

Navigating the Trials and Triumphs: Lived Experiences of Novice Mathematics Teachers in Large Public Schools

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ABSTRACT

The study explores the lived experiences of novice mathematics teachers in large public schools in the Philippines. The study aims to understand the motivations, challenges, coping strategies, and pedagogical insights of teachers handling diverse learner groups. Using a phenomenological research design, 12 novice mathematics teachers were purposively selected, and data were collected through semi-structured interviews. Thematic analysis identified five key themes: (1) commitment to student empowerment and educational impact, (2) influence of prior experiences and teacher role models, (3) classroom management and diverse learner needs, (4) collaborative and adaptive teaching strategies, and (5) patience, flexibility, and student-centered approaches. Findings reveal that teachers are intrinsically motivated to foster student confidence and engagement despite challenges posed by large class sizes, varying learning abilities, and limited instructional resources. The study underscores the importance of mentorship, professional development, and adaptive teaching practices in enhancing teacher efficacy and student learning outcomes. These insights provide valuable implications for educational policy, teacher training programs, and school-level strategies to support novice mathematics educators.

Keywords: Novice teachers, mathematics education, large public schools, classroom management, adaptive teaching strategies

INTRODUCTION

Mathematics education is a challenge worldwide and in Philippine schools. In large public schools, teachers manage overcrowded classrooms with diverse students and limited resources. Teaching mathematics is demanding. It needs clear explanations, guided practice, prompt feedback, and consistent engagement. International reviews confirm that large classes increase instructional and assessment difficulties. No single method works. Teachers use discussion, peer instruction, questioning, group work, and other adaptive approaches. These keep students engaged and help them succeed. Research shows that teacher self-efficacy and emotional support are vital, as they affect students' experience and interest in learning.

In the Philippines, students frequently wrestle with mathematics. Despite strong teaching, local studies reveal only moderate progress. Abella et al. (2025) spotlight mathematics teachers at a public high school in Mandaue City, Cebu, who excel in planning and development, yet student performance hovers at merely satisfactory levels. Parcon and Bearneza (2024) similarly highlight Grade 11 students at a public national high school in Southern Negros Occidental who perform at a "developing" level in General Mathematics, just shy of proficiency. These results show that effective teaching does not stop at lesson planning and expertise—it hinges on understanding student needs, motivation, and classroom realities.

Student performance in public schools is shaped by instruction, classroom climate, attitudes, and a host of other factors. Cuabo et al. (2024) reveal that classroom management and student attitudes are strong predictors of mathematics achievement. Bucar (2024) repeatedly connects student performance to school-related challenges. Mathematics success springs from classroom experiences, instructional management, and teachers' responses to

readiness, confidence, and engagement. In large schools, these differences pop out and are tough to overcome. Here, teachers make the decisive impact.

International studies reinforce the tie between mathematics teaching and teachers' beliefs, preparation, and confidence. Hettinger et al. (2023) show that teacher self-efficacy for student engagement sparks emotional support and piques students' interest in mathematics. Marschall (2023) finds that pre-service secondary teachers' self-efficacy is shaped by knowledge and social, enactive, and affective experiences. Novice mathematics teachers do not bank solely on content knowledge; they build confidence and skill by plunging into experience, interaction, and reflection. This is vital in large public schools, where new teachers confront learner diversity, teaching pressure, and classroom management from day one.

While research on mathematics performance and teaching strategies continues to grow, the voices of novice mathematics teachers in large public schools remain largely unheard. Most studies fixate on student outcomes or general teaching methods, rarely addressing how beginning teachers navigate their motivations, challenges, coping strategies, and personal growth in overcrowded schools. This oversight is significant: novice teachers are still developing, and their experiences profoundly shape their practice, resilience, identity, and lasting commitment to teaching. This study aims to uncover these experiences, offering insights to inform teacher education, support systems, and mathematics instruction.

METHODOLOGY

Research Design

This study employed a qualitative research design, specifically a phenomenological approach, to investigate the experiences of novice mathematics teachers at Bukidnon National School of Home Industries. Phenomenology was selected for its capacity to reveal participants' perspectives and interpretations in complex educational contexts (Creswell & Poth, 2023). This approach facilitates the examination of motivations, challenges, adaptation strategies, and professional outlooks.

Participants

Twelve novice mathematics teachers from Bukidnon National School of Home Industries, a public high school in Maramag, Bukidnon, Philippines, participated in the study. Purposive sampling ensured all participants met the following criteria: they were mathematics teachers, newly assigned (with less than three years of experience), and responsible for teaching classes with varied learner abilities. The selection specifically targeted teachers who could provide detailed accounts of their experiences in large public-school mathematics classrooms.

Data Collection

Semi-structured interviews and Google Forms collected data, enabling participants to express their experiences freely while covering relevant subjects. The interview guide featured five central questions about motivations, background influences, classroom challenges, adaptation strategies, and guidance for new teachers. Interviews occurred in quiet school locations, audio-recorded with consent, and supplemented with field notes to document non-verbal cues and classroom dynamics.

Data Analysis

Thematic analysis assessed the data through coding, categorization, and theme discovery. Steps included verbatim transcription of interviews, repeated readings to isolate significant statements and recurring patterns, coding similar meanings or experiences, grouping codes into broad categories to identify themes, and reviewing themes alongside literature for validity and context. Only statements aligned with research questions were examined; unrelated statements were excluded.

Ethical Considerations

Approvals from the Schools Division Superintendent of Bukidnon, the BNSHI Principal, and teachers were obtained before data collection. Participants were informed of the study's purpose, voluntary participation, and

their right to withdraw at any point without consequence. Confidentiality was preserved by assigning pseudonyms and securely storing data. To ensure credibility, member checking involved participants reviewing their transcripts and preliminary themes for accuracy. Audit trails and reflexive journaling documented analytical choices, increasing the dependability and confirmability of findings.

Qualitative Themes Analysis

Question 1: What motivated you to teach mathematics in large public schools?

Theme: Learner-Centered Commitment to Make Mathematics Meaningful and Accessible

The responses indicated that most participants were motivated by a desire to help learners understand mathematics. Several participants emphasized supporting students in overcoming anxiety, increasing confidence, and appreciating the practical value of the subject. Additional responses identified the objective of engaging diverse learners in public schools and making mathematics more accessible. Responses that mentioned only “salary” or “the student” without further explanation were excluded, as they did not substantiate the central theme.

This theme demonstrates that novice mathematics teachers are motivated not solely by employment, but by a specific intention to support students. Their objective is to make mathematics accessible, understandable, and applicable to daily life. This reflects a pronounced learner-centered orientation, especially in large public schools where student readiness and confidence vary. Instead of focusing on personal benefit, participants regarded teaching as a means to promote student development in mathematics.

Multiple studies corroborate this theme. Abella et al. (2025) found that both teacher performance and student motivation significantly influence mathematics achievement. Lajo and Dalayap (2025) emphasized that teacher support and student motivation contribute to academic success in Mathematics 10. Abenoja et al. (2025) reported that interest in mathematics is correlated with academic performance among pre-service teachers, underscoring the importance of motivation in mathematics learning. Hettinger et al. (2023) observed that teacher self-efficacy for student engagement is linked to emotional support and students’ interest in mathematics. Lazarides et al. (2021) indicated that teacher motivation is closely related to the quality of mathematics instruction. Marschall (2023) demonstrated that teacher self-efficacy is influenced by expertise, experience, and emotional factors, all of which are essential for fostering commitment to teaching.

These findings suggest that novice mathematics teachers require ongoing support to maintain their learner-centered motivation. Schools should provide mentoring, encouragement, and professional development opportunities to help new teachers sustain their commitment despite the challenges posed by large public-school classrooms.

Question 2: How did your personal experiences and educational background shape your decision to teach in a public-school setting, specifically in a large school?

Theme: Prior Schooling, Teacher Role Models, and Professional Preparation Shaped Their Teaching Decision

Several participants indicated that former teachers acted as role models, demonstrating care, patience, and commitment. Others reported that studying in similar environments fostered empathy for learners’ challenges. Supportive teachers were cited as inspiring a desire to create positive learning environments. Some participants attributed their decision to teach to their educational preparation and experiences with effective teachers, while others highlighted the influence of internships in public-school settings. Responses unrelated to personal experience, educational background, or public-school teaching preparation were excluded from this theme.

This theme demonstrates that the decision to teach mathematics in large public schools was shaped by both personal and academic experiences. Former teachers functioned as role models, and schooling and internship experiences exposed participants to the realities of public-school classrooms. These experiences enhanced their

understanding of learner diversity and provided a clearer sense of purpose as prospective mathematics teachers. The development of their professional identity began before they entered the teaching profession full-time.

Existing research supports the significant influence of preparation and experience. Peteros (2024) found that self-regulation and self-efficacy impact pre-service teachers' mathematics performance. Rondina et al. (2024) reported that prior mathematics experiences shape the career trajectories of pre-service mathematics teachers. Abenoja et al. (2025) established a link between mathematics interest and academic performance among pre-service teachers. Marschall (2023) noted that teacher self-efficacy develops through knowledge, experience, and emotional factors. Bastian et al. (2024) demonstrated that teaching internships enhance pre-service teachers' ability to recognize classroom situations in mathematics education. Gordon et al. (2025) showed that teacher self-efficacy evolves as teachers transition from pre-service training to the early stages of their careers.

These findings indicate that teacher education programs and internship experiences are essential for preparing novice teachers to work in large public schools. It is recommended that schools and universities enhance practicum opportunities, mentoring, and exposure to authentic classroom situations to ensure that future teachers enter the profession with both confidence and realistic expectations.

Question 3: How would you describe the challenges you experienced in teaching math in large public schools?

Theme: Managing Large, Diverse, and Unevenly Prepared Classes Creates Instructional and Emotional Strain

Participants identified challenges related to large class sizes, diverse learner abilities, weak mathematical foundations, varying learning paces, student behavior, and low engagement. Several responses noted difficulty in providing equal attention to all students, while others emphasized the challenge of maintaining learner focus and supporting those experiencing mathematics anxiety or insufficient preparation. Responses not pertaining to classroom size, learner diversity, readiness, behavior, or emotional strain were excluded from the analysis.

The findings demonstrate that novice mathematics teachers encounter challenges that extend beyond class size. Addressing learners' varying abilities, confidence levels, attitudes, and learning needs poses a greater challenge. Because mathematics instruction requires conceptual understanding, practice, and feedback, large and diverse classrooms intensify instructional demands. These conditions contribute to increased instructional pressure and emotional strain, especially for novice teachers who are still developing effective classroom management skills.

These findings are consistent with previous research. Cuabo et al. (2024) identified classroom management and student attitudes as predictors of mathematics performance. Bucar (2024) associated students' mathematics achievement with school-related challenges. Parcon and Bearneza (2024) found that Grade 11 students in a public national high school performed at a developing level in General Mathematics, highlighting the importance of addressing learner readiness. Barnes-Story et al. (2025) reported that large classes pose significant challenges for both teaching and classroom management. Kihaga et al. (2025) stressed the need to employ varied teaching and assessment strategies in large mathematics classes. Hettinger et al. (2023) demonstrated that teacher emotional support is crucial for maintaining students' interest in mathematics.

These findings indicate that novice mathematics teachers require support that extends beyond content knowledge. Targeted training in classroom management, differentiated instruction, remediation, and emotional support strategies is essential. Furthermore, school leaders should recognize that large, diverse classes necessitate additional resources and mentoring for beginning teachers.

Question 4: How did you manage to address or cope with those challenges?

Theme: Adaptive, Collaborative, and Structured Teaching Practices Helped Teachers Cope with Classroom Challenges

Participants reported employing step-by-step explanations, simplified instructions, group work, peer support, differentiated activities, visual aids, clear routines, one-on-one assistance, and classroom rules. These responses indicate that participants coped by adjusting their teaching methods and classroom management practices to

address learners' needs. Responses lacking evidence of a coping strategy or instructional adjustment were excluded.

This theme demonstrates that novice mathematics teachers addressed classroom difficulties by adopting flexible and practical approaches. They modified their teaching to enhance lesson clarity and ease of use for students. The implementation of group work and peer support facilitated the challenge of providing individual attention in large classes. These coping strategies reflect a developing capacity to integrate instruction, structure, and collaboration to support student learning.

Existing research supports the effectiveness of adaptive teaching. Centeno (2025) found that differentiated instruction enhances student engagement in mathematics. Rosario (2025) emphasized that contextualized instruction and technology integration can improve mathematics performance. Mananggolo (2025) examined teachers' practices in conducting remedial mathematics classes. Darmanova et al. (2025) reported that technology use supports mathematics education in middle and high school settings. Ayari et al. (2025) indicated that problem-based learning can improve K–12 mathematics performance. Kihaga et al. (2025) highlighted the importance of combining strategies for teaching and assessing students in large mathematics classes.

These findings suggest that schools should support novice teachers in strengthening adaptive teaching practices. Professional development should emphasize differentiation, peer-assisted learning, contextualized instruction, technology integration, and the establishment of clear classroom routines. Such strategies can enable beginning teachers to effectively manage large classes while supporting student learning.

Question 5: What advice can you share with those novice teachers teaching math in large public schools?

Theme: Patience, Flexibility, and Relational Support Are Essential in Sustaining Effective Mathematics Teaching

Participant 1 emphasized the importance of establishing routines and learning from colleagues. Participant 2 recommended creating a supportive classroom environment. Participants 3 to 10 identified the need for diverse instructional strategies, clear explanations, encouragement, and ensuring the relevance of mathematics to students. Participant 11 highlighted the importance of recognizing diverse learners, while Participant 12 underscored the value of compassion and patience, particularly for students who present challenges. Responses not directly related to sustaining teaching in large public-school mathematics classrooms were excluded.

This theme demonstrates that novice teachers view effective mathematics instruction as both instructional and relational. Teachers require pedagogical strategies as well as patience, compassion, flexibility, and the ability to build supportive relationships with students. In large public schools, these qualities enable teachers to address student diversity and maintain a positive learning environment. The advice provided reflects participants' recognition that teaching mathematics requires both technical expertise and emotional preparedness.

Empirical studies support this theme. Pasia and Rafa (2025) demonstrated that active learning strategies positively affect mathematics performance. Candongo (2025) investigated coping mechanisms used by mathematics teachers in inclusive classrooms. Espera (2025) identified motivation, anxiety, and self-efficacy as significant factors influencing students' numeracy. Hettinger et al. (2023) established a relationship between teacher emotional support and student interest in mathematics. Gordon et al. (2025) found that beginning teachers' self-efficacy develops during the transition from pre-service to in-service teaching. Barnes-Story et al. (2025) emphasized that effective classroom management and support are essential for teaching large classes.

These findings indicate that induction programs for novice mathematics teachers should extend beyond lesson planning and content delivery. Such programs should include components that foster emotional resilience, reflective practice, positive classroom relationships, and learner-centered support. Developing patience, flexibility, and relational skills among novice teachers can improve both teacher well-being and student learning outcomes.

CONCLUSION

The study found that novice mathematics teachers in large public schools are motivated by purposeful goals but face significant challenges. These teachers utilize learner-centered instructional methods to make mathematics engaging and accessible. Personal experiences, mentorship, and pre-service training contribute to their sense of responsibility toward students. Teaching mathematics in large public schools involves managing large and diverse classes, addressing varying levels of student readiness, maintaining student engagement, and responding to behavioral issues and mathematics anxiety.

Despite these challenges, participants adapted and enhanced their instructional practices through collaborative and responsive teaching strategies. They simplified lessons, implemented peer tutoring, facilitated group activities, provided additional examples, incorporated visual aids, established routines, and consulted with colleagues. Participants recommended that novice teachers exercise patience, remain flexible, prepare thoroughly, and prioritize building relationships with students. Novice teachers also emphasized the importance of building student confidence, encouraging participation, and fostering a supportive classroom environment.

Novice mathematics teachers in large public schools' encounter both challenges and successes. These teachers demonstrate persistence in addressing classroom difficulties. The study recommends robust institutional support, targeted mentoring, and ongoing professional development to sustain motivation, enhance instructional quality, and improve student outcomes. Insights from these experiences can inform teacher education programs, school leadership practices, and policy development for mathematics instruction in large public schools.

RECOMMENDATIONS

Based on the study's findings, several actions are recommended to support novice mathematics teachers in large public schools. School administrators should strengthen mentoring and induction programs for beginning teachers. Novice teachers face challenges, including large class sizes, diverse student populations, classroom management difficulties, and issues with lesson pacing. Ongoing guidance from experienced teachers enables novices to develop context-responsive practices. Structured mentoring provides both emotional and professional support, helping maintain motivation and confidence during the initial years of teaching.

Teacher education institutions and school leaders should offer targeted training in practical strategies for managing large classrooms. These strategies include differentiated instruction, peer tutoring, formative assessment, remediation, contextualized teaching, and effective classroom management. Training programs should emphasize adapting instructional methods to students' readiness and participation, strengthening content knowledge, and employing flexible approaches appropriate for large, diverse classroom environments.

Schools should foster a supportive environment by providing novice teachers with instructional materials and teaching resources, facilitating collaboration, and promoting lesson sharing, peer observation, and professional dialogue. Study participants emphasized the value of visual aids, worksheets, guided activities, and peer support. Schools should ensure these resources are accessible to help novice teachers refine their instructional practices.

School policies should recognize that effective mathematics teaching in large schools integrates instructional, relational, and emotional components. The study demonstrates that patience, flexibility, empathy, and strong teacher-student relationships enhance student participation and confidence. Interventions for novice teachers should include well-being resources, opportunities for reflective practice, and support mechanisms to promote resilience when facing professional challenges.

Researchers should extend this study by investigating novice mathematics teachers' experiences in additional contexts, including small public schools, private schools, and rural areas. Future research should examine how mentoring, professional development, and classroom support influence teachers' performance, retention, and growth over time, incorporating administrators' perspectives. Implementing these recommendations will improve the preparation, support, and professional development of novice mathematics teachers. Addressing both instructional and personal needs enables schools and teacher education institutions to help beginning teachers become effective, resilient, and learner-centered educators.

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