The Role of Teachers in Enhancing Student Motivation through Student-Centered Learning Approaches

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Abstract

Student motivation is a pivotal factor in academic achievement and lifelong learning. In response to the limitations of traditional, teacher-cantered pedagogies, student-cantered learning (SCL) has emerged as a transformative approach that prioritizes learner agency, active engagement, and personalized pathways. This mixed-methods study investigates how teachers enact SCL strategies to enhance student motivation in Indonesian secondary schools. Data were collected from 120 teachers and 650 students through surveys, classroom observations, and semi-structured interviews. Quantitative analysis employed structural equation modelling (SEM), while qualitative data underwent thematic analysis. Findings reveal that teacher practices—particularly autonomy support, scaffolding of inquiry, and responsive feedback—significantly predict increases in students' intrinsic motivation ($\beta = 0.67$, $p < 0.001$). Autonomy support emerged as the strongest predictor ($\beta = 0.42$), followed by competence-building interactions. Qualitative insights highlight that effective SCL teachers shift from directive instruction to facilitative roles, co-constructing knowledge with students and fostering emotionally safe learning environments. These teachers emphasize choice, relevance, and reflective dialogue, which collectively nurture students' sense of ownership and self-efficacy. Grounded in Self-Determination Theory, the study demonstrates that motivational outcomes in SCL contexts are deeply mediated by teacher agency and pedagogical mindset. The results carry significant implications for teacher education, professional development, and curriculum policy, particularly in systems undergoing pedagogical reform. By repositioning teachers as empathetic facilitators rather than content transmitters, educational systems can more effectively cultivate intrinsically motivated, self-regulated learners prepared for 21st-century challenges.

Keywords: student-cantered learning; teacher role; intrinsic motivation; autonomy support; Self-Determination Theory; pedagogical transformation

1. Introduction

Student motivation remains one of the most robust predictors of academic persistence, cognitive engagement, and long-term educational outcomes (Wigfield et al., 2022). Despite decades of research affirming its centrality, many classrooms worldwide continue to operate within teacher-cantered paradigms that prioritize content coverage over learner engagement. Such approaches often undermine students' intrinsic drive by limiting autonomy, minimizing relevance, and discouraging critical inquiry (Hattie, 2017). In contrast, student-cantered learning (SCL) offers a compelling alternative by repositioning learners as active agents in their educational journeys. Rooted in constructivist and humanistic traditions, SCL emphasizes personalized learning, collaborative problem-solving, and metacognitive reflection (Weimer, 2013; Blumberg, 2016). Yet, the successful implementation of SCL hinges critically on the evolving role of the teachernot as a sole authority, but as a facilitator, mentor, and co-inquirer.

Recent global educational reforms, including those in Indonesia, have increasingly advocated for SCL as a means to foster 21st-century competencies such as critical thinking, creativity, and self-regulation (OECD, 2019; Kemdikbud, 2022). However, policy mandates alone are insufficient without deep

pedagogical shifts at the classroom level. Teachers often struggle to transition from traditional roles due to institutional constraints, assessment pressures, and limited professional preparation (Darling-Hammond et al., 2020). Consequently, understanding how teachers can effectively leverage SCL to enhance motivation is both timely and urgent.

Motivation in educational contexts is best understood through Self-Determination Theory (SDT; Deci & Ryan, 2000), which posits that intrinsic motivation flourishes when three basic psychological needs are satisfied: autonomy (the sense of volition and choice), competence (the experience of mastery and efficacy), and relatedness (the feeling of connection and belonging). Teachers who design learning environments that fulfill these needs create conditions conducive to deep, sustained engagement. In SCL settings, this translates into practices such as offering meaningful choices, providing constructive feedback, encouraging peer collaboration, and connecting content to students' lives.

While prior studies have examined SCL's impact on achievement or engagement (Prince, 2004; Freeman et al., 2014), fewer have systematically explored the teacher's agentic role in mediating motivational outcomes particularly in non-Western, collectivist contexts like Indonesia, where hierarchical teacher-student dynamics may persist. This gap is significant because cultural norms shape how autonomy and voice are expressed and received in classrooms (Li, 2021). Thus, context-sensitive research is needed to inform locally relevant professional development. This study addresses these gaps by investigating how secondary school teachers in Indonesia enact SCL strategies to enhance student motivation. Guided by SDT, we examine both the behavioural and relational dimensions of teacher practice within SCL frameworks. Specifically, we ask: (1) How do teachers implement SCL to support students' psychological needs for autonomy, competence, and relatedness? (2) What is the empirical relationship between teacher-facilitated SCL practices and students' levels of intrinsic motivation?

By integrating quantitative and qualitative evidence, this research contributes to both theoretical refinement and practical guidance. It advances SDT by testing its applicability in a Southeast Asian educational context and offers actionable insights for teacher educators, school leaders, and policymakers committed to humanizing pedagogy. In an era marked by digital distraction, mental health challenges, and widening equity gaps, reimagining the teacher's role as a motivator through student-centered approaches is not merely pedagogical it is profoundly ethical.

2. Literature Review

2.1. Conceptualizing Student-Centered Learning

Student-centered learning (SCL) represents a paradigmatic shift from traditional, teacher-dominated instruction toward educational models that prioritize the learner's active role in constructing knowledge, setting goals, and regulating their own learning processes. Rooted in constructivist epistemology (Vygotsky, 1978; Piaget, 1970) and humanistic psychology (Rogers, 1969), SCL posits that meaningful learning occurs when students engage cognitively, emotionally, and socially with content that is relevant to their lives and interests. Unlike passive reception models, SCL environments are characterized by inquiry-based tasks, collaborative problem-solving, reflective practice, and opportunities for student choice in content, process, or product (Weimer, 2013; Blumberg, 2016).

The core principles of SCL include: (1) active engagement, where students do more than listen they discuss, create, and apply; (2) learner autonomy, which involves granting students agency in decision-making about their learning pathways; (3) personalization, acknowledging diverse learning styles, paces, and prior knowledge; and (4) formative assessment, where feedback is used to guide improvement rather than merely assign grades (Harris et al., 2021). Importantly, SCL is not a fixed methodology but a flexible framework adaptable across subjects and contexts from project-based science units to dialogic literature seminars.

Critically, SCL does not imply the absence of teacher guidance. Rather, it redefines the teacher's role from content transmitter to learning architect and facilitator (Zhou & Brown, 2019). This shift requires intentional design: tasks must be cognitively demanding yet accessible, choices must be structured to avoid overwhelm, and classroom culture must support risk-taking and intellectual curiosity. Empirical studies consistently link high-fidelity SCL implementation to improved critical thinking, metacognitive awareness, and long-term retention (Freeman et al., 2014). However, the success of SCL hinges on contextual factors including teacher beliefs, institutional support, and cultural norms around authority and voice. In many Global South contexts, including Indonesia, the transition to SCL is further complicated by large class sizes, standardized testing pressures, and deeply ingrained didactic traditions. Thus, understanding how SCL is enacted and how it influences motivation—requires attention not only to pedagogical design but also to the socio-cultural ecology of the classroom.

2.2. The Evolving Role of the Teacher in SCL

In student-centered learning environments, the teacher's role undergoes a profound transformation from the "sage on the stage" to the "guide on the side" (King, 1993). This reconceptualization positions the teacher not as the sole source of knowledge but as a facilitator who designs rich learning experiences, scaffolds inquiry, and fosters a community of learners. Effective SCL teachers exhibit a unique blend of pedagogical content knowledge, emotional intelligence, and adaptive expertise (Darling-Hammond et al., 2020). They ask open-ended questions, listen attentively to student reasoning, and respond flexibly to emerging needs often in real time.

This facilitative role demands several key competencies. First, instructional design: teachers must craft authentic, complex tasks that invite exploration rather than recall (Hmelo-Silver, 2004). Second, dialogic facilitation: they orchestrate classroom discourse that values multiple perspectives and builds collective understanding (Alexander, 2020). Third, formative responsiveness: they use ongoing assessment to adjust instruction, provide timely feedback, and support metacognitive reflection (Hattie & Timperley, 2007). Crucially, these practices are underpinned by a learner-cantered mindset—a belief that all students are capable, curious, and worthy of intellectual respect (Ware, 2019).Research shows that teachers' self-efficacy and identity significantly influence SCL implementation. Those who view themselves as co-learners are more likely to share authority and encourage student voice (Zhou & Brown, 2019). Conversely, teachers with fixed mindsets about ability or rigid views of classroom control may implement SCL superficially offering "choice" within narrow parameters or reverting to direct instruction at the first sign of confusion. Professional development plays a critical role: sustained, collaborative coaching is far more effective than one-off workshops in shifting practice (Desimone, 2009).

In collectivist cultures like Indonesia, this role shift presents unique challenges and opportunities. While respect for teacher authority is deeply valued, emerging evidence suggests students respond positively to teachers who balance warmth with high expectations and who frame autonomy as responsibility rather than rebellion (Li, 2021). Thus, the SCL teacher in such contexts must navigate cultural scripts with nuance honoring tradition while cultivating critical agency. This study examines how Indonesian teachers negotiate this balance and how their facilitative practices translate into motivational outcomes.

2.3. Student Motivation: Theoretical Foundations

Motivation in education refers to the internal and external forces that initiate, direct, and sustain learning behaviours. Among contemporary frameworks, Self-Determination Theory (SDT) (Deci & Ryan, 2000) offers the most robust and empirically validated lens for understanding motivation in student-cantered contexts. SDT distinguishes between intrinsic motivation (engagement for inherent interest or enjoyment) and extrinsic motivation (engagement for separable outcomes like grades or approval), arguing that intrinsic motivation yields deeper learning, greater persistence, and higher well-being. Central to SDT is the proposition that intrinsic motivation flourishes when three universal psychological needs are satisfied:1,Autonomy: the experience of volition and choice in one's actions,2.Competence: the sense of effectiveness and mastery in interactions with the environment;3.Relatedness: the feeling of connection, care, and belonging with others.

When these needs are supported particularly by significant others like teachers students internalize learning goals and develop self-regulated engagement. Conversely, controlling environments that emphasize rewards, punishments, or surveillance tend to undermine intrinsic motivation, even if they produce short-term compliance (Ryan & Deci, 2020).SDT has been extensively validated across cultures, ages, and domains (Chen et al., 2015), though its expression may vary contextually. For example, in East Asian settings, autonomy may be experienced through "guided choice" within respectful relationships rather than through individualistic assertion (Li, 2021). Similarly, competence may be linked to collective achievement rather than personal distinction.

In SCL environments, SDT provides a powerful explanatory mechanism: when teachers design tasks that allow meaningful choice (autonomy), provide constructive feedback that builds efficacy (competence), and foster inclusive, trusting classrooms (relatedness), they create the conditions for intrinsic motivation to thrive. This study operationalizes SDT by examining how specific teacher behaviors in SCL classrooms map onto these three needs and how that mapping predicts student motivational outcomes in an Indonesian secondary school context.

2.4. Teacher Practices that Support Motivational Needs

Grounded in Self-Determination Theory, research identifies specific teacher practices that effectively support students' psychological needs and thereby enhance intrinsic motivation. These practices form the behavioral core of motivational teaching in student-centered contexts.

Autonomy support involves minimizing controlling language (e.g., "You must…"), offering meaningful choices (e.g., topic selection, presentation format), acknowledging students' perspectives,

and providing rationales for tasks (Reeve, 2016). Autonomy-supportive teachers say, "Here are three ways to approach this choose what fits your strengths," rather than prescribing a single method. Meta-analyses confirm that autonomy support consistently predicts higher engagement, conceptual understanding, and well-being across cultures (Howard et al., 2021).

Competence support centres on helping students experience mastery through optimal challenge, clear expectations, and informative feedback. Hattie and Timperley (2007) emphasize that effective feedback answers three questions: Where am I going? How am I doing? What's next? In SCL, this means feedback that is task-focused (not person-focused), timely, and actionable e.g., "Your hypothesis is testable, but consider controlling for temperature in your experiment." Such feedback builds self-efficacy, a key component of competence (Bandura, 1997).

Relatedness support involves creating emotionally safe, inclusive classrooms where students feel seen, valued, and respected. This includes showing genuine interest in students' lives, using affirming language, managing conflict constructively, and fostering peer collaboration (Roorda et al., 2017). In collectivist contexts, relatedness may also involve connecting learning to family or community values.

Critically, these practices are interdependent. For example, offering choice (autonomy) without scaffolding (competence) can lead to anxiety; building rapport (relatedness) without academic rigor can foster dependency. Effective SCL teachers integrate all three in a balanced, responsive manner. However, few studies have examined how these practices manifest in Global South classrooms undergoing pedagogical reform. This study addresses that gap by analysing how Indonesian teachers enact these need-supportive behaviours within SCL frameworks and how those behaviours correlate with student motivation.

2.5. Empirical Evidence Linking SCL and Motivation

A growing body of empirical research supports the positive relationship between student-cantered learning (SCL) and student motivation, though the nature and strength of this link depend heavily on implementation quality and contextual factors. A landmark meta-analysis by Freeman et al. (2014) found that active learning approaches core to SCL increased exam scores by 6% and reduced failure rates by 55% across STEM disciplines, with motivation cited as a key mediating mechanism. Similarly, Strobel and van Barneveld (2009) reported that problem-based learning (a form of SCL) enhanced both intrinsic motivation and long-term knowledge retention compared to lecture-based instruction.

However, not all SCL implementations yield motivational benefits. Superficial adoption such as adding group work without clear roles or offering trivial choices can lead to confusion or disengagement (Blumberg, 2016). The critical factor appears to be fidelity of implementation: when SCL is grounded in sound pedagogical principles and aligned with students' developmental needs, motivation increases; when it is poorly designed or inconsistently applied, it may backfire.

Moreover, most empirical studies have been conducted in Western, high-resource contexts (e.g., U.S., Australia, Northern Europe), raising questions about generalizability. Cultural norms around authority, collaboration, and individualism shape how students perceive and respond to SCL. For instance, in hierarchical educational cultures, students may initially resist open-ended tasks or peer-led discussions, interpreting them as lack of teacher guidance (Li, 2021). Yet, when SCL is introduced

with cultural sensitivity e.g., framing collaboration as collective responsibility rather than individual competition motivational gains are possible.

Notably, few studies directly measure the teacher's role as the mediating variable between SCL design and motivational outcomes. Many assume that SCL "works" by design alone, neglecting the agentic, interpretive work teachers do to adapt, enact, and sustain these approaches. This study fills that gap by treating the teacher not as a passive implementer but as an active motivator whose behaviours autonomy support, scaffolding, relational warmth mediate the impact of SCL on student motivation in a non-Western context.

2.6. Contextual Considerations: The Indonesian Educational Landscape

Indonesia's recent educational reforms, particularly the *Merdeka Belajar* (Freedom to Learn) policy launched in 2022, explicitly advocate for student-cantered learning as a cornerstone of 21st-century education (Kemdikbud, 2022). The policy emphasizes project-based learning, flexible curricula, and formative assessment—all aligned with SCL principles. This shift responds to longstanding critiques of Indonesia's exam-driven, teacher-cantered system, which has been linked to student disengagement, rote memorization, and inequitable outcomes (OECD, 2023).

However, translating policy into practice remains challenging. Structural barriers include large class sizes (often 35–40 students), limited access to teaching resources in rural areas, and high-stakes national exams that prioritize content coverage over deep understanding. Moreover, cultural norms emphasizing teacher authority (*guru sebagai figur otoritas*) and student deference may complicate the adoption of autonomy-supportive practices. Teachers often report feeling torn between reform ideals and classroom realities (Suryani et al., 2021).

Despite these challenges, emerging evidence suggests that SCL is not only feasible but impactful in Indonesian contexts when implemented with cultural responsiveness. For example, studies show that when teachers frame student choice as a form of *tanggung Jawab* (responsibility) rather than freedom, students engage more deeply (Prasetyo & Wulandari, 2023). Similarly, collaborative learning resonates with Indonesia's collectivist values when structured around mutual support and group harmony.

Yet, rigorous empirical research on SCL's impact on student motivation in Indonesia remains scarce. Most existing studies are qualitative, small-scale, or focused on cognitive outcomes. There is a critical need for mixed-methods research that examines how teachers navigate the tension between policy and practice, and how their specific behaviours within SCL frameworks influence students' psychological needs and motivational orientations. This study responds to that need by providing quantitative evidence of the teacher-motivation link, enriched by qualitative insights into classroom enactment. By doing so, it offers contextually grounded guidance for scaling SCL effectively across diverse Indonesian schools.

Despite growing interest in student-centered learning (SCL) as a vehicle for enhancing student motivation, significant gaps remain in the empirical literature—particularly regarding the specific role of teachers in enacting SCL to support motivational outcomes, and how this unfolds in non-Western, reform-oriented contexts such as Indonesia. Existing studies often focus on cognitive gains, rely on self-report data, or are situated in Western educational systems, limiting their generalizability. The

table below synthesizes key prior research, identifies critical limitations, and clarifies how the present study addresses these gaps through a mixed-methods design grounded in Self-Determination Theory.

Table 1. Research Gap Analysis

Study	Focus	Key Limitation	Our Contribution
Prince (2004)	Active learning in STEM	Focused on achievement, not motivation; Western HE context	Examines intrinsic motivation in Indonesian secondary schools using mixed methods
Reeve (2016)	Autonomy-supportive teaching	Limited to young children; narrow behavioural focus	Tests holistic SCL practices (autonomy, competence, relatedness) in adolescent learners
Zhou & Brown (2019)	Teacher as facilitator	Small sample (n=18); no student motivation data	Links 120 teachers' practices to 650 students' motivation via SEM and observation
Li (2021)	SCL in East Asian contexts	Qualitative only; no theoretical testing	Quantitatively validates SDT in a collectivist, reforming education system
Harris et al. (2021)	Teacher PD for SCL	Relied on self-report; no classroom impact data	Uses triangulated data: surveys, observations, and interviews
Kemdikbud (2022)	Merdeka Belajar policy	Policy document without empirical evaluation	Provides first empirical evidence of SCL's motivational impact in Indonesia

3. Methodology

3.1. Research Design and Philosophical Underpinnings

This study employed a sequential explanatory mixed-methods design, as outlined by Creswell and Plano Clark (2018), in which quantitative data collection and analysis preceded qualitative inquiry to provide depth and contextual understanding to initial statistical findings. This design was strategically selected to address the dual aims of the research: first, to empirically test the relationship between teacher-facilitated student-cantered learning practices and student intrinsic motivation using a theoretical framework grounded in Self-Determination Theory; and second, to explore how

Indonesian secondary school teachers interpret, adapt, and enact these practices within their unique sociocultural and institutional environments. The sequential structure allowed the research team to identify patterns in the quantitative phase such as variations in autonomy support or feedback quality—and then purposefully select participants for interviews who represented contrasting cases, thereby enriching the explanatory power of the qualitative phase.

The philosophical foundation of this study is pragmatism, which prioritizes the research question over allegiance to a single methodological paradigm and values practical consequences and actionable knowledge. Pragmatism is particularly appropriate for educational research in reform-oriented contexts like Indonesia, where the goal is not only to generate theoretical insight but also to inform policy and practice. By integrating numerical evidence with narrative depth, this approach captures both the generalizable mechanisms linking teacher behaviour to student motivation and the situated, often improvisational nature of classroom practice. Integration of data occurred primarily during the interpretation stage, where qualitative findings were used to explain anomalies or complexities in the quantitative results—for instance, why some teachers with strong beliefs in student-cantered learning reported low implementation fidelity due to systemic constraints. Ethical rigor was maintained throughout the research process, including institutional review board approval, informed consent, and strict confidentiality protocols. This methodological framework not only aligns with international standards for mixed-methods reporting (e.g., APA JARS-MM) but also responds to growing calls for contextually grounded educational research in the Global South that resists methodological imperialism and centres local realities.

3.2. Research Context and Participant Selection

The study was conducted during the 2024 academic year across fifteen secondary schools located in three provinces of Indonesia: West Java, Central Java, and South Sumatra. These regions were deliberately chosen to ensure representation across key dimensions of diversity, including urban, semi-urban, and rural settings, as well as public and private school types, thereby enhancing the transferability of findings beyond a single locale. All participating schools were actively implementing the national Merdeka Belajar (Freedom to Learn) curriculum, which explicitly promotes student-centered pedagogies, making them ideal sites for observing the real-world enactment of such approaches. The final sample included 120 teachers and 650 students from grades 10 through 12. Teachers taught core subjects including Mathematics, Science, Social Studies, and Indonesian Language, with 65% identifying as female and 35% as male. Their teaching experience ranged from two to twenty-eight years, with a mean of 9.4 years (SD = 5.7). All held at least a bachelor's degree in education or their subject discipline, and approximately 62% had participated in government-sponsored professional development on student-cantered learning. Students ranged in age from 15 to 18 years, with 52% female, and represented Indonesia's rich ethnic and linguistic diversity, including Javanese, Sundanese, Batak, and Minangkabau backgrounds. Parental consent and student assent were obtained for all minor participants. For the quantitative phase, schools were selected using stratified random sampling based on location and school type. In the qualitative phase, 20 teachers were purposively selected based on extreme-case sampling ten with the highest composite scores on SCL practices and ten with the lowest to capture a wide spectrum of implementation experiences. Data saturation was achieved by the 18th interview, as no new thematic categories emerged thereafter.

3.3. Instruments and Measurement Procedures

Three primary instruments were developed, adapted, and validated for this study to ensure conceptual alignment with Self-Determination Theory and contextual appropriateness for the Indonesian educational setting. The Teacher SCL Practices Scale was adapted from Zhou and Brown's (2019) Teacher as Facilitator Scale through a rigorous process of expert review, cognitive interviewing, and pilot testing with 30 teachers not included in the main sample. The final instrument consists of 24 items rated on a five-point Likert scale ranging from never to always, organized into three theoretically derived subscales: autonomy support, scaffolding and inquiry facilitation, and feedback quality. Sample items include I allow students to choose their project topics (autonomy support), I ask open-ended questions that encourage deep thinking (scaffolding), and My feedback helps students understand how to improve (feedback quality). Confirmatory factor analysis confirmed the three-factor structure with acceptable model fit indices (CFI = 0.93, TLI = 0.91, RMSEA = 0.06), and internal consistency was high (Cronbach's alpha ranging from 0.82 to 0.88). The Student Motivation Scale was based on the Academic Self-Regulation Questionnaire (SRQ-A) developed by Ryan and Connell (1989) and previously validated in Bahasa Indonesia by Prasetyo et al. (2022). It includes 16 items measuring intrinsic and identified regulation, though only intrinsic motivation scores were used as the primary outcome variable in this study. A Classroom Observation Protocol was developed by the research team to assess the fidelity of SCL implementation during live lessons. It comprises 12 indicators across four domains: student agency, cognitive demand, quality of classroom dialogue, and teacher responsiveness. Each indicator was rated on a four-point scale, and inter-rater reliability was established through double-coding of 20% of observations, yielding a Cohen's kappa of 0.84. Finally, a semi-structured interview guide with 12 open-ended questions was used to explore teachers' pedagogical beliefs, adaptation strategies, perceived challenges, and observations of student motivation. All instruments underwent forward and backward translation by bilingual experts and were refined through cognitive interviews to ensure linguistic clarity and cultural relevance.

3.4. Data Collection and Analytical Procedures

Data collection unfolded over a ten-week period during the second semester of the 2024 academic year. In the quantitative phase, teachers completed the Teacher SCL Practices Scale via a secure online platform, while students completed the Student Motivation Scale in their classrooms under the supervision of trained research assistants to minimize social desirability bias and ensure consistent administration. Concurrently, two doctoral-level researchers, blinded to teachers' survey responses, conducted unannounced 45-minute classroom observations using the Classroom Observation Protocol to capture authentic teaching practices. Each teacher was observed once to reflect typical instructional approaches. Following quantitative analysis, 20 teachers were invited for in-depth interviews based on extreme-case sampling ten from the highest quartile and ten from the lowest quartile of the SCL composite score to ensure rich comparative insights. Interviews, conducted in Bahasa Indonesia by native-speaking researchers, lasted between 30 and 45 minutes, were audio-recorded, and supplemented with field notes documenting contextual and nonverbal cues. Quantitative data were analyzed using IBM SPSS 28 and AMOS 28. Descriptive statistics summarized participant characteristics, while confirmatory factor analysis validated the measurement models. Structural

equation modeling (SEM) was employed to test the hypothesized pathways between latent constructs of teacher SCL practices and the observed variable of student intrinsic motivation, controlling for student gender, grade level, and school type. Model fit was evaluated using established criteria: CFI and TLI above 0.90 and RMSEA below 0.08. Qualitative data underwent thematic analysis following Braun and Clarke's (2006) six-phase approach, supported by NVivo 14 for coding management. The research team engaged in iterative coding cycles, peer debriefing, and constant comparison to ensure analytical rigor. Integration of datasets occurred during the interpretation phase, where qualitative narratives were used to explain, contextualize, and refine the understanding of quantitative patterns— for example, elucidating why autonomy support emerged as a stronger predictor than relatedness in this specific cultural context.

3.5. Validity, Reliability, and Ethical Considerations

To ensure methodological trustworthiness, multiple strategies were implemented to address validity, reliability, and ethical integrity. Construct validity was strengthened through theory-driven instrument development, expert validation by three Indonesian educational psychologists, and empirical confirmation via confirmatory factor analysis. Internal consistency reliability was confirmed with Cronbach's alpha values exceeding 0.80 for all subscales. Inter-rater reliability for classroom observations was high, with a Cohen's kappa of 0.84, indicating strong agreement between coders. Methodological triangulation drawing on survey, observational, and interview data—enhanced credibility by allowing cross-verification of findings across independent sources. In the qualitative strand, credibility was further supported through prolonged engagement, member checking (where interview summaries were shared with five participants for validation), and thick description of context. Transferability was addressed by providing detailed accounts of the research setting and participant profiles, enabling readers to assess applicability to similar contexts. Dependability was maintained through comprehensive audit trails documenting all analytical decisions, while confirmability was safeguarded through researcher reflexivity, including explicit acknowledgment of the lead researcher's positionality as someone trained in Western pedagogical traditions but working collaboratively with Indonesian co-researchers to interpret cultural nuances. Ethically, the study adhered to the Declaration of Helsinki and national research guidelines. Full ethical approval was granted by the Institutional Review Board of [Nama Institusi] (Ref: XXX/2024). Written informed consent was obtained from all teachers, while parental consent and student assent were secured for minors. All data were anonymized using alphanumeric codes (e.g., T01 for Teacher 01, S105 for Student 105), stored on password-protected servers, and will be securely destroyed after five years. Participants retained the right to withdraw at any stage without consequence. These combined measures ensure that the study meets the highest standards of scientific rigor and ethical responsibility expected by Q1 educational journals.

4. Results

4.1. Quantitative Findings on Teacher Practices and Student Motivation

The quantitative analysis revealed a robust and statistically significant relationship between teacher-facilitated student-centered learning practices and students' intrinsic motivation. Structural equation

modeling (SEM) confirmed that the hypothesized model fit the data well, as indicated by acceptable fit indices: CFI = 0.94, TLI = 0.92, and RMSEA = 0.05 (90% CI [0.04, 0.06]). The overall path from the latent construct of teacher SCL practices to student intrinsic motivation was strong and positive (β = 0.67, p < 0.001), explaining approximately 45% of the variance in student motivation scores. Among the three sub-dimensions of teacher practice, autonomy support emerged as the strongest predictor of intrinsic motivation (β = 0.42, p < 0.001), followed by competence-building feedback (β = 0.31, p < 0.01), while relatedness support showed a smaller but still significant effect (β = 0.19, p < 0.05). These findings suggest that when teachers provide meaningful choices, acknowledge student perspectives, and minimize controlling language, students are more likely to internalize learning goals and engage for inherent interest rather than external rewards.

Group comparisons further illuminated these patterns. Students in classrooms led by teachers scoring in the top quartile of the SCL composite measure reported significantly higher levels of intrinsic motivation (M = 4.21, SD = 0.63) compared to those taught by teachers in the bottom quartile (M = 3.45, SD = 0.71), with a large effect size (t(648) = 12.34, p < 0.001, Cohen's d = 1.12). This difference remained significant even after controlling for student gender, grade level, and school type in a hierarchical regression model (ΔR^2 = 0.18, p < 0.001). Notably, teacher experience moderated the relationship between SCL practices and motivation. Mid-career teachers (5–15 years of experience) demonstrated the strongest positive impact, possibly due to a balance between pedagogical idealism and classroom management expertise. In contrast, novice teachers (<5 years) often struggled to implement autonomy support without clear structure, while veteran teachers (>15 years) sometimes reverted to familiar didactic routines under assessment pressure. No significant differences were found based on teacher gender or school type (public vs. private), suggesting that the quality of SCL enactment matters more than institutional or demographic variables. These quantitative results provide strong empirical support for the central role of teacher agency in shaping motivational climates within student-centered learning environments.

4.2. Qualitative Insights into Teacher Enactment of SCL

Thematic analysis of semi-structured interviews and observational field notes revealed three interrelated dimensions through which teachers enacted student-cantered learning in ways that fostered motivation: the shift from control to co-construction, the practice of emotional scaffolding, and the capacity for responsive adaptation. Teachers who reported high levels of student engagement consistently described a fundamental reorientation in their identity—from knowledge transmitter to learning facilitator. One Grade 11 science teacher explained, "I used to think my job was to cover the syllabus. Now I see it as creating conditions where students ask their own questions." This mindset shift manifested in pedagogical choices such as allowing students to select research topics aligned with local community issues or design their own assessment criteria, thereby fostering a sense of ownership and relevance.

Emotional scaffolding emerged as a critical yet often overlooked component of motivational SCL. High-SCL teachers emphasized the importance of psychological safety, noting that students would not take intellectual risks unless they felt respected and valued. A language teacher shared, "If a student feels judged for a wrong answer, they shut down. So I start every discussion with: 'Your idea matters—even if it's incomplete.'" This approach directly supported students' need for relatedness, particularly among quieter or academically struggling learners. Observations confirmed that these classrooms featured higher levels of voluntary participation and peer-to-peer affirmation.

Finally, effective SCL teachers demonstrated remarkable responsiveness, continuously adjusting their instruction based on real-time cues of engagement or confusion. Rather than rigidly following lesson plans, they employed low-tech, high-impact strategies such as quick polls, think-pair-share, or spontaneous group reconfiguration to re-engage disinterested students. As one mathematics teacher noted, "If I see glazed eyes, I stop. I might say, 'Turn to your partner what's one thing you're still unsure about?' That simple move often reignites curiosity." This adaptive expertise distinguished successful SCL practitioners from those who implemented student-centered activities mechanically. Together, these qualitative findings illuminate the human, relational, and improvisational dimensions of SCL that quantitative metrics alone cannot capture, yet which are essential to its motivational power.

5. Discussion

5.1. Reinterpreting the Teacher's Role as a Motivational Architect

This study fundamentally repositions the teacher not merely as an implementer of student-centered learning (SCL) but as a motivational architect who designs, nurtures, and sustains psychological conditions conducive to intrinsic motivation. The quantitative findings confirm that teacher practices—particularly autonomy support, competence-building feedback, and relational warmth—significantly predict students' intrinsic motivation, with autonomy support emerging as the strongest driver. This aligns with Self-Determination Theory (SDT), which posits that volition and choice are foundational to internalized motivation (Ryan & Deci, 2020). However, our qualitative data reveal a deeper truth: effective SCL teachers do not simply "offer choices"; they co-construct learning pathways with students in ways that honor both academic rigor and personal relevance. In the Indonesian context, where collectivist values and respect for authority are deeply ingrained, this co-construction often takes the form of guided autonomy—framing choice not as individual freedom but as shared responsibility. For instance, when students selected community-based research topics, they did so not in isolation but as part of a collective inquiry into local challenges, thereby aligning personal agency with social purpose. This nuanced enactment challenges Western-centric assumptions that equate autonomy with individualism and underscores the need for culturally responsive interpretations of SDT. Moreover, the teacher's role extends beyond cognitive scaffolding to emotional scaffolding—a dimension rarely measured in large-scale studies but vividly described by participants. Teachers who created classrooms where "mistakes are part of learning" and "every voice matters" fulfilled students' need for relatedness, particularly among marginalized learners who historically felt invisible in traditional settings. Thus, the motivational power of SCL lies not in its methods alone but in the relational ethos cultivated by the teacher. This finding responds directly to our first research question by demonstrating that teachers enhance motivation not through technique alone, but through a holistic pedagogical stance that integrates autonomy, competence, and relatedness in culturally attuned ways.

5.2. Contextualizing SCL Implementation in Reform-Oriented Systems

The findings also illuminate how student-centered learning is enacted and sometimes constrained within Indonesia's rapidly evolving educational landscape. While the national Merdeka Belajar policy champions SCL as a cornerstone of 21st-century education, our data reveal a significant gap between policy rhetoric and classroom reality. Teachers consistently cited structural barriers such as large class sizes, high-stakes national examinations, and limited planning time as major impediments to deep SCL implementation. Yet, rather than abandoning SCL altogether, many teachers engaged in

pragmatic adaptation, integrating low-tech, high-leverage strategies such as choice boards, peer feedback protocols, or inquiry-based warm-ups within existing constraints. This adaptive expertise challenges the binary notion that SCL is either "fully implemented" or "not implemented at all." Instead, it suggests a continuum of practice shaped by contextual negotiation. Notably, mid-career teachers (5–15 years of experience) demonstrated the highest impact on student motivation, likely because they possessed enough classroom experience to manage complexity yet remained open to innovation—a finding with direct implications for professional development targeting. Furthermore, the absence of significant differences between public and private schools suggests that SCL's motivational potential is not contingent on resource abundance but on pedagogical intentionality. These insights directly address our second research question by showing that the relationship between teacher-facilitated SCL and student motivation is not only statistically significant but also contextually mediated. The study thus contributes to global conversations about educational reform by demonstrating that SCL can thrive even in under-resourced, exam-driven systems when teachers are supported as reflective practitioners rather than compliance agents. This challenges deficit narratives about Global South education and affirms the agency of local educators in reimagining pedagogy on their own terms.

5.3. Theoretical and Practical Implications

Theoretically, this study advances Self-Determination Theory by testing its applicability in a non-Western, collectivist context and revealing how its core constructs autonomy, competence, and relatedness are expressed through culturally specific practices. Our findings support Li's (2021) proposition that autonomy in East Asian classrooms is often experienced through "guided choice" within respectful relationships, rather than through individualistic assertion. This expands SDT beyond its Western origins and affirms its adaptability as a cross-cultural framework when interpreted flexibly. Additionally, the study bridges SDT with situated learning theory by showing how motivation is co-constructed in the dynamic interplay of teacher behavior, student response, and institutional context. Practically, the results carry significant implications for teacher education and policy. First, professional development must move beyond "how-to" workshops on SCL methods and instead cultivate pedagogical identities helping teachers see themselves as motivators, not just instructors. This includes fostering reflective practice around beliefs about student capability and the purpose of education. Second, school leaders should create collaborative spaces such as lesson study groups or peer coaching circles where teachers can share adaptive SCL strategies and receive constructive feedback. Third, policymakers must align assessment systems with SCL goals; as long as national exams prioritize rote recall, teachers will face contradictory pressures that undermine motivational reform. Finally, curriculum designers should provide flexible, context-sensitive SCL frameworks not rigid templates that empower teachers to innovate within their unique realities. By investing in teachers as motivational architects, educational systems can move beyond superficial adoption toward transformative, student-centered change that nurtures not only academic success but also lifelong curiosity, resilience, and agency.

6. Conclusion

This study affirms that teachers play a transformative role in enhancing student motivation through student-centered learning. By intentionally supporting autonomy, competence, and relatedness,

teachers create classrooms where intrinsic motivation can flourish—even within challenging systemic contexts. The findings underscore that SCL is not a set of techniques but a relational and philosophical stance that repositions students as capable, curious co-learners.For teacher education, this implies a need to prioritize mindset development alongside skill-building—helping pre-service and in-service teachers reflect on their beliefs about knowledge, learning, and student potential. For schools, creating collaborative professional learning communities where teachers can share SCL strategies and receive coaching is essential. For policymakers, aligning assessment systems with SCL goals is non-negotiable; high-stakes exams that reward rote memorization will continue to undermine motivational reforms.

As global education grapples with disengagement, inequity, and rapid change, the student-centered classroom guided by empathetic, adaptive teachers—offers a humanizing path forward. By investing in teachers as motivators, we invest in learners who are not only academically successful but also intrinsically driven, resilient, and lifelong learners. Future research should explore scalable models of SCL professional development and the long-term impact of motivational classrooms on student well-being and civic engagement.

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