



Self-Regulated Learning in Mathematical Problem Solving: A Systematic Review of Metacognition, Motivation, Emotion, and Learning Strategies

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Abstract

Mathematical problem solving requires learners to coordinate cognitive, motivational, emotional, and strategic regulation, yet these components are often examined separately. This thematic systematic review aimed to characterize empirical research on self-regulated learning (SRL) in a mathematical problem solving (MPS), map four regulatory domains, and synthesize their interactions. Searches were conducted on 28–30 April 2026 in Scopus, ScienceDirect, SpringerLink, Taylor & Francis Online, and ERIC for English-language primary empirical journal articles published in 2018–2026. Reporting followed PRISMA 2020 and PRISMA-S, methodological quality was appraised using MMAT 2018, and findings were synthesized thematically. The review included 35 reports representing 35 study units; 34 substantive units contributed to domain-frequency analysis. Metacognition appeared in 32 units (94.1%), learning strategies in 31 (91.2%), motivation in 17 (50.0%), and emotion in nine (26.5%). The most consistent cross-domain pattern linked metacognitive monitoring and evaluation with strategy selection and revision, while motivation and emotion shaped engagement and adaptation. These findings support a conditional cyclical account of SRL in MPS and suggest that strategy instruction should be integrated with monitoring, motivational support, and affect regulation. Uneven domain coverage, methodological heterogeneity, and single-reviewer procedures limit certainty. Future process-sensitive, multi-method, and experimental research should especially clarify motivational and emotional mechanisms.

Keywords: self-regulated learning; mathematical problem solving; metacognition; motivation; learning strategies

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INTRODUCTION

Mathematical problem solving requires learners to interpret situations, construct representations, select and adapt strategies, monitor progress, and evaluate solutions, particularly when non-routine tasks make an initial approach insufficient (Herold-Blasius, 2025; Verschaffel et al., 2020). Planning, execution, and revision are associated with problem-solving performance (García et al., 2019). Self-regulated learning (SRL) conceptualizes such activity as a cyclical process of forethought, performance/control, and reflection that coordinates cognition, motivation, and affect, and strategy use (Panadero, 2017; Pintrich, 2004; Zimmerman, 2008).

This review organizes SRL in mathematical problem solving through four theory-informed and empirically refined domains. Metacognition covers planning, monitoring, calibration, evaluation, and reflection; motivation includes self-efficacy, task value,

perceived control, volition, and persistence; emotion includes confusion, frustration, anxiety, enjoyment, and emotion regulation; and learning strategies include heuristics, self-instruction, help-seeking, task selection, and strategy revision (Efklides, 2011; Pintrich, 2004). The domains are analytically distinct but interacting: emotion can redirect monitoring and strategy use, while reappraisal can support re-engagement during difficult problem solving (Di Leo et al., 2019; Losenno et al., 2020).

Existing syntheses provide related but different perspectives: Y. Wang & Sperling (2020) focused on SRL interventions in mathematics classrooms, Noor et al. (2025) reviewed the role and approaches of self-regulation in mathematical problem solving, and Panadero (2017) compared broader SRL models. They do not fully explain how the four regulatory domains interact across the direct empirical SRL-MPS literature or how methodological quality affects confidence in those patterns. Recent process-sensitive, intervention, data-mining, and structural-modeling studies make this integration timely. The present review therefore combines domain mapping, quality appraisal, report-to-study linkage, and cross-domain analysis rather than frequency counting alone.

The review aimed to (1) describe the characteristics of empirical SRL-MPS studies, (2) determine how the four domains are represented, and (3) explain how they interact while considering methodological quality and limitations. Accordingly, it asked: (RQ1) What are the characteristics of empirical studies examining SRL or self-regulation in mathematical problem solving? (RQ2) How are metacognition, motivation, emotion, and learning strategies represented? And (RQ3) How do these domains interact and collectively explain SRL during mathematical problem solving?

METHODS

Review design and reporting framework

This thematic systematic review synthesized primary empirical SRL-MPS evidence. PRISMA 2020 and PRISMA-S were used as reporting guidelines for study selection and search reporting, respectively; methodological quality was appraised separately from eligibility (Page et al., 2021; Rethlefsen et al., 2021).

Information sources and search strategy

Searches were conducted on 28-30 April 2026 in Scopus, ScienceDirect, SpringerLink, Taylor & Francis Online, and ERIC. The publication-year range was 2018–2026; the final search was completed on 30 April 2026. The core query combined explicit SRL/self-regulation terminology with mathematical problem solving and was adapted to each interface (Table 1); component terms were reserved for synthesis to preserve construct specificity. Full source-specific syntax, filters, and the search-record reconciliation note are provided in Supplementary Table S1.

Table 1. Database/platform-specific search strategy

Source	Search implementation	Publication/type handling
Scopus (35)	Document search: TITLE-ABS-KEY	TITLE-ABS-KEY(Q); Article; 2018-2026
ScienceDirect (119)	Find article with these terms	Q; Research articles; 2018-2026
Springer Nature Link (185)	General Search	Q; Article; 2018-2026

Source	Search implementation	Publication/type handling
Taylor & Francis Online (119)	Anywhere/All fields	Q; Research Article; 2018-2026
ERIC (15)	General Collection	Q; Journal Articles; 2018-2026

Note. Q = ("self-regulated learning" OR "self-regulation") AND ("mathematical problem solving" OR "mathematics problem solving" OR "mathematical problem-solving").

Eligibility criteria

Eligible reports were English-language primary empirical journal articles in which SRL/self-regulation was explicitly studied, measured, taught, coded, or analyzed in relation to mathematical problem solving. Word, non-routine, and well-defined mathematical tasks qualified when authors framed them as problem solving (Table 2).

Table 2. Inclusion and exclusion criteria

Criterion	Operational rule
Publication period	2018–2026; final search: 30 April 2026.
Language	Full report written in English
Publication type	Primary empirical journal article.
SRL focus	Explicit self-regulated learning/self-regulation, or a regulatory process explicitly situated within an SRL/self-regulation framework.
MPS focus	Explicit mathematical problem solving, including word/non-routine/well-defined mathematical tasks when framed by the authors as problem solving.
Direct intersection	SRL/self-regulation studied, measured, taught, coded, or analyzed in relation to mathematical problem solving; parallel independent outcomes alone were insufficient.
Population	Educational populations were eligible across school, higher education, preservice/teacher education, gifted, low-achieving, and special-needs contexts.
Exclusion	Outside 2018–2026; non-English; duplicate; SRL/self-regulation not focal; mathematical problem solving not focal; no direct SRL-MPS link; non-empirical/practice/review article.

Study selection and full-text assessment

The verified search-date-compatible audit set contained 473 records entering deduplication. Normalized DOI/title metadata removed 25 duplicates, leaving 448 unique records for screening. The first author classified titles/abstracts as include, exclude, or unclear; unclear records advanced to full text. Of 63 reports sought, eight were not retrieved, and 55 were assessed. Twenty were excluded because SRL/self-regulation was not focal ($n = 13$), MPS was not focal ($n = 3$), no direct SRL-MPS link was established ($n = 3$), or the article was non-empirical/practice-oriented ($n = 1$), leaving 35 reports (Figure 1).

The first author conducted selection, extraction, coding, and quality appraisal using predefined rules and standardized master tables. No second independent reviewer was available; therefore, inter-reviewer agreement was not calculated, and no formal disagreement-resolution procedure was used. This single-reviewer process is acknowledged as a limitation.

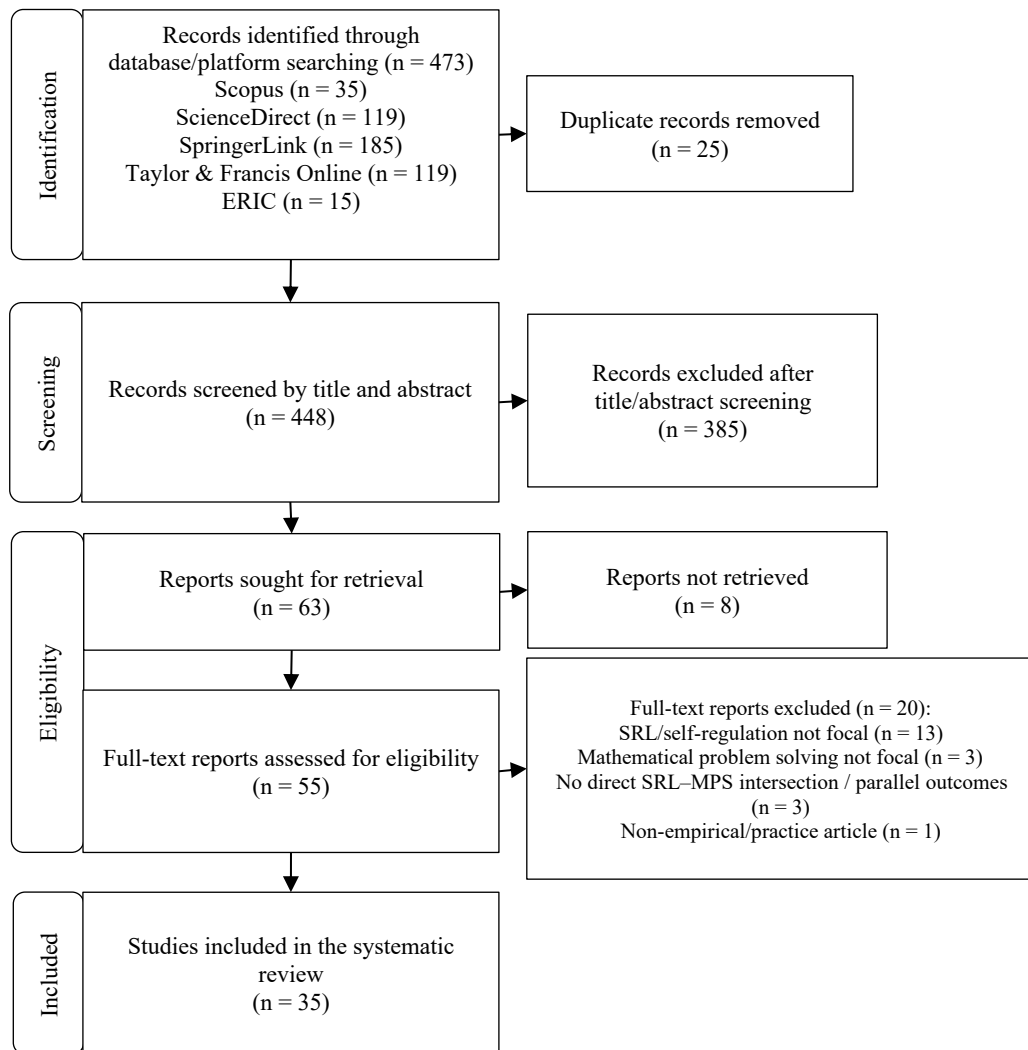


Figure 1. PRISMA 2020 flow diagram of the study-selection process

Data extraction and report-to-study linkage

Extraction covered author/year, participants and educational level, design, mathematical context, SRL process, measures, major findings, domain coding, and quality notes. We linked reports from one cohort to one study unit, split distinct samples within a report, and retained probable but unconfirmed overlaps separately and flagged them for sensitivity; 35 reports therefore represented 35 study units.

Methodological quality appraisal

Methodological quality was appraised with MMAT 2018 using its two screening questions and five design-specific criteria (Yes/No/Can't tell); mixed-methods components were considered before judging integration (Hong et al., 2018). No aggregate quality score was calculated, and distinct studies within one report were appraised separately.

The psychometric adaptation/validation report was additionally examined descriptively for reported measurement properties and interpreted separately from substantive domain frequencies; this was not a formal COSMIN appraisal.

Four-domain coding and integrated thematic synthesis

The first author generated descriptive subcodes from constructs and findings that were measured, manipulated, coded, or substantively analyzed, then mapped them to four theory-informed domains (Efklides, 2011; Panadero, 2017; Pintrich, 2004). Metacognition covered planning, monitoring/calibration, metacognitive awareness/self-assessment, evaluation, and reflection; motivation covered self-efficacy, task value, perceived control/cost, volition, persistence/perseverance, resilience, and productive struggle when treated as motivational/volitional regulation; emotion covered affective states/regulation; and learning strategies covered heuristics, self-instruction, help-seeking, task selection, and revision. Theoretical mentions alone did not qualify, and boundary cases were rechecked. The framework was theory-informed and empirically refined rather than independently validated. With no second coder, consistency relied on predefined rules, master tables, and an audit trail. Excluding the measurement-development study left 34 substantive units.

Cross-domain synthesis counted only explicit statistical, experimental, temporal, or qualitative process links rather than simple co-occurrence; methodological quality and boundary cases informed interpretation.

RESULTS & DISCUSSION

Result

Study Selection

The final sample comprised 35 reports and 35 study units. Two Landa reports from the same N=402 cohort were linked as one unit; Di Leo et al. (2019) contributed two units from distinct samples; and (G. L. Callan & Cleary, 2018, 2019) were retained separately because overlap was unconfirmed (Figure 1).

RQ1: Characteristics of the Included Studies

The evidence spanned primary/elementary through higher education and included gifted, low-achieving, preservice, and special-needs populations. Designs ranged from qualitative and correlational studies to interventions, mixed methods, educational data mining, and psychometric validation across diverse mathematical problem-solving contexts (Table 3).

Table 3. Characteristics of the included study units

Study / participants / level / design / MPS context / domain	Major finding
Tachie (2019); N=4; school, grade NR; qualitative case; school MPS; MC, LS	Planning, monitoring, and reflection supported MPS.
Landa et al. (2024, 2025); N=402; preservice teachers; profiles + SEM; MPS; MC, MOT, LS	SRL profiles and self-efficacy were linked to MPS regulation.
Yazgan-Sağ & Argün (2024); N=3; gifted Grade 10; qualitative multiple case; non-routine MPS; MC, LS	Learners shifted adaptively between self-control and self-monitoring.

Study / participants / level / design / MPS context / domain	Major finding
Herold-Blasius (2025); N=16; Grades 3-4; qualitative process; non-routine MPS; MC, LS	Strategy keys supported heuristic regulation.
Di Leo et al. (2019), Study 1; N=138; Grades 5-6; quantitative correlational; complex MPS; MC, MOT, EM, LS	Emotions and regulatory strategies were linked during MPS.
Di Leo et al. (2019), Study 2; N=79; Grade 5; process-transition analysis; complex MPS; MC, EM, LS	Emotion transitions accompanied changes in regulation.
Ojell et al. (2023); N=15; Grade 4; qualitative microanalysis; classroom MPS; MC, LS	Mindfulness sessions were associated with greater task engagement.
Losenno et al. (2020); N=134; Grades 3-6; mixed methods; complex MPS; MC, EM, LS	Reappraisal supported re-engagement, but not always accurate regulation.
Landa et al. (2025b); N=117; preservice teachers; non-randomized pre-post; cooperative MPS; MC, MOT, LS	Cooperative learning improved MPS-specific self-regulation.
Kholid & Naufan (2025); N=20; level NR; qualitative descriptive; purpose-built MPS; MC, MOT, LS	Three SRL profiles were identified.
Pertiwi et al. (2021); N=45; junior high; controlled pre-post; geometry MPS; MOT	Intervention improved MPS and overall SRL.
Zhang et al. (2022); N=79; Grades 6-7; educational data mining; digital MPS; MC, LS	Machine learning detected SMART/SRL operations in digital traces.
Hanin & Van Nieuwenhoven (2020); N=22; upper elementary; qualitative comparative; word problems; MC, MOT, EM, LS	Stronger solvers showed more adaptive regulatory behavior.
Karabulut & Özmen (2018); N=3; mild ID; single-case; word problems; MC, LS	Strategy instruction improved MPS and strategy control.
Řičan et al. (2022); N=1,133; Grade 5; quantitative comparative/correlational; MPS; MC, MOT	SRL aspects varied by curriculum and related to achievement.
J. Wang & Guo (2026); N=1,183; high school; PLS-SEM; MPS performance; MC, MOT, LS	Motivation and self-regulation predicted MPS.
Gurat (2018); N=23; student teachers; mixed descriptive; MPS tasks; MC, LS	Heuristic and metacognitive regulation characterized stronger solutions.
Landa et al. (2024a); N=269; preservice teachers; psychometric validation; MPS-specific SRL scale; MEAS	The scale showed a seven-factor structure and good internal consistency.
Di Leo & Muis (2020); N=57; Grade 5; randomized mixed-methods intervention; complex MPS; MC, MOT, EM, LS	CEST improved strategy use and confusion regulation.
G. L. Callan & Cleary (2018); N=100; Grade 8; predictive/correlational; multi-step word problems; MC, MOT, LS	Task-specific SRL measures predicted MPS performance.
G. L. Callan & Cleary (2019); N=96; Grade 8; cyclical predictive; word problems; MC, MOT, LS	SRL phases showed cyclical links with performance.
Gidalevich & Kramarski (2019); N=134; Grade 4; quasi-experimental; scaffolded MPS; MC, MOT, LS	Faded scaffolds produced stronger long-term regulatory gains.
Trias et al. (2021); N=69; low-achieving Grade 6; quasi-experimental; MPS intervention; MC, MOT, EM, LS	Metacognitive and volitional support produced lasting MPS gains.
Kohatsu et al. (2026); N=168; university; intervention; complex statistics MPS; MC, MOT, EM, LS	Effects on regulation and problem solving were largely null.
Söderström (2024); N=14 analyzed; undergraduate; qualitative process; novel MPS + feedback; MC, LS	Feedback supported impasse diagnosis and strategy revision.

Study / participants / level / design / MPS context / domain	Major finding
van Harsel et al. (2022); N=147; higher education; descriptive-correlational; integration problems; MC, MOT, LS	Task selection became more adaptive but was unrelated to outcomes.
Nelson & Fyfe (2019); N=52; elementary; quantitative process; equivalence problems; MC, LS	Monitoring was often overconfident; help-seeking was more strategic.
García et al. (2019); N=524; Grades 5-6; quantitative process; MPS; MC, LS	Planning before execution and later revision related to performance.
Adawiya & Csikos (2026); N=1,084; Grade 11; CB-SEM; MPS performance; MC, EM	Planning predicted MPS; emotion-related paths were differentiated.
Oudman et al. (2024); N=564; ages 9-10; repeated-measures/multilevel; arithmetic MPS; MC, LS	Students showed limited awareness of monitoring/regulation accuracy.
G. Callan et al. (2025); N=1; college student with mathematics LD; mixed single-case; word problems; MC, MOT, LS	Planning, reflection, and self-efficacy improved most clearly.
Callaman & Tagaytay (2025); N=13; senior high; qualitative multiple-case; challenging MPS; MOT, EM, LS	Resilience accompanied persistence, emotion regulation, and adaptation.
Karabulut et al. (2021); N=3; students with ID; single-case; change word problems; MC, LS	READER/SRSD improved performance, maintenance, and generalization.
Torregrosa & Albarracín (2026); N=76; Grade 6; repeated classroom/process study; pattern problems; MC, LS	N-LOB use elicited increasingly explicit metacognitive regulation.
Coşar & Keşan (2021); N=1; gifted Grade 8; qualitative case; open-ended MPS; MC, LS	Metacognitive regulation supported monitoring and solution revision.

Note. MC = metacognition; MOT = motivation; EM = emotion; LS = learning strategies; MEAS = measurement development; NR = not reported. The Landa reports sharing N = 402 were treated as one unit; Di Leo et al. (2019) contributed two units; Callan and Cleary (2018, 2019) were retained separately because overlap was unconfirmed.

Methodological Quality Appraisal

MMAT appraisal covered 36 appraisal units across 35 reports because distinct studies within a single report were appraised separately, while reports originating from the same cohort were retained as separate methodological appraisal units. Across 252 screening and design-specific judgements, 201 were Yes, 14 No, and 37 Can't tell; these counts were descriptive and were not converted into an overall quality score. Table 4 summarizes the design distribution and recurring concerns. No study was excluded solely because of quality appraisal.

Table 4. Summary of methodological quality appraisal

Design category (n)	Main recurring concern
Qualitative (n=11)	Small/context-specific samples limited transferability.
Quantitative descriptive (n=15)	Representativeness, nonresponse, and selected measurement/analytic issues.
Quantitative non-randomized (n=5)	Confounding, allocation, participant flow, and fidelity reporting.
Quantitative randomized (n=2)	Sequence generation/blinding or outcome-denominator details were sometimes unclear.
Mixed methods (n=3)	Component-level sampling/randomization or single-case inference concerns.

Design category (n)	Main recurring concern
Total (n=36)	Criterion-level judgments: 201 Yes, 14 No, and 37 Can't tell; these counts are descriptive and not an overall quality score.

The MPS-specific SRL scale validation was retained as methodological evidence but excluded from substantive domain frequencies; it supported a seven-factor structure and internal consistency, while several other measurement properties were not evaluated.

RQ2: Representation of the Four SRL Domains

Four-domain coding was based on strict empirical operationalization: a domain was counted only when it was measured, manipulated, coded, or substantively analyzed in the study data, rather than merely mentioned in the theoretical background. After the measurement-development study was set aside from substantive frequency counting, 34 study units remained. Because domains were not mutually exclusive, a single study unit could contribute to more than one domain.

Metacognition was represented in 32 of 34 substantive study units (94.1%), followed by learning strategies in 31 (91.2%), motivation in 17 (50.0%), and emotion in 9 (26.5%). Thus, the evidence base was strongly concentrated on cognitive regulation and strategic action, whereas explicitly motivational and especially emotional processes were examined less frequently.

Metacognitive evidence emphasized planning, monitoring, calibration, evaluation, and reflection, particularly in relation to learners' evaluation of progress and decisions to maintain or revise solution paths (García et al., 2019; Nelson & Fyfe, 2019; Oudman et al., 2024; Söderström, 2024). Learning strategies included heuristic selection, self-instruction, help-seeking, task selection, and strategy revision, with evidence suggesting that strategy use was most meaningful when connected to monitoring and adaptive adjustment (Gidalevich & Kramarski, 2019; Herold-Blasius, 2025; Karabulut et al., 2021; Karabulut & Özmen, 2018; Torregrosa & Albarracín, 2026).

Motivational evidence centered on self-efficacy, task value, perceived control/cost, volition, persistence/perseverance, and resilience, which supported the initiation and maintenance of regulatory activity (G. Callan et al., 2025; Landa et al., 2025a; Trias et al., 2021; J. Wang & Guo, 2026). Emotion was the least frequently examined domain and included confusion, frustration, anxiety, boredom, enjoyment, cognitive reappraisal, and emotion regulation. Negative emotion did not function uniformly as a barrier: unresolved confusion or frustration could interrupt regulation, whereas successful reappraisal or resolution could support re-engagement and productive strategy use (Di Leo et al., 2019; Di Leo & Muis, 2020; Losenno et al., 2020).

RQ3: Integrated Cross-Domain Synthesis

Cross-domain synthesis counted only explicit linked-process evidence. The most consistent pattern linked metacognitive monitoring/evaluation with strategy selection, execution, help-seeking, and revision. Other evidence connected motivation with metacognitive control and strategy use, emotion with monitoring and strategy adaptation, and motivation with emotion. Because designs and operationalizations differed, Table 5 synthesizes interaction patterns without treating them as commensurable frequency estimates.

Table 5. Cross-domain interactions in the substantive evidence

Interaction	Integrated pattern
Metacognition-Learning strategies	Planning/monitoring/evaluation guided strategy selection, execution, help-seeking, and revision; strategy outcomes fed back into monitoring.
Metacognition-Motivation	Self-efficacy, task value/control, and volition accompanied or supported planning, monitoring, and broader regulation.
Motivation-Learning strategies	Self-efficacy, volition, and persistence supported sustained strategy use, task selection, and adaptation.
Metacognition-Emotion	Monitoring/evaluation altered emotional experience, while confusion/anxiety could facilitate or disrupt monitoring and reflection.
Emotion-Learning strategies	Confusion, frustration, anxiety, and enjoyment influenced which strategies were selected or sustained; successful regulation could restore productive strategy use.
Motivation-Emotion	Task value/control, persistence, and resilience shaped emotional responses, while emotions could sustain or weaken effort.

The metacognition-strategy link formed a feedback loop: monitoring guided strategy use, while errors and outcomes prompted evaluation and revision. Motivation and emotion shaped persistence and redirection; control-value antecedents and reappraisal were linked to later cognitive/metacognitive activity (Di Leo et al., 2019; Losenno et al., 2020).

Regulation was not uniformly successful: monitoring could be inaccurate, emotion regulation did not always resolve negative affect or support effective SRL, and Kohatsu et al. (2026) reported largely null intervention effects.

Overall, the most consistent pattern was a metacognition-strategy feedback loop: monitoring guided strategic action, while outcomes triggered evaluation and revision. Motivation and emotion operated more conditionally by shaping whether regulation was initiated, sustained, or redirected. Because monitoring could be inaccurate and intervention effects were heterogeneous, the evidence supports a conditional cyclical framework rather than the assumption that more self-regulation necessarily improves problem solving.

Discussion

The synthesis positions SRL in mathematical problem solving as a coordinated regulatory system. The most consistent cross-domain pattern linked metacognition and learning strategies: monitoring guided strategic action, while outcomes fed back into evaluation and revision. This pattern is consistent with cyclical SRL models (Panadero, 2017; Pintrich, 2004) and complements prior reviews of SRL in mathematics (Noor et al., 2025; Y. Wang & Sperling, 2020).

Metacognition was consistently linked to strategy enactment through planning, monitoring, help-seeking, and revision (García et al., 2019; Gidalevich & Kramarski, 2019; Herold-Blasius, 2025; Nelson & Fyfe, 2019). Motivational evidence involving self-efficacy, volition, persistence, and resilience was associated with learners' engagement and sustained regulation (Callaman & Tagaytay, 2025; G. Callan et al., 2025; Landa et al., 2025a; Trias et al., 2021; J. Wang & Guo, 2026). Emotion-related evidence showed that confusion, frustration, anxiety, and emotion regulation could either disrupt or support regulatory activity depending on how successfully these experiences were managed (Di Leo et al., 2019; Di Leo & Muis, 2020; Losenno et al., 2020).

Critical synthesis also revealed that regulation was not uniformly effective. Monitoring could be inaccurate even when subsequent help-seeking was relatively strategic (Nelson & Fyfe, 2019), and emotion regulation did not always resolve negative affect or lead to effective SRL (Losenno et al., 2020). Intervention findings were also heterogeneous,

indicating that the effectiveness of SRL may depend on monitoring accuracy, strategy appropriateness, task demands, and motivational-emotional conditions.

Contributions and implications. The review proposes a conditional cyclical framework in which motivation and emotion shape engagement, metacognition provides regulatory control, strategies enact regulation, and outcomes feed back into monitoring and evaluation. For practice, mathematical problem-solving instruction may benefit from integrating planning, monitoring, adaptive strategy use, strategic help-seeking, persistence, motivational support, and affect regulation rather than teaching problem-solving strategies in isolation.

Research limitations. Evidence was limited to English-language journal articles retrieved from five sources; eight reports were not retrieved; selection, coding, and methodological appraisal were conducted by a single reviewer; and replacement exports were used to reconstruct the audit trail. In addition, domain frequencies indicate patterns of research attention rather than effect magnitude or causal strength. The proposed framework should therefore be interpreted as a synthesis-level model rather than an established causal pathway.

Future research directions. Future studies should employ task-specific, process-sensitive, and multi-method measures and test the proposed regulatory cycle longitudinally and experimentally. Greater attention is particularly needed to motivational and emotional processes, which were substantially less represented than metacognition and learning strategies.

CONCLUSION

RQ1 showed that the 35 included reports spanned diverse populations, designs, and MPS contexts. For RQ2, metacognition (32/34; 94.1%) and learning strategies (31/34; 91.2%) predominated, while motivation (17/34; 50.0%) and emotion (9/34; 26.5%) were less examined. For RQ3, the most consistent cross-domain pattern linked metacognitive monitoring/evaluation with strategy selection and revision within a broader cycle of engagement, monitoring, strategy enactment, and evaluation. The review therefore offers an integrated, conditional account of SRL in MPS and supports coordinating strategy use with monitoring, motivation, and affect regulation. The framework requires direct testing because evidence quality varied and motivational-emotional research was limited.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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