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IMPLEMENTING GROWTH MINDSET IN MATHEMATICS LEARNING: AN ANALYSIS OF CORRELATION LESSON PRACTICES IN GRADE 11 CLASSROOMS

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ABSTRACT

This study aims to explore how a growth mindset is implicitly fostered in mathematics learning through the classroom practices of pre-service mathematics teachers. Using a descriptive qualitative approach, this study specifically employed thematic analysis to identify patterns of social interaction and the natural processes of learning. Primary data were sourced from transcripts of classroom interactions conducted by pre-service mathematics teachers on correlation analysis in grade 11. The analysis revealed that elements of a growth mindset were consistently integrated into teacher-student interactions, with teachers playing a central role through motivation, structured scaffolding, constructive feedback, and error normalization strategies. The primary contribution of this study lies in demonstrating that developing students' growth mindsets does not have to be achieved through rigid theoretical introductions but can be effectively internalized through everyday classroom discourse. This study concludes that growth mindset can be effectively fostered through everyday classroom practices, even without being explicitly introduced as a theoretical concept. This study recommends the development of systematic instructional designs on various mathematics topics to create a learning culture that is resilient to cognitive challenges.

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INTRODUCTION

Mathematics learning is often perceived by students as challenging and intimidating, which can negatively affect their motivation, engagement, and achievement. In many

educational contexts, students also experience mathematics anxiety and fear of making mistakes, causing them to avoid participation and problem-solving activities in the classroom (Aksu et al., 2016; OECD, 2023). Many students tend to believe that mathematical ability is fixed and innate, leading them to avoid challenges and give up easily when encountering difficulties (Chen et al., 2024). This perspective aligns with what is known as a fixed mindset, where individuals assume that intelligence and ability cannot be significantly developed. In contrast, a growth mindset emphasizes that abilities can be improved through effort, effective strategies, and persistence (K. M. Xu et al., 2025). Therefore, promoting a growth mindset in mathematics classrooms is essential to help students become more resilient, confident, and willing to engage in complex problem-solving tasks (Wijaya et al., 2025; X. Xu & Dieckmann, 2025).

The concept of growth mindset has gained significant attention in educational research, particularly in relation to student achievement and learning processes. Studies suggest that students who adopt a growth mindset are more likely to embrace challenges, learn from mistakes, and demonstrate higher academic performance compared to those with a fixed mindset (Boaler et al., 2021; Zeeshan, 2025). In mathematics education, this is especially important because learning the subject involves problem-solving, reasoning, and iterative learning, where errors that occur during these processes can be viewed as part of learning rather than indicators of inability (Pan et al., 2020; Scheja & Rott, 2025). Research has also shown that growth mindset practices can help reduce mathematics anxiety and strengthen students' mathematical adaptability, enabling them to persist when faced with difficult tasks (Chen et al., 2024; Huang, 2025). Thus, the role of teachers becomes crucial in creating a learning environment that supports exploration, encourages effort, and normalizes mistakes as part of learning.

Classroom interaction plays a key role in shaping students' mindset (Piyakun & Phusee-Orn, 2025; Wijaya et al., 2025). Teacher feedback, questioning strategies, and responses to student errors can either reinforce a fixed mindset or cultivate a growth mindset (Handa et al., 2023). For instance, when teachers provide opportunities for students to explain their thinking, encourage them to try different strategies, and reassure them that mistakes are acceptable, students are more likely to develop adaptive learning behaviors. Conversely, overly focusing on correct answers without valuing the learning process may limit students' willingness to take risks (Zhang & He, 2024). These interactional practices suggest that the growth mindset is not only influenced by formal instructional programs but also constructed through everyday communication patterns in the classroom.

Although classroom interaction is critical, previous studies on growth mindset in mathematics education have rarely analyzed these daily dialogues directly. Instead, most existing research has primarily focused on teachers' beliefs, student outcomes, or the effects of instructional interventions. Limited studies specifically examine how a growth mindset is implicitly fostered through natural classroom dialogue and daily teacher-student interactions during mathematics learning. This indicates a need for more contextual and interaction-based analysis. Therefore, rather than measuring mindset through questionnaires or interventions, this study examines naturally occurring teacher expressions, responses to errors, scaffoldings, and student reactions during classroom interaction.

Based on these considerations, this study aims to explore how a growth mindset is implicitly fostered in mathematics learning through classroom practices. The analysis is grounded in a teaching transcript of a lesson on correlation analysis in a Grade 11 classroom. By examining teacher-student interactions, this study seeks to identify key instructional practices that support the development of a growth mindset and to understand how students respond to such practices during the learning process. The findings of this study are expected to contribute to mathematics pedagogy by providing practical insights into interactional strategies that can encourage students' persistence, confidence, and active participation in

mathematics classrooms.

METHOD

This study employed a qualitative descriptive approach to explore how growth mindset is manifested in classroom interactions during mathematics learning. Qualitative methods are appropriate for examining social interactions, meanings, and processes that occur naturally in educational settings (Lim, 2024). The main data source is a teaching transcript from a grade XI mathematics class of 34 students who discussed the chapter on correlation analysis. These transcripts capture authentic dialogue between teachers and students, allowing for in-depth analysis of teaching practices and student responses in relation to a growth mindset. The lesson plans were validated by the supervising teacher before being implemented by the pre-service mathematics teachers.

The data were analyzed using thematic analysis, which involves identifying, coding, and interpreting patterns of meaning within qualitative data (W. Xu & Zammit, 2020). This method was chosen because it enables systematic exploration of implicit and explicit indicators of growth mindset in classroom discourse. The analysis process began with data familiarization, where the transcript was read repeatedly to understand the overall flow of interaction. This was followed by initial coding, in which meaningful units of dialogue were labeled based on their relevance to growth mindset constructs such as effort, persistence, response to mistakes, feedback, and student engagement (Kushnir, 2025).

In the next stage, codes were grouped into broader categories representing key dimensions of growth mindset, including teacher support, error normalization, scaffolding, and student agency. These categories were then refined into themes that describe how growth mindset is enacted in the classroom. To enhance credibility, the analysis focused on direct excerpts from the transcript to ensure that interpretations were grounded in actual classroom interactions (Lim, 2024; Nowell et al., 2017).

The coding process was guided by an operational framework of growth mindset indicators adapted from prior studies, which emphasize the role of effort, strategy use, and constructive feedback in learning (K. M. Xu et al., 2025). Each segment of the transcript was examined and categorized according to these indicators. The following table presents examples of the coding process, including excerpts from the transcript, initial codes, and the resulting thematic categories.

Table 1. Coding Process of Growth Mindset Indicators

Transcript Excerpt (Indonesian)	English Translation	Initial Code	Category	Theme
"Nanti ketika kita belajar matematika nanti melek kok, dijamin."	"Later when we study mathematics, you will become alert, guaranteed."	Motivational encouragement	Teacher support	Growth-oriented motivation
"Pake kalkulator kok, aman gapapa."	"You can use a calculator, it's okay."	Reducing anxiety	Scaffolding	Supportive learning environment
"Tidak percaya saya hitungannya… saya jadi trust issue."	"I don't trust my calculation… I have trust issues."	Self-doubt	Student response	Emerging growth mindset
"Kamu gak trust issue lagi? Sudah percaya?"	"Do you still have trust issues? Do you trust now?"	Encouraging confidence	Teacher feedback	Confidence building
"Kalau misal sudah diketahui nilai R, terus menentukan tingkat korelasi."	"After finding the value of R, determine the level of correlation."	Guiding process	Instructional scaffolding	Process-oriented learning

"Kamu bulatkan saja… ambil 2 angka di belakang koma."	"Just round it… take two decimal places."	Strategy guidance	Scaffolding	Strategy development
"Bu, mau bertanya…"	"Ma'am, I want to ask…"	Active participation	Student agency	Engagement and persistence
"Ada yang salah?"	"Is there something wrong?"	Error awareness	Error normalization	Learning from mistakes

RESULTS AND DISCUSSION

Mathematics learning is fundamentally oriented not only toward mastering concepts and procedures, but also toward shaping students' thinking in facing learning challenges. In this context, a growth mindset is a crucial factor influencing how students perceive their mathematical abilities, respond to mistakes, and maintain effort when faced with difficulties. A growth mindset encourages students to understand that abilities can be improved through practice, appropriate strategies, and perseverance, rather than being determined solely by innate talent. Therefore, the classroom environment and teacher instructional practices play a crucial role in shaping learning experiences that support the development of a growth mindset in students.

Table 2. Summary of Findings and Analysis

Aspect	Evidence from Transcript	Growth Mindset Indicator	Interpretation
Motivation	"Later, when we study mathematics, you'll be fully awake."	Encouragement of effort	Teacher builds positive expectation toward learning
Error response	"I'm starting to have trust issues." → teacher reassures	Normalization of mistakes	Errors treated as part of learning process
Scaffolding	Step-by-step explanation of SSxy, SSxx, SSyy	Process-oriented learning	Focus on understanding procedures
Student participation	"Ma'am, I would like to ask a question…"	Active engagement	Students show willingness to learn
Feedback	"Do you understand?"	Confidence building	Teacher reinforces self-belief
Strategy support	Use of calculator and rounding guidance	Strategy development	Students learn tools and techniques
Collaboration	Group work discussion	Social learning	Peer interaction supports learning
Persistence	Students continue solving despite confusion	Effort and resilience	Indicates emerging growth mindset

The analysis of the classroom transcript reveals that elements of growth mindset were consistently embedded in the teaching and learning process, particularly through teacher-student interactions, as shown in Table 2. These elements did not always appear explicitly as theoretical constructs but were reflected in the way the teacher structured learning, responded to students, and guided them through mathematical problem-solving. This finding aligns with the notion that growth mindset is often developed through implicit classroom practices rather than direct instruction (Handa et al., 2023; Yu et al., 2022).

At the beginning of the lesson, the teacher attempted to build a positive learning atmosphere by acknowledging students' initial lack of enthusiasm and reframing it into a more optimistic perspective. The statement "*nanti ketika kita belajar matematika nanti melek kok, dijamin*" ("Later, when we study mathematics, you'll be fully awake.") indicates an effort to shift students' mindset from reluctance to readiness. This reflects growth-oriented motivation, where the teacher emphasizes that engagement in learning will naturally lead to improvement. Such motivational framing is important in helping students reinterpret effort as a pathway to understanding rather than as a burden (K. M. Xu et al., 2025). In this context, motivation not

only functions to increase enthusiasm for learning, but also helps students view mathematical challenges as something that can be overcome.

Another prominent aspect observed in the lesson is the normalization of difficulty and errors. Throughout the interaction, students expressed uncertainty and lack of confidence, as seen in the statement "*tidak percaya saya hitungannya… saya jadi trust issue*." ("I don't trust my calculations anymore… I'm starting to have trust issues.") Instead of dismissing this concern, the teacher responded in a supportive manner by reassuring the student and encouraging the use of tools such as calculators. This response indicates that mistakes and doubts are treated as natural parts of the learning process. This finding is important because mathematics learning is often characterized by an evaluative culture that emphasizes right and wrong, making students fearful of making mistakes. In this study, the teacher's responses helped reduce students' anxiety when faced with doubts in mathematical calculations. The process of learning from errors helps students build deeper conceptual understanding through reflection on their thinking processes (Lehmann, 2025). When errors are normalized, students are also more likely to persist and engage deeply with the material (Yeager et al., 2022).

The teacher also demonstrated strong scaffolding practices, particularly in guiding students step-by-step through complex procedures such as calculating the correlation coefficient. Instructions like "*kamu masukkan ini, cari SSxy, SSxx, sama SSyy, baru menghitung R*" ("You substitute these values first, find SSxy, SSxx, and SSyy, then calculate R.") show a clear emphasis on process rather than simply obtaining the correct answer. This process-oriented approach is a key component of growth mindset, as it helps students focus on how learning occurs rather than solely on outcomes (Yeager et al., 2022). By breaking down the problem into manageable steps, the teacher enabled students to build confidence and competence gradually.

Student agency and participation further indicate the presence of growth mindset. The transcript shows multiple instances of students actively asking questions, such as "*Bu, mau bertanya…*" ("Ma'am, I would like to ask a question…") and seeking clarification on procedures. This behavior reflects a willingness to engage with challenges and a recognition that understanding requires effort and inquiry. Such active participation is often associated with growth mindset, as students are not afraid to expose their misunderstandings and seek improvement (K. M. Xu et al., 2025). In addition to demonstrating cognitive engagement, students' courage to ask questions also indicates a sense of psychological safety in the learning environment. This is important in mathematics learning because students are more likely to be open to exploring strategies and reflecting on mistakes when they feel that the learning process is valued beyond the final answer.

In addition, the teacher consistently provided constructive feedback aimed at building students' confidence. For example, when a student doubted their answer, the teacher asked, "*Kamu gak trust issue lagi? Sudah percaya?*" ("You're not having trust issues anymore, right? Do you believe it now?") This type of feedback encourages self-reflection and reinforces the idea that confidence can grow through verification and practice. Feedback that focuses on progress and effort rather than innate ability has been shown to significantly influence students' mindset and learning behavior (Zhang & He, 2024). This feedback approach helps students understand that success in mathematics is achieved through a gradual learning process, not solely due to natural talent. This, in turn, encourages students to keep trying, revise strategies, and persist when faced with challenging math problems.

Another important finding is the integration of collaborative learning through group work. Students were encouraged to work together to solve problems, discuss results, and present conclusions. Collaborative environments can support growth mindset by allowing students to share strategies, learn from peers, and view challenges as collective rather than individual burdens (Tran-Duong & Do-Hung, 2025). This social dimension of learning reinforces the idea that knowledge is constructed through interaction and effort. In addition to increasing student

engagement, collaborative learning also helps students develop confidence in expressing ideas and defending their mathematical arguments.

The research findings indicate that teachers successfully created a learning environment that supported the development of a growth mindset, not through explicit presentation of the concept, but through naturally occurring pedagogical interactions in the classroom. This was achieved through motivation, scaffolding, error normalization, constructive feedback, and opportunities for active participation. Students' confidence in their mathematical abilities can develop through a supportive learning environment and teacher motivation (Boaler et al., 2021; Polydoros et al., 2025), as well as through how teachers respond to student errors and the forms of support provided during the problem-solving process (Piyakun & Phusee-Orn, 2025; Wang et al., 2024). This suggests that a growth mindset in the context of mathematics learning is practical and develops through effort and active engagement in daily learning experiences, not merely through a theoretical understanding of the importance of effort and perseverance. Furthermore, the concept of "beliefs shape the reception of theory and feedback" in Nafisa et al.'s (2026) research suggests that students' beliefs influence how they receive feedback and learning experiences in the classroom.

On the other hand, group discussions and collaboration among students show that the development of a growth mindset is also influenced by social dynamics in the classroom. Fadzil & Osman (2025) explain that collaborative learning helps students become more confident in facing challenges because they receive social support throughout the learning process. Pedagogical practices that value the process, accept mistakes as part of learning, and provide consistent emotional and academic support can help build students' learning resilience and courage in facing mathematics challenges. The results of this study demonstrate that experiencing difficulty is not always a barrier to learning but can be an important part of shaping students' identities as more resilient mathematics learners. This aligns with the concept of crisis as the catalyst for identity transformation, which states that crises arising from facing challenges can encourage student identity transformation (Nafisa et al., 2026).

Overall, the practices in this study collectively foster a classroom culture where students feel supported in their learning process and encouraged to persist despite difficulties. Such an environment is crucial for developing resilient, adaptive learners who are open to continuous improvement (Chen et al., 2024). This learning culture also supports the development of a growth mindset, as students learn to view mathematical abilities as something that can be developed through effort, practice, and learning experiences. With a growth mindset, students become more confident in facing challenges, more open to feedback, and more resilient when faced with difficulties in the mathematics learning process.

CONCLUSION

This study concludes that growth mindset can be effectively fostered through everyday classroom practices, even without being explicitly introduced as a theoretical concept. The analysis of the teaching transcript demonstrates that the teacher played a central role in cultivating a growth-oriented learning environment through motivational encouragement, structured scaffolding, constructive feedback, and the normalization of errors. These practices helped shift the focus of learning from merely obtaining correct answers to understanding processes and developing strategies, which are key characteristics of a growth mindset.

Supportive pedagogical responses have proven to be crucial in transforming students' initial hesitation into adaptive learning behaviors. By integrating collaborative tools, such as calculators, and targeted feedback, the classroom environment successfully reduces anxiety and reframes challenges as opportunities for improvement, rather than as indicators of failure. In summary, the findings highlight that fostering growth mindset in mathematics classrooms does not necessarily require major curricular changes, but rather intentional pedagogical practices that emphasize effort, process, and continuous improvement. Through this study, there are also

several phrases and techniques that can serve as a reference for creating a classroom environment that cultivates the development of growth mindset. Future research may explore how such practices can be systematically designed and implemented across different mathematical topics and educational contexts to strengthen students' long-term learning dispositions.

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REFERENCES

Aksu, Z., Ozkaya, M., Gedik, S. D., & Konyalıoglu, A. C. (2016). Mathematics Self-efficacy and Mistake-handling Learning as Predictors of Mathematics Anxiety. *Journal of Education and Training Studies*, *4*(8), 65–71. https://doi.org/10.11114/jets.v4i8.1533

Boaler, J., Dieckmann, J. A., LaMar, T., Leshin, M., Selbach-Allen, M., & Pérez-Núñez, G. (2021). The Transformative Impact of a Mathematical Mindset Experience Taught at Scale. *Frontiers in Education*, *6*, 784393. https://doi.org/10.3389/feduc.2021.784393

Chen, M., Mok, I. A. C., Cao, Y., Wijaya, T. T., & Ning, Y. (2024). Effect of Growth Mindset on Mathematics Achievement Among Chinese Junior High School Students: The Mediating Roles of Academic Buoyancy and Adaptability. *Behavioral Sciences*, *14*(12), 1134. https://doi.org/10.3390/bs14121134

Fadzil, N. M., & Osman, S. (2025). Scoping the landscape: Comparative review of collaborative learning methods in mathematical problem-solving pedagogy. *International Electronic Journal of Mathematics Education*, *20*(2), em0820. https://doi.org/10.29333/iejme/15935

Handa, K., Clapper, M., Boyle, J., Wang, R. E., Yang, D., Yeager, D. S., & Demszky, D. (2023). *"Mistakes Help Us Grow": Facilitating and Evaluating Growth Mindset Supportive Language in Classrooms* (arXiv:2310.10637). arXiv. https://doi.org/10.48550/arXiv.2310.10637

Huang, M. (2025). How growth mindset reduces math anxiety across cultures: Mediating roles of autonomy, competence, and relatedness in PISA 2022. *Acta Psychologica*, *261*, 105902. https://doi.org/10.1016/j.actpsy.2025.105902

Kushnir, I. (2025). Thematic analysis in the area of education: A practical guide. *Cogent Education*, *12*(1), 2471645. https://doi.org/10.1080/2331186X.2025.2471645

Lehmann, T. H. (2025). Examining the interaction of computational thinking skills and heuristics in mathematical problem solving. *Research in Mathematics Education*, *27*(2), 269–290. https://doi.org/10.1080/14794802.2025.2460460

Lim, W. M. (2024). *What Is Qualitative Research? An Overview and Guidelines*. https://doi.org/https://doi.org/10.1177/14413582241264619

Nafisa, T. M., Aulyafani, R. A., Kartikawati, W., Zulfaidany, N., Nuraini, R., Maharani, Y., & Lestari, I. A. (2026). Integrating beliefs, pedagogical identity, and practice: A systematic literature review of pre-service mathematics teachers' instructional frameworks. *Journal of Philosophy and Research in Islamic Mathematics Education*, *2*(1), 24–36. https://doi.org/https://doi.org/10.33474/j-prima.v2i1.25346

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic Analysis: Striving to Meet the Trustworthiness Criteria. *International Journal of Qualitative Methods*, *16*(1), 1609406917733847. https://doi.org/10.1177/1609406917733847

OECD. (2023). *PISA 2022 Results (Volume I): The State of Learning and Equity in Education*. OECD. https://doi.org/10.1787/53f23881-en

Pan, S. C., Sana, F., Samani, J., Cooke, J., & Kim, J. A. (2020). Learning from errors: Students' and instructors' practices, attitudes, and beliefs. *Memory*, *28*(9), 1105–1122. https://doi.org/10.1080/09658211.2020.1815790

Piyakun, A., & Phusee-Orn, S. (2025). The roles of teachers' beliefs and instructional practices in students' mathematical mindset. *Frontiers in Education*, *10*, 1480277. https://doi.org/10.3389/feduc.2025.1480277

Polydoros, G., Antoniou, A.-S., & Drigas, A. (2025). Student–Teacher Relationship and Mathematics Achievement: Comparative Insights from Students With and Without Diverse Learning Needs. *Psychology International*, *7*(3), 77. https://doi.org/10.3390/psycholint7030077

Scheja, B., & Rott, B. (2025). Mathematical tasks: A review of classification systems. *Mathematics Education Research Journal*, *37*(4), 631–657. https://doi.org/10.1007/s13394-024-00506-z

Tran-Duong, Q. H., & Do-Hung, D. (2025). The mediating role of student growth mindset between teacher feedback, peer collaboration, and creative thinking dispositions. *Studies in Educational Evaluation*, *87*, 101526. https://doi.org/10.1016/j.stueduc.2025.101526

Wang, C., Xu, Q., & Fei, W. (2024). The effect of student-perceived teacher support on math anxiety: Chain mediation of teacher–student relationship and math self-efficacy. *Frontiers in Psychology*, *15*, 1333012. https://doi.org/10.3389/fpsyg.2024.1333012

Wijaya, T. T., Li, X., & Cao, Y. (2025). Profiles of growth mindset and grit among rural Chinese students and their associations with math anxiety, motivation, and self-efficacy. *Scientific Reports*, *15*(1), 21513. https://doi.org/10.1038/s41598-025-07400-z

Xu, K. M., Leferink, J., & Wijnia, L. (2025). A review of the relationship between student growth mindset and self-regulated learning. *Frontiers in Education*, *10*, 1539639. https://doi.org/10.3389/feduc.2025.1539639

Xu, W., & Zammit, K. (2020). Applying Thematic Analysis to Education: A Hybrid Approach to Interpreting Data in Practitioner Research. *International Journal of Qualitative Methods*, *19*, 1609406920918810. https://doi.org/10.1177/1609406920918810

Xu, X., & Dieckmann, J. A. (2025). Differentiating mathematical mindset, growth mindset, and self-efficacy through intervention research: A neuroplasticity approach. *Frontiers in Psychology*, *16*, 1598817. https://doi.org/10.3389/fpsyg.2025.1598817

Yeager, D. S., Carroll, J. M., Buontempo, J., Cimpian, A., Woody, S., Crosnoe, R., Muller, C., Murray, J., Mhatre, P., Kersting, N., Hulleman, C., Kudym, M., Murphy, M., Duckworth, A. L., Walton, G. M., & Dweck, C. S. (2022). Teacher Mindsets Help Explain Where a Growth-Mindset Intervention Does and Doesn't Work. *Psychological Science*, *33*(1), 18–32. https://doi.org/10.1177/09567976211028984

Yu, J., Kreijkes, P., & Salmela-Aro, K. (2022). Students' growth mindset: Relation to teacher beliefs, teaching practices, and school climate. *Learning and Instruction*, *80*, 101616. https://doi.org/10.1016/j.learninstruc.2022.101616

Zeeshan, I. (2025). Examining the Effects of Growth Mindset Strategies on Middle School Students' Performance in Mathematics in Georgia, USA. *European Journal of Education and Pedagogy*, *6*(5), 9–12. https://doi.org/10.24018/ejedu.2025.6.5.990

Zhang, K., & He, W. (2024). Does teachers' self-reported growth mindset ensure growth mindset-oriented feedback practices in the classroom? *Frontiers in Education*, *9*, 1471518. https://doi.org/10.3389/feduc.2024.1471518