

## SOCIAL-COGNITIVE PROCESSES UNDERLYING EMOTIONAL INTELLIGENCE IN COLLABORATIVE LEARNING ENVIRONMENTS

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*Emotional intelligence plays a central role in how individuals navigate the interpersonal, cognitive and affective demands of collaborative learning environments. Traditionally viewed as an individual trait, emotional intelligence is increasingly understood as socially distributed and dynamically constructed through group interactions. This paper synthesizes theoretical frameworks and empirical findings from emotional intelligence research, social-cognitive theory and developmental psychology to examine how emotional intelligence operates in collaborative contexts. Ability-based models and mixed models highlight competencies such as emotional perception, perspective-taking, emotion regulation, empathy and motivational orientation as essential for effective collaboration. Social-cognitive theory provides a lens to understand how interactions among personal, behavioral and environmental factors shape both individual and group-level emotional processes. Co-regulation and socially shared regulation are emphasized, showing that emotional intelligence emerges through continuous interaction and feedback. Cultural and developmental considerations illustrate how norms, display rules and motivational beliefs influence emotional expression and interpretation in group learning. The study also reviews intervention strategies, instructional practices and digital tools designed to enhance emotional intelligence, co-regulatory competence and collaborative functioning. Based on a theoretical analysis, comparative review and conceptual synthesis of empirical studies – including cross-sectional and longitudinal research – the paper presents a comprehensive framework connecting intrapersonal and interpersonal emotional processes in collaborative learning. The findings underscore the importance of cultivating both individual and collective emotional skills, integrating regulatory and motivational strategies and fostering culturally responsive engagement to maximize collaborative learning outcomes, academic achievement and socio-emotional development.*

*Key words: emotional intelligence, collaborative learning, social-cognitive processes, co-regulation, emotion regulation.*

### **Бігунов Д. О. Соціально-когнітивні основи емоційного інтелекту в коллаборативному навчанні**

*Емоційний інтелект відіграє ключову роль у тому, як особистість справляється з міжособистісними, когнітивними та афективними викликами в умовах колаборативного навчання (або навчання у співробітництві). Традиційно його розглядають як індивідуальну рису, однак сучасні дослідження підкреслюють його соціально розподілений та динамічно конструйований характер, що формується через взаємодію в групі. У статті здійснено синтез теоретичних підходів та емпіричних даних з досліджень емоційного інтелекту, соціально-когнітивної теорії та психології розвитку для аналізу функціонування емоційного інтелекту в колаборативному середовищі. Розглянуто моделі на основі здібностей та змішані моделі, що висвітлюють компетенції, як-от сприйняття емоцій, перспективне мислення, регуляція емоцій, емпатія та мотиваційна орієнтація, які є ключовими для ефективної співпраці. Соціально-когнітивна перспектива пояснює, як взаємодія між особистісними, поведінковими та середовищними чинниками формує емоційні процеси на індивідуальному та груповому рівнях. Підкреслюється значення співрегуляції та соціально спільної регуляції, демонструючи, що емоційний інтелект виникає через безперервну взаємодію та зворотний зв'язок. Культурні та розвіткові аспекти показують, як норми, правила вираження емоцій та мотиваційні переконання впливають на емоційну експресію та її інтерпретацію у колаборативному навчанні. Дослідження також розглядає освітні стратегії, цифрові інструменти та програми втручання, спрямовані на розвиток емоційного інтелекту, компетенцій зі співрегуляції та ефективної колаборативної взаємодії. На основі теоретичного аналізу, порівняльного огляду та концептуального синтезу емпіричних досліджень стаття пропонує комплексну структуру, що поєднує внутрішньоособистісні та міжособистісні*

*емоційні процеси. Результати підкреслюють важливість розвитку індивідуальних та колективних емоційних навичок, інтеграції регулятивних і мотиваційних стратегій, а також сприяння культурно чутливій взаємодії для максимізації результатів колаборативного навчання, академічних досягнень та соціально-емоційного розвитку.*

**Ключові слова:** емоційний інтелект, колаборативне навчання, соціально-когнітивні процеси, співрегуляція, регуляція емоцій.

**Introduction.** Collaborative learning has become a defining feature of contemporary education, reflecting socio-cultural theories that view knowledge construction as fundamentally social and relational. Whether in project-based learning, problem-based tasks or online teamwork, students must negotiate interpersonal tensions, interpret peers' intentions, and manage emotions that arise from interdependence. Emotional intelligence – initially conceptualized by Salovey and Mayer [14] as a set of abilities related to perceiving, understanding, and regulating emotions – has emerged as a key predictor of how effectively learners participate in group work [5].

However, traditional emotional intelligence research often frames the construct as an individual difference, overlooking its inherently social nature. Collaborative learning contexts reveal emotional intelligence as a dynamic, interactive and socially distributed process shaped by reciprocal influences between individuals, peers and the broader learning environment. This orientation aligns with Bandura's [1] social-cognitive theory, which emphasizes that cognition, emotions, behaviour and context continually influence one another.

Thus, the goal of this article is to articulate the social-cognitive mechanisms underlying emotional intelligence in collaborative learning environments and to unify diverse theoretical perspectives into a coherent framework.

**Research methods and techniques.** The research employs theoretical analysis, comparative review and conceptual synthesis of scholarly sources on emotional intelligence, social-cognitive processes and collaborative learning in emerging adulthood. Empirical studies, including cross-sectional and longitudinal research, were examined to identify patterns linking emotional intelligence, perspective-taking, emotion regulation and co-regulation with group performance, academic engagement and collaborative success. The method also includes systematization of intervention approaches, instructional

strategies and digital tools aimed at fostering emotional intelligence and socially shared regulation in collaborative contexts. By synthesizing theoretical and empirical evidence, the study develops a conceptual framework connecting individual and group-level emotional processes in collaborative learning environments.

**Results.** Salovey and Mayer [14] proposed that emotional intelligence consists of four inter-related abilities: perceiving emotions, using emotions to facilitate thinking, understanding emotions and regulating emotions. This ability-based perspective treats emotional intelligence as a cognitive system that processes emotional information. In this view, emotions act as data that individuals must accurately decode and integrate into reasoning, decision-making and interpersonal coordination. Goleman's [6] mixed model expanded emotional intelligence into broader domains – self-awareness, self-management, social awareness, and relationship management – emphasizing competencies relevant to social interaction and leadership. Although broader, this model reinforced the significance of emotional intelligence for collaboration, communication and interpersonal success. Together, these foundational models underscore that emotional intelligence is not merely an individual skill set but a set of capacities that become especially meaningful in social and collaborative environments.

Bandura [1] argued that human functioning is shaped by reciprocal determinism between personal, behavioural and environmental factors. Emotional experiences are therefore both individually regulated and socially formed. Concepts like self-efficacy, observational learning and self-regulation map directly onto core emotional intelligence processes: individuals learn emotional behaviors from others, interpret emotional cues through cognitive appraisal and regulate their affect according to contextual feedback. This social-cognitive lens links emotional intelligence to the dynamic interplay between

learners and their environments, suggesting that group settings provide powerful opportunities for modelling, reinforcement, and mutual regulation of emotional behavior. This theory provides a foundation for understanding emotional intelligence not merely as an internal ability but as a socially embedded cognitive skill.

Perceiving emotional cues accurately is central to emotional intelligence. Rosenthal's [15] extensive research on nonverbal communication demonstrates that individuals differ markedly in the ability to decode expressions, tone, gesture, and posture. Such sensitivity allows learners to identify peer frustration, confusion, or disengagement early, helping the group to intervene productively [4]. Accurate perception thereby becomes the first gateway to effective collaboration, shaping how group members respond, support one another and maintain a constructive emotional climate. In collaborative tasks, emotional perception supports: anticipation of needs, effective supportive behaviors and maintenance of group cohesion. Misreading cues, by contrast, can spark conflict or misalignment.

Perspective-taking – long studied by Hoffman [10] – enables individuals to infer others' internal states and understand emotional reactions within social contexts. Collaborative learning heavily relies on this capacity because group work requires integrating diverse viewpoints, managing disagreements, and coordinating meaningful communication [12]. Perspective-taking thus functions as a bridge between emotional understanding and cooperative behavior, allowing learners to transform emotional differences into opportunities for enhanced collective reasoning. Perspective-taking strengthens empathy, conflict-resolution ability, tolerance for differing opinions and openness to critique.

Gross's [7] process model of emotion regulation distinguishes between strategies such as cognitive reappraisal (changing one's interpretation) and expressive suppression (inhibiting emotional display). These strategies have distinct interpersonal consequences. Reappraisal promotes adaptive collaboration by reducing interpersonal hostility and increasing cooperative behaviors [8]. Suppression tends to diminish social authenticity and trust, constraining communication [16]. Within collaborative tasks, such regulatory choices

shape not only an individual's emotional experience but also the group's communicative openness, cohesion, and sense of psychological safety. Effective intra-individual regulation is therefore essential for maintaining healthy group dynamics.

Research in learning sciences – especially by Järvelä and Hadwin [11] – shows that self-regulation expands in group contexts into co-regulation (peers supporting one another's emotional and motivational states) and socially shared regulation (the group collectively managing goals, emotions, and strategies).

These processes are crucial in emotionally demanding tasks, as groups must collaboratively navigate frustration, confusion, and interpersonal disagreement [9]. Through these layered regulatory processes, emotional intelligence becomes distributed across the group, emerging from collective interaction rather than residing solely within individual members. Such processes illustrate that emotional intelligence in groups is distributed, not merely located within individuals.

Motivational beliefs shape emotional experiences. Dweck's [3] mindset theory shows that learners with growth mindsets respond to setbacks with resilience rather than self-blame allowing them to participate more constructively in group tasks. Similarly, Deci and Ryan's [2] self-determination theory highlights that autonomy, competence, and relatedness fuel intrinsic motivation and positive affect. When these needs are met in collaborative environments, learners show greater persistence and cooperative engagement. Motivation therefore operates as an emotional engine that drives the quality of students' participation, influencing how they interpret challenges and respond to peer feedback.

Markus and Kitayama [13] demonstrated that cultural variations influence emotional expression and interpretation. Collaborative groups often include members following different emotional display rules (e.g., restrained vs. overt expression). Thus, emotional intelligence requires cultural attunement, enabling learners to adjust communication strategies to diverse emotional norms. Cultural sensitivity not only reduces misunderstandings but also enhances group inclusivity, ensuring that emotional signals are interpreted within appropriate cultural frameworks and not misread as disengagement or disagreement.

Therefore, a synthesis of these perspectives suggests that emotional intelligence in collaborative learning emerges through three interacting levels, each shaping and reinforcing the others over time. They are: 1) intrapersonal processes, which include emotional perception, self-efficacy, cognitive appraisal, individual emotion regulation, and the motivational orientations that guide students' willingness to engage with challenges; 2) interpersonal processes, such as empathy and perspective-taking, social cue interpretation, conflict management, and co-regulation; and 3) group-level processes, which contain collective emotional norms, socially shared regulation, distributed monitoring of engagement, and shared goal alignment. Together, these layers form a mutually influencing system in which individual emotions shape group dynamics, and group norms, in turn, scaffold or constrain individual emotional functioning.

This multilevel view positions emotional intelligence as a dynamic, relational system shaped through continuous social interaction, consistent with social-cognitive theory. Rather than being a static personal trait, emotional intelligence becomes a situated competence that develops as learners observe, interpret, and model one another's emotional and regulatory strategies. Through repeated participation in group routines, students gradually internalize these strategies, reinforcing the social-cognitive cycle of modelling, feedback, and self-reflection.

Educators can design tasks that intentionally foster emotional intelligence by incorporating structured collaborative roles (e.g., emotion monitor, summarizer, mediator) that support emotional monitoring, structured reflection phases, guided journals on emotional challenges during teamwork, group contracts outlining norms, and explicit routines for collaborative problem-solving that encourage students to articulate not

only cognitive reasoning but also emotional reactions. These intentional structures help students become more aware of their own and others' emotions and develop skills for maintaining productive collaboration.

In online learning, reduced access to emotional cues necessitates platforms that support emotional expression (e.g., reactions, check-ins), guided prompts for reflection, emotion-sharing spaces such as mood meters or daily climate surveys, and tools that visualize group progress and engagement. Such digital scaffolds partially compensate for the absence of face-to-face cues, making emotional dynamics more visible and supporting synchronous and asynchronous co-regulation.

Teachers influence group emotional intelligence by modelling regulation strategies [1], reinforcing autonomy-supportive practices [2], cultivating growth mindsets [3], and establishing emotionally safe learning climates where mistakes are framed as opportunities for reflection rather than threats to competence. They also shape group processes by teaching empathy and conflict resolution explicitly, encouraging students to practice perspective-taking during disagreements and guiding them in transforming emotional friction into opportunities for deeper collaborative understanding.

**Conclusions.** Emotional intelligence in collaborative environments cannot be understood as an isolated personal attribute. Instead, it is a socially enacted, cognitively mediated, and dynamically co-regulated process. The social-cognitive lens reveals emotional intelligence as emerging from perception, interpretation, regulation, and shared group functioning. This perspective underscores the importance of designing learning experiences that foster not only individual emotional skills but also the collective regulatory mechanisms that sustain effective collaboration.

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