: Interaction Deficit

The most significant structural challenge is the "reduced opportunity for questions and practice," as stated by L11. Students feel they cannot clarify doubts before the period ends. Perhaps the most detrimental structural flaw identified is the compression of the feedback loop, which creates a significant interaction deficit between the teacher and the learner. In a longer class, the "practice and questioning" phase allows for real-time correction of misconceptions; however, in a 45-minute session, this phase is often the first to be sacrificed to ensure the lecture is finished. Consequently, students leave the classroom with "unanswered questions" and unverified doubts, which prevent them from building the confidence necessary to tackle homework or subsequent lessons independently.

4.3. Advantages or strengths observed in the 45-minute math class

Interestingly, the same 45-minute constraint that causes pressure also acts as a catalyst for high-intensity engagement.

4.3.1. Theme 1: Attention Optimization

Because the class is short, students report it is "easier to stay attentive and not get bored," as stated by L9. The time limit prevents mental fatigue often found in 60- or 90-minute blocks. The 45-minute duration aligns closely with the natural cognitive stamina of adolescent learners, effectively minimizing mental fatigue and the "waning attention" typical of longer periods. Students noted that because the timeframe is compact, it is much easier to maintain high levels of concentration without succumbing to boredom. By ending the lesson before cognitive saturation occurs, the 45-minute block ensures that students remain mentally "fresh," allowing for a higher quality of engagement during the time they are in the seats.

4.3.2. Theme 2: Instructional Density

Lessons are perceived as "more direct" and "organized," as mentioned by L6 and L15. Teachers are forced to cover "key topics efficiently" as stated by L12, without unnecessary fillers. The restricted time frame acts as a pedagogical filter, forcing a transition from broad lecturing to concentrated, high-density instruction. Both students and teachers perceive these sessions as more "direct" and "organized" because there is no room for "fillers" or irrelevant tangents. This efficiency ensures that the curriculum is stripped down to its essential "key topics," presenting the math concepts in a lean, focused manner that respects the learner's time and cognitive bandwidth.

4.3.3. Them 3: Urgency as Motivation

The "fast learning" environment pushes students to "listen carefully to fully understand in just 45 mins," as stated by L14 and L18, effectively turning time pressure into a focus tool. The 45-minute period creates a "positive pressure" that serves as a tool for extrinsic motivation. Knowing that they only have a narrow window to "grasp and apply" the concept, students feel a heightened sense of urgency to listen carefully and participate actively. This environment transforms the classroom into a high-intensity learning zone where the ticking clock discourages distractions and pushes students to achieve a state of "flow" to keep up with the fast-paced delivery of information.

4.4. Recommendations can improve students' learning within the 45-minute period.

Students suggested a shift from traditional lecturing to high impact, streamlined pedagogy.

4.4.1. Theme 1: Scaffolded Support

Requests for "more examples" and "clearer explanations" as stated by L12, L24, L6, and L8 suggest that in a short class, the quality of the initial example is paramount. In a condensed timeframe, the clarity of the initial modeling is the most critical factor for success. Students advocate for "more examples" and "clearer explanations" because, in a short class, a single confusing example can derail the entire 45 minutes. Effective scaffolding in this context means providing high-impact, diverse examples early in the lesson, ensuring that students have a solid mental template to follow before they are asked to solve problems independently.

4.4.2. Theme 2: Active Learning Integration

Students recommended "interactive activities," "group problem-solving," and "quick quizzes," as stated by L19 to make better use of the limited time than passive listening. To combat the "interaction deficit" mentioned in the challenges, students suggest moving away from passive listening toward dynamic, collaborative engagement. By incorporating "group problem-solving" and "quick quizzes," the 45-minute period is transformed from a one-way lecture into an active laboratory. These strategies allow for rapid peer-to-peer knowledge transfer and immediate self-assessment, which are much more time-efficient than a teacher explaining the same concept repeatedly to a silent room.

4.4.3. Theme 3: Digital Extension

A suggestion by the participants involved "supplementary online resources or video tutorials" to reinforce concepts outside the 45-minute window, effectively creating a "flipped classroom" model. he most forward-thinking recommendation involves the use of "Flipped Classroom" elements to bypass the physical time constraints of the school day. By providing "supplementary online resources" and "video tutorials," teachers can offload the basic lecture component to an at-home setting or provide a safety net for students who felt "rushed" during the live session. This digital extension ensures that learning is not "cut off" when the bell rings, allowing students to reinforce their understanding and address "unanswered questions" at their own individual pace.

The study indicates that while a 45-minute period is excellent for maintaining student focus, it is insufficient for traditional instructional models that rely on long lectures followed by practice. To be successful, the 45-minute Math class must transition into a "Fast-Cycle Learning" model. This involves focused delivery of one core concept per session, use story maps and diagrams to reduce the time spent on verbal explanation and provide digital "after-class" resources to address the unanswered questions noted by students.

4.4.4. Teachers' Perceptions

The responses of the teacher participants were also transcribed using the "Clean Verbatim Transcription Approach", wherein grammatical errors were made to enhance the clarity while also preserving the original meaning and intention of the respondents.

The researchers also used thematic analysis, where initial coding was conducted to identify the ideas across the responses. Similar codes were clustered and refined into a broader theme reflecting the shared meaning among the participants. The researcher also includes representative excerpts to substantiate each theme. Each of the Participants was assigned as T1 to T27, ensuring confidentiality.

4.5. Challenges Encountered by Teachers

4.5.1. Theme 1: Mastery Deficit

Teachers T6, T10, and T12 struggle to move beyond surface-level instruction to "mastery" because there is no time for deep exercises. Teachers only have enough time to show students "how" to do a math problem, but not enough time to make sure they truly "get it." Because the 45-minute clock is ticking, teachers often must stop after just one or two examples to finish the lesson. This leaves no room for the deep, repetitive practice or "seatwork" that students need to become experts. As a result, students might learn the steps for the day, but they haven't practiced enough for the skill to really stick in their brains for the long term.

4.5.2. Theme 2: Differentiated Instruction Barriers

A major challenge is "catering to diverse learning paces," as stated by T19. Teachers find 45 minutes nearly impossible for "struggling, or slow learners," as stated by T7, T17, and T23. This describes the "race" that happens in a classroom where every student runs at a different speed. In a 45-minute class, teachers find it nearly impossible to help struggling learners who need extra explanations while also keeping learners moving forward fast. Because the time is so short, the teacher usually must teach to the "middle" of the class. This creates a barrier where slow learners feel left behind and rushed, as there simply aren't enough minutes to sit down one-on-one and fix individual mistakes or confusion.

4.5.3. Theme 3: Fragmentation of Lessons

Lessons often cannot be completed, leading to "spillover" as stated by T21, where one session's content takes two days to cover. When a teacher can't finish the discussion and the activity in one 45-minute block, they must carry the rest over to the next day, which teachers call "spillover." This is a problem because, by the next day, students have often forgotten the beginning of the lesson. Instead of moving forward to new topics, the teacher must spend even more time reviewing, making the whole learning process feel broken and slow.

4.6. Advantages or Strengths Observed

4.6.1. Theme 1: Attention Span Alignment

Teachers overwhelmingly agree, as stated by T2, T4, T7, and T20, that 45 minutes aligns with the natural listening limit of students, "reducing fatigue." Teachers have noticed that after about 40 to 50 minutes, most students start to feel tired and lose interest. Because the class ends just as students would normally start to "zone out," it helps prevent mental fatigue or brain tiredness. This ensures that almost every minute spent in the classroom is a "high-energy" minute where students are awake and listening.

4.6.2. Theme 2: Instructional Prioritization

The time limit "requires teachers to prioritize essential concepts" and find "simpler ways," as stated in T21 and T23, to present math. This is because the clock is ticking, teachers must use Instructional Prioritization, which means they focus only on the most important "need-to-know" parts of the lesson. They don't have time for long, confusing stories or extra information that isn't necessary. This forces teachers to find the simplest way to explain a problem. By stripping away

the "extra fluff," students get a very clear and direct version of the math lesson, making it easier for them to see the main point without getting lost in too many details.

4.6.3. Theme 3: Increased Pace

Transitions between activities are "much faster", preventing the "boredom" often seen in math, as stated by T1, T13, T14, and T18. In a short class, there is no time to waste, so the teacher moves quickly from one activity to the next. This keeps the energy high and prevents the boredom that often happens when a math class drags on for too long. Because everything happens so fast—from checking attendance to starting the quizzes, students stay "on their toes" and active. This fast-moving environment makes the subject feel more exciting and less like a long, boring chore.

4.7. What strategies can be implemented to optimize the use of the 45-minute class allotment for mathematics instruction?

4.7.1. Core Challenges and Strengths

Teachers view the 45-minute mathematics class as a double-edged sword: a "sweet spot" for maintaining adolescent attention and focus, yet often insufficient for mastery and intervention, particularly for struggling learners. Key challenges include pacing overload, where students feel rushed and experience saturated working memory; a shift toward procedural speed over deep understanding; and interaction deficits that sacrifice practice and questioning time. Strengths encompass optimized attention span, instructional density without fillers, and urgency as a motivational force.

4.8. Recommended Strategies

4.8.1. Micro-Timing and Planning

Break lessons into timed segments, such as 5 minutes for review, 20 minutes for the core lesson, and 10 minutes for activities, as recommended by T5 and T27. This stopwatch approach ensures balanced coverage and prevents overrunning the introduction at the expense of problem-solving.

4.8.2. Simplification and Prioritization

Shorten competencies to one main skill per day (T16) and focus on key concepts using easy words and simple language (T5, T6). This prioritization prevents overload and guarantees mastery of essential content without extraneous details.

4.8.3. Strategic Practice

Provide only 1-2 teacher examples before shifting to student work (T26), or implement a "Two-Day Split" separating theory from practice (T22). These methods allocate sufficient thinking time for true proficiency within time constraints.

4.8.4. Optimized Implementation

Integrate scaffolded support through high-impact initial modeling, active learning via group problem-solving and quick quizzes, and digital extensions like flipped classroom videos for after-class review. The "Fast-Cycle" model proves most effective: one core concept per session, visual diagrams to minimize verbal time, and online safety nets for sustained learning.

5. Conclusion

The study confirms that both teachers and students perceive the 45-minute math class as inadequate for achieving deep mathematical proficiency, citing aligned neutral-to-disagree ratings. Although the short duration is excellent for maintaining student attention and fostering "Instructional Density", this efficiency comes at the cost of essential elements: teachers face a "Mastery Deficit" and struggle with differentiated instruction, while students experience cognitive overload and a critical lack of time for questioning and practice, disproportionately affecting struggling learners.

To remedy this, the study advocates for a strategic pedagogical shift to a "Fast-Cycle Learning" model. This requires strict Micro-Timing and prioritizing only one core concept per session to prevent lesson fragmentation. Crucially, teachers must integrate strategic practice methods, like the "Two-Day Split", and utilize digital resources to reinforce learning outside the classroom, ensuring that the 45-minute period is maximized for high-impact engagement, ultimately transforming time limitations into focused, efficient learning opportunities.

Compliance with ethical standards

Acknowledgement

The researchers extend their deepest gratitude to all who contributed to the successful completion of this article. Their support was essential, making this achievement possible. Above all, the researchers would like to give heartfelt thanks to Almighty God, the source of all creation, for His abundant blessings, the gift of life, and the wisdom and insight that guided this work.

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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