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Teacher-Perceived Challenges in Mathematics Instruction: A Qualitative Exploration of Instructional Experiences in Secondary Schools of Santa Maria, Isabela

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Abstract

Mathematics instruction remains one of the most challenging areas in secondary education due to diverse learner needs, instructional demands, and contextual limitations within school environments. This study explored the instructional experiences and perceived challenges encountered by mathematics teachers in secondary schools of Santa Maria, Isabela. Anchored on Constructivist Learning Theory and Pedagogical Content Knowledge Theory, the study employed a descriptive qualitative research design to examine teachers' experiences, instructional practices, classroom realities, and coping strategies in mathematics education. Participants included selected secondary mathematics teachers from public secondary schools in Santa Maria, Isabela. Data were gathered through semi-structured interviews, focus group discussions, classroom observations, and document analysis. Braun and Clarke's (2006) thematic analysis approach was utilized in analyzing the gathered data. Findings revealed that mathematics teachers encounter challenges related to learner diversity, mathematical anxiety, limited instructional resources, time constraints, curriculum demands, and low learner motivation and participation. Teachers also highlighted difficulties in simplifying abstract mathematical concepts and addressing varying learner abilities and comprehension levels. Despite these challenges, participants demonstrated adaptive instructional practices such as contextualized teaching, collaborative learning activities, differentiated instruction, and learner-centered pedagogical approaches to sustain learner engagement and improve understanding. The study further revealed that teacher resilience, instructional flexibility, and supportive school environments contribute significantly to sustaining effective mathematics instruction. The study concludes that mathematics teaching in secondary schools requires responsive pedagogical strategies, institutional support, and continuous professional development to address instructional challenges and improve learner participation and achievement. Strengthening teacher support systems, instructional resources, and contextualized mathematics instruction is recommended to enhance the quality of mathematics education in secondary schools.

Keywords: *mathematics instruction, instructional challenges, mathematics education, secondary schools, teacher experiences, qualitative research, learner engagement*



1. Introduction

Mathematics education plays a crucial role in developing learners' analytical thinking, logical reasoning, problem-solving abilities, and decision-making skills. As one of the core disciplines in secondary education, mathematics equips learners with competencies essential for academic advancement, scientific literacy, technological development, and lifelong learning. Despite its importance, mathematics remains one of the most challenging subjects for many learners, particularly at the secondary level where mathematical concepts become increasingly abstract and cognitively demanding.

The effectiveness of mathematics instruction significantly depends on teachers' pedagogical competence, instructional approaches, classroom management strategies, and ability to address learners' diverse needs and learning difficulties. Mathematics teachers play an important role in facilitating conceptual understanding, sustaining learner engagement, and creating supportive learning environments that encourage participation and problem-solving. However, mathematics instruction is often affected by various instructional, organizational, and contextual challenges that influence teaching effectiveness and learner outcomes.

In many secondary schools, mathematics teachers encounter difficulties associated with low learner motivation, mathematical anxiety, varied learner abilities, limited instructional materials, classroom management concerns, curriculum demands, and insufficient time for remediation and individualized instruction. These challenges become more pronounced in public secondary school settings where teachers handle large classes, multiple responsibilities, and learners with diverse academic backgrounds and learning needs.

Within the Philippine educational context, improving mathematics instruction has become a continuing concern due to persistent issues in learners' mathematics achievement and performance in national and international assessments. Reports from the Programme for International Student Assessment (PISA) revealed challenges in learners' mathematical proficiency, problem-solving skills, and conceptual understanding. These realities underscore the importance of examining not only learner outcomes but also the instructional experiences and challenges encountered by mathematics teachers in classroom practice.

In the secondary schools of Santa Maria, Isabela, mathematics teachers continuously strive to implement effective instructional practices despite diverse classroom realities and institutional limitations. Teachers are expected to address learner engagement, improve conceptual understanding, and implement curriculum standards while managing instructional constraints and organizational demands. Understanding teachers' lived experiences and instructional challenges is essential in identifying strategies that may strengthen mathematics education and support instructional improvement.

Several studies emphasized that mathematics teachers encounter multidimensional instructional challenges that affect teaching effectiveness and learner engagement. Ball et al. (2020) argued that mathematics instruction requires strong pedagogical content knowledge and adaptive teaching practices to address learners' varying comprehension levels and learning needs. Similarly, Boaler (2021) highlighted that learner engagement and conceptual understanding improve when mathematics instruction becomes collaborative, contextualized, and learner-centered.

Although mathematics education has been extensively studied, there remains limited qualitative research focusing on the lived instructional experiences of secondary mathematics teachers in rural

Philippine school contexts. Thus, this study aimed to explore the teacher-perceived challenges in mathematics instruction and examine how secondary mathematics teachers navigate instructional experiences and classroom realities in Santa Maria, Isabela.

Theoretical Framework

This study was anchored on Constructivist Learning Theory by Vygotsky (1978) and Pedagogical Content Knowledge (PCK) Theory by Shulman (1987).

Constructivist Learning Theory posits that learners actively construct knowledge through interaction, collaboration, reflection, and meaningful experiences. Learning becomes more effective when instructional approaches are learner-centered, participatory, and connected to learners' prior knowledge and experiences. Teachers act as facilitators who guide learners through scaffolding and interactive learning processes.

Pedagogical Content Knowledge Theory explains that effective teaching requires the integration of content mastery and pedagogical competence. Teachers must possess not only deep understanding of subject matter but also the ability to present concepts in ways that are understandable, meaningful, and responsive to learners' needs and abilities.

These theories provided the framework for understanding how instructional practices, classroom experiences, and pedagogical challenges influence mathematics instruction in secondary education.

2. Objectives of the Study

This study aimed to explore the instructional experiences and perceived challenges encountered by mathematics teachers in secondary schools of Santa Maria, Isabela. Specifically, it sought to examine how teachers describe their experiences in mathematics instruction and identify the challenges encountered in learner participation, instructional delivery, classroom management, instructional resources, and curriculum implementation. The study further aimed to explore the strategies and instructional practices employed by teachers in addressing instructional difficulties and sustaining learner engagement in mathematics classrooms. Additionally, it intended to identify the pedagogical approaches that contribute to effective mathematics instruction and conceptual understanding among learners. Finally, the study aimed to derive insights from the participants' narratives and experiences that may serve as basis for strengthening mathematics instruction and improving learner engagement in secondary schools.

3. Methodology

This study employed a descriptive qualitative research design to explore the instructional experiences and perceived challenges encountered by mathematics teachers in secondary schools of Santa Maria, Isabela. The qualitative approach enabled the researcher to gather rich and contextualized descriptions regarding teachers' classroom experiences, instructional practices, learner interactions, pedagogical strategies, and challenges encountered in mathematics instruction. Through qualitative inquiry, the study was able to capture teachers' lived experiences and understand how they navigate instructional demands and classroom realities within the natural educational setting.

The study was conducted in selected public secondary schools in Santa Maria, Isabela, Philippines. These schools operate under the supervision of the Department of Education and serve learners from diverse socio-economic and educational backgrounds. The locale provided a relevant context for examining instructional challenges and pedagogical experiences in mathematics education within rural secondary school settings.

The participants of the study included selected secondary mathematics teachers from Santa Maria, Isabela. Purposive sampling was utilized to select participants who possessed direct experiences and active involvement in mathematics instruction. The participants varied in teaching experience, classroom exposure, and instructional responsibilities to ensure diverse perspectives regarding instructional challenges and classroom realities.

The study utilized semi-structured interview guides, focus group discussion guides, classroom observation notes, and document analysis checklists as qualitative research instruments. Interview questions focused on instructional experiences, learner participation, classroom management, pedagogical approaches, instructional challenges, and coping strategies employed during mathematics instruction.

Prior to data gathering, formal permission was secured from school administrators. Ethical considerations including informed consent, confidentiality, anonymity, voluntary participation, and respect for participants' rights were strictly observed throughout the study. Data were gathered through interviews, focus group discussions, classroom observations, and document analysis. All interviews and discussions were audio-recorded with participants' consent and transcribed verbatim for analysis.

The gathered data were analyzed using Braun and Clarke's (2006) thematic analysis approach. Significant statements and recurring patterns were identified, coded, categorized, and organized into themes representing the participants' instructional experiences and perceived challenges. Trustworthiness of the findings was established through triangulation, member checking, audit trails, and thick description to ensure credibility, dependability, confirmability, and transferability of the study.

3. Results and Discussion

Theme 1: Diverse Learner Abilities and Participation Challenges

The findings revealed that one of the major challenges encountered by mathematics teachers in secondary schools is managing diverse learner abilities, comprehension levels, and classroom participation patterns. Participants explained that learners possess varying mathematical foundations, learning paces, and problem-solving skills, making it difficult to deliver instruction that effectively addresses all learners' needs within a single classroom setting.

One teacher participant stated:

“Hindi pare-pareho ang level ng understanding ng mga bata kaya mahirap minsan pagsabayin ang discussion.”

Another participant shared:

“May mga learners na mabilis makaintindi pero meron ding hirap na hirap sa basic operations pa lang.”

Similarly, another teacher explained:

“Kapag mixed ang abilities sa classroom, kailangan talagang mag-adjust sa teaching strategies.”

The responses indicate that learner diversity significantly affects instructional pacing, classroom participation, and lesson delivery in mathematics education. Teachers experience difficulties balancing the needs of high-performing learners and those who require additional scaffolding and remediation. Learners

with weak mathematical foundations often struggle to cope with complex mathematical concepts and problem-solving activities, resulting in reduced participation and classroom engagement.

The findings further revealed that some learners become hesitant to participate due to fear of making mistakes and low confidence in mathematics.

One teacher participant shared:

“Maraming bata ang nahihiyang sumagot dahil takot silang magkamali.”

Another participant stated:

“Kapag mahina ang foundation nila sa math, nawawalan sila ng confidence mag-participate.”

These findings suggest that learner confidence and prior mathematical knowledge significantly influence classroom engagement and participation. Learners who experience difficulties understanding mathematical concepts may gradually develop negative attitudes and anxiety toward mathematics learning.

The findings support Ball et al. (2020), who emphasized that mathematics instruction becomes more challenging when teachers handle learners with varying levels of conceptual understanding and mathematical readiness. Similarly, OECD (2019) highlighted that differences in learner proficiency and low academic confidence significantly affect participation and achievement in mathematics education.

The findings also align with Vygotsky’s (1978) Constructivist Learning Theory, which emphasizes the importance of scaffolding and guided support in helping learners progress within their zone of proximal development. Teachers play an essential role in adapting instructional strategies to address learners’ varying abilities and learning needs.

Theme 2: Difficulties in Teaching Abstract Mathematical Concepts

The study revealed that mathematics teachers encounter significant difficulties in simplifying and teaching abstract mathematical concepts. Participants explained that many learners struggle to understand formulas, algebraic processes, word problems, and higher-order mathematical reasoning, particularly when lessons become more abstract and cognitively demanding.

One teacher participant stated:

“Mahirap ituro ang abstract concepts lalo na kapag kulang ang background knowledge ng learners.”

Another participant explained:

“Kapag algebra at problem-solving na, marami talagang nahihirapan umintindi.”

Similarly, another teacher shared:

“Kailangan ulit-ulitin ang discussion bago maintindihan ng karamihan sa learners.”

These responses indicate that conceptual difficulty remains a major instructional challenge in mathematics education. Teachers often need to provide repeated explanations, multiple examples, and step-by-step demonstrations to help learners understand mathematical procedures and concepts.

Participants also highlighted that learners frequently struggle with problem-solving tasks that require critical thinking and analytical reasoning.

One teacher stated:

“Kapag situational problems, hirap ang learners mag-analyze kung ano ang gagawin.”

Another participant explained:

“Minsan naintindihan nila ang formula pero hindi nila alam paano i-apply.”

The findings imply that mathematics instruction requires not only procedural teaching but also conceptual and analytical development among learners. Teachers need to employ varied instructional approaches to make abstract concepts more understandable and meaningful.

The findings support Shulman’s (1987) Pedagogical Content Knowledge Theory, which explains that effective mathematics instruction requires teachers to transform complex concepts into understandable and learner-friendly representations. Similarly, Boaler (2021) emphasized that conceptual mathematics teaching should encourage exploration, visualization, collaboration, and meaningful understanding rather than rote memorization.

The findings further align with Bransford et al. (2020), who argued that learners understand concepts more effectively when instruction connects abstract ideas to practical and contextualized experiences.

Teachers also revealed that instructional flexibility becomes necessary in addressing conceptual difficulties.

One participant shared:

“Kailangan naming maghanap ng ibang paraan ng pagtuturo para mas maintindihan nila.”

This finding highlights the importance of adaptive pedagogy and differentiated instruction in strengthening conceptual understanding and learner engagement in mathematics classrooms.

Theme 3: Limited Instructional Resources and Time Constraints

The findings revealed that limited instructional resources and insufficient time significantly affect the quality and effectiveness of mathematics instruction in secondary schools. Participants explained that shortages in instructional materials, technological resources, manipulatives, and learning aids limit their ability to implement engaging and interactive mathematics activities.

One teacher participant stated:

“Kulang minsan ang instructional materials kaya nahihirapan kaming gawing interactive ang lesson.”

Another participant shared:

“Hindi lahat ng learners may access sa calculators, modules, o internet resources.”

Similarly, another teacher explained:

“Mas magiging effective sana ang teaching kung mas marami kaming resources na magagamit.”

These responses indicate that instructional limitations affect teachers’ ability to implement innovative and learner-centered pedagogical strategies. The lack of adequate resources constrains opportunities for experiential learning, technology integration, and collaborative instructional activities.

Participants also emphasized that time constraints negatively affect lesson implementation and learner support.

One teacher participant stated:

“Minsan kulang talaga ang oras para matapos ang lesson at ma-remediate ang mga nahihirapan.”

Another participant explained:

“Dahil sa dami ng competencies, mabilis ang pacing ng discussion.”

The findings suggest that curriculum demands and limited instructional time create pressures for mathematics teachers in balancing lesson coverage and learner understanding. Teachers often struggle to provide sufficient remediation and individualized attention due to time limitations and curriculum expectations.

The findings support OECD (2019), which highlighted that insufficient instructional resources and curriculum pressures remain common challenges affecting mathematics education globally. Similarly, Fullan (2020) emphasized that resource limitations and instructional workload significantly influence teaching effectiveness and classroom implementation.

Participants further explained that administrative responsibilities and paperwork also consume instructional preparation time.

One teacher stated:

“Bukod sa teaching, marami ring paperwork kaya minsan kulang na sa preparation.”

This finding implies that institutional and organizational support systems are necessary to help teachers manage instructional responsibilities effectively and sustain quality mathematics instruction.

Theme 4: Learner Motivation, Mathematical Anxiety, and Classroom Engagement

The study further revealed that low learner motivation, mathematical anxiety, and classroom disengagement are among the most persistent challenges encountered in mathematics instruction. Teachers explained that many learners perceive mathematics as difficult, stressful, and intimidating, which negatively affects participation and classroom involvement.

One teacher participant stated:

“Kapag narinig na nila ang math, marami agad ang natatakot at nawawalan ng interest.”

Another participant explained:

“Maraming learners ang mababa ang confidence kaya hindi sila sumasagot.”

Similarly, another teacher shared:

“May mga learners na sumusuko agad kapag nahihirapan sa lesson.”

These responses indicate that emotional factors significantly influence learner engagement and participation in mathematics classrooms. Fear of failure, embarrassment, and low self-confidence discourage learners from asking questions, participating in discussions, and attempting mathematical tasks.

Participants also explained that some learners develop negative attitudes toward mathematics due to previous academic struggles and repeated experiences of difficulty.

One participant stated:

“Kapag dati nang nahirapan ang learner sa math, nadadala nila hanggang high school ang takot.”

Another teacher shared:

“Minsan kahit simple lang ang problem, nagpa-panic agad sila.”

The findings suggest that mathematics anxiety and low confidence negatively influence learners’ behavioral, emotional, and cognitive engagement in mathematics learning.

The findings align with OECD (2019), which highlighted that mathematics anxiety significantly affects learner participation, motivation, and academic performance. Similarly, Ashcraft and Moore (2019) explained that mathematics anxiety negatively affects concentration, problem-solving ability, and working memory among learners.

Despite these challenges, participants revealed that supportive classroom environments and encouraging instructional approaches help improve learner motivation and participation.

One teacher participant explained:

“Kapag supportive at encouraging ang classroom environment, mas nagiging active ang learners.”

Another participant stated:

“Malaking tulong ang positive reinforcement para magkaroon sila ng confidence.”

These findings imply that emotionally supportive and learner-centered instructional environments contribute significantly to improving classroom engagement and reducing mathematics anxiety among learners.

Theme 5: Adaptive and Learner-Centered Instructional Practices

Despite instructional challenges, the findings revealed that mathematics teachers continuously employ adaptive and learner-centered instructional practices to sustain learner engagement and improve understanding. Participants emphasized the importance of contextualized teaching, collaborative learning, differentiated instruction, remediation, and motivational strategies in addressing learners’ diverse needs.

One teacher participant stated:

“Nagbibigay ako ng practical examples para mas maintindihan nila ang lesson.”

Another participant shared:

“Mas effective kapag collaborative ang activities kasi nagtutulungan ang learners.”

Similarly, another teacher explained:

“Kailangan talagang maging flexible sa teaching strategies depende sa learners.”

The findings indicate that mathematics teachers demonstrate instructional resilience and pedagogical adaptability in managing classroom challenges and supporting learner participation. Teachers recognize the importance of modifying instructional approaches based on learners’ abilities, engagement levels, and classroom realities.

Participants also highlighted the importance of remediation and individualized support in helping struggling learners.

One participant stated:

“Nagbibigay kami ng additional exercises at remediation para makahabol ang learners.”

Another teacher shared:

“Kailangan minsan one-on-one ang pag-guide sa mga nahihirapan.”

The findings support Boaler (2021), who emphasized that learner-centered and collaborative instructional practices strengthen conceptual understanding and mathematics engagement. Similarly, Tomlinson (2019) argued that differentiated instruction helps address diverse learner needs and improves classroom participation.

The findings further align with Constructivist Learning Theory, which posits that meaningful learning occurs when learners actively participate, collaborate, and connect learning experiences to authentic contexts (Vygotsky, 1978).

Overall, the findings suggest that effective mathematics instruction requires adaptive pedagogy, supportive learning environments, and responsive instructional practices that address learners' cognitive, emotional, and behavioral needs within secondary school mathematics classrooms.

.4.Conclusion

The study revealed that mathematics teachers in secondary schools of Santa Maria, Isabela encounter multifaceted instructional challenges that significantly influence classroom teaching, learner engagement, and instructional effectiveness. Teachers experience difficulties associated with diverse learner abilities, low learner participation, mathematical anxiety, conceptual comprehension problems, insufficient instructional resources, time constraints, and curriculum demands. These challenges affect teachers' ability to deliver mathematics lessons effectively and sustain meaningful learner engagement within the classroom.

Despite these instructional difficulties, the findings demonstrated that mathematics teachers continuously employ adaptive and learner-centered pedagogical practices to address classroom realities and support learner understanding. Teachers utilized contextualized instruction, collaborative learning activities, differentiated teaching approaches, remediation sessions, and motivational strategies to make mathematics instruction more understandable, engaging, and responsive to learners' needs. The study further revealed that supportive classroom environments, positive teacher-learner relationships, and flexible instructional approaches contribute significantly to improving learner participation, confidence, and engagement in mathematics learning.

The study concludes that effective mathematics instruction requires not only content mastery but also pedagogical adaptability, emotional responsiveness, and institutional support. Mathematics teachers play a critical role in transforming learners' experiences in mathematics education by creating supportive, interactive, and learner-centered classrooms that encourage participation and conceptual understanding. However, sustaining effective mathematics instruction also requires adequate instructional resources, continuous professional development, supportive school leadership, and educational policies that address the realities and challenges encountered by mathematics teachers in secondary school settings.

4.1 Implications of the Study

The findings of the study provide important implications for mathematics education, instructional practices, educational leadership, curriculum implementation, and future research. The study

highlights the need for responsive and learner-centered approaches in addressing instructional challenges and strengthening mathematics teaching and learning experiences in secondary schools.

Educational Implications

The findings imply that mathematics instruction should become more adaptive, contextualized, and learner-centered to effectively address diverse learner abilities and engagement levels. Mathematics teachers need to utilize collaborative learning activities, differentiated instruction, scaffolding strategies, and contextualized examples to help learners better understand mathematical concepts and participate actively in classroom activities.

The study further implies that mathematics education should emphasize conceptual understanding and meaningful learning rather than rote memorization and procedural teaching alone. Teachers may strengthen learners' problem-solving skills and analytical thinking by connecting mathematical concepts to real-life situations and practical applications. Contextualized instruction helps learners appreciate the relevance and usefulness of mathematics in everyday life, thereby improving learner motivation and engagement.

Additionally, the findings suggest the importance of creating emotionally supportive classroom environments that reduce learners' fear, anxiety, and hesitation toward mathematics learning. Mathematics teachers should encourage positive reinforcement, learner participation, and psychologically safe classrooms where mistakes are viewed as opportunities for learning and improvement.

4.2 Pedagogical Implications

The findings imply that effective mathematics teaching requires strong pedagogical flexibility and responsiveness to learners' needs and classroom realities. Mathematics teachers should continuously develop instructional strategies that accommodate learners with varying comprehension levels, learning styles, and participation capacities.

The study also highlights the importance of teacher competence in simplifying abstract mathematical concepts and designing meaningful learning experiences. Teachers may benefit from professional development programs focusing on differentiated instruction, contextualized mathematics teaching, learner engagement strategies, and classroom management approaches specifically designed for mathematics education.

Moreover, the findings imply that collaborative and interactive instructional practices should be strengthened in mathematics classrooms. Group activities, peer-assisted learning, collaborative problem-solving, and learner-centered discussions may help improve learner confidence, participation, and conceptual understanding.

Psychological and Social Implications

The findings revealed that mathematics anxiety, low self-confidence, and fear of making mistakes significantly affect learner participation and engagement in mathematics learning. This implies the need for schools and teachers to strengthen emotional and psychological support systems within mathematics classrooms.

Teachers should foster supportive teacher-learner relationships and encourage positive classroom interactions that promote confidence, motivation, and learner well-being. Positive reinforcement,

encouragement, and patient instructional approaches may help reduce mathematics anxiety and improve learners' willingness to participate in classroom activities.

The study further implies that collaborative learning environments contribute positively to learners' social development and classroom belongingness. Group activities and peer interaction encourage communication, teamwork, cooperation, and shared learning experiences among learners.

Institutional and Policy Implications

The findings provide important implications for school administrators and educational policymakers, particularly within the Department of Education. The study suggests the need for stronger institutional support systems that assist mathematics teachers in addressing instructional challenges and improving classroom implementation.

Educational institutions may strengthen mathematics instruction by providing adequate instructional materials, learning resources, manipulatives, technological tools, and contextualized teaching materials that support learner-centered mathematics education. Schools should also prioritize professional development opportunities focused on innovative pedagogical approaches, learner engagement strategies, and differentiated instruction in mathematics education.

The findings further imply that curriculum implementation should consider learners' varying abilities, learning paces, and contextual realities. Curriculum planners and educational leaders may revisit curriculum pacing, competency requirements, and instructional expectations to ensure that teachers are given sufficient time to support learner understanding and remediation.

Moreover, the study suggests the importance of reducing excessive administrative workload among teachers to allow greater focus on instructional preparation, learner support, and classroom engagement.

Implications for School Leadership

The findings imply that school leaders play an important role in strengthening mathematics instruction and supporting teachers' instructional needs. School administrators may foster collaborative professional learning communities where mathematics teachers can share instructional strategies, classroom experiences, and best practices in addressing learner difficulties.

School leaders may also strengthen instructional supervision and mentoring systems that provide teachers with constructive feedback, professional guidance, and emotional support. Encouraging collaboration among teachers may help improve instructional innovation and classroom effectiveness in mathematics education.

Additionally, administrators may support the implementation of learner-centered and contextualized instructional programs that promote active learner participation and conceptual understanding.

Implications for Future Research

The findings highlight the need for further studies exploring mathematics instruction and learner engagement across different educational contexts and learner populations. Future researchers may conduct comparative studies involving urban and rural schools to examine similarities and differences in instructional challenges and pedagogical practices in mathematics education.

Longitudinal studies may also be conducted to examine how instructional interventions, teacher support programs, and learner-centered pedagogical approaches influence mathematics achievement and learner engagement over time. Mixed-methods research may further explore the relationship between instructional challenges, mathematics anxiety, learner participation, and academic performance.

Future studies may likewise investigate the influence of technology integration, socio-economic conditions, classroom environment, and cultural factors on mathematics instruction and learner engagement.

Overall, the study emphasizes that improving mathematics instruction requires collaborative efforts among teachers, school leaders, educational institutions, policymakers, parents, and learners. Responsive pedagogy, supportive learning environments, contextualized instruction, and institutional support systems are essential in strengthening mathematics education and improving learner engagement and achievement in secondary schools.

References

- Ashcraft, M. H., & Moore, A. M. (2019). Mathematics anxiety and the affective drop in performance. *Journal of Psychoeducational Assessment*, 27(3), 197–205.
- Abana, A (2021). A Scrutiny of K-12 Strands and the Learning Program Vis-à-vis its Academic Performance. *Psychology and Education Journal*. 58 (2): 7977-7984
- Andres, A. (2019). Achievement Goals and Mathematics Achievement of the Senior High School Students. *International Journal of English and Education*, 8 (2).
- Andres, A. (2023). Establishing Quality Instrument for the Summative Assessment of Pre-Service Elementary Teachers. *JETT*. 14 (3), 9-16).
- Andres, A.D. (2022). Metacognition and Performance in Mathematical Problem-Solving Among Bachelor of Elementary (BEED) Pre-service Teachers. *Central European Management Journal*, 30 (4). 86-95.
- Antonio, A. (2021). Syntactical Scrutiny: Inaccuracies in the Lesson Planning of Non- Language Pre Service Teachers. *International Journal of Arts, Sciences and Education*,
- Balog, P., & Gonzales, E. (2021). From Linguistic Landscapes to Teaching Resources: A Case of Some Rural Areas in the Province of Quezon. *International Journal of Arts, Sciences and Education*, 1(2), 23–44.
- Banares, A. J. (2022). Reinterpreting Sonnet 18 by William Shakespeare through Stylistic Analysis. *International Journal of Arts, Sciences and Education*, 3(July Special Issue), 189–204. <https://ijase.org/index.php/ijase/article/view/163>.
- Ball, D. L., Thames, M. H., & Phelps, G. (2020). Content knowledge for teaching: What makes it special? *Journal of Teacher Education*, 59(5), 389–407.
- Boaler, J. (2021). *Mathematical mindsets*. Jossey-Bass.
- Bransford, J., Brown, A., & Cocking, R. (2020). *How people learn: Brain, mind, experience, and school*. National Academy Press.

Fullan, M. (2020). *Leading in a culture of change* (2nd ed.). Jossey-Bass.

OECD. (2019). *PISA 2018 results: What students know and can do*. OECD Publishing.

Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, 57(1), 1–22.

Tomlinson, C. A. (2019). *How to differentiate instruction in academically diverse classrooms* (3rd ed.). ASCD.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.