

Psychological Mechanisms of the Social-emotional Learning Influence on Academic Performance

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ABSTRACT:

This study examines the psychological mechanisms through which social-emotional learning (SEL) influences academic performance, adopting a psychologico-pedagogical perspective that integrates constructivist and humanistic educational theories. Using an integrative review combined with grounded theory methodology, the research synthesizes empirical and theoretical literature across school and higher education contexts. The findings identify a multi-level system of mechanisms, including emotional regulation, motivational dynamics, self-related processes, social embeddedness, and

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meaning-making, which collectively shape learning outcomes. These mechanisms are organized around a central process of integrative self-regulation and operate across intrapersonal, interpersonal, and existential levels. The study also reveals a lack of continuity in SEL implementation between school and higher education, limiting its long-term effectiveness. Additionally, the analysis highlights the ambivalent impact of digital transformation and emphasizes the growing importance of aligning SEL with humanistic and sustainability-oriented educational paradigms. A conceptual model is proposed, illustrating how SEL influences academic performance as a systemic and context-dependent outcome. The study contributes to the literature by providing a theoretically grounded and integrative framework that extends beyond performance-oriented interpretations of SEL, positioning it as a key factor in both academic success and holistic human development.

Keywords: psychological mechanisms; integrative self-regulation; student engagement; emotional regulation; academic achievement processes; higher education transition; educational continuity; meaning-making; digital learning environments; sustainable education.

1. Introduction

The social situation orients the education system toward developing active, creative individuals with developed intellectual, emotional, and volitional capacities. The changes occurred in society in recent years, along with the democratization of all social institutions, inevitably led to the need to reorient the education system toward a subject-subject model. Emotions and feelings perform a range of interrelated functions in the learning process: evaluative-reflective, regulatory, motivating, and so on. The most important function of emotions is evaluative-reflective, signaling the level of satisfaction of the individual's need-motivational sphere. If motivation to learn is low, the instructional material is complex and based on rational conclusions, or the teacher is authoritarian and austere, it is necessary to find ways to utilize the motivating function of emotions (Shen et al., 2024).

Today, the following hypothesis is becoming increasingly widespread in psychological and pedagogical discourse: the effectiveness of the learning process in an institution of education will increase if: along with the cognitive component, an emotional component plays a significant role,

exerting a motivating influence on satisfying students' cognitive needs and developing sustainable cognitive interests; key condition for influencing students' emotional sphere will be a humanistic atmosphere of pedagogical communication and creativity; the content, forms, and technologies of instruction will be "saturated" with means of emotional-value stimulation, based on the students' motivational-needs sphere (Zhilgildinova et al., 2022). The educational process pays attention to such concepts as an emotional-educational environment and social-emotional learning. Special educational programs aimed at developing emotional competence are increasingly being developed.

In recent decades, in overall, social-emotional learning (SEL) emerged as a significant interdisciplinary field at the intersection of psychology and education, reflecting a broader shift toward understanding learning as a holistic process that integrates cognitive, emotional, and social dimensions. Initially conceptualized as a set of competencies aimed at improving students' self-regulation, interpersonal skills, and emotional awareness, SEL has increasingly been associated

with measurable gains in academic performance, well-being, and long-term life outcomes. However, despite the growing body of empirical research, the psychological mechanisms through which SEL influences academic achievement remain insufficiently theorized, particularly in terms of their continuity across different educational levels.

The present study proceeds from the assumption that academic performance cannot be reduced to purely cognitive variables but is mediated by complex psychological processes, including motivation, emotional regulation, self-efficacy, and social connectedness. These processes operate within specific institutional and cultural contexts, making it necessary to adopt a psychologico-pedagogical perspective that integrates insights from developmental psychology, educational theory, and social psychology. In this regard, SEL provides a conceptual framework for examining how emotional and social competencies function as internal regulators of learning activity, shaping both engagement and achievement.

At the same time, the increasing institutionalization of SEL within educational systems raises important theoretical and ideological questions. Within the dominant neoliberal paradigm, SEL is often instrumentalized as a means of enhancing students' adaptability, resilience, and productivity, thereby aligning educational outcomes with labor market demands (Akkaya & Tabankali, 2025). In this framework, emotional competencies risk being reduced to forms of "emotional capital," valued primarily for their contribution to individual competitiveness and economic efficiency. Such an approach narrows the transformative potential of SEL, positioning it as a tool for adjustment rather than critical engagement.

In contrast, the humanistic paradigm of education offers an alternative foundation for understanding the role of SEL (Van Pham, 2024). Rooted in the works of humanistic psychology and progressive educational theory, this paradigm conceptualizes education as a process of personal growth, self-actualization, and the development of authentic relationships. From this perspective, SEL is not merely a set of skills but a means of fostering the

integral development of the individual, including empathy, moral agency, and the capacity for meaningful participation in social life (Humphrey et al., 2018). The emphasis shifts from performance-oriented outcomes to the cultivation of psychologically healthy, socially responsible, and self-aware individuals.

This humanistic orientation becomes particularly relevant when considering the continuity of SEL across educational stages - from primary and secondary schooling to higher education (Winarko & Budiwati, 2024). While SEL interventions are most commonly implemented in school settings, there is growing recognition that social-emotional competencies continue to develop throughout the lifespan and play a critical role in academic success in higher education. University students face complex emotional and social challenges, including identity formation, increased autonomy, and participation in diverse social environments, all of which require advanced levels of emotional regulation, interpersonal competence, and reflective capacity. However, the lack of systematic continuity between school-based SEL programs and higher education practices creates a gap that may undermine the long-term effectiveness of these competencies. Alex, J. (2026)

Addressing this gap requires a reconceptualization of SEL as a continuous, developmental process that is embedded within the broader educational trajectory. From a psychologico-pedagogical standpoint, this implies not only aligning curricula across educational levels but also understanding how underlying psychological mechanisms - such as internalization, self-determination, and social identity formation - evolve over time and influence learning outcomes. Continuity in SEL thus becomes a key condition for sustaining its impact on academic performance, as well as for supporting students' overall psychological well-being.

Furthermore, emerging critical perspectives suggest that the future development of SEL may be closely tied to broader transformations in educational paradigms, particularly in the context of post-capitalist thought. Within this emerging discourse, SEL is reinterpreted not as a tool for producing

compliant and competitive individuals, but as a framework for fostering humanization, solidarity, and collective well-being. This shift challenges the individualistic focus of traditional SEL models and emphasizes the importance of social awareness, community engagement, and ecological responsibility. In particular, approaches such as Social Emotional Learning for Social Justice (SEL-SEJ) highlight the need to address systemic inequalities, collective trauma, and cultural diversity within SEL frameworks. Rather than placing the burden of adaptation solely on individuals, these approaches promote critical consciousness, encouraging learners to recognize and challenge structural conditions that shape their experiences. In doing so, SEL becomes a means of empowering individuals not only to regulate their emotions but also to participate actively in the transformation of their social environments.

Thus, the present study aims to contribute to the existing literature by examining the psychological mechanisms underlying the relationship between SEL and academic performance within a comprehensive, humanistically oriented, and developmentally continuous framework. By integrating traditional empirical findings with critical and post-capitalist perspectives, the study seeks to expand the theoretical understanding of SEL and to highlight its potential as both a psychological and socio-educational phenomenon.

Despite the substantial expansion of research on social-emotional learning (SEL), several critical gaps remain insufficiently addressed.

First, the majority of existing studies adopt an outcome-oriented perspective, focusing on correlations between SEL interventions and academic performance indicators (e.g., grades, test scores), while paying comparatively limited attention to the underlying psychological mechanisms that mediate this relationship. Constructs such as emotional regulation, motivation, self-efficacy, and social belonging are often examined in isolation, without an integrative theoretical model that explains how they interact within the learning process.

Second, current literature is characterized by a fragmentation across educational levels. Empirical research on SEL is predominantly concentrated in primary and secondary education, whereas higher education contexts remain underexplored. As a result, the developmental continuity of social-emotional competencies and their evolving role in academic performance across the educational trajectory are insufficiently theorized. This creates a conceptual gap in understanding how early SEL experiences translate into later academic and psychosocial outcomes.

Third, there is a notable paradigmatic limitation in the interpretation of SEL. Much of the dominant literature is embedded within a neoliberal framework that instrumentalizes SEL as a means of enhancing individual adaptability and performance. This perspective constrains the theoretical scope of SEL by overlooking its potential as a humanistic and transformative construct, oriented toward personal growth, social responsibility, and collective well-being. Emerging critical and post-capitalist approaches remain relatively marginal and have not yet been systematically integrated into mainstream psychological and educational models of SEL.

Fourth, methodological approaches in the field often prioritize quantitative aggregation (e.g., meta-analyses) at the expense of theory-building methodologies capable of capturing the complexity and contextual variability of SEL processes. There is a lack of studies that synthesize diverse types of evidence (theoretical, empirical, qualitative) while simultaneously generating new conceptual models grounded in the data.

In view of these gaps, the present study aims to develop a theoretically grounded, integrative model of the psychological mechanisms through which SEL influences academic performance, considering both school and higher education contexts and incorporating a humanistic and critical perspective.

With this in mind, research objectives are formulated as follows:

1. To synthesize existing theoretical and empirical literature on the relationship between SEL and

academic performance using an integrative review approach.

2. To identify and systematize key psychological mechanisms mediating this relationship.
3. To analyze the continuity and transformation of these mechanisms across different levels of education (school and higher education).
4. To critically examine dominant and emerging paradigms of SEL, including humanistic and post-capitalist perspectives.
5. To develop a conceptual model grounded in the analyzed literature using principles of grounded theory.

Accordingly, research questions array is given below:

1. What psychological mechanisms mediate the relationship between SEL and academic performance?
2. How do these mechanisms interact within the learning process?
3. In what ways do social-emotional competencies and their effects on academic outcomes evolve across educational levels?
4. How do different theoretical paradigms shape the interpretation and application of SEL?

Given the qualitative and theory-building design of the study, the following propositions are formulated instead of strictly testable hypotheses:

P1: The influence of SEL on academic performance is mediated by an interconnected system of psychological mechanisms, including emotional regulation, intrinsic motivation, self-efficacy, and social relatedness.

P2: The effectiveness of these mechanisms depends on their developmental continuity across educational stages.

P3: Humanistic and critical approaches to SEL expand its impact beyond individual performance, enhancing its role in fostering meaningful engagement and long-term academic trajectories.

P4: Integrating diverse forms of evidence through an integrative review enables the construction of a

more comprehensive and ecologically valid model of SEL

2. Methodology

Research design. The study employs a qualitative, theory-generating research design that combines an integrative literature review with elements of grounded theory methodology. This approach was selected to enable both a comprehensive synthesis of heterogeneous sources and the development of a novel conceptual framework grounded in the analysed data. An integrative review allows for the inclusion of diverse types of evidence—empirical studies (quantitative and qualitative), theoretical papers, and conceptual frameworks—thus providing a holistic understanding of the phenomenon. At the same time, grounded theory principles (open coding, constant comparison, category development) are used to move beyond description toward the construction of an explanatory model.

Search Strategy and Data Sources. The literature search was conducted across major academic databases, including Scopus, Web of Science, MDPI, Wiley, ERIC, and PsycINFO, to ensure broad coverage of interdisciplinary research in psychology and education. The search strategy combined keywords related to the core constructs of the study, including: “social-emotional learning,” “SEL,” “academic performance,” “academic achievement,” “emotional regulation,” “motivation,” “self-efficacy,” “higher education,” “school education,” “psychological mechanisms,” and “student outcomes”. Boolean operators and truncation were used to refine the search and ensure relevance.

Inclusion and Exclusion Criteria. To ensure methodological rigor and relevance, the following criteria were applied:

Inclusion criteria: i) peer-reviewed journal articles and high-quality theoretical publications; ii) studies addressing SEL or closely related constructs; iii) research examining academic performance or learning outcomes; iv) publications in English; v) studies published within a defined timeframe (2000–2026) to capture contemporary

developments; vi) sources covering both school and higher education contexts.

Exclusion criteria: i) publications lacking clear conceptual or empirical relevance to SEL; ii) non-scholarly sources (e.g., opinion pieces without theoretical grounding); iii) studies focusing exclusively on clinical populations without educational context; iv) duplicates and inaccessible full texts.

Sampling Strategy. A purposeful sampling strategy was employed, consistent with integrative review methodology. Initial search results were screened based on titles and abstracts, followed by full-text analysis. Additionally, snowball sampling (backward and forward citation tracking) was used to identify influential and highly cited works that may not have been captured through database searches. The final sample was constructed to ensure thematic saturation, meaning that additional sources did not substantially contribute new conceptual insights.

Data Analysis. Data analysis followed key principles of grounded theory:

1. Open coding: Identification of recurring concepts related to psychological mechanisms, SEL components, and academic outcomes.
2. Axial coding: Establishing relationships between categories (e.g., linking emotional regulation to motivation and academic engagement).
3. Selective coding: Integration of categories into a coherent conceptual model explaining how SEL influences academic performance.

The process of constant comparison was used throughout, allowing categories to be refined and validated across different sources and contexts.

Trustworthiness and rigor. To enhance the credibility and rigor of the study: multiple types of sources were triangulated; transparent inclusion criteria and selection procedures were applied; analytical decisions were guided by iterative comparison and conceptual coherence; the resulting model was evaluated for internal consistency and explanatory power.

3. Results

Theoretical Integration: Constructivist and Humanistic Foundations of SEL. The integrative

analysis demonstrates that the psychological mechanisms linking social-emotional learning (SEL) and academic performance are most coherently explained within the complementary frameworks of constructivist and humanistic educational theories. From a constructivist perspective, learning is understood as a socially mediated process in which knowledge is co-constructed through interaction, reflection, and contextual engagement. Within this framework, SEL contributes to academic performance by enabling students to effectively participate in meaning-making processes. Emotional regulation supports cognitive flexibility and attention control; social awareness facilitates collaborative learning; and self-efficacy enhances persistence in problem-solving. These findings are consistent with contemporary research emphasizing the role of emotions in cognitive processing and knowledge construction (e.g., Immordino-Yang & Damasio; Pekrun's control-value theory). In parallel, the humanistic paradigm conceptualizes education as a process of holistic personal development, where learning outcomes are inseparable from psychological well-being, self-actualization, and authentic interpersonal relationships (Korostenskiene, 2022). Within this framework, SEL functions not merely as a set of competencies but as a developmental condition for meaningful learning. Academic performance, therefore, is not treated as an isolated metric but as an emergent outcome of psychological integration - particularly the alignment between intrinsic motivation, self-concept, and relational belonging. The synthesis of these two paradigms suggests that SEL operates through dual mechanisms: 1) Cognitive-mediational mechanisms (attention regulation, metacognition, motivation); 2) Relational-existential mechanisms (sense of belonging, identity formation, meaning-making). This dual structure forms the conceptual basis for further analysis.

The grounded theory analysis enabled the identification of a multi-level system of psychological mechanisms that mediate the relationship between SEL and academic performance (see Table 1).

Table 1. Grounded Theory Results: Categories and Relationships

Core Category	Subcategories	Psychological Function	Impact on Academic Performance
Emotional Regulation	Self-regulation, stress management, emotional awareness	Stabilization of cognitive processes; reduction of anxiety	Improved concentration, test performance, persistence
Motivational Dynamics	Intrinsic motivation, goal orientation, engagement	Activation and maintenance of learning behavior	Increased effort, deep learning strategies
Self-System Processes	Self-efficacy, self-concept, identity	Internalization of academic goals; agency	Higher achievement, resilience to failure
Social Embeddedness	Belonging, peer relations, teacher support	Social mediation of learning	Enhanced participation, collaborative outcomes
Meaning-Making	Reflection, purpose, value orientation	Integration of knowledge into personal experience	Long-term academic trajectories, critical thinking

Source: developed by the authors

The core category emerging from the analysis is integrative self-regulation, which connects emotional, motivational, and social processes into a unified system influencing learning outcomes. Importantly, these mechanisms are not linear but dynamically interdependent, supporting the argument that SEL influences academic performance through a complex adaptive system rather than isolated variables.

Continuity of SEL Across Educational Levels: School and Higher Education. The analysis reveals a significant discontinuity between school-based and higher education SEL practices, despite strong theoretical arguments for developmental continuity. In the United States, SEL is relatively well institutionalized in K–12 education (e.g., CASEL frameworks), but its integration into higher education remains fragmented, often limited to student support services rather than embedded in curricula. Research indicates that while first-year transition programs incorporate elements of SEL (e.g., emotional adjustment, belonging), there is no systematic continuation of SEL competencies as structured learning outcomes (Dalrymple & Phillip, 2024). In Europe, SEL is frequently embedded within broader frameworks such as “key competences for lifelong learning” (European Commission), including social and civic competences (Do et al., 2022). However, similar to the U.S., the transition to higher education involves a shift from developmental support to academic autonomy, often without sufficient scaffolding of

social-emotional competencies. In the Asia-Pacific region, SEL implementation varies significantly. Countries such as Singapore and Australia developed structured SEL frameworks within school education, often aligned with character education and well-being policies. However, higher education systems tend to emphasize academic excellence and competitiveness, resulting in a performance-oriented reinterpretation of SEL, rather than its developmental continuation (Collie et al., 2017). Across all regions, the findings suggest a systemic gap in vertical alignment, where SEL is treated as age-bound rather than as a lifelong developmental process. This discontinuity weakens the long-term impact of SEL on academic performance and psychosocial outcomes.

Of particular scientific interest is the comparative analysis of social-emotional learning (SEL) across different regional and socio-cultural contexts, as it allows for the identification of both universal and context-specific patterns in the relationship between SEL and academic performance. Such a comparison makes it possible to move beyond generalized models and to examine how institutional structures, educational paradigms, and cultural norms shape the implementation and effectiveness of SEL. One can focus on three macro-regions - the United States, Europe, and the Asia-Pacific region - which represent distinct configurations of educational systems and socio-cultural orientations. The comparison (see Table 2) is structured around key analytical dimensions,

including the level of institutionalization of SEL, social dimension, and the degree of continuity dominant pedagogical paradigms, the role of the across educational levels.

Table 2. Comparative Characteristics of SEL Across Regions

Dimension	United States	Europe	Asia-Pacific (High-Income)	Asia-Pacific (Low- and Middle-Income)
Level of Institutionalization	High (well-developed frameworks, e.g., CASEL)	Moderate (integrated into broader competence frameworks)	High in selected systems (e.g., Japan, South Korea, Singapore)	Low to moderate (often policy-driven but unevenly implemented)
Dominant Paradigm	Individualistic, performance-oriented (with emerging critical approaches)	Balanced (individual + social/civic orientation)	Performance-oriented with structured collectivism	Collectivist, community-oriented, often shaped by socio-economic constraints
Focus of SEL	Emotional regulation, self-management, resilience	Social competence, citizenship, well-being	Discipline, emotional control, group harmony	Social adaptation, respect, community cohesion, coping strategies
Integration in School Education	Systematic and structured	Integrated but less standardized	Strong in formal curricula in leading systems	Often integrated informally or through non-formal education
Integration in Higher Education	Limited, fragmented	Limited, implicit	Minimal, largely indirect	Very limited or absent
Continuity Across Levels	Weak	Moderate (conceptual, not practical)	Weak to moderate	Weak
Role of Social Dimension	Secondary to individual competencies	Strong (linked to civic and social responsibility)	Strong but normatively regulated	Central and structurally embedded in learning processes
Impact on Academic Performance	Mediated by motivation and self-efficacy	Mediated by social engagement and well-being	Mediated by discipline, effort, and structured support	Mediated by social cohesion, peer support, and adaptive coping

Source: developed by the authors

The comparative analysis reveals that differences in SEL implementation are not only regional but also reflect broader distinctions between the Global North and Global South, particularly in terms of socio-cultural paradigms and the role of the social dimension in education. In the Global North (primarily represented by the United States and parts of Europe), SEL is often framed within an individualistic paradigm, where the primary focus is on personal competencies such as emotional regulation, resilience, and self-efficacy. While these skills are empirically associated with improved academic performance, their interpretation is

frequently aligned with performance optimization and individual achievement. Even when social components are included, they tend to function as supportive rather than central mechanisms. In contrast, educational contexts in the Global South and parts of the Asia-Pacific region demonstrate a stronger emphasis on the social embeddedness of learning, where relational harmony, collective responsibility, and social cohesion play a central role. In these contexts, the social dimension of SEL is not an auxiliary component but a structuring principle of the educational process. Academic performance is therefore mediated not only by

individual psychological mechanisms but also by the quality of social integration and adherence to shared norms. This distinction is inherent with a range of theoretical implications. The findings suggest that the social component of SEL may be systematically underestimated in dominant (Western) models, which prioritize intrapersonal processes. However, the grounded analysis indicates that social embeddedness is a critical mediator of academic outcomes, particularly in contexts where learning is inherently relational.

Furthermore, the results highlight that the effectiveness of SEL is contingent upon its cultural alignment. Models developed within individualistic frameworks may not fully capture the dynamics of learning in collectivist or relationally oriented societies. Conversely, the strong social orientation in these contexts may enhance certain aspects of SEL (e.g., belonging, cooperation) while potentially limiting others (e.g., autonomy, self-expression).

Digital Transformation and Its Impact on SEL.

The digital transformation of education introduces both opportunities and tensions in the implementation of SEL. On the one hand, digital environments expand access to learning and enable new forms of interaction (e.g., online collaboration, adaptive learning systems). These can support certain aspects of SEL, such as self-paced learning (enhancing self-regulation) and global connectivity (broadening social awareness) (Inbaraj et al., 2025). Erstad et al. (2024), based on the cases from selected countries (Norway, Czech Republic, USA and Japan), demonstrated that across the world, young people are experiencing cultural transformations that influence the social and emotional aspects of learning via digital technologies. Learning is defined here in a broad sense as humans participating in sociocultural transformation. However, the authors emphasize that existing education institutions are not prepared to respond to the changes occurring in society. On the other hand, the analysis highlights several risks: reduction of face-to-face interaction, potentially weakening relational competencies; increased cognitive load and emotional fatigue (e.g., “Zoom fatigue”); algorithmic personalization that may prioritize efficiency over meaning-making (Shoshan & Wehrt, 2021).

Recent empirical research on digital education confirms the ambivalent effects identified in the analysis (Tari & Mahaardhika, 2025). Studies conducted during and after the COVID-19 pandemic show that while online learning environments can enhance self-regulation and autonomy, they often lead to reduced social interaction and increased emotional strain (Romero-Rodríguez et al., 2025). Research on “Zoom fatigue” and digital burnout highlights the emotional costs of prolonged online engagement, while studies on online collaboration suggest that the quality of social interaction depends heavily on instructional design (Hidayat & Fahrhan, 2026; Watkins, 2021). These findings support the conclusion that digital transformation does not inherently support SEL but requires intentional pedagogical integration. Moreover, digital education often reinforces individualized learning trajectories, which may conflict with the collective and relational dimensions of SEL, particularly within humanistic and post-capitalist paradigms. Thus, digital transformation acts as an ambivalent mediator, amplifying certain psychological mechanisms (e.g., autonomy) while constraining others (e.g., empathy, deep social engagement).

SEL in the Context of Post-Capitalist Education and Sustainable Development.

The analysis confirms a growing shift toward reframing SEL within broader socio-cultural and ethical paradigms, particularly in relation to post-capitalist thought and the discourse of sustainable development. Within the dominant educational paradigm, SEL is often aligned with the development of “soft skills” for labor market success. However, emerging perspectives challenge this instrumental view, arguing for a reorientation toward: humanization (development of empathy, dignity, and agency); collective well-being (community resilience, social cohesion); ecological consciousness (alignment with sustainability values). These ideas resonate with the UN Sustainable Development Goals (SDGs), particularly SDG 4 (Quality Education), SDG 3 (Well-being), SDG 16 (Peace, justice, and strong institutions) (Yamada, 2016). In this context, SEL is reinterpreted as a transformative educational practice that supports

not only individual academic success but also the capacity to engage with complex global challenges. In fact, the reinterpretation of SEL within the frameworks of sustainable development and post-capitalist education is supported by policy-oriented and empirical research. UNESCO and OECD publications increasingly emphasize the role of education in fostering global competence, empathy, and responsibility, aligning with the Sustainable Development Goals. Importantly, the grounded theory analysis suggests that meaning-making and social embeddedness become increasingly central mechanisms within this paradigm, shifting the focus from individual performance to collective and purpose-driven learning.

Toward a Conceptual Model. Actually, the results presented in Table 1 indicate that the relationship between SEL and academic performance is best understood not as a set of discrete linear effects, but as a hierarchically organized and dynamically interacting system of psychological processes. The grounded theory analysis makes it possible to move beyond descriptive categorization and identify the structural logic underlying these processes. Taken together, the empirical literature provides strong support for the grounded theory model, while also revealing its added value. Existing studies tend to focus on isolated mechanisms, whereas the present analysis integrates them into a coherent, multi-level system. This synthesis not only strengthens the validity of the proposed framework but also highlights its contribution to bridging fragmented research traditions across psychology and education. (J., G., & Cherian, R., 2026)

1. Central Integrative Mechanism: Self-Regulation as a System-Forming Process. At the core of the identified model lies integrative self-regulation, which functions as a system-forming mechanism linking emotional, cognitive, and social domains. Unlike narrow interpretations of self-regulation as behavioural control, the present analysis conceptualizes it as a multi-component regulatory system that includes:

- emotional stabilization (through emotional regulation),

- motivational activation (through intrinsic motivation),
- cognitive coordination (through attention and metacognitive control), and
- social orientation (through sensitivity to relational contexts).

This integrative understanding aligns with contemporary psychological theories that position self-regulation as a meta-process, organizing goal-directed behavior in complex environments (Billore et al., 2023; Burnette et al., 2013). Within the educational context, it enables students not only to manage immediate academic demands but also to sustain engagement over time, particularly in situations characterized by uncertainty, evaluation pressure, or increased autonomy (as in higher education).

2. Functional Clusters and Their Interdependence. The five core categories identified in the analysis can be grouped into three functional clusters, each contributing to academic performance in a distinct yet interrelated manner:

(a) Regulatory-Activation Cluster (Emotional Regulation + Motivational Dynamics). This cluster ensures the activation and stabilization of learning activity. Emotional regulation reduces disruptive affective states (e.g., anxiety), while motivation directs energy toward academic goals. Importantly, these processes are mutually reinforcing: effective emotional regulation enhances intrinsic motivation, while meaningful motivation facilitates adaptive emotional responses.

(b) Self-System Cluster. (Self-efficacy, Identity, Self-concept). This cluster provides the internal coherence of the learner's psychological system. Self-efficacy beliefs influence task persistence and strategy use, while identity processes determine the degree to which academic activity is internalized as personally meaningful. The analysis suggests that academic performance is significantly strengthened when learning is integrated into the student's sense of self, rather than remaining externally imposed.

(c) Social-Contextual Cluster (Social Embeddedness + Meaning-Making). This cluster reflects the fundamentally relational nature of learning.

Belongingness, peer interaction, and teacher support create the social conditions for engagement, while meaning-making processes connect academic content to broader value systems and life purposes. Notably, meaning-making acts as a bridge between individual cognition and social context, transforming externally structured knowledge into personally and socially relevant understanding.

3. Mechanisms of Mediation: From SEL Competencies to Academic Outcomes. The analysis reveals that SEL competencies do not directly produce academic performance; rather, they operate through mediating pathways that can be conceptualized as:

- Affective-cognitive mediation: Emotional regulation influences attention, working memory, and cognitive flexibility, thereby affecting learning efficiency.
- Motivational mediation: Intrinsic motivation and self-efficacy shape persistence, effort investment, and the use of deep learning strategies.
- Relational mediation: Social connectedness enhances engagement, participation, and access to collaborative learning opportunities.
- Existential mediation: Meaning-making processes support long-term commitment to learning and the development of critical and reflective thinking.

These pathways highlight that academic performance is not simply improved by “having” SEL skills, but by the activation of these skills within specific psychological and social processes.

4. Developmental Dynamics and Educational Continuity. An important finding emerging from the constant comparative analysis is that the relative significance of these mechanisms shifts across educational stages. In school education, emotional regulation and social embeddedness play a dominant role, as students rely heavily on structured environments and external support systems. In higher education, the emphasis shifts toward self-system processes (self-efficacy, identity) and meaning-making, reflecting increased autonomy and the need for self-directed learning. This developmental shift reinforces the argument that

SEL should be conceptualized as a longitudinally evolving system, rather than a fixed set of competencies. The absence of continuity between these stages may lead to a misalignment between students’ psychological resources and academic demands, particularly during transitional periods.

. Contextual Sensitivity of Mechanisms. The grounded theory analysis also indicates that the functioning of psychological mechanisms is context-dependent, shaped by: institutional structures (e.g., curriculum design, assessment systems); socio-cultural norms (e.g., individualism vs. collectivism); and technological environments (e.g., digital vs. face-to-face learning). For example, in highly competitive academic environments, motivational dynamics may become externally driven, weakening the positive effects of intrinsic motivation. Similarly, in digitally mediated contexts, social embeddedness may be reduced or transformed, affecting the relational pathways of SEL.

6. Theoretical Implications. The extended analysis contributes to the literature in several ways:

- It reconceptualizes SEL as a multi-level psychological system, rather than an array of strong skills.
- It identifies integrative self-regulation as a central organizing construct linking SEL to academic performance.
- It demonstrates the importance of developmental continuity and contextual variability in understanding SEL effects.
- It bridges constructivist and humanistic paradigms by showing how cognitive, relational, and existential processes interact within learning.

Moreover, the conceptual relationships identified through the grounded theory analysis are strongly supported by a substantial body of high-quality empirical research, which, although often fragmented, converges around several key mechanisms.

Emotional regulation and academic performance. A robust line of research demonstrates that emotional regulation plays a critical role in shaping academic

outcomes through its impact on cognitive functioning. Within the framework of control-value theory, developed by Pekrun (2022), achievement emotions (e.g., anxiety, enjoyment, boredom) directly influence attention, memory, and problem-solving processes. Empirical studies confirm that students with higher emotional regulation capacities exhibit greater cognitive flexibility and are less susceptible to performance-debilitating anxiety, resulting in improved academic achievement (Khan & Jameel, 2024). Neuroscientific evidence further reinforces this relationship. Research by Immordino-Yang and Gotlib (2017) shows that emotional processes are not peripheral but integral to learning, as they guide attention and meaning-making at the neural level. This supports the interpretation of emotional regulation as a foundational mechanism within the SEL–academic performance nexus.

Motivation and self-efficacy as mediators of engagement. The role of motivational dynamics identified in the model is consistent with self-determination theory (SDT), advanced by Ryan and Deci (2020). SDT implies that intrinsic motivation, supported by the satisfaction of basic psychological needs (autonomy, competence, relatedness), leads to deeper engagement and more effective learning strategies. Empirical meta-analyses indicate that SEL interventions significantly enhance these motivational dimensions. For example, large-scale syntheses (e.g., Durlak et al. (2022)) demonstrate that SEL programs improve not only social-emotional competencies but also academic performance by approximately 10–11 percentile points, largely mediated by increased engagement and persistence. Similarly, research on self-efficacy, grounded in the works of Albert Bandura, shows that students' beliefs in their capabilities strongly predict academic success (Miao et al., 2025). SEL contributes to the development of self-efficacy by fostering emotional mastery and positive social experiences, which in turn enhance resilience and adaptive coping.

Social embeddedness and belonging. The importance of social embeddedness identified in the grounded theory model is strongly supported by empirical research on school belonging and academic

engagement. Study by Brady et al. (2020) demonstrate that even brief interventions targeting students' sense of belonging can produce long-term improvements in academic performance, particularly among marginalized groups. Meta-analytic evidence further confirms that teacher–student relationships and peer support are significant predictors of both engagement and achievement (Dost & Mazzoli Smith, 2023; Uslu, 2024; Verbree et al. (2025)). These findings align with constructivist assumptions about the social nature of learning and reinforce the interpretation of SEL as a mechanism for enhancing participatory learning environments.

Meaning-making and deep learning. The category of meaning-making identified in the analysis is less frequently operationalized in quantitative research but is strongly supported by emerging interdisciplinary studies. Research in educational psychology indicates that students who perceive learning as personally meaningful are more likely to engage in deep learning strategies, critical thinking, and long-term knowledge retention (Rui et al., 2024). This dimension is particularly emphasized in humanistic and transformative learning theories, as well as in recent works linking SEL to purpose development and identity formation in higher education (Sabbaghi et al., 2020). Empirical studies suggest that meaning-oriented learning is associated not only with academic success but also with long-term well-being and career adaptability (Oliveira & Marques, 2024).

Synthesis and Modelling. The integrative synthesis of theoretical perspectives and empirical evidence, supported by grounded theory analysis, demonstrates that the influence of social-emotional learning (SEL) on academic performance cannot be adequately explained through linear or single-factor models. Instead, it emerges from the interaction of multiple psychological mechanisms operating across different levels of the educational system and evolving throughout the learner's developmental trajectory. At the same time, the analysis highlights the importance of contextual moderators, including educational stage (school vs. higher education), digital learning environments, and broader socio-cultural paradigms, such as humanistic and post-

capitalist approaches to education. These findings necessitate the construction of a multi-level conceptual model that integrates intrapersonal, interpersonal, and systemic dimensions of SEL, while also accounting for continuity and transformation across educational contexts.

The proposed model (see Fig. 1) conceptualizes SEL as a dynamic, multi-layered system in which academic performance is an emergent outcome of interacting psychological and contextual processes. The model consists of three interconnected levels:

1. Intrapersonal Level (Psychological Mechanisms): emotional regulation; motivational processes (intrinsic motivation, engagement); self-system (self-efficacy, identity, self-concept). These mechanisms form the core of integrative self-regulation, which directly influences cognitive functioning and learning behaviour.

2. Interpersonal Level (Relational Mechanisms): social embeddedness (belonging, peer interaction, teacher support); collaborative learning processes. This level mediates the relationship between the

individual and the learning environment, reinforcing engagement and participation.

3. Existential-Meaning Level: meaning-making; value orientation; purpose in learning. This level ensures the long-term sustainability of academic engagement by connecting learning to personal and social significance.

The interaction of these levels is shaped by contextual moderators: i) educational continuity (alignment between school and higher education); ii) digital learning environments (hybrid/online vs. face-to-face contexts); iii) educational paradigm (neoliberal vs. humanistic/post-capitalist orientation); iv) sustainability discourse (alignment with social and ecological values). In turn, academic performance is conceptualized as a systemic outcome, including: academic achievement (grades, performance indicators); deep learning and critical thinking; long-term educational trajectories.

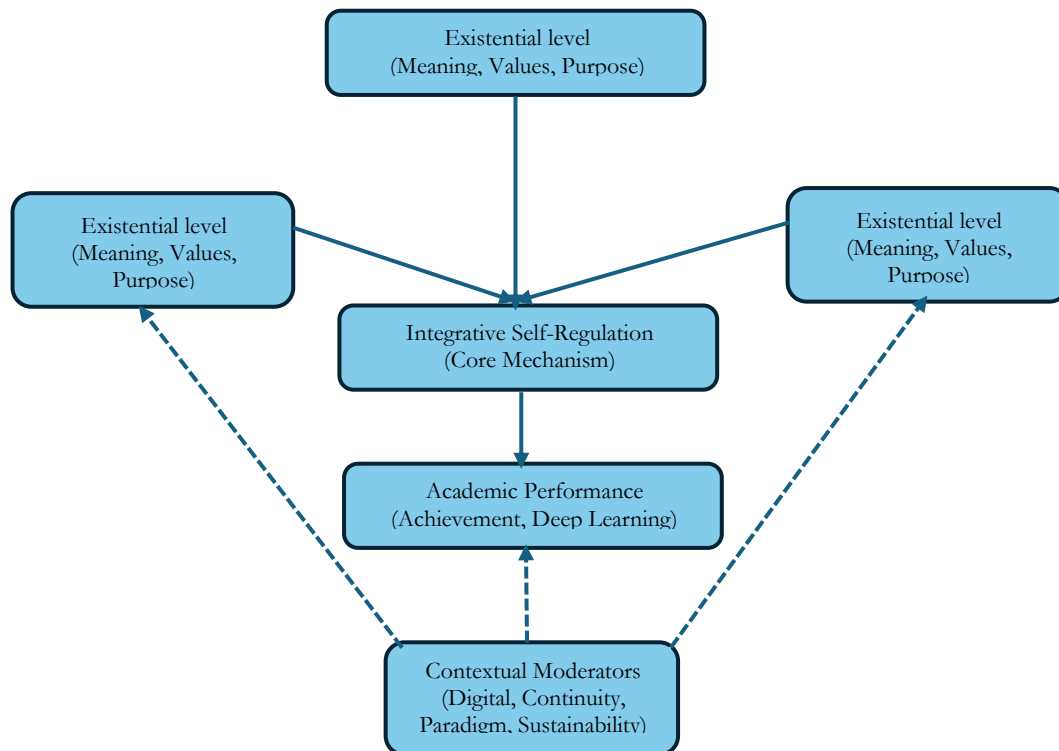


Figure 1. Conceptual model of psychological mechanisms linking social-emotional learning and academic performance

Source: developed by the authors

The model suggests that SEL influences academic performance indirectly, through the activation and coordination of psychological mechanisms rather than through direct skill transfer. The central role of integrative self-regulation highlights the importance of coherence between emotional, motivational, and identity-related processes. Importantly, the inclusion of the existential-meaning level expands traditional SEL models by introducing a humanistic dimension, where learning is connected to purpose and value systems. This allows for a broader interpretation of academic success, extending beyond short-term performance metrics. Furthermore, the model emphasizes that the effectiveness of SEL is contingent upon contextual alignment. Without continuity between educational levels or adequate integration into digital environments, the potential impact of SEL may be significantly reduced.

Meanwhile, the comparative analysis presented in Table 2 challenges the implicit assumption of universality that underlies many dominant models of social-emotional learning. While widely used frameworks tend to conceptualize SEL as a set of universal competencies, applicable across contexts, the findings of this study indicate that both the structure and functional significance of these competencies vary substantially across socio-cultural environments. In particular, the comparison reveals that in Global North contexts, SEL is predominantly constructed around intrapersonal regulation, where emotional control, self-efficacy, and individual motivation serve as primary drivers of academic performance. The social dimension, although present, is often positioned as a supportive or secondary factor that enhances individual learning processes. By contrast, in Global South contexts - particularly within low- and middle-income countries in the Asia-Pacific region - the social dimension of SEL assumes a structurally central role. Here, learning is embedded in relational systems characterized by interdependence, collective responsibility, and shared norms. As a result, academic performance is not primarily mediated by individual psychological resources, but by the quality of social integration,

including peer cohesion, respect for authority, and community-based support mechanisms.

This distinction has important theoretical implications. First, it suggests that social embeddedness should not be treated as one variable among many, but rather as a core organizing mechanism whose relative importance varies across cultural contexts. In relationally oriented educational systems, social processes do not merely support learning - they constitute the very conditions under which learning becomes possible. Second, it challenges the dominance of individual-centered epistemologies of learning, which underpin much of the existing SEL literature. These epistemologies may inadequately capture the dynamics of learning in contexts where knowledge construction is inherently collective and socially mediated. Consequently, applying standardized SEL models without cultural adaptation risks both conceptual reductionism and limited practical effectiveness. Third, it implies additional support for the proposed conceptual model by demonstrating that the interpersonal level is not fixed in its position within the system, but can function either as a mediating layer (in individualistic contexts) or as a foundational layer (in collectivist contexts). This variability reinforces the need to conceptualize SEL as a context-sensitive and dynamically reconfigurable system, rather than a static set of components. Finally, this aligns with emerging humanistic and post-capitalist perspectives on education, which emphasize relationality, solidarity, and collective well-being as central educational goals. In this sense, Global South practices - often shaped by necessity and socio-cultural traditions - may offer important insights for rethinking SEL in more socially grounded and ecologically valid ways. Thus, the proposed model should be interpreted not as universal in structure, but as adaptable in configuration, with the social dimension functioning as a variable core depending on the socio-cultural context.

In overall, the findings of this study contribute to the existing literature by addressing several critical limitations. First, the proposed model advances the understanding of SEL by conceptualizing it as a

complex psychological system, rather than a range of particular competencies. This allows for a more nuanced explanation of how SEL influences academic performance through multiple interacting pathways. Second, the study highlights the importance of developmental continuity, demonstrating that the effects of SEL depend on its sustained integration across educational levels. The identified gap between school and higher education suggests a need for systemic reforms aimed at aligning pedagogical approaches and supporting students' psychological development over time. Third, the integration of humanistic and post-capitalist perspectives expands the theoretical scope of SEL, repositioning it as a transformative educational framework oriented toward meaning, social responsibility, and sustainability. This perspective is particularly relevant in the context of global challenges, where education is expected to contribute not only to economic outcomes but also to societal well-being. Finally, the study highlights the ambivalent role of digital transformation, which both enhances and constrains SEL processes. This finding points to the necessity of intentional design in digital education to preserve and develop social-emotional competencies.

5. Conclusion

The presented study advances understanding of the relationship between social-emotional learning and academic performance by developing a theoretically grounded and integrative framework that captures the complexity of underlying psychological mechanisms. Moving beyond reductionist and outcome-oriented approaches, the research conceptualizes SEL as a multi-level, dynamic system in which academic performance emerges from the interaction of emotional, motivational, social, and meaning-related processes. A key contribution of the study lies in the identification of integrative self-regulation as a system-forming mechanism that coordinates these processes across intrapersonal, interpersonal, and existential domains. This perspective provides a more nuanced explanation of how SEL influences learning, demonstrating that its impact is not direct but mediated through interconnected pathways that shape engagement, persistence, and cognitive functioning.

The study also contributes to the literature by addressing the issue of developmental continuity. The findings reveal a structural gap between school-based and higher education approaches to SEL, suggesting that the absence of vertical alignment limits the long-term effectiveness of social-emotional competencies. In this regard, the proposed model underscores the importance of designing educational systems that support the progressive development of SEL across the entire learning trajectory, particularly during critical transitional periods.

Another important contribution is the integration of humanistic and post-capitalist perspectives, which expand the conceptual boundaries of SEL beyond its instrumental use for enhancing individual performance. By incorporating dimensions such as meaning-making, social responsibility, and collective well-being, the study positions SEL as a transformative educational construct aligned with contemporary global priorities, including sustainable development. This shift is particularly significant in light of increasing recognition that education must address not only economic demands but also social and ecological challenges. The findings further highlight the ambivalent role of digital transformation. While digital environments can support autonomy and self-regulated learning, they may also weaken relational and emotional dimensions that are essential for effective SEL. This underscores the need for intentional pedagogical design that integrates social-emotional components into digital learning contexts, rather than assuming their automatic development.

From a practical standpoint, the proposed conceptual model provides a foundation for the design of educational interventions and policies aimed at enhancing both academic performance and student well-being. It suggests that effective SEL implementation requires not only the development of individual competencies but also the creation of supportive relational environments, alignment across educational levels, and integration with broader educational values.

At the same time, the study has several limitations. As a theory-building investigation based on an integrative review and grounded theory approach, it does not provide direct empirical validation of the proposed model. Additionally, the selection of sources, while systematic and purposive, may reflect certain disciplinary and geographical biases present in the existing literature. Future research should focus on empirical testing and operationalization of the model, including longitudinal studies that examine the continuity of SEL mechanisms across educational stages and cross-cultural analyses that account for contextual variability. Further research is also needed to explore the role of SEL within digitally mediated and hybrid learning environments, as well as its integration with emerging frameworks such as education for

sustainable development and global competence. In particular, investigating how meaning-making and social embeddedness can be effectively supported in technologically rich but socially complex environments represents a promising direction for future inquiry.

In overall implications, this study redefines SEL as a central organizing dimension of the educational process, linking psychological development with academic outcomes and broader societal goals. By offering a comprehensive and integrative model, it contributes to the ongoing transformation of educational theory and practice toward more holistic, sustainable, and human-centered approaches.

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