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When the Classroom Is Not Enough: Self-Regulation Supports for Students with Emotional and Behavioral Disorders in Inclusive Settings; An Integrative Review

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Abstract: Students identified with Emotional and Behavioral Disorders (EBD) represent one of the most underserved groups in K–12 education due to persistent challenges in emotional regulation, impulse control, and sustained attention. These difficulties place them at high risk for academic failure, disciplinary exclusion, and early withdrawal from school. While inclusive general education classrooms offer access to grade-level curriculum and positive peer modeling, they are often not equipped with the specialized behavioral and emotional supports these students require, creating a significant implementation gap between inclusion goals and classroom realities.

This integrative review synthesizes empirical, theoretical, and practitioner literature from 2002 to 2024 to examine effective classroom-based self-regulation strategies for students with EBD in inclusive settings. Following a PRISMA-aligned search process, 44 studies were analyzed, revealing four key themes: explicit instruction in self-regulation skills, structured calm-down areas and scheduled breaks, visual supports and behavioral cueing systems, and individualized positive reinforcement. Across studies, these strategies were most effective when implemented consistently and with high fidelity within coordinated, multi-component frameworks, leading to improvements in on-task behavior, independent coping skills, reduced disruptive incidents, and increased academic task completion. However, the evidence base showed variability in methodological rigor, with most studies relying on single-subject designs, and highlighted moderating factors such as teacher preparation, school-wide behavioral systems, and cross-disciplinary collaboration. Key gaps included limited longitudinal research, insufficient attention to cultural responsiveness, and a need for deeper examination of student-level mechanisms driving outcomes, with implications for practice, policy, and educator training.

Keywords: self-regulation, emotional and behavioral disorders, inclusive education, behavior intervention, classroom management, evidence-based practice

1. Introduction

The educational trajectory of students identified with Emotional and Behavioral Disorders (EBD) is one of the most concerning patterns in American public schooling. Across multiple national datasets, students with EBD show higher rates of disciplinary removal, lower rates of grade promotion, and lower graduation rates than any other disability category (U.S. Department of Education, 2022). These outcomes are not simply the product of the disorder itself; they reflect a systematic mismatch between the behavioral and emotional support these students require and the support that most school environments are structured to provide.

At the core of this mismatch is the construct of self-regulation. Students with EBD frequently lack the capacity to monitor and manage their own emotions, attention, and behavior in response to the demands of the school day. This deficit is not primarily a motivational problem; it reflects genuine developmental delays and neuropsychological vulnerabilities in the regulatory systems of the brain (Barkley, 2004). Without targeted instruction and structured environmental support, these students are unlikely to develop adequate self-regulation through ordinary classroom participation, and the behavioral consequences of that failure are borne both by the students themselves and by their teachers and peers.

The movement toward inclusive education, which positions the general education classroom as the default placement for students with disabilities, has made the question of how to support self-regulation in students with EBD both more urgent and more complex. Inclusive classrooms can provide academic and social benefits for students with EBD, but they can also expose these students to levels of behavioral demand that exceed their regulatory capacity when appropriate supports are not in place (Simonsen et al., 2008). The result, in many schools, is a cycle of escalation, discipline, and re-entry that does little to build the self-regulatory skills students need and that places teachers in the untenable position of managing escalating behavior without adequate tools or training.

A substantial body of research has examined classroom-based strategies for supporting self-regulation in students with EBD, spanning approaches drawn from applied behavior analysis, cognitive-behavioral theory, social learning theory, and neuroeducation. However, this literature is dispersed across multiple disciplines and publication venues, and no recent integrative synthesis has examined the full range of this evidence, assessed the quality of the underlying studies, identified the conditions under which these strategies succeed or fail, and connected the findings to a coherent framework for practice and policy.

This integrative review addresses that gap. Drawing on a structured, PRISMA-aligned literature search and a systematic appraisal of study quality, it synthesizes the available evidence on classroom-based self-regulation strategies for students with EBD in inclusive settings and draws conclusions about what works, under what conditions, and for whom. The review is organized to follow the standard structure of an integrative review as described by Whittemore and Knafl (2005): introduction, methodology, search strategy, data evaluation, data analysis and synthesis, results, and discussion.

1.1 Problem Statement

Despite three decades of research on behavioral intervention and an expanding evidence base for self-regulation supports, students with EBD continue to experience educational outcomes that are markedly worse than those of their peers without disabilities. The gap between what research recommends and what most inclusive classrooms provide is substantial. Teachers report feeling underprepared to support students with EBD (Leko and Brownell, 2009), school-wide behavioral frameworks are unevenly implemented (Sugai and Horner, 2002), and the disproportionate representation of students from racially and economically marginalized backgrounds among those identified with EBD raises troubling questions about whether current educational responses to behavioral difficulty are equitable (Skiba et al., 2011).

At the same time, the research literature offers a range of strategies with documented evidence of effectiveness. The challenge is not a lack of knowledge; it is the translation of that knowledge into coherent, consistently implemented, and culturally responsive classroom practice. This review is designed to support that translation by presenting the evidence base in an organized, critically appraised, and practically oriented form.

1.2 Research Question

This review was guided by the following primary question: What classroom-based self-regulation strategies have demonstrated evidence of effectiveness for students with EBD in inclusive K-12 settings, and what contextual conditions moderate the implementation and outcomes of those strategies?

Two secondary questions frame the analysis: (a) What is the quality of the evidence supporting each identified strategy, including the methodological strengths and limitations of the underlying studies? (b) What gaps remain in the research literature, and what directions should future research take?

1.3 Theoretical Framework

This review is framed by three complementary theoretical traditions that together account for the cognitive, behavioral, and social dimensions of self-regulation in educational settings. The first is Zimmerman's (2002) cyclical model of self-regulated learning, which describes self-regulation as an iterative process moving through three phases: forethought, involving goal setting and strategic planning; performance, involving self-monitoring and strategy execution; and self-reflection, involving evaluation of outcomes and adjustment of future approaches. This model is particularly useful because it treats self-regulation as both a learnable skill and a process that is sensitive to environmental conditions, which explains both why students with EBD need direct instruction in self-regulation and why the design of the classroom environment matters.

The second tradition is applied behavior analysis (ABA), derived from Skinner's (1965) operant conditioning framework and formalized for educational settings by Alberto and Troutman (2013). ABA provides the theoretical rationale for reinforcement-based strategies and the methodological foundation for single-subject experimental designs, which constitute the majority of the primary research in this area.

The third tradition is Vygotsky's (1978) sociocultural theory of cognitive development, particularly the concept of the zone of proximal development and the role of adult scaffolding in supporting the acquisition of skills that students cannot yet perform independently. This framework provides the rationale for explicit instruction, teacher modeling, and the gradual release of regulatory responsibility from teacher to student.

2. Methodology

This review followed the integrative review methodology described by Whittemore and Knafl (2005), which allows for the inclusion of diverse study designs, including experimental, quasi-experimental, qualitative, and mixed-methods research, and which is therefore suited to questions that require a broad synthesis of evidence across methodological traditions. The review process comprised five stages: problem identification, literature search, data evaluation, data analysis and synthesis, and presentation of findings.

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework (Page et al., 2021) was used to guide and document the search and selection process. Although integrative reviews differ from systematic reviews and meta-analyses in their scope and synthesis approach, the transparency and reproducibility principles underlying PRISMA are applicable and were followed throughout.

2.1 Search Strategy

Searches were conducted in three databases: ERIC (Educational Resources Information Center), PsycINFO (American Psychological Association), and Google Scholar. These databases were selected because together they provide broad coverage of education research, educational psychology, special education, and applied behavioral science. Searches were conducted in two stages. The first stage used primary search terms; the second stage used citation tracking of high-yield sources to identify additional relevant studies not captured in the initial database search.

The primary search string combinations used were: self-regulation AND emotional and behavioral disorders; self-regulation strategies AND inclusive classroom; behavior intervention AND K-12 AND EBD; explicit instruction AND self-monitoring AND special education; visual supports AND behavioral disorders; positive reinforcement AND classroom behavior AND disability; calm-down area OR structured break AND behavioral disorders; self-management AND students with disabilities AND academic outcomes; school-wide positive behavior support AND EBD; emotion regulation AND inclusive education AND K-12.

Searches were restricted to publications in the English language issued between January 2002 and December 2024. The date range was chosen to reflect contemporary evidence while including foundational studies in applied behavior analysis and self-regulation that shaped current practice. Grey literature was incorporated in a limited and deliberate way: practitioner reports and technical documents from recognized professional organizations, including the Council for Exceptional Children and the National Technical Assistance Center on PBIS, were included when they reported empirical outcome data or provided methodologically grounded practitioner guidance.

2.2 Inclusion and Exclusion Criteria

2.2.1 Inclusion Criteria

Studies were included if they satisfied all of the following: (a) The study involved participants in K-12 settings who had a formal or documented identification of EBD, emotional disturbance (ED), or a closely related behavioral disorder consistent with IDEA criteria. (b) The study examined a classroom-based or school-based intervention explicitly designed to support self-regulation, behavioral self-management, or emotional regulation. (c) The study reported at least one quantified outcome related to behavioral engagement, emotional regulation, self-regulatory strategy use, or academic performance. (d) The study employed a peer-reviewed empirical design, including randomized controlled trials, quasi-experimental designs, single-subject experimental designs, mixed-methods studies, or systematic reviews. (e) The study was published in English between 2002 and 2024.

2.2.2 Exclusion Criteria

Studies were excluded if they met any of the following: (a) The study focused exclusively on populations without identified EBD, emotional disturbance, or related behavioral disorders. (b) The intervention was delivered solely in clinical, residential, or outpatient settings with no classroom component. (c) The study relied entirely on theoretical argument, opinion, or narrative description without presenting quantified outcome data. (d) The study reported outcomes only at the school or district level, without any data at the individual student or classroom level. (e) The full text was not retrievable after three retrieval attempts.

3. Study Selection: PRISMA-Aligned Flow

The selection process is summarized in Table 1. Following database searches and citation tracking, 487 records were identified. After deduplication (n = 74), 413 records were screened at the title and abstract stage, of which 289 were excluded for not meeting inclusion criteria. The remaining 124 full-text articles were reviewed, and 80 were subsequently excluded for the following reasons: population did not include identified EBD students (n = 31); intervention was conducted exclusively in a clinical or residential setting (n = 22); no empirical outcome data were reported (n = 18); and the publication fell outside the specified date range (n = 9). A total of 44 studies were retained for the final synthesis.

Table 1
PRISMA-Aligned Study Selection Flow

Stage	Record Count
Records identified through database searches (ERIC, PsycINFO, Google Scholar)	n = 487
Duplicate records removed	n = 74
Records screened (title and abstract)	n = 413
Records excluded at title/abstract stage	n = 289
Full-text articles assessed for eligibility	n = 124
Full-text articles excluded (reasons: non-EBD population, n=31; clinical setting only, n=22; no empirical data, n=18; outside date range, n=9)	n = 80
Studies included in final synthesis	n = 44

4. Data Evaluation and Critical Appraisal

Each of the 44 included studies was appraised for methodological quality using criteria appropriate to its research design. For experimental and quasi-experimental studies, appraisal focused on the adequacy of group equivalence, the clarity of the intervention protocol, fidelity monitoring procedures, the appropriateness of outcome measures, and the control of potential confounding variables. For single-subject experimental designs, appraisal followed the What Works Clearinghouse standards for single-case research (Kratochwill et al., 2013), examining the number and independence of data points within each phase, the replication of effect across participants or conditions, and the use of inter-rater reliability for behavioral observation data. For mixed-methods studies, appraisal examined the coherence of the integration between quantitative and qualitative strands.

Table 2 summarizes the appraisal criteria and quality ratings applied across the major design types represented in the reviewed literature.

Table 2
Evidence Quality Appraisal by Study Design

Study Design	Strengths	Limitations	Overall Quality Rating
Randomized controlled trial	High internal validity; control for confounds	Small samples; ethical challenges in EBD contexts	High
Quasi-experimental	Feasible in classroom settings	Selection bias; limited randomization	Moderate-High
Single-subject experimental (ABAB, multiple baseline)	Rigorous individual-level causal inference	Limited generalizability across populations	Moderate-High
Mixed methods	Captures both behavioral outcomes and teacher/student perspectives	Integration quality varies across studies	Moderate
Qualitative (interviews, case studies)	Rich contextual data on implementation	Subjectivity; cannot establish causation	Moderate
Systematic review / meta-analysis	Synthesizes cumulative evidence; effect size estimation	Dependent on quality of included primary studies	High

Across the 44 included studies, the distribution of design types was: single-subject experimental designs (n = 21; 48%), quasi-experimental designs (n = 9; 20%), systematic reviews and meta-analyses (n = 6; 14%), mixed-methods designs (n = 5; 11%), and qualitative designs (n = 3; 7%). No randomized controlled trials meeting all inclusion criteria were identified, which is consistent with the broader EBD intervention literature, where ethical and logistical constraints make random assignment with this population uncommon in school settings.

The overall quality of the included studies was rated as high for the six systematic reviews and meta-analyses, moderate-to-high for the majority of single-subject and quasi-experimental studies, and moderate for the qualitative and mixed-methods studies. Key quality limitations identified across the literature included small samples, short implementation durations, reliance on teacher-reported or observationally collected behavioral data without adequate inter-rater reliability reporting, and limited follow-up data beyond immediate post-intervention measurement.

5. Data Analysis and Synthesis

Data analysis followed the five-step process for integrative review synthesis described by Whittemore and Knafl (2005): data reduction, data display, data comparison, conclusion drawing, and verification. In the data reduction step, key information was extracted from each study using a structured extraction template capturing: research design, participant characteristics, intervention description and components, implementation procedures, fidelity monitoring approach, outcome measures, reported results, and author-stated limitations.

In the data display step, extracted information was organized into comparison matrices that allowed cross-study comparison within and across strategy types. Similarities and differences in design, implementation context, participant characteristics, and outcomes were mapped, and patterns in the distribution of effects were noted.

In the data comparison step, studies were grouped into thematic clusters corresponding to the four major strategy types that emerged inductively from the literature: explicit instruction in self-regulation; structured calm-down areas and breaks; visual supports and behavioral cue systems; and positive reinforcement. Within each cluster, studies were further sorted by outcome domain, participant grade band, and implementation context to identify convergences and divergences in the evidence.

Moderating conditions were identified through a cross-cluster analysis that examined which contextual factors appeared consistently in studies with strong outcomes compared with studies with weaker or inconsistent outcomes. This analysis identified four consistent moderators: teacher fidelity and preparation, school-wide behavioral support frameworks, student developmental and cultural characteristics, and collaboration among professionals and families.

In the conclusion drawing and verification step, tentative conclusions were tested against the full set of included studies and refined where contradictory evidence was found. Table 3 presents a summary of the four themes, the number of studies contributing to each, and the key outcomes and moderating conditions identified.

Table 3
Summary of Themes, Evidence Base, and Key Moderators

Theme	Number of Studies	Primary Outcome Domains	Overall Effect Direction	Key Moderators
Explicit Self-Regulation Instruction	18	On-task behavior; coping strategy use; academic engagement	Positive	Fidelity; embedded practice; teacher modeling
Structured Calm-Down Areas and Breaks	9	Behavioral disruptions; emotional de-escalation; office referrals	Positive	Proactive framing; student autonomy; materials quality
Visual Supports and Behavioral Cues	10	On-task behavior; transition compliance; independent strategy use	Positive	Individualization; visual accessibility; fading plan
Positive Reinforcement Systems	7	Behavioral compliance; academic productivity; self-efficacy	Positive	Immediacy; specificity; individualized reinforcers

6. Results

Four thematic areas emerged from the integrated analysis of the 44 included studies. Each theme is presented below with a description of its theoretical basis, the evidence supporting it, implementation characteristics associated with positive outcomes, and documented limitations.

6.1 Theme 1: Explicit Instruction in Self-Regulation Skills

Eighteen of the 44 included studies addressed interventions in which teachers directly and sequentially taught students specific skills for managing their attention, behavior, or emotional responses. This category subsumed a range of specific techniques, including self-monitoring, goal setting, cognitive reframing, problem-solving, and coping strategy rehearsal, but was unified by its defining pedagogical characteristic: skills were named, defined, modeled, practiced under supervision, and rehearsed across varied contexts rather than left for students to acquire incidentally.

The theoretical rationale for this approach draws directly from Zimmerman's (2002) model, which treats self-regulation as a set of learnable strategies that can be taught and practiced rather than as a fixed personality trait. It also draws from Vygotsky's (1978) emphasis on the role of more knowledgeable others in providing the scaffolding through which learners acquire voluntary control over cognitive and behavioral processes. Within this framework, the teacher serves as a regulatory model whose explicit self-talk and strategy use become the template for students' developing self-regulatory behavior.

The evidence supporting explicit self-regulation instruction is the strongest of the four thematic areas. A meta-analysis by Reid, Trout et al. (2005) reported significant positive effects of self-monitoring interventions on on-task behavior and academic productivity, with effect sizes in the moderate-to-large range across multiple single-subject studies involving students with EBD. Skidmore (2009) reviewed 23 studies of self-monitoring procedures and found consistent improvements in both behavioral engagement and academic output, with effects maintained at follow-up in studies that included fading procedures. Mooney et al. (2005) reviewed self-management interventions across 18 studies and found that goal-setting and self-evaluation components added incremental value beyond self-monitoring alone.

Qualitative evidence from teacher and student interviews provided additional texture on why explicit instruction works in practice. Students in these studies consistently reported that being given a concrete name and a specific procedure for a strategy, such as the steps of deep breathing or the structure of a behavioral goal, made the strategy easier to remember and apply in moments of frustration. Teachers reported that explicit instruction changed the nature of their interactions with students with EBD from largely corrective to largely instructive, a shift that improved the relational quality of the classroom.

The fidelity analyses reported across these studies pointed to several critical implementation requirements. First, modeling was essential: students who observed their teachers demonstrating strategies, including verbalizing the internal thought processes involved, showed faster acquisition and more consistent use than students who received only verbal instruction. Second, practice opportunities needed to be distributed throughout the school day and embedded within genuine academic tasks; skills practiced only in dedicated social-skills lessons showed limited transfer to academic contexts. Third, feedback needed to be immediate, specific, and positively framed; delayed or evaluative feedback produced smaller gains in strategy use.

The primary gap in this thematic area was a shortage of long-term maintenance data. Most studies measured outcomes immediately post-intervention or within a few weeks of training. Only four of the 18 studies included follow-up assessments at three months or longer, and two of these found that gains attenuated substantially without booster instruction, raising questions about the durability of skills acquired through time-limited training programs.

6.2 Theme 2: Structured Calm-Down Areas and Scheduled Breaks

Nine studies examined the effects of designated physical spaces within or adjacent to classrooms where students could engage in self-calming activities during periods of elevated emotional arousal, along with procedures for scheduling or prompting access to those spaces. Variants included regulation corners equipped with sensory tools and posted visual cues, scheduled sensory breaks built into the daily timetable, and contingent breaks offered when teachers identified early behavioral warning signs.

From a neurobiological perspective, the theoretical basis for these interventions draws on research documenting that the prefrontal cortical processes underlying voluntary behavioral control are degraded under conditions of heightened arousal (Porges, 2011). When a student's sympathetic nervous system is activated in response to a perceived stressor, the capacity for deliberate, regulated behavior is reduced, and the probability of impulsive or disruptive behavior increases. Providing a structured opportunity to reduce arousal before it reaches crisis level creates the physiological conditions necessary for regulatory strategies to function.

From a behavioral perspective, designated calm-down areas function as discriminative stimuli that establish a specific environmental context as the setting for calming behavior. When students are consistently taught and reinforced for using these spaces appropriately, the spaces themselves acquire stimulus control over calming behavior, making it more probable that students will engage in self-soothing responses in those contexts.

Empirical findings across the nine studies were consistently positive, though effect sizes varied considerably depending on implementation quality. Maggin et al. (2016) reported a 40-60% reduction in office discipline referrals in classrooms where structured break procedures were introduced alongside explicit instruction in de-escalation strategies. Kern and Clemens (2007) reviewed the antecedent-based literature and identified scheduled breaks as one of the most robust and practically feasible strategies for reducing problem behavior in students with EBD, noting that the effects were particularly pronounced for students who showed behavioral patterns consistent with escape-motivated behavior.

A consistent finding across studies was that the effectiveness of calm-down areas depended heavily on how they were introduced and framed. In studies where the space was presented as a privilege or a proactive tool and where students received instruction in how to use it before reaching a state of escalation, outcomes were substantially more positive than in studies where access to the space was contingent on the occurrence of problem behavior. This distinction parallels broader findings in the behavioral literature about the superior effectiveness of antecedent-based compared with consequence-based interventions.

Several studies documented an additional benefit that was not the primary focus of the intervention: when teachers had a structured and non-punitive response available for early signs of escalation, classroom climate improved for all students. Teachers reported spending less time managing behavioral crises and more time on instruction, and students without EBD reported feeling safer in classrooms where they observed consistent, calm adult responses to behavioral difficulty.

Implementation challenges identified in this cluster included the logistical difficulty of creating a calm-down space in overcrowded classrooms, inconsistency among teachers in prompting and monitoring student use of the space, and the risk that students with EBD would use the space as an avoidance strategy for academic tasks rather than as a genuine regulation tool. These challenges were most effectively addressed when calm-down area use was monitored with brief observation data and when teachers received coaching support for prompting decisions.

6.3 Theme 3: Visual Supports and Behavioral Cue Systems

Ten studies examined interventions in which visual materials, such as behavior charts, cue cards, task schedules, self-monitoring checklists, and visual timers, were used to provide students with accessible, real-time prompts for behavioral expectations and self-regulatory strategies. These tools are grounded in Sweller's (1988) cognitive load theory, which holds that the limited capacity of working memory can be extended through the use of external representations that off-load some of the cognitive demands of a task from internal memory to the environment.

For students with EBD, this theoretical logic is especially relevant because working memory deficits are common in this population (Barkley, 2004) and because the conditions of stress and emotional arousal that characterize escalation episodes further degrade working memory performance. By making behavioral expectations and regulatory strategies visible and immediately accessible, visual supports reduce the cognitive burden of remembering what to do in the moment when self-regulatory capacity is most needed.

Findings across the ten studies were consistently positive for immediate behavioral outcomes. Simonsen et al. (2008) conducted a broad review of classroom management practices and identified visual supports as one of a small set of strategies with consistent empirical backing across study designs and populations. Studies specifically examining the use of self-monitoring checklists, such as those reviewed by Skidmore (2009), found that adding a visual recording component to behavioral goal-setting increased the reliability of self-monitoring behavior and produced stronger and more consistent effects on on-task behavior than verbal or teacher-cued monitoring alone.

Visual schedules, which present the sequence of classroom activities in a concrete format, were found to be particularly effective for reducing transition-related behavioral problems. Students with EBD showed significantly fewer disruptions during activity transitions when visual schedules were in use, a finding consistent with research on predictability and behavioral regulation in this population. The mechanism appears to be that advance knowledge of upcoming transitions reduces the uncertainty and perceived threat associated with change, thereby reducing the stress response that often precedes transition-related behavior.

A recurring emphasis in the higher-quality studies within this cluster was the importance of individualization. Generic visual supports posted for the entire class produced smaller effects than individually tailored visual tools that targeted the specific behavioral or regulatory challenges of individual students. This finding aligns with the broader literature on differentiated instruction and suggests that while whole-class visual supports can be a useful component of universal classroom design, students with EBD typically need an additional layer of individually adapted visual supports to achieve maximum benefit.

The generalization of visual support effects was also examined in several studies. When visual prompts were in place, behavioral gains were clearly documented; when they were removed without a structured fading plan, gains tended to diminish. This finding points to an implementation consideration that was frequently underdeveloped in the reviewed literature: systematic fading, in which visual prompts are gradually reduced as students demonstrate internalization of the targeted behaviors, is necessary for ensuring that the benefits of visual supports extend beyond the period of active support.

6.4 Theme 4: Individualized Positive Reinforcement Systems

Seven studies focused specifically on the structure and effects of individualized positive reinforcement systems, including token economies, tiered reward systems, and contingency contracts. Positive reinforcement, defined as the presentation of a rewarding consequence following a target behavior in order to increase the probability of that behavior in the future, is among the most extensively studied behavior change procedures in the history of applied behavior analysis (Skinner, 1965; Alberto and Troutman, 2013).

The distinctive contribution of the studies in this cluster was their attention to the design features of reinforcement systems that moderate their effectiveness. A meta-analysis by Maggin et al. (2011) examined 24 studies of token economy interventions with students exhibiting challenging behavior and found that systems with individualized reinforcer menus, transparent exchange rates, and gradually increasing behavioral standards produced stronger and more durable effects than systems with fixed, undifferentiated reinforcers or arbitrary exchange rates. These design features align with self-determination theory (Deci and Ryan, 1985), which predicts that interventions supporting student autonomy and perceived competence will produce more sustained behavioral engagement than those relying on external control alone.

Studies in this cluster also examined the interaction between reinforcement systems and the other strategy categories identified in this review. Consistently, studies that combined positive reinforcement with explicit instruction and visual supports produced larger and more generalized effects than those that relied on reinforcement alone. This finding is interpretable within a behavioral framework: reinforcement increases the probability that a behavior will occur, but it cannot, by itself, create a behavior that is not yet in the student's repertoire. Students with EBD who have not yet learned specific self-regulatory strategies through explicit instruction will not begin using those strategies simply because reinforcement is made available. Reinforcement is most effective as a component of a system that first teaches the target skills and then systematically strengthens them through contingent reward.

The concern that positive reinforcement may undermine intrinsic motivation was addressed in two of the included studies. Both found that for students with EBD, who typically enter school with low academic self-efficacy and a history of failure and negative feedback, the risk of intrinsic motivation being undermined by extrinsic reinforcement is considerably less acute than it is for students without behavioral difficulties. The more pressing concern in this population is not that reinforcement will replace intrinsic motivation but that the absence of reinforcement will leave students without any motivational support for engaging in the demanding work of developing self-regulatory skills.

Implementation challenges documented in this cluster included teacher difficulty maintaining consistent application of reinforcement contingencies across the school day, student perceptions of reinforcement systems as unfair when they observed differential treatment compared with classmates without disabilities, and the logistical demands of individualized token economy systems in classrooms with large numbers of students. These challenges were most effectively addressed when teachers received structured training and coaching support, when reinforcement systems were explained transparently to all students, and when class-wide positive behavior support frameworks were implemented concurrently.

6.5 Cross-Cutting Moderating Conditions

Analysis across all four thematic areas identified four conditions that consistently differentiated studies with strong positive outcomes from those with weak or inconsistent outcomes. These conditions function as moderators rather than intervention components: their presence amplifies the effectiveness of the strategies, while their absence attenuates it.

The first moderating condition was implementation fidelity. Across all four strategy areas, studies that included structured fidelity monitoring procedures, such as observation checklists, self-report logs, or coaching feedback cycles, produced larger and more consistent effects than those that relied on teacher self-report alone or that did not monitor fidelity at all. This finding is consistent with the broader implementation science literature, which consistently identifies fidelity as a primary determinant of whether evidence-based practices produce their intended effects in real-world settings (Fixsen et al., 2005).

The second moderating condition was school-wide behavioral support. Studies conducted in schools that had implemented a school-wide positive behavioral interventions and supports (PBIS) framework produced consistently stronger individual-level outcomes than studies conducted in schools without school-wide frameworks. This pattern suggests that individual classroom strategies function more effectively when they are embedded within a consistent, school-wide behavioral culture that reinforces the same expectations and uses the same language across all settings.

The third moderating condition was teacher preparation and ongoing professional development. Studies that included structured pre-implementation training for participating teachers, and particularly those that provided ongoing coaching support during implementation, reported stronger and more sustained effects than those that provided training only at the outset. This finding points to a critical gap in current teacher preparation systems, which typically provide minimal pre-service training in evidence-based behavioral support for students with EBD.

The fourth moderating condition was student-level individualization. Across all four strategy areas, studies that assessed individual student characteristics, including reinforcer preferences, specific regulatory deficits, cultural background, and trauma history, and that adapted intervention components accordingly, produced more favorable outcomes than studies that applied generic protocols uniformly across all participants.

7. Discussion

The findings of this review have several implications that extend beyond a simple catalog of what works. They speak to the organization of inclusive classrooms, the preparation of teachers, the structure of school-wide behavioral systems, and the conceptual frameworks that govern how educational institutions understand and respond to behavioral difficulty.

7.1 Skill Deficit, Not Willful Misconduct

Perhaps the most consequential implication of this review is conceptual. The strategies with the strongest evidence base share a common assumption: that students with EBD exhibit behavioral difficulties primarily because they lack the self-regulatory skills necessary to meet the demands of the inclusive classroom, not because they are choosing to misbehave. This distinction is not merely academic. When schools treat behavioral difficulty as a skill deficit, the appropriate response is instruction; when they treat it as willful misconduct, the appropriate response is punishment. The evidence reviewed here is unambiguous in supporting the former framing and the instructional response it implies.

This reframing has direct policy implications. Exclusionary disciplinary practices, including suspensions, expulsions, and in-school isolation, address the surface occurrence of problem behavior without addressing its underlying causes. They remove students from the instructional settings where skill acquisition is possible, and they disproportionately affect students who are already at elevated risk for academic failure. The research reviewed here suggests that these practices are not only ineffective but actively counterproductive, as they reduce the student's exposure to the very instructional supports that could build the self-regulatory capacity needed to prevent future behavioral problems.

7.2 The Multi-Component Principle

A second implication is practical: the evidence does not support single-strategy approaches to self-regulation support for students with EBD. The effects of explicit instruction are stronger when visual supports are in place to prompt strategy use during performance. The effects of calm-down areas are stronger when students have received explicit instruction in the strategies they are expected to use there. The effects of reinforcement systems are stronger when they reinforce behaviors that students have actually been taught. These interactions are not coincidental; they reflect the multi-dimensional nature of self-regulation as a construct that involves cognitive, motivational, emotional, and behavioral components simultaneously. A support system that addresses only one or two of these dimensions will inevitably leave gaps that limit the overall effect.

The practical challenge this principle creates is one of coordination and coherence. Multi-component systems require that teachers not only learn and implement several strategies but also understand how the components relate to each other and apply them in an integrated rather than additive way. This level of implementation sophistication is not achievable through one-time training; it requires the kind of sustained, practice-embedded professional development and coaching that the evidence identifies as a critical moderating condition.

7.3 Equity and Cultural Responsiveness

The equity dimensions of self-regulation support for students with EBD are addressed only sporadically in the reviewed literature, representing a significant gap. Most of the included studies were conducted with predominantly White samples or did not report participant race and ethnicity in sufficient detail to support analysis of differential effects. Given the well-documented disproportionate identification of Black, Latino, and Indigenous students with EBD and the well-documented differential application of exclusionary discipline to students from these groups (Skiba et al., 2011; Anne et al., 2016), the absence of equity-focused analysis in most of the reviewed research is a serious limitation.

Cultural responsiveness in the design and delivery of self-regulation supports is not simply a matter of adding culturally familiar examples to existing protocols. It requires that the values, communication norms, and relational expectations embedded in behavioral interventions be examined critically and adapted to reflect the cultural backgrounds and lived experiences of the students they are intended to serve. Research on culturally responsive behavior management (Vincent et al., 2011) suggests that this kind of adaptation is both feasible and associated with improved engagement and outcomes, but it has not yet been adequately integrated into the EBD self-regulation intervention literature.

7.4 Gaps in the Literature

Several notable gaps emerged from this review. First, the shortage of longitudinal data is significant. With only a small number of included studies tracking outcomes beyond three months post-intervention, the question of whether self-regulation skills acquired through classroom-based interventions are maintained over the course of a school year, across grade transitions, or into adolescence and adulthood remains largely unanswered. This is not a trivial question: the long-term outcomes of students with EBD, including high school completion, postsecondary participation, and employment, depend on the durability of the self-regulatory gains made during the school years.

Second, the mechanisms through which these strategies produce their effects are poorly understood at an individual level. Most studies document that a strategy produced a behavioral outcome but do not measure the cognitive or emotional processes through which the outcome was achieved. Studies that incorporate neuropsychological assessments, student self-report of strategy use, or measures of self-efficacy alongside behavioral outcomes would substantially advance the field's understanding of how these strategies work and for whom.

Third, the literature is almost entirely silent on how self-regulation supports interact with the increasingly digital and technology-mediated learning environments that characterize contemporary K-12 education. Research on technology-based visual supports and digital self-monitoring tools is emerging (Wendt, 2009) but remains limited, and no included studies addressed the specific challenges and opportunities of supporting self-regulation in blended or online learning contexts.

Fourth, student voice is nearly absent from the reviewed literature. The perspectives of students with EBD on the strategies that are implemented for their benefit, including their perceptions of what is helpful, what is stigmatizing, what is culturally appropriate, and what they wish were different, are rarely collected or reported. Research designs that genuinely incorporate student perspectives would provide both a more complete picture of intervention effects and a more ethical approach to studying a population whose experiences are so frequently defined by others.

8. Implications for Practice, Policy, and Future Research

8.1 Classroom Practice

Teachers in inclusive classrooms should treat self-regulation instruction as a core instructional responsibility comparable in priority to academic content instruction. This means allocating deliberate time in the daily schedule for strategy instruction and review, embedding self-monitoring and goal-setting routines into academic tasks across subject areas, designing the physical classroom environment to include accessible visual supports and a structured calm-down area, and applying positive reinforcement in ways that are individualized, immediate, and consistent. Investing in relationship quality with students with EBD is also essential, as the research on teacher-student relationships consistently shows that the effectiveness of behavioral and academic interventions is moderated by the relational context in which they are delivered (Pianta, 1999).

8.2 School Administration

Building principals and instructional leaders carry responsibility for creating the school-level conditions that enable classroom-level strategies to function. Adopting a school-wide positive behavioral interventions and supports framework provides the organizational infrastructure within which individual classroom interventions are most effective. Allocating time and resources for teacher collaboration, investing in instructional coaching for behavioral support, and building a school culture in which behavioral difficulty is understood as a skill deficit rather than a character defect are all administrative responsibilities with documented effects on student outcomes.

8.3 Teacher Education and Professional Development

Pre-service teacher education programs should substantially expand their preparation of general education teachers in evidence-based behavioral support, including the strategies reviewed here. Currently, most general education teachers receive minimal preparation in this area, despite the near-certainty that they will teach students with EBD in inclusive settings. In-service professional development should move beyond one-time workshops toward sustained, practice-embedded models that include structured observation, coaching feedback, and opportunities for collaborative problem-solving among teachers, special educators, school psychologists, and behavioral specialists.

8.4 Policy

Federal and state education policy should support the widespread adoption of evidence-based behavioral support frameworks by making PBIS implementation a funded priority, by incorporating behavioral support competencies into teacher licensure standards, and by revising discipline policies to restrict the use of exclusionary practices for students with EBD. IDEA and the Every Student Succeeds Act both contain relevant provisions that could be more actively leveraged to promote equity-focused, evidence-based approaches to behavioral support. Policymakers should also fund longitudinal research on self-regulation intervention outcomes, research on cultural responsiveness in behavioral intervention, and the development and evaluation of technology-based self-regulation tools.

8.5 Future Research

Future research should prioritize longitudinal designs that track the maintenance and generalization of self-regulation skills across grade transitions and into adolescence and early adulthood. Studies that include neuropsychological outcome measures alongside behavioral observation data would advance mechanistic understanding. Research that centers the perspectives of students with EBD through participatory and mixed-methods designs would produce more complete and ethically sound evidence. Comparative effectiveness studies that directly compare the relative value of different strategy combinations would help practitioners make more informed decisions about resource allocation. And research specifically designed to examine the effectiveness of self-regulation supports across diverse racial, cultural, and socioeconomic groups is urgently needed to address the equity gaps identified in this review.

9. Limitations of This Review

This review has several limitations that should be weighed when applying its conclusions. First, the restriction of the search to English-language publications means that relevant research conducted and published in other languages was not captured, potentially limiting the geographic and cultural range of the evidence base. Second, the inclusion of grey literature, while adding practitioner-based evidence, introduces the possibility of publication bias. Third, as an integrative rather than systematic review, the synthesis approach prioritizes breadth and interpretive coherence over the strict quantitative comparability of a meta-analysis; effect sizes are therefore not formally pooled, and the conclusions about relative effectiveness across strategy types are based on narrative comparison rather than statistical modeling.

Fourth, the quality of the evidence base is uneven. The dominance of single-subject experimental designs, while appropriate for studying individual behavior change, limits the degree to which findings can be generalized across broader student populations and diverse classroom contexts. Fifth, the review's focus on classroom-based interventions means that it does not capture the full complexity of service systems that students with EBD navigate, and conclusions about classroom strategies should be understood as addressing only one component of what is typically a much broader support need.

10.Conclusion

This integrative review set out to synthesize the available evidence on classroom-based self-regulation strategies for students with EBD in inclusive K-12 settings, to evaluate the quality of that evidence, and to draw conclusions about what works and under what conditions. Four strategy categories emerged with consistent empirical support: explicit instruction in self-regulation skills, structured calm-down areas and scheduled breaks, visual supports and behavioral cue systems, and individualized positive reinforcement. Each of these strategies has a coherent theoretical basis, a documented evidence base of meaningful size and quality, and a set of well-characterized implementation requirements.

The review also found that the effectiveness of each individual strategy is conditional on contextual factors that extend beyond the design of the strategy itself. Teacher preparation and ongoing professional development, school-wide behavioral support frameworks, student-level individualization, and cross-disciplinary collaboration are not peripheral concerns; they are central determinants of whether evidence-based strategies produce their intended effects in real classrooms.

Two broader conclusions deserve emphasis. First, students with EBD can learn to regulate their own behavior more effectively when they receive structured instruction and environmental support, and the improvements that result from this learning are not trivial. On-task behavior, independent use of coping strategies, academic task completion, and reductions in disruptive incidents all show meaningful positive change when multi-component support systems are implemented with fidelity. These are not just behavioral outcomes; they are the preconditions for academic learning, social development, and long-term educational success.

Second, the way schools conceptualize behavioral difficulty matters. Schools that approach behavioral problems as evidence of skill deficits will respond with instruction; schools that approach them as evidence of defiance will respond with punishment. The research reviewed here is unambiguous in showing that instructional responses produce better outcomes. Making that shift in practice, at scale, is the defining challenge for the field. This review provides a synthesis of the evidence that supports and should inform that shift.

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