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Fostering Mathematics Motivation in Elementary School Through Concrete and Gamified Joyful Learning

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Abstract

Mathematics is often perceived as a difficult and tedious subject, creating a negative impact on elementary school students' motivation. This study aims to analyze the implementation of Joyful Learning in fostering mathematics motivation and to explore the pedagogical challenges related to differentiation. Using a qualitative phenomenological design at SD Negeri Banaran 02, data were collected through participatory observation, in-depth interviews, and documentation. Data trustworthiness was established through triangulation, and analysis followed the interactive model of Miles, Huberman, and Saldana. The findings reveal that: (1) The application of Joyful Learning through a humanistic approach successfully transformed students' perceptions by eliciting a positive affective-motivational response; (2) The integration of the Concrete-Pictorial-Abstract (CPA) strategy with gamification effectively triggered enthusiasm and active student engagement; and (3) Teachers faced complex pedagogical challenges in managing the learning pace gap between fast and slow learners during game-based activities. It is concluded that although Joyful Learning is effective in strengthening student motivation, its sustainability hinges on the teacher's readiness to implement adaptive classroom management.

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INTRODUCTION

Education is essentially a fundamental need for every individual to optimally develop their potential, enabling them to become better individuals capable of overcoming various life challenges. Education is not merely understood as a process of knowledge transfer, but rather as a strategic vehicle for maturing reasoning, building character, and equipping individuals to be adaptive to the ever-changing dynamics of the era. This is emphasized in contemporary educational literature, which highlights the importance of developing cognitive, social, and character capacities holistically (Bertrand & Namukasa, 2020). Specifically at the elementary school level, the role of education becomes increasingly pivotal as this phase serves as the

primary foundation in shaping students' cognitive structures and mental attitudes. Failure to instill basic concepts and a love for learning during this period can have a lasting resonance on students' academic motivation in subsequent levels (Wang et al., 2025).

In the context of elementary education, the teaching and learning process involves intensive interaction between teachers and students. This interaction serves as a crucial foundation in shaping students' learning experiences, as it is at this stage that students begin to develop attitudes, habits, and initial views toward the learning process itself. Research indicates that the quality of the teacher-student relationship plays a vital role in student engagement and motivation, where positive relationships contribute to a classroom atmosphere that supports children's emotional and academic development (Konrad et al., 2024). The subjective experiences felt by students during this golden period are vividly imprinted in their memory and tend to persist; a friendly and supportive classroom situation triggers a sense of safety and profound learning engagement, whereas a rigid or intimidating atmosphere can create learning resistance and negative anticipation toward lessons (Aldridge & Blackstock, 2024). Conversely, self-confidence and curiosity are fostered by positive and supportive interactions, serving as key modalities for academic success and psychological development, as supportive teacher-student relationships reinforce positive emotional experiences and intrinsic motivation to learn (Liu et al., 2025).

Learning motivation is understood as an internal force that moves, directs, and sustains student engagement in learning activities. One prominent theoretical framework to explain learning motivation is Self-Determination Theory (SDT), which emphasizes that intrinsic motivation flourishes when three basic psychological needs are met: autonomy, competence, and relatedness (Ryan & Deci, 2020). The fulfillment of these three needs allows students to engage in the learning process voluntarily, meaningfully, and sustainably. Furthermore, learning motivation is also influenced by students' cognitive beliefs regarding their self-efficacy and the value of the tasks they face. Within the framework of Expectancy-Value Theory, learning engagement and persistence are determined by expectations of success and the perceived value of the learning task (Wigfield & Eccles, 2020).

In alignment with the evolution of educational paradigms, the teacher's responsibility extends beyond merely delivering subject matter to actively cultivating students' learning motivation to ensure a robust internal drive (Ananda & Wandini, 2022). This underscores a shift in the teacher's role from a mere transmitter of information to a learning facilitator who supports the growth of intrinsic motivation through the provision of autonomy, competence reinforcement, and supportive relationships, as emphasized in the Self-Determination Theory framework (Ryan & Deci, 2020). The urgency of this motivational role becomes increasingly essential, particularly in mathematics, a subject often perceived as possessing profound conceptual depth, since learning motivation plays a pivotal role in shaping cognitive engagement and success in mathematical problem-solving (Schukajlow et al., 2023). Without appropriate motivational intervention from teachers to transform negative stigma into enthusiasm, students are susceptible to cognitive fatigue, which risks deeply eroding their interest in learning.

Enhancing the quality of student involvement, both physically and mentally, enriches the meaningfulness of learning activities. Student attendance serves not merely as physical presence but must accompany deep cognitive and affective involvement to ensure holistic value

internalization and alleviate boredom (Bowden et al., 2019). Effective learning implies that students are not positioned as passive objects; rather, they act as active subjects who construct understanding through direct experience and emotional engagement. Furthermore, activity in the learning process is driven by student motivation; without adequate student effort, effective learning environments are difficult for teachers to establish.

Mathematics functions as a vital tool for solving quantitative problems and necessitates the development of logical reasoning to connect abstract concepts with real-life experiences. The mathematical thinking process stimulates the construction of systematic knowledge structures through classification, deductive-inductive reasoning, and structured problem-solving. The necessity for children to develop imagination and visualization is emphasized within this learning process, rendering complex abstract concepts more accessible to comprehension. These abilities assist students in generalizing, recognizing patterns, and building concepts independently. Consequently, mastering mathematics in elementary school relates not only to academic achievement but also establishes the foundation for higher-order thinking skills, which determine success at subsequent educational levels.

However, the reality in the field stands in stark contrast to these expectations. Mathematics is frequently perceived as a daunting subject, a 'specter' considered difficult, frightening, and tedious. This phenomenon was confirmed through preliminary observations in the 5th-grade class at SD Negeri Banaran 02, where tension, withdrawal, and passivity were observed to dominate the classroom atmosphere during mathematics instruction. This stigma did not emerge abruptly but rather represents an accumulation of rigid learning experiences; this sentiment was vividly captured in a spontaneous student remark during the lesson: "*ngitung nggo opo*?" (What is the point of calculating?) This query serves as compelling evidence that students view mathematics merely as a collection of dead numbers lacking relevance to their lives. Low interest and learning motivation are directly triggered by this negative perception, where psychological defenses (mental blocks) and pessimism are constructed even before students attempt the task, ultimately extinguishing their natural curiosity. The factors contributing to this low motivation are revealed to be complex, encompassing suboptimal learning abilities, unsupportive environments, and monotonous teaching methods. The loss of mathematics' appeal and its perception as a heavy academic burden are attributed to the dominance of conventional, teacher-centered approaches and an emphasis on formula memorization without emotional engagement.

The erosion of learning motivation must not be overlooked, as it carries serious implications for students' overall academic performance, making innovative approaches to address it an urgent necessity (Yonanda et al., 2024). If symptoms of demotivation are left unattended, a student's disinterest in learning materials at early stages can evolve into a conceptual disconnect that deepens in subsequent educational levels. This condition not only complicates future academic remediation processes but also risks forming negative attitudes and sustained resistance toward learning activities. Therefore, early intervention through instructional innovation becomes a pressing need to break the chain of academic failure stemming from weak student learning motivation.

Facing these challenges, teachers hold a strategic responsibility to nurture and cultivate students' learning motivation, considering that motivation acts not merely as a momentary

emotional reaction but as a vital foundation for forming moral values, social skills, and long-term learning resilience (Syafira et al., 2024). The teacher's role transforms from a mere curriculum transmitter to a facilitator and designer of learning experiences capable of building students' mental resilience. Teacher support that satisfies basic psychological needs, such as autonomy and competence, profoundly strengthens intrinsic motivation and academic engagement at the elementary school level (Conesa et al., 2023). Particularly within abstract mathematics learning, teachers must design effective models and strategies to foster active student engagement at every learning stage (Sari et al., 2023).

Specifically, this study integrates the Concrete–Pictorial–Abstract (CPA) approach and gamification. The CPA approach functions as a cognitive bridge to facilitate the understanding of mathematical concepts through a sequence of manipulating real objects, visual representations, and finally abstract symbols, resulting in a more comprehensive conceptual understanding compared to conventional learning alone (Suryaningsih et al., 2025). Meanwhile, gamification enriches intrinsic motivation through game elements such as challenges, constructive feedback, and reward features identified as capable of fulfilling students' basic psychological needs in accordance with Self-Determination Theory (Luarn et al., 2023). Integrating these two strategies aligns with the principles of Joyful Learning, which emphasizes active learning oriented toward students' emotional and cognitive engagement, a crucial alignment given the nature of mathematics, which is laden with symbols and abstract logic. Since static and passive learning only reinforces the barrier between students and the subject matter, pedagogical strategies within this Joyful Learning framework ensure that such abstract concepts become accessible to students' reasoning through meaningful direct experiences.

Joyful Learning constitutes a student-centered approach with the primary goal of creating an active, engaging, and enjoyable learning atmosphere. This strategy triggers learning motivation by shifting the orientation of student engagement from compliance due to external coercion to voluntary participation driven by internal enthusiasm (Azkiya & Istiqomah, 2025). Psychologically, the positive emotional condition built within this approach alleviates academic anxiety, thereby opening students' "cognitive gates" to process information more effectively. More specifically, at the implementation level, the fortification of motivation in Joyful Learning is demonstrated to occur through the integration of educational games and interactive quizzes, where well-directed yet entertaining challenge mechanisms provoke curiosity and deepen material understanding.

Although mathematics plays an important role, the challenges of implementing it in elementary schools are still enormous, as evidenced by the phenomenon occurring at SD Negeri Banaran 02. This phenomenon is a clear indicator of the disconnect between the ideal curriculum requirements and the reality of practice in the field. At this school, students face significant difficulties in understanding abstract concepts, which are exacerbated by teaching methods that tend to be monotonous and lacking in variety (Sari et al., 2023). This creates a static and rigid classroom atmosphere, where students are positioned as passive vessels for receiving information, rather than as active subjects who construct their own knowledge. Mathematics learning that only focuses on delivering theory and memorizing formulas has proven to be ineffective because the nature of concept instillation requires students to actively explore and be creative, as emphasized in the constructivist approach. A mechanistic approach that relies solely

on memorization often stifles critical thinking, resulting in mathematical concepts being retained only as short-term theories that are easily forgotten after the exam is over. Therefore, contextual strategies such as problem-based learning or realistic approaches are needed, which have been empirically proven to increase student engagement in problem solving.

A number of previous studies have extensively examined the issue of motivation and the application of the Joyful Learning approach in mathematics learning, but each has different emphases and methodological orientations. The first research group tends to be dominated by an outcome-oriented approach with statistical proof of effectiveness. For example, Hurriyati et al. (2022) focused their study on rigidly validating effectiveness through an increase in the average student score from the pre-intervention to post-intervention conditions.

This study specifically examines the effect of the Joyful Learning model on higher-order cognitive variables, namely learning creativity in flat shapes, using a quasi-experimental design to observe the significance of the differences between the control and experimental classes. Similarly, Tiana et al. (2021) focused their research on efforts to improve the quality of learning through a Classroom Action Research scheme assisted by Quizizz media. In this study, improvements in student learning motivation and learning outcomes were quantified numerically based on achievement indicators and completion percentages in each action cycle.

On the other hand, there is a different spectrum of studies that are not based on direct field intervention, such as Wicaksono (2020), who offers a conceptual-theoretical study exploring the potential of integrating mobile learning as a means of creating a pleasant atmosphere, without presenting empirical data on its implementation in the classroom. Meanwhile, from a problematic perspective, it took on a diagnostic role by focusing on identifying internal and external factors that cause low student motivation to learn. This research delves more into "why" the problem occurs, without going further into the aspects of solution-oriented intervention or the practical application of problem-solving strategies in the field. The variety of research focuses shows that although the theme of Joyful Learning has been widely discussed, the majority are still fixated on numerical measurements or conceptual levels, leaving a gap for research that explores the dynamics of the process and the subjective experiences of students.

Based on a mapping of previous studies, it can be argued that this research aims to fill methodological and practical gaps that have not yet been addressed as a form of innovation. Unlike previous studies that focused on outcomes and effectiveness tests or studies that focused on diagnosing causes, this study uses a phenomenological design to examine the implementation of solutions in depth. The main focus of this study is no longer on "how much" the scores have increased or 'why' motivation is low, but rather on exploring "how" the Joyful Learning process is experienced and subjectively interpreted by fifth-grade students as a real intervention in stimulating motivation to learn mathematics. Therefore, this study aims to examine in depth how the implementation of Joyful Learning can motivate students and identify pedagogical challenges, particularly those related to student ability differentiation, faced by teachers in the field.

METHOD

This study uses a qualitative approach with a phenomenological design that aims to understand the deeper meaning of a social phenomenon, specifically the implementation of Joyful Learning. The phenomenological design was chosen to explore the essence of the participants' lived experiences in depth by applying the bracketing method to suspend the researcher's preconceptions (Tavakol & Sandars, 2025). The research was conducted at SD Negeri Banaran 02 in the odd semester of the 2025/2026 academic year. The research subjects were determined using purposive sampling, consisting of fifth-grade teachers as key informants and 24 fifth-grade students as primary informants.

Data collection was executed using a comprehensive range of primary techniques: (1) Participant Observation, wherein the researcher participated passively in the classroom to record the dynamics of teacher-student interaction. To assess student motivation specifically, focus was placed on behavioral and affective indicators, such as student enthusiasm during games, the spontaneity of voluntary participation (e.g., raising hands), and the quality of sustained focus on tasks; (2) In-depth Interviews, conducted in a semi-structured manner to explore students' subjective perceptions regarding mathematics. At this stage, motivation was assessed based on students' verbal expressions regarding feelings of pleasure, curiosity, and the internal drive to engage in mathematical problem-solving without coercion; (3) Documentation, including *Modul Ajar* (MA) and activity photos as supporting evidence. To guarantee data validity (trustworthiness), source triangulation (comparing teacher and student interview data) and technical triangulation (comparing observation results with verbal admissions) were applied in this study.

Data analysis was conducted using the cyclical model proposed by Miles, Huberman, and Saldana (2014). The detailed data analysis procedure is as follows:

1. Data Condensation: Data selection and focusing were performed on verbatim interview transcripts. At this stage, the In Vivo Coding technique was utilized. This technique was selected because it allows data to be analyzed while preserving the original words spoken by participants, ensuring that the meaning of their experiences is not distorted by researcher interpretation. This approach is deemed highly suitable for phenomenological studies aiming to understand the subject's experience from their own perspective, as well as helping to maintain the authenticity of the participants' voices during the analysis process (Xu et al., 2025). Consequently, distinctive terms emerging during interviews, such as "*nyenengke*" (pleasurable) or "*leda-lede*" (sluggish/unserious), were retained as part of the analysis codes.
2. Data Display: The condensed data were then arranged into a matrix to map the relationship between implementation strategies, motivational responses, and challenges that arose.
3. Conclusion Drawing/Verification: The researcher drew meaning from the patterns of themes that emerged and verified them again with field data to ensure robust findings.

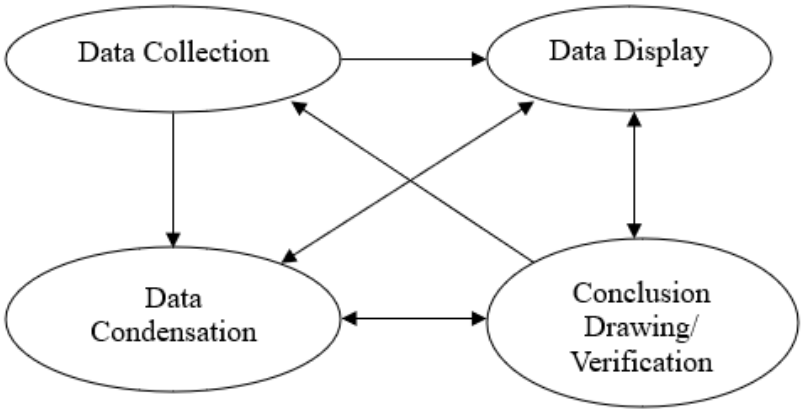

Figure 1. Components of Interactive Model Data Analysis
Source: Miles, Huberman, and Saldana (2014).

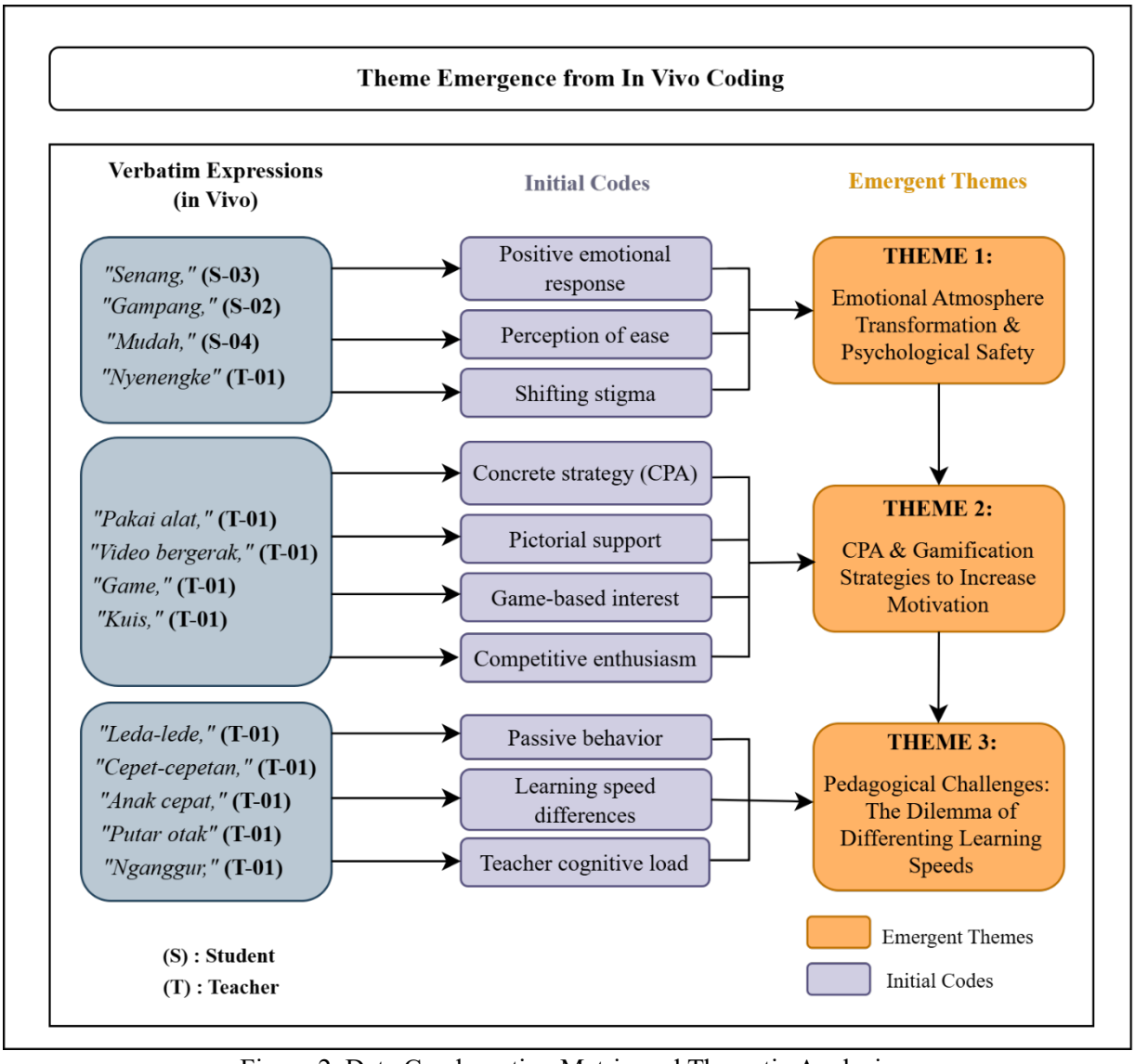

Figure 2. Data Condensation Matrix and Thematic Analysis

Figure 2 visualizes the conceptual distillation of the thematic analysis, depicting the organic transformation of raw data into abstract constructs. The process originates at the foundational layer of Verbatim Expressions (in Vivo), where the researcher preserves the

authenticity of participants' voices exemplified by original phrases such as "*Pakai alat*" (using tools) and "*Game/Kuis*". These raw excerpts are subsequently synthesized into the interpretive layer of Initial Codes, categorized in this instance as "Concrete strategy (CPA)" and "Competitive enthusiasm." Ultimately, the diagram captures the convergence of these codes to shape the Emergent Themes, specifically illustrated by the formation of Theme 2: "CPA & Gamification Strategies to Increase Motivation." This visual mapping ensures interpretive rigor and confirmability, demonstrating that the analytical findings are deeply rooted in empirical evidence.

RESULTS AND DISCUSSION

Results

Based on data analysis, the findings were grouped into three main themes as follows:

1. **The Implementation of Joyful Learning Changes Perceptions and the Learning Atmosphere**

   The data analysis reveals that the foundational dimension of implementing Joyful Learning centers on transforming the classroom's psychological atmosphere. Viewed through the lens of Self-Determination Theory, this transformation manifests as the nurturing of students' basic psychological needs, specifically relatedness and competence, which act as pivotal catalysts in reconstructing positive learning perceptions and igniting intrinsic motivation. This perceptual shift is vividly captured in the reflection of Teacher (T-01):

   > "*Anak-anak... jadi 'Oh, ternyata matematika nyenengke (menyenangkan) ya'*."
   > (Teacher Interview, T-01)

   This sentiment resonates deeply with students' subjective experiences; Student S-03 expressively described feeling "*Senang*" (happy), while Student S-04 perceived the material as "*Mudah*" (easy). Such expressions illustrate a deepening of the students' sense of competence, mirroring the SDT premise that motivation flourishes when students feel capable and confident in their learning tasks. These verbal accounts are triangulated by observational nuances depicting a distinct transition in bodily engagement: students shifted from a posture of withdrawal and avoiding eye contact to confidently engaging and smiling. Furthermore, document analysis of the *Modul Ajar* (MA) illuminates that the intentional integration of "*Sapaan Hangat*" (warm greetings) served as a critical entry point for dissolving tension and establishing the psychological safety essential for a nurturing learning atmosphere.

2. **Increasing Motivation Through CPA and Gamification Strategies**

   In analyzing the process of increasing motivation, it was found that teachers applied the Concrete-Pictorial-Abstract (CPA) strategy combined with interactive games such as Quizizz.

   a. Concrete Stage: Teachers use analogies of real objects to explain concepts. In an interview, a teacher explained:

      > "*Kamu punya 9 permen, dibagi 8 anak, saya pakai alat, itu mereka lebih jelas*."
      > (Teacher Interview, T-01)

      This is supported by observations confirming the use of teaching aids on students' desks to visualize abstract concepts.

b. Gamification Stage (Abstract): Student motivation peaked during the competition session. Student S-02 expressed his enthusiasm.

> "*Seru karna ada game permainannya... pas kompetisi permainan*." (Teacher Interview, T-01)

This is supported by observations confirming the use of the interactive game Quizizz, which sparked students' enthusiasm to compete in answering questions.

Triangulation with quiz recap documentation showed the active involvement of all students in the class. Analysis of student answers reflects a more complete understanding of the concepts compared to previous lessons. Observations noted that the classroom atmosphere became positively noisy when the teacher gave the instruction "*30 detik*, *cepet-cepetan*". This enthusiastic behavior proves that the implementation strategy successfully changed the students' behavior from being "*leda-lede*" (slow) to being very excited to complete the challenge.

3. Exploring Pedagogical Challenges: Differentiation of Learning Speed

Behind the apparent euphoria of success, the empirical inquiry unveils a dialectical tension between the idealism of joyful learning and the complex reality of heterogeneous classroom management. Although Joyful Learning promises inclusive participation, friction is generated when the imposition of a uniform game rhythm confronts the varying speeds of student cognition. This activity gap is vividly captured in the reflective expression of the teacher:

> "*Saya harus putar otak... biar mereka yang cepet-cepetan itu biar enggak nganggur*." (Teacher Interview, T-01)

The idiom "*putar otak*" (rack one's brain) is particularly compelling as it signifies the intricate cognitive burden experienced by the teacher; instruction is not merely delivered but requires immediate strategic improvisation (reflection-in-action) to accommodate a divergent spectrum of needs. This dilemmatic situation is substantiated by observational nuances: during game sessions, fast learners who completed tasks early appeared to dominate the space with noise driven by overflowing energy, whereas slow learners seemed isolated in confusion while facing temporal pressure. This phenomenon underscores that the most profound pedagogical challenge lies not in generating joy but in navigating the delicate balance of competitive euphoria so as not to marginalize slow learners who require longer processing time.

Discussion

Based on the research findings, a profound resonance is demonstrated between the implementation of Joyful Learning and motivation theory, as well as the intrinsic characteristics of mathematics learning in elementary schools. The foundational pedagogical endeavors to foster motivation are anchored in efforts to deconstruct the stigma of mathematics as a frightening subject through the creation of a psychologically safe environment. Students' affective filters are observed to be effectively dissolved by the humanistic approach applied by teachers, manifested through smiles, humor, and eye contact. This aligns with the conceptualization of Joyful Learning as a student-centered approach designed to foster an active, engaging, and enjoyable atmosphere. Crucially, this enjoyable atmosphere is positioned not merely as entertainment, but as a strategic catalyst to cultivate a positive affective-motivational response, a vital mechanism for shifting students' psychological disposition from avoidance to engagement.

However, this emotional shift transcends mere mood enhancement; it functions as a critical prerequisite for motivational readiness. The observed transformation in student expressions, characterized by a newfound courage in maintaining eye contact, substantiates the fundamental tenet of Joyful Learning, which necessitates the creation of a classroom atmosphere liberated from fear, anxiety, or embarrassment (Azkiya & Istiqomah, 2025). The conducive environment cultivated through the teacher's "*Sapaan Hangat*" (warm greeting) acts as an effective anchor, ensuring that mathematics is no longer perceived as a threat, but rather as a challenge to be embraced.

Furthermore, this pressure-free atmosphere acts as a potent catalyst for the motivational drive. The efficacy of active learning is fundamentally reliant upon motivation as a vital driving force. This observation further corroborates the assertion that positive emotions must be cultivated by teachers to sustain student enthusiasm (Syafira et al., 2024). Theoretically, the teacher's capacity to reframe students' perceptions toward "*nyenengke*" (math is fun) signifies a profound affective-motivational response. This shift is elucidated by the perspective that positive emotional states facilitate cognitive receptivity, effectively 'unlocking' students' capacity to process information. This aligns with the research results of Hurriyati et al. (2022), who found that a fun learning approach resulted in students displaying heightened enthusiasm and courage in self-presentation. Once a joyful atmosphere is established, math anxiety often a significant impediment to achievement, is alleviated, thereby allowing the inherent curiosity required for exploration to emerge.

From a cognitive perspective, the success in building conceptual understanding using concrete media (such as candies and other teaching aids) underscores the significance of the Concrete-Pictorial-Abstract (CPA) approach. Crucially, this strategy nurtures motivation through the fulfillment of the need for 'Competence'. Instructional media designed in alignment with learning objectives possesses the capacity to engender profound motivation in students (Hidayati et al., 2023). By harmonizing with Piaget's concrete operational stage, the manipulation of real objects allows students to experience 'small wins' in understanding. This creates a sense of efficacy, consistent with the principle of connecting material with the real world to render learning meaningful (Azkiya & Istiqomah, 2025). The relevance of employing such media is further substantiated by Hurriyati et al. (2022), who revealed that the utilization of engaging media within Joyful Learning plays a pivotal role in fostering student interest.

Furthermore, the utilization of concrete media aligns with the perspective that the primary function of teaching aids is to bridge the gap of abstraction and mitigate verbalism (Kaltsum, 2017). Students can grasp the essence of the material through the tangible experience of dividing objects, rather than merely relying on rote memorization. Without traversing this concrete phase, mathematics risks remaining an abstraction that is elusive to comprehension (Purnawan, 2021). Conversely, the consistent employment of visualization and teaching aids is observed to significantly enhance student conceptual understanding.

In addition, the integration of digital gamification through platforms such as Quizizz and the implementation of timed competitions play a role that is more multifaceted than merely being 'fun'; they function as a potent motivational catalyst. The learning dynamic is transformed from passive to active through the mechanism of healthy competition. The mechanism driving this motivation lies in the constructive feedback loop and the adrenaline of the challenge. The

phenomenon of 'positive noise' in the classroom is interpreted not merely as sound, but as an affective indicator of flow and immersive engagement, aligning with Joyful Learning principles. Student motivation is visibly stimulated by game media, as the element of 'challenge' activates their competitive drive (Tiana et al., 2021).

Interactive media function as pivotal components in orchestrating a flexible and fluid learning experience (Wicaksono, 2020). The deepening of motivation observed here is distinct: it is propelled by the gratification derived from mastering the "*cepet-cepetan*" (speed-based) instructions. This dynamic resonates with the hallmarks of intrinsic motivation, where the impetus emerges from curiosity and the inherent exhilaration of the activity itself. Consequently, an environment providing expansive space for exploration and the nurturing of creativity is effectively established.

Synthesizing these empirical insights, this study reconstructs the lived experience of Joyful Learning into a holistic conceptual framework. As visualized in Figure 3, a symbiotic interplay emerges between the teacher's Intervention Strategies (left column) and the students' internal Psychological Mechanisms (middle column). The constellation of strategies, namely the Humanistic Approach, CPA Strategy, and Gamification, converges to cultivate a Psychologically Safe atmosphere that nurtures deep cognitive engagement through Cognitive Bridges and Challenges. This conducive environment functions as fertile ground for the final Motivational Outcome, wherein students not only transcend initial apprehension to discover joy (Perception Shift) but also consciously manifest Active Participation and Self-Regulated Learning.

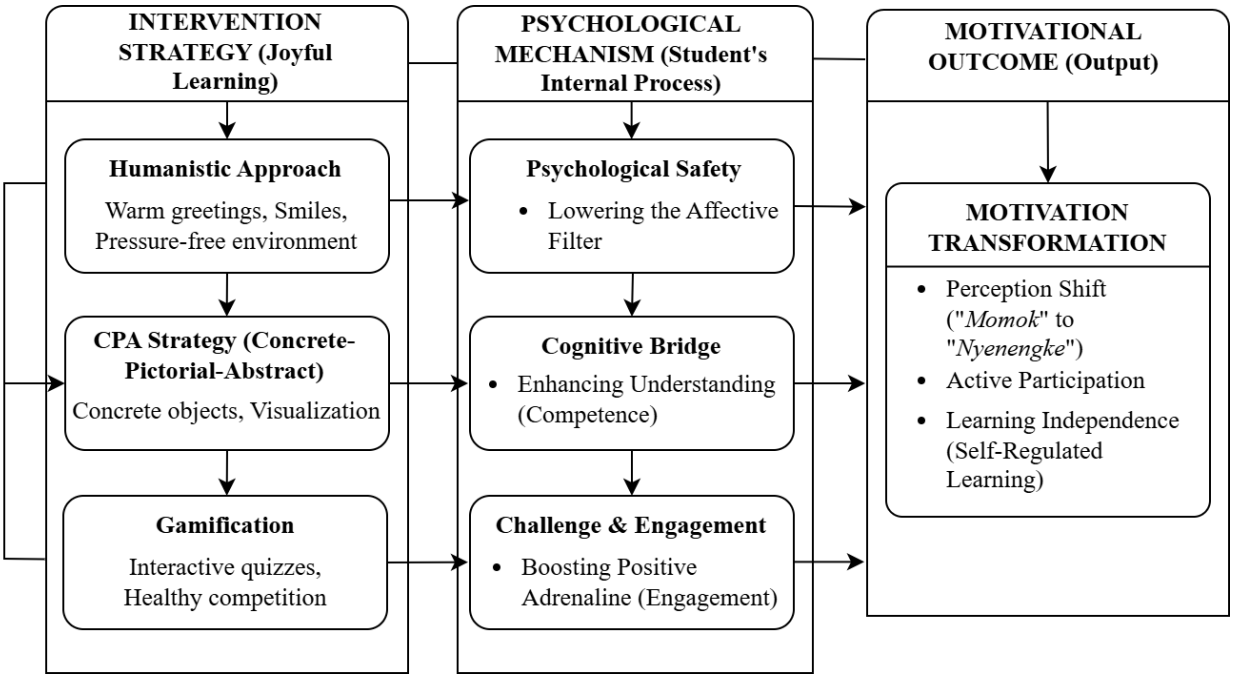

Figure 3. Conceptual Framework of Joyful Learning Dynamics in Building Motivation

While Joyful Learning manifests evident success in bolstering motivation, this study unveils pedagogical complexities regarding differentiation management that diverge from previous research trajectories. An idealized continuity of learning success tends to be emphasized in existing literature, standing in contrast to field findings, which reveal that the implementation of this method necessitates a classroom management approach that is significantly more intricate

(Hurriyati et al., 2022). The activity gap observed between fast learners and slow learners during game sessions signifies a latent risk of demotivation should teachers focus exclusively on the "fun" aspect without attending to distinct cognitive rhythms. Consequently, the sustainability of motivation within Joyful Learning is predicated on the teacher's sensitivity in orchestrating differentiation strategies, ensuring that learning motivation is preserved equitably across the diverse spectrum of student capabilities.

CONCLUSION

The implementation of Joyful Learning in fifth-grade mathematics at SD Negeri Banaran 02 has been identified not merely as an ice-breaking activity, but as a structured pedagogical strategy. This approach effectively transforms students' perceptions, shifting the stigma of mathematics from a frightening subject into a challenging and enjoyable endeavor. Crucially, this perceptual shift catalyzes a positive affective-motivational response, which drives active participation, enthusiasm in competition, and the growth of mental independence in problem-solving.

The success of this implementation is underpinned by the synergy of three fundamental pillars: (1) a humanistic approach that establishes psychological safety to dissolve student anxiety; (2) the Concrete-Pictorial-Abstract (CPA) strategy, which bridges abstract concepts through the manipulation of concrete objects; and (3) the integration of gamification, which triggers adrenaline and fosters healthy competition.

However, this study highlights a critical finding that the sustainability of Joyful Learning faces challenges regarding differentiation management. The euphoria of the game hinges not only on attractive media but also on the teacher's competence in designing adaptive strategies. Future implementation requires a balanced approach to accommodate the diverse pacing needs of both fast learners and slow learners, ensuring that the motivational benefits are distributed evenly across all students.

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