Collective Teacher Efficacy in Context of Students' Externalizing Behavior Problems: A Systematic Review

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ABSTRACT:

Externalizing behavior problems (EBPs) pose a significant risk to students' development. Additionally, EBPs disrupt classroom and school-wide processes posing both individual and collective challenges for teachers. In teamwork structures, particularly in inclusive and special educational settings, it is crucial that teachers not only perceive themselves as individually effective but also experience a high level of collective teacher efficacy (CTE). This review provides a systematic overview of how CTE impacts the development of students with EBPs and identifies relevant interventions for developing CTE when working with these students. Despite the small number of targeted articles, the findings showed a trend among the articles indicating that a high level of CTE can help reduce EBPs, and foster prosocial behavior, especially in students growing up in socio-economic deprivation. The findings also showed that implementing a school-wide intervention measure to reduce EBPs or strengthen positive behavior, aligned with School-wide Positive Behavior Interventions and Supports (SWPBIS), promotes CTE across various countries and different school systems. Finally, the targeted articles noted that the implementation quality of SWPBIS determines CTE within a school. From these findings, the potential for school-wide pedagogical approaches, as well as the implications for school and professional development are derived.

Keywords: Collective Teacher Efficacy, Externalizing Behavior Problems, Special Education, Emotional and Behavioral Problems, Review.

INTRODUCTION

Teachers cite externalizing behavior problems (EBPs) in particular as one of the central challenges in their daily (cooperative) work (Splett et al., 2019). In addition, unlike internalizing behavior problems, EBPs (e.g., aggressive, antisocial, or hyperactive behavior) are disruptive to the classroom and pose a much greater difficulty to teachers throughout the school (Hunter et al., 2014; Ogden et al., 2012). EBPs pose a significant risk to children and adolescents in various aspects of their development (Farmer et al., 2020). To counteract these negative tendencies, it is essential to implement collective and preventive measures against EBPs in schools (Lee & Gage, 2020; Lewis et al., 2017). Evidence-based practice approaches emphasize the importance of school-based interventions with high-quality implementation and a collective approach (Kern et al., 2020; Waschbusch et al., 2018). Research findings substantiate the importance of school-wide pedagogical measures and interventions such as School-wide Positive Behavior Interventions and Supports (SWPBIS) in preventing EBPs and increasing prosocial behavior. This, in turn, also promotes collective teacher efficacy (CTE) (Deltour et al., 2021; Nichols et al., 2020; Sørlie et al., 2016), defined as teachers' shared belief in their collective ability to carry out educational tasks that enhance student achievement (Adams & Forsyth, 2006). Further results indicate that schools with a high CTE are significantly more capable of dealing with EBPs in students (Sørlie & Torsheim, 2011). Although there is a wealth of research on the impact of teacher self-efficacy (TSE) on students, the research in this context regarding CTE is disparate and needs to be understood in an integrated way. Hereby, current studies focus primarily on the relationships between CTE and academic achievements among students (Cybulski et al., 2005; Eells, 2011; Goddard et al., 2000). This systematic review outlines the current state of research on the connection between CTE and students who exhibit EBPs and suggests potential for school-wide pedagogical approaches as well as implications for school and professional development.

THEORETICAL BACKGROUND

Externalizing behavior problems

Based on Achenbach et al.'s (2016) empirically validated classification, emotional and behavioral problems are classified into two main groups: internalizing and externalizing problems. Internalizing problems encompass behaviors that manifest inwardly, such as depression, anxiety, psychosomatic complaints, or social withdrawal. On the other hand, externalizing problems display outwardly involving aggression, delinquency, oppositional defiance, hyperactivity and inattentiveness (American Psychological Association, 2022; Jacobs et al., 2013). Symptoms associated with emotional and behavioral problems within the externalizing or internalizing domains can manifest in various ways. First, they may meet the diagnostic criteria for mental health disorders outlined in classification systems such as the International Classification of Diseases and Related Health Problems (WHO, 2019). Second, they could be evaluated as psychosocial problems using dimensional quantitative taxonomies, which involve assessing individuals based on the extent to which they exhibit certain symptoms or behaviors (Haslam et al., 2020; Ringeisen et al., 2020). Finally, they could be recognized as special educational needs, referred to as social, emotional, and behavioral difficulties, indicating that students require tailored support within general schools or may necessitate enrollment in specialized educational settings due to their behavioral or emotional challenges (Landrum, 2017; Stoutjesdijk et al., 2012). Particularly when emotional and behavioral problems emerge early and remain untreated for an extended period, children and adolescents are at risk in multiple dimensions of their development - such as criminality, substance abuse, academic failure, employment difficulties, challenges in forming social relationships, feelings of inferiority, and suicidal thoughts or suicide (Erskine et al., 2016; Guillot et al., 2020; Hatkevich et al., 2019) - all of which significantly reduce future participation in society (Farmer et al., 2020; Haller et al., 2016). Additionally, these problems negatively impact acceptance by classmates and relationships with teachers, both of which are pivotal for development within the school environment (Menting et al., 2015; Zee et al., 2016).

EBPs pose major challenges for teachers in the classroom, while exerting a notable negative influence on the overall school climate (Gebbie et al., 2012; Fonseca et al., 2024; Schwab & Rossmann, 2019). While internalizing behavior problems, which are intrapersonal in nature (e.g., social withdrawal, anxious behavior), primarily challenge individual teachers, students with EBPs tend to have a more disruptive impact on classroom dynamics (e.g., a disturbed learning environment) and the school as a whole (e.g., violent conflicts during the break) due to aggressive, antisocial, or oppositional behavior patterns towards other students or teachers (Hunter et al., 2014; Ogden et al., 2012; Sørlie et al., 2015). Thus, EBPs pose

a collective challenge for teaching teams and educational staff (Splett et al., 2019; Stormont et al., 2015). Teachers' beliefs in their capabilities appear to significantly influence how they manage EBPs and implement counteractive measures (Aas et al., 2024; Poulou et al., 2019). Given the pedagogical importance of collaboration and teamwork, particularly in inclusive and special education settings, it is sensible to consider not only teachers' individual efficacy beliefs but also CTE and its influence on EBPs.

Collective Teacher Efficacy

First introduced in the 1970s, self-efficacy (SE) is closely associated with Bandura's (1977) social cognitive theory. This perspective views humans as self-organizing, proactive, self-reflecting, and self-regulating beings, in contrast to reactive organisms. Bandura (1977) defines SE as "the belief individuals hold about their capability to organize and execute a specific course of action necessary to achieve a desired outcome" (p. 193). In subsequent studies, the concept of effectiveness associated with individuals was also extended to a collective level or groups of people. Collective efficacy is defined as "a group's shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainment" (Bandura, 1997, p. 477). Bandura (1997) emphasizes that "perceived collective efficacy is an emergent group-level attribute rather than simply the sum of members' perceived personal efficacies" (p. 341). The sources of efficacy beliefs identified by Bandura (1986; 1997) (mastery experience, vicarious experience, social or verbal persuasion, and affective state or emotional arousal) apply to both individual and, by extension, collective efficacy beliefs. Mastery experience is crucial as the "perception that a performance overcoming a challenge has been successful tends to raise efficacy beliefs, contributing to the expectation that performance will be proficient in the future" (Goddard & Goddard, 2001, p. 809). Along with vicarious experience, this is the most influential and powerful of the four dimensions (Goddard & Goddard, 2001). Vicarious experience refers to the observational or interpersonal learning experience when observing another demonstrating a specific skill. When the observed skill is perceived as effective and goal-directed, it reinforces the observer's belief in their capability for success. Conversely, if the observed skill is deemed ineffective, it may weaken the observer's confidence in their abilities (Bandura, 1977). Social or verbal persuasion refers to "people being led, through suggestion and motivation, into believing they can cope successfully with what has overwhelmed them in the past" (Bandura, 1977, p. 198). Affective state / emotional arousal is the most volatile source of efficacy beliefs. Bandura (1977) elaborates that "stressful situations generally elicit emotional arousal that, depending on the circumstances, might have informative value concerning personal competency" (p. 198). Therefore, "emotional arousal is another constituent source of information that can affect perceived efficacy in coping with challenging situations" (Bandura, 1977, p. 198). Both self and collective efficacy have been applied to the work of teachers in addressing the challenges of working with students in the classroom (e.g., Dimopoulou, 2012; Olsson et al., 2017; Thornton et al., 2020).

In the context of education, Goddard (2002) defines CTE as "teachers' perceptions that the faculty as a whole can effectively impact students' outcomes" (p. 98). Researchers more clearly state that perceived CTE reflects a teacher group's belief in their collective ability to carry out educational tasks that promote student achievement (Adams & Forsyth, 2006). There is a bidirectional and reciprocal relationship between TSE and CTE. While collective beliefs are influenced by individual efficacy beliefs, collective beliefs cannot be solely attributed to individual SE beliefs (Donohoo, 2018; Goddard et al., 2004). In general, CTE can be differentiated from individual TSE, which pertains to perceptions of individual classroom performance. In addition, CTE can be distinguished from student-specific TSE, which relates to the perceived capability to support, instruct, and manage individual students emotionally and academically (Bandura, 1997; Zee et al., 2016). The impact of CTE on students' academic achievement has been demonstrated in numerous studies (Donohoo, 2018). In a meta-analysis conducted by Eells (2011), a comprehensive synthesis of relevant findings highlighted the broad influence of CTE on students' academic achievement. Across various survey instruments and diverse locations, the consistent and significant impact of CTE on academic success was demonstrated across a wide array of school subjects (r = 0.617). In his latest report, Hattie (2023) ranked CTE as a key factor (d = 1.34) in successful student learning development. Goddard et al. (2000) showed that CTE is a significant predictor of reading, writing, language, and arithmetic skills in primary school students, with a one-unit increase in CTE being associated with an increase of more than 40% of a standard deviation in student achievement. Analogous findings were replicated across various school levels and subjects by Archambault et al. (2012), Cybulski et al. (2005), and Jung et al. (2014). Tschannen-Moran & Barr (2004) were able to demon-

strate these positive effects for students who were disengaged, unmotivated, and disadvantaged. Socio-economic status and CTE accounted for 68% of the variance in student achievement in math and 72% of the variance in student achievement in writing. The positive impact of CTE on students from disadvantaged socio-economic backgrounds has been consistently demonstrated in multiple studies (Moolenaar et al., 2011; Parker et al., 2006; Sandoval et al., 2011). These research findings hold significant importance, especially considering that EBPs are often linked to low socio-economic status or disadvantaged family backgrounds (Korous et al., 2018; Letourneau et al., 2011). Furthermore, CTE acts as a protective factor against teachers' overall stress levels and burnout while contributing to job satisfaction (Capone & Petrillo, 2020), with researchers finding that CTE plays a role in the level of stress and strain teachers experience due to student behavior (Klassen et al., 2010; Vatou & Vatou, 2019). School principals in particular can be the initiators of suggestions and motivation processes to increase CTE as they have a decisive influence on the school's narrative (Yada & Jäppinen, 2022; Donohoo et al., 2018).

State of Research on the Relationship between Collective Teacher Efficacy and Students' Externalizing Behavior Problems

Studies have revealed that teachers often cite EBPs as one of their most significant challenges in both classroom and school environments, especially in special education and inclusive settings or for novice teachers (Saleem et al., 2021; Wink et al., 2021). Moreover, in these settings, lessons and other school activities are predominantly characterized by teamwork (Bettini et al., 2022). EBPs thus pose both individual and collective challenges for teachers when addressing them pedagogically throughout the school (Scruggs & Mastropieri, 2017; Mitchell et al., 2019). At the individual teacher level, researchers have reported a positive relationship between TSE and managing students' behavior (Brunsting et al., 2024; Egyed, 2006; Mieghem et al., 2022). Although there are few findings, researchers indicate that CTE is connected to fostering positive student behavior. Sørlie and Torsheim (2011) found that schools with stronger CTE beliefs reported fewer EBPs among students. Conversely, an increase in EBPs correlates with decreased CTE. Gibbs and Powell (2012) noted fewer behavior-related student exclusions in primary schools with robust CTE beliefs. Intervention programs targeting EBPs have shown that staff in participating schools feel collectively more competent in managing student behavior. The intervention effects are reported as $F = 6.79$ for problem behavior in school, $F = 4.67$ for problem behavior in the classroom, and $F = 9.17$ for students exhibiting EBPs (Sørlie & Ogden, 2007). Ekornes and Bele (2022) highlight CTE's positive influence on collaboration with parents of students showing EBPs, which is particularly important in the context of a holistic pedagogy. Dean and Gibbs (2023) emphasized the synergy between student-teacher relationships (STRs) and CTE in promoting respectful treatment and appropriate behavior school-wide. These findings illustrate the connections between CTE and other relevant constructs in the holistic management of EBPs school-wide, such as TSE or STR, despite a clear direction of action or model of action that has not yet been clearly researched (Lei et al., 2016). Although some of the systematic reviews on CTE conducted by Donohoo (2018) and Hoogsteen (2020) also contain articles that analyze themes around EBPs, this is not discussed in depth in the reviews. They primarily focus on various productive patterns of CTE and its impact on students' academic achievement.

Research Questions

Since there is no systematic presentation of studies investigating the connection between CTE and EBPs, either nationally or internationally, this paper aims to provide a systematic overview of the relationship between CTE and students' EBPs.

To gain a more specific and comprehensive understanding of CTE and its relationship with students' EBPs, the following research questions (RQs) are employed:

RQ1: What are the underlying definitions and facets of CTE in studies investigating the relationship between CTE and EBPs? How is CTE delineated in these studies?

RQ2: How are students' EBPs described?

With regard to the connection between CTE and EBPs, the following RQs are posed:

RQ3: What is the impact of CTE on the social, behavioral, and academic outcomes of students with EBPs?

RQ4: What activities are relevant to develop CTE working with students with EBPs?

On this basis, implications for school development and professional development will be derived as well as future research efforts.

METHODOLOGY

Literature search procedure

A systematic evaluation was conducted to assess the current state of research. A literature search was performed in international databases including ERIC, MEDLINE,

PsycARTICLES, PsychINFO, and PSYNDEX (Academic Search Complete). Based on an initial exploration of pertinent publications and overview papers concerning "CTE" and "students' EBPs", as well as associated keywords, the following search algorithms were formulated and combined for the database search:

((collective) AND (teach* OR leader*) AND (efficacy) OR "collective efficacy"))

AND

((student* OR pupil* OR school*) AND ((external* OR hyperact* OR opposition* OR aggress* OR violen* OR impulsive OR defy* OR defiant* OR challeng* OR provok* OR resist* OR disrupt* OR problem* OR behavio*) AND (problem* OR behavio* OR disturbance* OR disorder* OR disabilit* OR difficult* OR symptom*)) OR ("high risk" OR „ADHD" OR „ADD" OR „ODD" OR „CD" OR „Conduct disorder*" OR „Oppositional defiant disorder*" OR „Attention Deficit Disorder*" OR „Attention Deficit Hyperactive Disorder*" OR "Emotional Behavior Disorder*" OR "EBD" OR "Social Emotional Behavior Disorder*" OR "SEBD" OR "affective dysregulation"))

In addition, the corresponding German-language keywords were used in a parallel search via the pedagogy portal "FIS Bildung" and via a strategic internet search using the snowball system (Döring & Bortz, 2016), which led to further exploration of relevant articles.

Inclusion and exclusion criteria

The search was for original papers (up to February 2024) considering the following inclusion criteria:

(1) Empirical studies
(2) Publication in peer-reviewed journals and relevant dissertations (including unpublished ones)
(3) Publications in English or German
(4) Study participants:
    - (General school) teachers or
    - Special education teachers or
    - (General school) teachers and special education teachers
(5) Articles that focus on students with EBPs

Studies that assessed collective efficacy in students and Out-of-school settings were excluded from the analysis.

Selection of studies

The systematic database research yielded a total of 244 search results, which were subsequently transferred to Covidence. After removing duplicates, the remaining 144 results were screened concurrently by two authors, who assessed the titles and abstracts based on predetermined criteria (listed in the inclusion and exclusion criteria subsection) and the research questions. Additionally, 26 articles flagged as "conflict" during the title and abstract screening phase were reevaluated through joint discussion (Zawacki-Richter et al., 2020). Of these, five articles were included for full-text screening. The articles targeted through this process (19 in total) then underwent full-text screening by the same authors simultaneously. After resolving conflicts for four articles, a total of nine studies were identified for inclusion in the review. One article from another source was also identified as suitable by the two authors. This methodical approach ensured high interrater reliability and a high-quality outcome (Altman, 1991; Gwet, 2014; Maggin et al., 2017) (Figure 1).

Data analysis

A narrative review approach was chosen, allowing for the classification of content topics (Posthuma et al., 2002). From the ten targeted studies, we first extracted basic information, including authors, year of publication, and country of origin. For RQ1, the articles were analyzed based on the descriptions and definitions used to specify CTE in the context of students' EBPs. In addition, the instruments used in the articles to survey CTE were extracted. For RQ2, the terminologies used to characterize students' EBPs (e.g., aggressive behavior) were extracted. Furthermore, the instruments used in the articles to assess EBPs were extracted. For RQs 3 and 4, the sample (students / teachers) and study design (e.g., quantitative pre-post design with an intervention and control group) were extracted from the articles. Key evaluation results demonstrating the impact of CTE on students with EBPs were identified to answer RQ3. For RQ4, the conducted and evaluated intervention measures (e.g., PALS) were extracted from the targeted articles. Key evaluation results were also identified, highlighting relevant activities for developing CTE when working with students with EBPs. Table 1 provides an overview of the ten targeted articles, outlining their research designs, intervention measures, and relevance to the in-depth analysis aspects addressed in RQs 1 and 2. Table 2 presents an overview of the instruments used, along with an analysis of the evaluation results concerning CTE and students' EBPs, focusing on the directions of impact outlined in RQs 3 and 4.

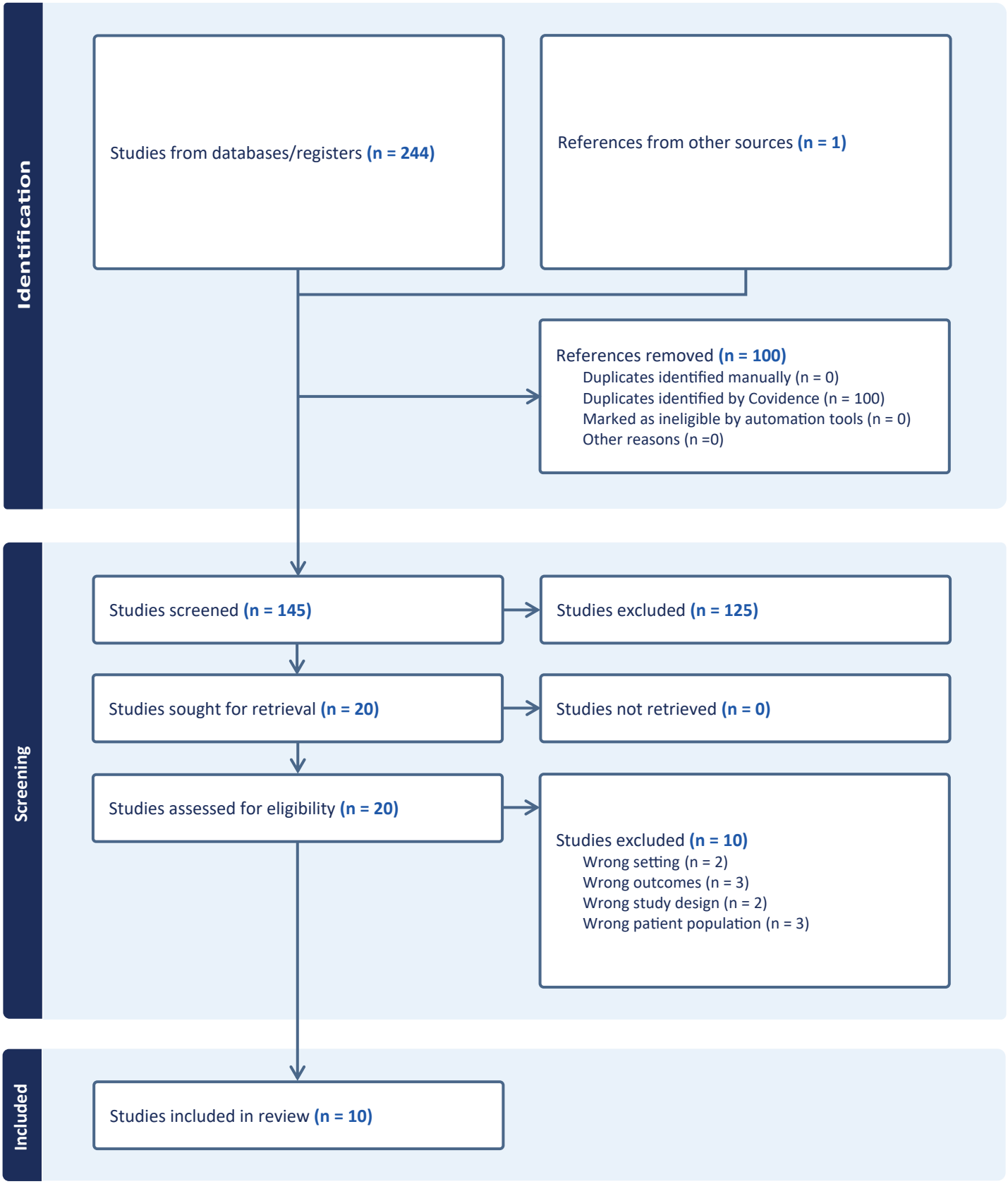

Figure 1. PRISMA flow diagram of the systematic search.

RESULTS

The number of articles found (n = 10) indicated that there is very little research regarding the connection between CTE and EBPs in students. The articles targeted were all published between 2007 and 2023. Sample sizes in the articles vary greatly, ranging from 4 schools and 101 teachers (Dean & Gibbs, 2023) to 48 schools with 12805 students and 1100 teachers (Sørlie & Torsheim, 2011). Eight articles used a quantitative study design, while two articles (Dean & Gibbs, 2023; Michael et al., 2023) adopted a mixed-methods design. The articles are characterized by their heterogeneity due to the survey instruments used. To assess CTE the "Collective Efficacy Scale" (CES) by Goddard and colleagues (2000) is used by the majority of articles (Aasheim et al., 2020; Dean & Gibbs, 2023; Gibbs & Powell, 2012; Nichols et al., 2020; Sørlie & Ogden, 2007; Sørlie & Torsheim, 2011; Sørlie et al., 2016). Michael et al. (2023) and Gülsün et al. (2023) operate the "Collective Teacher Efficacy Belief Scale" (CTEBS) by Tschannen-Moran & Barr (2004) and the "Perceived Collective Teacher Efficacy Scale" by Skaalvik and Skaalvik (2007) is utilized by Deltour et al. (2021). The heterogeneity of the papers also becomes clear in the data collected on the description of students' EBPs, which can be viewed in Table 1. Instruments used to examine this construct can be classified into two categories - those that directly assess (E)BPs (e. g." Problem Behavior in Classroom Scale") and those that approach via secondary constructs, such as the behavioral exclusion rate (FTE) or permanent exclusion rate (PEx).

Results related to RQ1

The descriptions of "underlying definitions or facets of CTE" (Table 1) are rather homogeneous and refer to the authors commonly used in research to characterize CTE. In the targeted articles, CTE, in the context of EBPs, is understood as the shared belief among teachers that they can collectively address students' development. The articles by Gibbs and Powell (2012) and Sørlie and Torsheim (2011) specify these shared beliefs among teachers regarding the collective management of student behavior.

Results related to RQ2

The analysis showed that the articles approach the construct of EBPs from a pedagogical or school-related perspective and do not make use of dimensional quantitative taxonomies (to identify psychosocial problems) or diagnostic criteria from classification systems. The focus on this approach becomes clear when the "Description of students' EPBs" is included, as can be seen in Table 1. EBPs are described in the articles using terms such as "problem(atic) behavior", "aggressive behavior", "extreme and unacceptable behavior", "misbehavior", "antisocial attitudes", "disruptive behavior", "difficult behavior" or "severe inappropriate behavior".

Results related to RQ3

It can be stated that a high level of CTE can help reduce EBPs in students and foster prosocial behavior, especially among those growing up in socio-economic deprivation. Additionally, high CTE also enables teachers to work more effectively in the classroom concerning their SE. Sørlie and Torsheim (2011) were able to demonstrate that there is a strong negative correlation between CTE and EBPs in students. As a result, schools with high CTE show lower levels of EBPs and CTE is a predictor of higher or lower teacher-reported EBPs in students. Additionally, Gibbs and Powell (2012) found that CTE (especially addressing effects on "external influences") was significantly inversely related to the number of children excluded from each school. The study suggests that in schools where the typical beliefs of the staff are that it is possible to address the adverse influence of home and community, fewer children will be excluded as a consequence of their behavior. Likewise, Dean and Gibbs (2023) were able to prove that an increase in CTE regarding behavior management correlates with a reduction in behavior-related school exclusions. It has also been demonstrated that positive student-teacher-relationship (STR) plays an important role in managing EBPs successfully at school-wide and individual teacher levels, also fostering CTE. Gülsün et al. (2023) indicate that CTE for student discipline correlated moderately and significantly with self-efficacy in behavior management of students. The authors' research indicates that a sense of both SE and CTE in managing students' EBPs is linked with self-reported teacher behavior in teaching appropriate behaviors to students.

Results related to RQ4

Six of the ten articles examine the effects of implementing a school-wide intervention to reduce EBPs in students or strengthen prosocial behavior, in line with SWPBIS, on CTE (Aasheim, 2020; Deltour et al., 2021; Michael et al., 2023; Nichols et al., 2020; Sørlie & Ogden, 2007; Sørlie et al., 2016). Table 1 provides an overview of which intervention measures were implemented and evaluated. Four of these studies compare an intervention group with a control group, while two studies examine changes

Table 1. **Overview of the targeted studies.**

author(s), year, country of origin	sample (students/ teachers)	design/intervention measure (IM)	underlying understanding of CTE	description of students' EBPs
Sørlie & Ogden (2007), Norway	IG: 5 ES 363 students 48 teachers CG: 4 ES 372 students 34 teachers	1: pre-post design IG vs. CG IM: PALS (school-wide)	CES: the extent to which a faculty believes in its conjoint capability to positively influence student learning	• overt problem behavior or conduct disorder • antisocial attitudes • aggressive behavior
Gibbs & Powell (2012), UK	31 schools, 197 primary and nursery teachers	1	• teachers' beliefs in their ability to manage children's behavior successfully • shared beliefs in the collective efficacy of the school staff	• the frequency of exclusions from a school as an indicator of the general frequency and severity of perceived misbehavior in a school • extreme and unacceptable behavior • misbehavior • problematic student behavior • behavioral regulation difficulties
Sørlie & Torsheim (2011), Norway	48 ES 1100 teachers 12805 students	1: longitudinal study	High CTE: the school staff • will be more pro-active and persistent in their efforts to prevent and manage problematic behavior • accept personal responsibility for student achievement and student behavior • may be less discouraged by temporary setbacks, failures, or negative external influences	• students who seriously hindered learning and teaching activities in class • antisocial attitudes • aggressive behavior • ignoring rules
Sørlie et al. (2016), Norway	IG: 28 schools 7964 students 1064 school staff (64% teacher) CG: 20 schools 5606 students 750 school staff (64% teacher)	1: matched comparison group design IM: N-PALS	• school staffs' shared beliefs regarding their combined ability to organize and execute courses of action required to produce student success	• Problem behavior • "problematic" students • disruptive behavior

Aasheim et al. (2020), Norway	IG: 21 schools 163 teachers CG: 23 schools 139 teachers	1: pre-post design IG vs. CG IM: IY TCM (school-wide universal preventive intervention)	• teachers' specific beliefs in relation to the school's collective efficacy to execute actions required to produce given attainments • teachers' judgment about whether the faculty as a whole can organize and execute the courses of action required to influence positive effect on students	• disruptive and aggressive behavior • behavioral, social, and emotional problems • disruptive behavior negatively affects students' academic performance, school attachment, and social wellbeing • behavior that takes time away from academic learning
Deltour et al. (2021), Belgium	9 PS and SS IG: 74 teachers and staff members CG: 65 teachers and staff members	1: longitudinal design Two post-tests IM: SCP	• teachers' beliefs about the educational team's ability to educate students • team believes itself to be collectively capable of promoting the academic success of its students • setting ambitious goals and demonstrate persistence in their efforts to achieve those goals • two key elements: analysis of the teaching task and assessment of teaching skills	• antisocial behavior • behavior problems • inappropriate behavior • students' behavioral issues
Dean & Gibbs (2023), UK	4 SS 1. Survey: 101 school staff 2. Interview: 5 teachers with high CTE, 5 teachers with low CTE	3	• refers to teachers' shared beliefs about their combined ability to execute courses of action required to produce student success	• difficult behavior (general)
Gülsün et al. (2023), Finland	384 teachers	1: cross sectional	• the perceptions of teachers in a school that the faculty as a whole can organize and execute the courses of action required to have a positive effect on students • is associated with some aspects of teachers' behavior, including teaching strategies and classroom management	• disruptive behavior • challenging student behavior • severe inappropriate behavior

Michael et al. (2023), Cyprus/ Greece	IG: 60 PS 530 teachers	3 IM: PBIS (Tier 1)	• indicator of effective school teams • teachers' shared belief about their ability to positively influence student outcomes as a team • beliefs about the capabilities of the teaching faculty as a team • group-level attribute and part of the school's social milieu • teachers share a collective perceived capability to positively influence students • collaborative culture among teachers who jointly work towards the attainment of a common goal in their school	• unexpected behavior • violence among students • students' disruptive behaviors • aggressive and violent behaviors in the school environment • psychosocial stress • aggression, bullying and antisocial behavior
Nichols et al. (2023), USA	121 teachers	1: Cross sectional IM: effects of evidence-based practices, PBIS and TSS are examined	• collective group's beliefs about a task or goal • beliefs about how the group can work either in concert to achieve the goal or to meet the challenges of the task • extends beyond individual beliefs to include collective beliefs within an organization • reflects the perceptions of teachers in a school that their effort and persistence as one unit will have positive effects on student outcomes	PB: internal or external (locus), stable or unstable (stability), controllable or uncontrollable (control)

Notes. CTE: Collective Teacher Efficacy; CES: Collective Efficacy Scale; PB: Problem Behavior; EBP: Externalizing Behavior Problems; IG: intervention group; CG: control group; ES: elementary school; PS: primary school; SS: secondary school; IM: intervention measure; PALS: positive behavior, interactions and learning environment in school; N-PALS: Norwegian version of School-Wide Positive Behavior Support; IY TCM: incredible years teacher classroom management; SCP: French version of School-Wide Positive Behavior Interventions and Supports; PBIS: Positive Behavioral Interventions and Supports; TSS: tiered systems of support; 1: quantitative design; 2: qualitative design; 3: mixed-methods design.

Table 2: Central evaluation results: CTE & students' EBPs.

author(s), year	Instruments (CTE)	Instruments (EBPs)	central evaluation results: CTE & students' EBPs
Sørlie & Ogden (2007)	• CTE: CES	• PB: PB in the School Environment Last Week & PB in the Classroom Last Week • SC: SSRS • LE: Classroom Climate Scale • PIQ: TIQS	group differences: • IG significantly rated themselves as more competent to handle PB and student differences ($t_{[1,81]}$=8.59, p<.005) • CTE & pre-scores of teacher-observed PB: prevalence of PB in the school environment ($F_{[1,81]}$=4.08, p<.05), and students showing PB in class ($F_{[1,47]}$=6.72, p<.02) ➔ indicate that better outcomes in the IG than in the CG were systematically related to higher CTE ➔ higher scores on the general aspects of implementation quality measured as CTE were also significantly associated with better outcomes in the IG than in the CG ➔ study indicates that the amount of consensus among staff regarding CTE perceptions also affect behavioral outcomes of school-based interventions to prevent student PB
Gibbs & Powell (2012)	• SE: TSES (adaption) • CTE: CES	• FSM • FTE • NOR	• significant bivariate associations between collective and individual efficacy beliefs • of the three factors (Teacher Skills, Motivating Pupils, and addressing External Influences) implicated in CTE beliefs only 'External Influences' were associated with significantly more variance between schools in the number of exclusions ($F_{to\ enter}$ = 5.07, p = .03) • CTE for addressing the effects of 'External Influences' was significantly inversely related to FTE. ➔ when staff corporately believes it can address influences that might otherwise undermine classroom practices, teachers may be ultimately more successful in avoiding recourse to exclusion as a way of 'solving' behavior problems • in schools where the group mean CTE for addressing external influences (from home and community circumstances) was higher, exclusions were used less ➔ schools where staffs' beliefs are that it is possible to address the adverse influence of home and community, fewer children will be excluded as a consequence of their behavior
Sørlie & Torsheim (2011)	• CTE: CES • SE: Self-perceived Teaching Competence	• PB: PB in the School Environment Last Week & PB in the Classroom Last Week	school level: • strong correlation CTE and PB (.70 – .78.) • correlation CTE and PB observed in classrooms: .90 • correlation CTE and PB in common school areas: .87 • schools with high CTE showed lower levels of PB • CTE predicted reduction in teacher-reported PB pre-post: increase in teacher-reported PB predicted reduction in CTE • change in CTE had a statistically significant association with PB in the classroom context at T2 (B=-0.36, p<0.05) • change in observed PB from T1 to T2 predicted change in CTE (B=-0.14, p<.001) • teachers in schools with an increase in perceived CTE also experienced a decrease in PB in classrooms as well as in common school areas

Sørlie, Ogden, & Olseth (2016)	• CTE: CES: 30-item scale developed for the study	• BM: 17-item staff scale and an equivalent 23-item student scale were developed for this study • PIQ: PBIS SAS	pre-post: • positive main effect on school staffs' CTE beliefs • over time (after 3 years): significantly higher perceived CTE was observed in the IG as compared with the CG (pre–post diff = 2.28, p = .000) • IG increased the amount of proactive and supportive practices considerably more than did CG (pre–post diff = 6.56, p = .000)
Aasheim et al. (2020)	• SE: TSES • CTE: CES	• Behavior Management Practices • PB: PB in the Classroom & PB in the School Environment • Classroom Environment Scale	• nonsignificant differences in positive behavior support strategies (p = 0.50) and behavior correction strategies (p = .66) pre-post between the two groups. • no significant effects from IY TCM on teacher-reported SE (p = .27) or CTE (p = .46)
Deltour et al. (2021)	• CTE: Perceived Collective Teacher Efficacy Scale	• SCQ	Primary: • CTE_{IG} (M): 24.18, 27.47, 28.46 (pre, post1, post2) • CTE_{CG} (M): 29.77, 28.84, 29.26 (pre, post1, post2) • Group difference: ***g = -1.19, g =-0.31, g = -0.21 (pre, post1, post2) Secondary: • CTE_{IG} (M): 23.12, 26.00, 26.31 (pre, post1, post2) • CTE_{CG} (M): 23.43, 24.47, 26.36 (pre, post1, post2) • Group difference: g = -0.08, g = +0.36, g = -0.01 (pre, post1, post2) • Mean CTE increased at both time in IG, while it remained stable in the CG (being already higher at baseline). • The effect sizes of SCP implementation on teachers CTE were +0.90 at post-test 1 and +1.02 at posttest 2 for educational teams in primary schools. • The effect size of SCP implementation on CTE was positive and in favor of the IG at post-test 1 (ES = +0.47) and marginal at posttest 2 (ES = +0.07).
Dean & Gibbs (2023)	• CTE scale • Interview questions regarding student-teacher relationships, efficacy management of difficult behavior, possible interrelations between the three key issues	• FTE	• CTE regarding BM increased → FTE rate decreased • CTE perceptions regarding BM increased → rate of FTEs decreased (–.218*). • Group CTE regarding BM increased → FTE rate decreased (–.947**). • No significant relationships were found between PEx rates and individual staff members' total CTE scores or group-referent CTE scores (–.005 / –.117). • Higher CTE → teachers may be less likely to perceive some behavior as difficult or manage to prevent escalation of PB • positive STRs increased teachers' confidence in responding to behavior successfully • reacting to PB was easier when teachers collectively had positive STRs • positive STRs enhance CTE → ability to manage difficult behavior successfully

Gülsün et al. (2023)	• Student Discipline sub-scale of the CTEBS	• SACIE • TEIP • Teaching appropriate behaviors	• Strong correlations: Teacher SE and CTE in student discipline • Strong correlations: Attitudes towards inclusive education and CTE in student discipline • Behavior was positively and significantly predicted by SE in BM (b ¼ .16, p <.05)
Michael et al. (2023)	• CTE: CTEBS	• TFI • School-wide effective behavior support: SET	• CTE regarding BM was improved similarly in both contexts: ➔ CTE_{pre} (behav. manag.): M = 5.19/4.88; SD = 0.61/0.55 ➔ CTE_{post} (behav. manag.): M= 5.30/5.08; SD = 0.60/0.55 ➔ Coincides with the intervention's primary aim to establish a universal system of support on promoting positive behavior at schools. • implementation of a well-structured whole-school approach has proved to enhance teachers' perceived belief that they can effectively manage student discipline and unexpected behaviors ➔ directly related to the primary objectives of the PBIS framework.
Nichols et al. (2023)	• SE: TSES • CTE: CES	• TASBM • SET	• Fidelity of the intervention (SET) ➔ overall CTE (competency and task-analysis) • Significant positive correlations between: o PBIS implementation level and the CES (total and subscales) ➔ CTE increased with higher levels of implementation level of PBIS (moderate effect sizes; CTE ratings accounting for 14% -18% of the variance) o Behavioral Expectations Taught and the CES and the Competency and Task Analysis subscales ➔ teachers with higher CTE ratings tended to be in schools with higher scores on Behavioral Expectations Taught (small effect sizes; CTE ratings accounting for 4% -6% of the variance) o Schools with higher SWPBIS implementation levels had higher mean ratings for CTE when compared with teachers working at schools with lower implementation levels (large effect size ➔ d = .91).

Notes. PB: Problem Behavior; EBP: Externalizing Behavior Problem; SC: Social Competence; LE: Learning Environment; PIQ: Programme Implementation Quality; CTE: Collective Teacher Efficacy; SE: Self Efficacy; STR: student-teacher relationship; BM: behavior management; IG: Intervention group; CG: Comparison group; ES: effect size; SSRS: Social Skills Rating System; TIQS: Total Implementation Quality Scale; CES: Collective Efficacy Scale; FSM: students eligible for free school meals; FTE: numbers of students excluded from school due to extreme and unacceptable behavior; NOR: total number of children registered as attending a school; PEx: permanent exclusion rate; SAS: Self-Assessment Survey; CTEBS: Collective Teacher Beliefs Scale; SWPBIS: School-wide Positive Behavior Interventions and Supports; SET: School-Wide Evaluation Tool; TASBM: Teachers' Attribution for Student Behavior Measure; SACIE: Sentiments Attitudes and Concerns about Inclusive Education scale; TEIP: Teacher Efficacy for Inclusive Practices; PBIS: Positive Behavior Intervention and Supports; TFI: Tiered Fidelity Inventory; TSES: Teacher Self-Efficacy Scale; IY TCM: incredible years teacher classroom management; SCP: French version of School-Wide Positive Behavior Interventions and Supports, SCQ: Georgia School Climate Survey Suite (staff member-version).

to CTE due to the SWPBIS only within the intervention group (Michael et al., 2023; Nichols et al., 2020). Four of these six studies focus on elementary schools (Aasheim, 2020; Michael et al., 2023; Sørlie & Ogden, 2007; Sørlie et al., 2016) ranging from first to seventh grade, and secondary school students are involved in one of the six studies (Deltour et al., 2021). Nichols et al. (2020) include primary school, high school, and special education school teachers in their study. The results of these behavioral intervention programs on CTE can be found in Table 2. Except for the study by Aasheim (2020), the studies show significant positive effects of the intervention programs / the implementation of a SWPBIS on CTE. Nichols et al. (2020) show that there are significant positive correlations between the degree of implementation of school-wide strategies to reduce EBPs and reinforce prosocial behavior (e.g., "Behavioral Expectations Taught") and CTE. With respect to RQ4, the authors conclude that the more extensively a SWPBIS measure is integrated or established in a school, the higher the SE and CTE.

DISCUSSION

Overall, it was evident that the amount of studies in the context of CTE and students' EBPs is very small. Moreover, existing studies are characterized by their heterogeneity in terms of content and research methodology.

Discussion related to RQ1

CTE is very well differentiated from other constructs by research history so the articles within this review have a congruent conception of it. All of the targeted articles use corresponding definitions (Table 1) by pertinent authors such as Bandura (1977; 1997), Goddard (2002), or Tschannen-Moran and Barr (2004).

Discussion related to RQ2

Conversely, the descriptions and approaches to EBPs are much more heterogeneous. The terms used to describe EBPs are highly varied (e.g., aggressive behavior, ignoring rules, unacceptable and problematic behavior). This highlights the problem of being able to clearly and objectively characterize deviant conduct relating to EBPs (Achenbach et al., 2016). Even though a variety of terms were used to define EBPs, they can all be located within the spectrum of the pedagogical and school-related dimensions. It becomes clear that all authors do not seek to assign clinical diagnoses of behavior disorders (e.g., ADHD or Conduct disorder), but rather focus on patterns of behavior that disrupt teaching and the school-wide climate.

Discussion related to RQ3

Sørlie and Torsheim's (2011) multilevel analysis demonstrates the connection between increased CTE and decreased EBPs in students perceived by teachers at school and vice versa. Sørlie and Ogden (2007) prove an increase in students' social competencies in schools with higher CTE. Studies have shown a link between characteristics of social deprivation (e.g., a socio-economically disadvantaged neighborhood) and the occurrence of EBPs in children and adolescents (Flouri et al., 2012). On this matter, CTE is identified as having the potential to counteract the negative effects of socio-economic deprivation and reduce behavioral exclusion from school. Schools with strong CTE can effectively mitigate potential deficiencies arising from students' home and neighborhood environments (Gibbs & Powell, 2012). In this light, the authors can demonstrate that CTE is significantly inversely related to the number of children excluded from school due to their behavior. In addition, the socio-economic status of the included students is also considered in this study via the number of children eligible for free school meals. These results are consistent with previous studies showing that high levels of CTE enable social-emotional and academic learning, especially for disadvantaged and underprivileged students (Tschannen-Moran & Barr, 2004). The targeted articles focus on the relationship between CTE and EBPs in a monocentric way, meaning that aspects such as learning success induced by CTE are not explicitly addressed. Numerous studies demonstrate the connection between CTE and learning achievements in students (Donohoo, 2018; Eells, 2011). Given the findings on learning and academic development risks posed by EBPs (Montague et al., 2005), it can be implicitly concluded that the impact of CTE in the studies displayed in this article is not limited to the reduction of EBPs and the development of prosocial behavior, but thereby also improves learning success. Overall, the findings, in addition to individual- and student-specific- TSE, highlight the significance of CTE in the pedagogical approach with students who exhibit EBPs, fostering their social, behavioral, and academic development.

Discussion related to RQ4

Gülsün et al. (2023) suggest that as the number of students with EBPs increases, CTE experiences decline. To mitigate the emergence of associated risks and decrease

stigmatization processes, it is imperative to implement collective and preventive measures targeted at addressing EBPs (Farmer, 2013; Schindler et al., 2015; Stormont, 2002). School-wide interventions (e.g., multi-tiered system of support or SWPBIS) have demonstrated notable effectiveness in this regard (Lee & Gage, 2020; Lewis et al., 2017; Nitz et al., 2023; Weist et al., 2018). Schools are acknowledged as highly conducive social environments for implementing such strategies, as children and adolescents spend a substantial portion of their time within these settings (Durlak et al., 2011). In this context, more than half of the targeted articles examine CTE in the context of implementing a SWPBIS or a (universal) measure to reduce EBPs and increase prosocial behavior. The demonstrated effects (Table 2) in this context highlight the importance of school-wide and holistic measures in dealing with students' EBPs, which then also have a positive impact on CTE and vice versa. This is supported by the findings of Nichols (2020), according to which teachers consider themselves, as individuals, capable of dealing with EBPs. However, over 76 % of them were also convinced that their colleagues needed more training in handling students' EBPs. This attitude could be changed by expanding school-wide behavioral approaches and deepening confidence and trust in colleagues' competencies to expand CTE with teachers' existing SE (Adams, 2003; Donohoo, 2017a; Karacabey et al., 2020). Conversely, Gibbs and Powell (2012) consider it plausible that individual teachers' beliefs in their colleagues' collective ability to motivate children and adolescents lead them to perceive themselves more positively and effectively in terms of their personal classroom efficacy. However, there is no contradiction between these two results. Rather, these findings strengthen and sharpen the line of argument in the reciprocal and dialectical relationship between TSE and CTE illustrating the potential for dealing with EBPs in schools. This corresponds to existing literature that points out the reciprocal relationship between TSE and CTE (Goddard & Goddard, 2001; Guidetti et al., 2018; Lev & Koslowsky, 2009).

In the relationship between CTE and students' EBPs, a question arises regarding the specific mechanisms of action that underlie this connection. Based on the papers targeted in this review, two interpretations are possible. Firstly (with a focus on the intervention studies), it could be argued that students' EBPs actually decrease and they display more prosocial behavior, which would also be reflected by increased perceived CTE through the sources of efficacy (e.g., mastery experiences, vicarious experiences) stated by Bandura (1977; 1997). Secondly, it can be also plausible that with increased CTE, the teachers' perception of the behavior exhibited changes and they develop a higher degree of tolerance or resilience towards EBPs in students. This would be congruent with the existing research findings on CTE and teachers' perceptions of stress, strain, and job satisfaction (Klassen et al., 2010; Ramos et al., 2014; Vatou & Vatou, 2019; Viel-Ruma et al., 2010). A reciprocal combination of an actual decrease in students' EBPs and higher levels of tolerance / resilience in teachers would be conceivable. As previous studies indicate (Donohoo, 2018; Goddard et al., 2000), CTE is unified and simultaneously interlinked with other educational and school-related constructs. Therefore, Dean and Gibbs (2023) triangulate CTE and EBPs with the significance of STR. Existing research pointed out the great importance of a positive (dyadic) teacher-student relationship in the context of EBPs among students (Nurmi, 2012; Lei et al., 2016). This connection is explored in greater depth in the qualitative part of Dean and Gibbs' (2023) study and is subsequently brought together dialectically with CTE in the "Cyclic relationship between STR, CTE, and behavior" figure to underpin the close interlinking of STR and CTE in the context of facing students' EBPs (p. 13).

Future Studies

This review highlights the paucity of research on CTE in relation to students' EBPs while demonstrating meaningful connections between CTE and students' EBPs. Internalizing problems and other emotional and behavioral disorders (e.g., Autism spectrum disorder) could be studied concerning CTE. As already mentioned, CTE is a construct that is linked to many others, such as the STR or individual and student-specific TSE (Goddard & Goddard, 2001; Zee et al., 2016). Future research should shed light on the interactions between CTE and other constructs relevant to students' EBPs. It would also be of interest if intervention studies (e.g., SWPBIS implementation) examined not only the link between EBPs and CTE but also included students' learning success in long-term studies. The research participants in the targeted articles are primarily primary school students. Further studies should also focus on children and adolescents in secondary schools and special schools. Beyond that, future studies could also survey students' efficacy perspectives and contrast them with TSE and CTE for a holistic view of the school-wide climate or perceptions of efficacy in relation to EBPs (Finch et al., 2023; Türkoğlu et al., 2022; Zysberg & Schwabsky, 2020). Additionally, the teachers and students in the targeted articles all originate

from Western countries. Future research should consider different cultural contexts.

Instruments used in the articles to measure CTE focus to varying degrees on behavioral factors. Future studies should take this into account when selecting suitable instruments and subscales. The majority of the studies investigating CTE use exclusively quantitative study designs. For a broader methodological approach, future studies should make greater use of qualitative (or mixed-methods) designs.

LIMITATIONS

The generality of the results of this study has certain limitations. First, only selected databases were used for this study with the generated keyword combinations. In addition, only English and German peer-reviewed articles and dissertations were considered. Therefore, it cannot be ruled out that other studies relevant to the RQs were not included in this research. Second, based on the arguments that EBPs appear to have a more disruptive impact and teachers often cite EBPs as one of their most significant challenges in both classroom and school environments, this review focused on the spectrum of EBPs in students only. Any existing findings on CTE in the context of internalizing behavior problems or other emotional and behavioral disorders were not included. Related constructs that cannot be equated with EBPs, such as bullying, were also not included in the review. EBPs are, as described in the theory section, a rather volatile construct and are to be interpreted differently depending on the focus of the research orientation (e.g., approaches via clinical psychology, pedagogy, or sociology). This might have different semantic connotations, which becomes evident in the targeted articles. For example, it is unclear how inclusive the schools are or how they handle EBPs (e.g., excluding students from school or addressing EBPs within the school). The varying definitions and underlying facets of EBPs, as well as the lack of a standardized scale, make comparability difficult. Third, the targeted studies exhibit heterogeneity in terms of content and research methodology, with some showing weaknesses in research design, such as the absence of a control group. (Schmidt-Atzert & Amelang, 2012).

PRACTICAL IMPLICATIONS

Although research is very limited, the potential of CTE regarding students' EBPs is apparent. Targeted studies illustrate the positive effect of implementing SWPBIS on CTE across various countries and different school systems, making the dissemination and continuation of such measures particularly relevant. The articles clearly demonstrate a connection between CTE and EBPs, but a clear direction of impact cannot be identified. According to Nichols et al. (2020), the quality of SWPBIS determines its influence on CTE. High-quality implementation and execution of SWPBIS, with the contingent use of appropriate measures such as Direct Behavior Rating or Curriculum-Based Measurements, are equally capable of promoting CTE and strengthening pedagogical actions towards students' EBPs, suggesting potential for reciprocal improvements between the constructs (Nichols et al., 2020; Sørlie & Torsheim, 2011). Even if there are various pedagogical approaches to counter EBPs (Riden et al., 2021), the implementation depends to a large extent on the schools' and teachers' personal characteristics (Aldabbagh et al., 2022; Stoltz et al., 2012). CTE should be considered in the professional development of teachers to create spaces for shared experiences of success (Donohoo, 2017b). Particularly concerning stress symptoms and burnout prevention, where CTE appears to be a protective factor (Brunsting et al., 2024; Klassen et al., 2010). SWPBIS measures that are still to be developed should also be based on conditions that enable or increase CTE (e.g., goal consensus, cohesive staff, advanced teacher influence, responsiveness of leadership and responsibilities, effective systems of intervention, teachers' knowledge about one another's work) in schools to maximize their collaborative potential, both in inclusive and special educational settings (Donohoo, 2017b; Ly & Boll, 2024, McLeskey et al., 2014). School structures and a suitable school climate must be in place for this. In this light, research findings underpin the importance of leadership in schools for a high level of CTE (Donohoo et al., 2018; Flood & Angelle, 2017; Yada & Jäppinen, 2022). Principals have a special role to play as initiators and facilitators in the introduction, implementation, and consolidation of such mechanisms and associated measures (Dean & Gibbs, 2023; Deltour et al., 2021; Gibbs & Powell, 2012; Gülsün et al., 2023; Michael et al., 2023; and Nichols et al., 2020). Through mechanisms and practices such as creating opportunities for meaningful collaboration, empowering teachers to increase participation, teacher involvement in decision-making, establishing goals and high (behavioral) expectations, and supporting teams in interpreting results and providing feedback, school principals can help further expand CTE in schools (Donohoo, 2017b). Research findings on CTE highlight that, in terms of mastery and vicarious experiences, it is im-

portant to have realistic but also ambitious goals so that moments of efficacy can arise (Preston & Donohoo, 2021). As teachers identify EBPs as a significant challenge in their daily work (Splett et al., 2019), there is potential to establish aspirational and consensus-based goals to address students' EBPs, thereby strengthening both CTE and TSE. (Viel-Ruma et al., 2010).

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CONFLICT OF INTEREST

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