

Effective Teacher Professional Learning on Classroom Behaviour Management: A Review of Literature

Pramesti P. Paramita
Umesh Sharma
Monash University
Angelika Anderson
The University of Waikato, New Zealand

Abstract: Classroom behaviour management is an essential skill for teachers, yet teachers often report being inadequately prepared for addressing student behaviour effectively. Teacher professional learning on classroom behaviour management is continually needed to support teacher implementation of evidence-based classroom management practices. This article reports the findings from a systematic literature review aimed to identify the features and reported findings of recent teacher professional learning programs on classroom behaviour management. The result indicates that most of the effective programs were focused on training teachers on a specific strategy such as behaviour specific praise, or a combination of several proactive behaviour management strategies. While it is crucial to develop high-quality content for a teacher professional learning program, effective teaching strategies were required to produce the expected outcomes.

Introduction

Students' problem behaviours often present a significant challenge for teachers. A survey from the National Center for Education Statistics (2018) reported that during the 2015/2016 school year, 43% of public school teachers in the United States indicated that student misbehaviour interfered with their teaching. Similar situations have been reported in other countries. In a study of 527 Chinese primary school teachers, Shen et al. (2009) found that approximately 45% of the respondents perceived that they were spending too much time on behaviour problems. In a survey by Auditor General Western Australia (2014), 39% percent of Australian teacher respondents from 19 sampled schools reported that they used at least 20% of their school day on behaviour management, which equals one day per week.

Classroom behaviour management is an important element of effective teaching. Although the most common misbehaviours, such as talking out of turn, low levels of attention, idleness and hindering others, are somewhat minor, their repetitive nature may interrupt the flow of teaching and learning, and add to teacher stress (Shen et al., 2009; Sullivan, Johnson, Owens, & Conway, 2014). Effective classroom behaviour management establishes the environmental context for effective instruction, and maximises time for instruction (Oliver & Reschly, 2007; Pas, Cash, O'Brennan, Debnam, & Bradshaw, 2015; Wilks, 1996). Ineffective classroom behaviour management, conversely, may have negative effects on teacher time and resources, and increase teacher stress and burnout levels (Austin & Agar, 2005; Carpenter & McKee-Higgins, 1996; Hastings & Bham, 2003; Lohrmann &

Bambara, 2006). Difficulty with behaviour management is also one of the reasons teachers quit the profession (Clunies-Ross, Little, & Kienhuis, 2008; Ingersoll, 2002).

Despite the importance of classroom behaviour management, teachers often report low confidence and feelings of being ill prepared in classroom behaviour management (Butler & Monda-Amaya, 2016; Hepburn & Beamish, 2019; Reinke, Stormont, Herman, Puri, & Goel, 2011; Skiba, Ormiston, Martinez, & Cummings, 2016). Even when teachers have the knowledge of evidence-based classroom management strategies, they may not implement the practices consistently (Jeffrey, McCurdy, Ewing, & Polis, 2009; Reinke et al., 2014). Classroom management has been reported as one of the greatest concerns of new teachers (Australian Education Union, 2008; He & Cooper, 2011; Lew & Nelson, 2016). Although teacher educators have recognised the importance of classroom behaviour management skills, classroom management content in most pre-service teacher education programs is often considered as too limited, or too theoretical and lacking practical value (Hepburn & Beamish, 2019; Jones, 2006; O'Neill & Stephenson, 2011; Stough & Montague, 2015).

Numerous studies have emphasised teachers' ongoing need for professional learning on classroom behaviour management (e.g. Baker, 2005; Giallo & Little, 2003; Nahal, 2010). In-service professional learning may benefit teachers in filling the gaps in knowledge and practice, and allow them to re-examine their beliefs and educational practices (Charland, 2006). Professional learning is also one important bridge from research to classroom implementation (Kretlow, Cooke, & Wood, 2011).

Classroom management has been viewed as a broad concept which encompasses both behaviour and instructional management (Egeberg, McConney, & Price, 2016). The current study focuses on the behaviour management component of classroom management, which refers to teacher implementation of evidence-based strategies to prevent and respond to students' misbehaviour in the classroom. Yet, it is acknowledged that the ultimate goal of classroom management is not only establishing and maintaining orderly classroom environments, but also enhancing student learning, social and moral growth (Evertson & Weinstein, 2006).

A limited number of reviews examining teacher professional learning programs on behaviour management have been conducted (e.g. Larson, 2015; Merrett & Wheldall, 1984; Stoesz et al., 2016). The review by Merrett and Wheldall (1984) explored teacher training courses in the behavioural approach to classroom management, while a more recent review (Stoesz et al., 2016) focused on strategies for training school staff, including special education teachers and paraprofessionals, to address challenging behaviours displayed by students with intellectual/developmental disabilities. As suggested by the literature (e.g., Timperley, 2011), didactic training was found to be ineffective when used alone (Merrett & Wheldall, 1984). To be effective, training programs should not only comprise enough theory, but also enable teachers to apply the theory through carefully monitored practice (Merrett & Wheldall, 1984). Effective training programs used a combination of didactic instruction, practical components, and feedback on skill performance (Merrett & Wheldall, 1984; Stoesz et al., 2016). Similar results were reported by Floress, Beschta, Meyer, and Reinke (2017), in their review about characteristics of praise and the teacher training methods.

Whilst identifying effective strategies to train teachers to address student behaviour in the classroom, the earlier reviews were either focused on a specific strategy to manage student behaviour, such as the behavioural approach to classroom management (Merrett & Wheldall, 1984), praise (Floress et al., 2017), or praise and opportunities to respond (OTR) (Cavanaugh, 2013); or a specific research context, such as urban schools serving predominantly African American students (Larson, 2015), and teachers working with students with intellectual/developmental disabilities (Stoesz et al., 2016). A variety of

programs and methods are currently used for teacher professional learning in classroom management. Little is known about how these different programs and types of professional learning ultimately influence teacher knowledge and practice (Stough & Montague, 2015). The purpose of the current study was to identify a broader range of effective professional learning activities aimed at improving general education teachers' knowledge and classroom behaviour management practices. The systematic review addressed the following research questions:

- a. What characterises effective teacher professional learning programs for classroom behaviour management?
- b. What impacts do the professional learning programs have on teachers' knowledge and practice?

Method

Literature Search

A systematic literature search was conducted using the ERIC, ProQuest Education, PsycINFO and Scopus databases. The following keywords were used: (1) teacher*; (2) training, professional development, in-service, performance feedback, technical assistance, mentor, coach, professional learning or professional education; and (3) behavi*r, classroom behavi*r management or classroom management. Quotation marks were used on multiple word phrases to limit irrelevant results. The search query was limited to full text, peer-reviewed journals written in English and published between 2009 and 2018. The search in Scopus was limited to two subject areas: Psychology and Social Sciences. This initial search identified 1,675 articles.

After duplicates were removed, 1,276 titles and abstracts were examined and the following inclusion criteria were applied: (a) the study reported primary data on the impact of teacher professional learning on teachers' knowledge and classroom behaviour management practices; (b) participants of the study were teachers of primary or secondary school aged children; (c) the classroom behaviour management strategies targeted general education students. A total of 1,217 studies did not meet the inclusion criteria and were excluded from further review. Fifty-nine articles were retained for further examination. Full text examination resulted in 29 studies meeting the inclusion criteria. A manual search of the reference lists of selected studies identified four additional articles, thus 33 articles were included in the quality assessment.

Quality Assessment

A quality assessment of the selected articles was undertaken based on the study design. Quality assessment of group comparison studies was undertaken using eight of eleven criteria developed by Jadad et al. (1996). Articles were selected for inclusion in the review if they incorporated: (a) randomisation of participants, (b) description of withdrawals and dropouts, (c) a clear description of the objectives of the study, (d) a clear description of the outcome measures, (e) a clear description of the inclusion and exclusion criteria, (f) a clear description of the interventions, (g) at least one control (comparison) group, and (h) a description of the methods of statistical analysis (Jadad et al., 1996). Two quality assessment criteria developed by Jadad et al. (1996) concerning double-blinding and sample size justification (e.g. power calculation) were not employed to accommodate more articles. The other criterion concerning the description of adverse effects was not applied due to its

irrelevance to the topic. The quality assessment process resulted in eight of nine group comparison studies meeting criteria.

Quality assessment of studies employing single-case designs was undertaken based on the What Works Clearinghouse (WWC) standards (Kratochwill et al., 2010). The standards were only applied to the baseline and intervention phases. Based on the WWC standards, studies were categorised as “*Meets Standards*, *Meets Standards with Reservations* and *Does not Meet Standards*” (Kratochwill et al., 2010, p. 2). In order to meet standards, the following criteria must be present (Kratochwill et al., 2010): (a) the independent variable was systematically manipulated, with the researcher judging how and when independent variable conditions change; (b) inter-observer agreement (IOA) was reported for each phase, on at least 20% of the data points in each condition, and IOA must meet minimum acceptable values of 80% agreement; (c) the study included at least three attempts to demonstrate the effects of the independent variable at three different points in time or with three different phase repetitions (i.e. multiple baseline designs required at least three baseline conditions, and alternating treatment designs required comparison of a baseline condition with at least three alternating treatments); (d) each phase had a minimum of three data points. To meet standards, a multiple baseline design must include a minimum of six phases with at least five data points per phase. A multiple baseline design with a minimum of six phases with at least three data points per phase is categorised as meeting standards with reservations (Kratochwill et al., 2010). The quality assessment process resulted in five studies meeting standards and six studies meeting standards with reservations.

Data Extraction

The included studies were analysed according to the features of teacher professional learning programs being offered (content and teaching strategies), and the reported findings. The content of the professional learning programs refers to the classroom behaviour management strategies taught to the teachers. Teaching strategies refer to the strategies employed to train teacher participants, such as didactic training, coaching, mentoring, and other teaching strategies, and the settings of the programs, which describe whether the programs were administered within the classroom, within the school environment, or in professional learning sessions outside the school environment. Analysis of the reported findings was based on the reported effect sizes of group comparison studies and calculated percentage of non-overlapping data (PND) of single-case studies.

Calculation of Effect Sizes for Single-Case Designs

The percentage of non-overlapping data (PND; Scruggs, Mastropieri, & Casto, 1987) was calculated to evaluate the effect sizes of studies employing single-case research designs. Despite some weaknesses and criticisms (Allison & Gorman, 1993; Vannest et al., 2008), PND is the most widely used quantitative method to synthesise single-case research (Scruggs & Mastropieri, 2012; Vannest et al., 2008). PND is calculated by dividing the number of non-overlapping data points, i.e. the number of intervention data points that exceed the most extreme score in the baseline data series, by the total number of intervention data points (Scruggs et al., 1987). Interventions with PND scores of over 90% are regarded as very effective, 70-90% as effective, 50-70% as questionable, and below 50% as ineffective (Scruggs & Mastropieri, 1998). In this study, PND was calculated for evaluating behaviour change. PND for generalisation and maintenance conditions were not calculated.

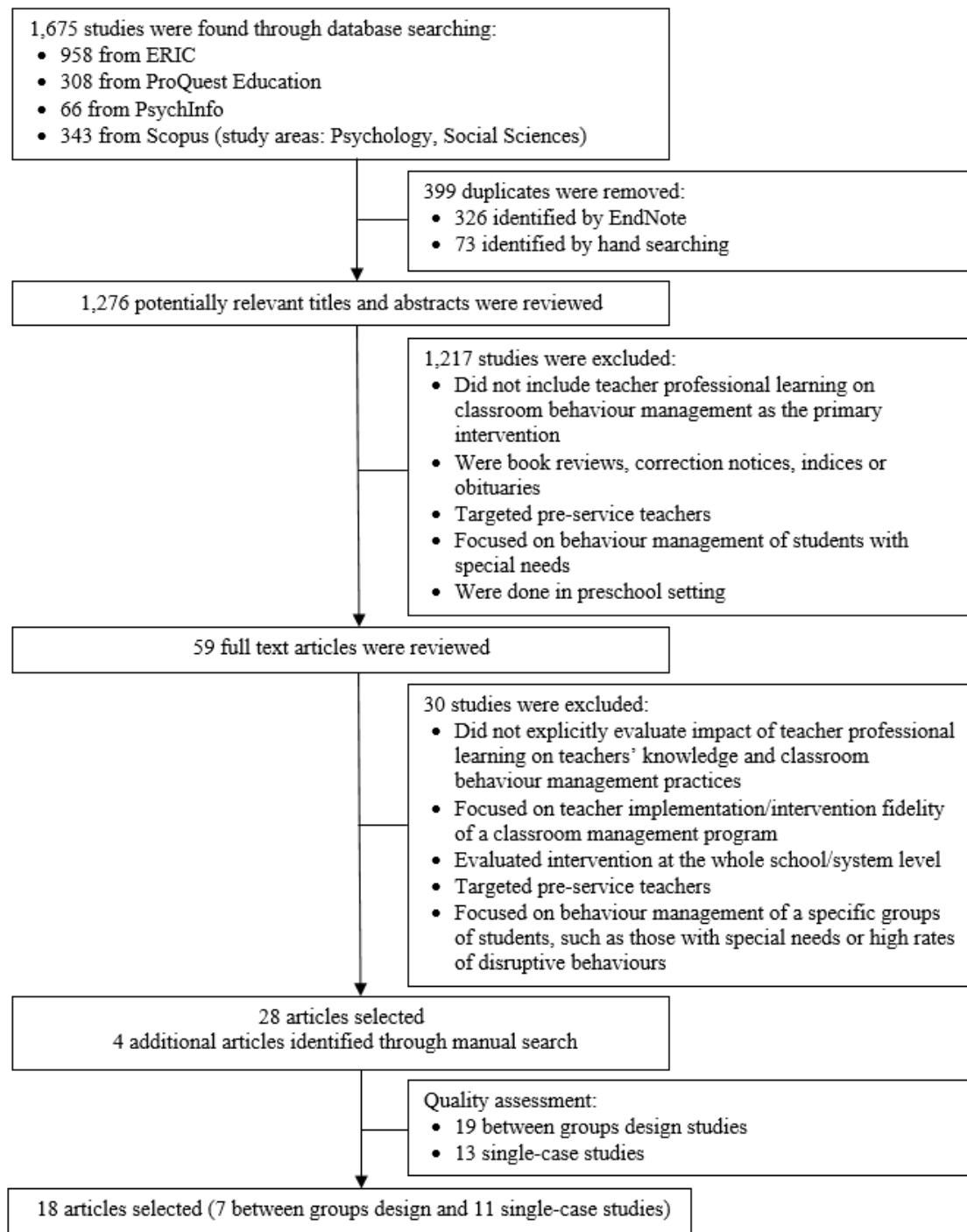


Figure 1: Overview of the systematic literature review process

Results

Characteristics of the Studies

All but two of the reviewed studies were conducted in the United States; with those two studies conducted in Canada and Ireland. Primary schools were the dominant setting of the studies, and the majority of teacher participants were female. The content of most professional learning programs of the selected articles ($n = 10, 55.6\%$) was focused on a specific behaviour management strategy. The remaining articles focused on more comprehensive classroom management programs which incorporated strategies derived from

various approaches of classroom management. Most of the studies implemented a combination of professional learning strategies. Training, coaching and performance feedback were the most common components of teacher professional learning strategies implemented in the studies.

Features of Professional Learning Programs

Content

Most of the teacher professional learning programs reviewed taught strategies derived from the behavioural approach of classroom management, incorporating strategies such as the use of reinforcement and functional behaviour analysis (e.g., Collier-Meek, Fallon, & DeFouw, 2017; Fabiano, Reddy, & Dudek, 2018; Gaudreau, Royer, Frenette, Beaumont, & Flanagan, 2013; Hickey et al., 2017; Marquez et al., 2016). A specific behaviour management strategy became the focus of ten (55.6%) of the selected studies. Of these ten studies, nine trained teachers to employ behaviour-specific praise, and one study trained teachers to achieve and maintain a 1:1 ratio of praise to behaviour correction (Pisacreta, Tincani, Connell, & Axelrod, 2011). Almost all of the studies focusing on a specific behaviour management strategy utilised multiple baseline designs, with only one study applying an alternating treatment design to evaluate the effects of three different self-monitoring conditions on teachers' rate of specific praise (Simonsen, MacSuga, Fallon, & Sugai, 2013).

The remaining eight selected studies involved more comprehensive classroom management programs. As shown in Table 2, the contents of these programs represent, to some extent, behavioural approaches of classroom management. Some studies incorporated behavioural strategies in combination with other approaches, such as ecological, social-emotional learning, and culturally responsive behaviour management.

The content focus of some of these programs represents a group of selected classroom behaviour management strategies. The research by Fabiano et al. (2018) targeted teachers' behaviour management practices as listed in the Classroom Strategies Assessment System, namely clear and vague directives, behavioural praise, and behavioural corrective feedback. Behavioural strategies were also covered in the Classroom Management in Action (CMA) program by Marquez et al. (2016), which included a range of evidence-based classroom management practices. The study by Gaudreau et al. (2013) involved several positive classroom behaviour management strategies derived from the literature on classroom management and behaviour difficulty prevention, combining behavioural strategies with social-emotional strategies such as developing social skills. Culturally responsive behaviour management practices were the focus content in the research by Bradshaw et al. (2018), while the Supporting Early Adolescent Learning and Social Support (SEALS) program in the paper by Motoca et al. (2014) incorporated strategies in academic, behaviour and social domains to develop classroom contexts which support students' adaptation.

Two studies trained teachers to implement a class-wide intervention designed to promote positive student behaviour. In the research by Collier-Meek et al. (2017) teachers were trained to implement the Good Behaviour Game (GBG) and the Caught Being Good Game (CBGG), while the article by Pas, Bradshaw, et al. (2015) explored the implementation of PAX GBG in combination with the Promoting Alternative Thinking Strategies (PATHS). PAX GBG is a version of GBG which incorporates visual and verbal cues to promote positive student behaviour. Whilst the GBG and CBGG are mainly behavioural with emphasis on reinforcing certain levels of student behaviour, the PATHS program is a social

Authors	Country/ design	Setting*; N teachers	Program content	Professional learning strategies	Dependent variable	Data collection technique	Findings	Reported effect sizes/PND
Bradshaw et al. (2018)	US Within- school, teacher-level randomised control trial (RCT)	ES & MS; 158; 85.4% female	Double Check	Five training sessions, coaching	Teacher behaviours (use of proactive behavioural management, opportunities to respond, approval, and disapproval in the classroom), classroom behaviour management self- efficacy, and stress	Pre- and post- intervention group comparisons on the observations using Assessing School Settings: Interactions of Students and Teachers (ASSIST), an efficacy scale, and work-related stress scale	Significantly higher proactive behaviour management and anticipation of student problems on the coaching group	Higher ratings of proactive behaviour management ($\beta = .34, p = .01; \Delta = .45$) and anticipation of and responsiveness to student problems ($\beta = .29, p = .04; \Delta = .37$) among coached teachers. A slight increase on the use of approvals ($\beta = .34, IRR = 1.41, p = .09; \Delta = .05$) among teachers who received coaching. PND: 88.9%
Briere, Simonsen, Sugai, and Myers (2015)	US Concurrent multiple- baseline across participants	ES; 3; all females	Specific, contingent praise; data collection and data entry	Consultation, included brief training (approximately 15 minutes), self- monitoring, mentoring, performance feedback, discussion, and goal setting	Specific praise statements	Direct observation	Increased specific praise rates	PND: 88.9%
Collier- Meek et al. (2017)	US Multiple baseline single-case design study	ES; 4; all females	Good Behaviour Game (GBG) and Caught Being Good Game (CBGG)	10-12 minutes didactic training ($M = 16.25$ min, $SD = 4.79$), daily emailed prompts	Teacher praise and corrective statements	Direct observation	Increased praise rates and decreases in corrective statements	PND: Praise: 3.7% on didactic and 16.7% on emailed prompts. Corrections: 16.7% on didactic and 17.8% on emailed prompts.
Duchaine, Jolivette, and	US Multiple baseline	HS; 3; 2 female	Teacher coaching, behaviour	45 minutes training (included didactic and	Behaviour- specific praise statements	Direct observation	Increased behaviour-specific praise rates	PND: 100%

Authors	Country/ design	Setting*; N teachers	Program content	Professional learning strategies	Dependent variable	Data collection technique	Findings	Reported effect sizes/PND
Fredrick (2011)	across teachers design		specific praise	discussion), coaching, and performance feedback	(BSPS) and on- task behaviour			
Duncan, Dufrene, Sterling, and Tingstrom (2013)	US ABA'B' multiple baseline across participants design	ES & Head Start; 3; all females	Specific labelled praise and generalisatio n training	Training (included discussion, behavioural skills training procedures), goal setting, and performance feedback	Specific labelled praise statements	Direct observation	Increased specific labelled praise rates	PND: 39% on target students, 57% on non- target students
Fabiano et al. (2018)	US Wait-list controlled, randomised study	ES; 89; 93.2% female (interventi on group), 95.6% female (control group)	Behavioural management strategies from the Classroom Strategies Assessment System (CSAS)	Coaching, formative assessment, and visual performance feedback	One or more selected behavioural management strategies from the Classroom Strategies Assessment System (CSAS)	Observation using Classroom Strategies Assessment System (CSAS)	Improvement in behaviour management strategy use	Significant coaching effect for idiographic behaviour management strategies ($F(1, 75) = 7.21, p = .005, d = .54$), and significant discrepancy scores on total behaviour management on CSAS- Observer ($F(1, 76) = 7.10, p = .005, d = .54$) and CSAS-Teacher ($F(1, 72) = 3.72, p = .024, d = .21$) between immediate coaching and waitlist groups PND: 18.7%
Freeman et al. (2018)	US Multiple baseline design across participants	HS; 4; 2 female	Specific, contingent praise	25-35 minutes training (included direct instruction and application activity), self- management,	Specific praise statements	Direct observation	Minor increases in teacher use of specific praise, but no marked different from baseline	

Authors	Country/ design	Setting*; N teachers	Program content	Professional learning strategies	Dependent variable	Data collection technique	Findings	Reported effect sizes/PND
Gage, Grasley- Boy, and MacSuga- Gage (2018)	US Multiple baseline across case design	ES; 4; all females	Behaviour specific praise	weekly email prompts Brief training (approximately 20 minutes) and emailed visual performance feedback	Behaviour specific praise rates	Direct observation	Increased use of behaviour specific praise	PND: 59.1%
Gaudreau et al. (2013)	Canada Quasi- experimental design with a Waitlist control group	ES; 51; 96.07% female	Positive classroom behaviour management	Training, included workshops, readings, in-class experimentation, reflective practice, and discussion with peers, in eight three-hour sessions over eight months	Teacher efficacy	Pre- and post-test measures using the Teacher Efficacy Scale	Improved teachers' personal teaching efficacy and perceived self- efficacy in addressing student behaviour in the classroom	Significant differences between intervention and waitlist control groups on teachers' personal teaching efficacy ($F(1,47) = 8.063, p < .01, \eta_p^2 = .146$), and teachers' perceived self-efficacy in addressing student behaviour ($F(1,48) = 4.684, p < .05, \eta_p^2 = .089$).
Hickey et al. (2017)	Ireland Group randomised control trial	PS; 22; 21 female	The Incredible Years Teacher Classroom Management Training Programme	Training (involved videotape modelling, role plays, group discussions; was delivered one day per month over five months), coaching, and monthly phone calls	Teachers' use of positive and negative classroom management strategies	Self-report measures using the Teacher Strategies Questionnaire (TSQ)	Positive changes in teachers' reported use of positive and negative classroom management strategies	Significant differences between intervention and control groups on teachers' reported use of positive (effect size = .56), and negative (effect size = -.43) classroom management strategies over time.
Marquez et al. (2016) (Study 3)	US Initial pilot test using a randomised	ES; 101; 78 female	Classroom Management in Action (CMA)	Training using narrative video segments and interactive online	Teacher self- efficacy, program self-efficacy,	Pre- and post-test measures using The Teacher Sense of Efficacy Scale-	Improved teacher knowledge of classroom management	Statistically significant improvement on knowledge ($F(1,80) = 6.74, p = .011, \eta_p^2 =$

Authors	Country/ design	Setting*; N teachers	Program content	Professional learning strategies	Dependent variable	Data collection technique	Findings	Reported effect sizes/PND
	controlled field trial			planning tool (teachers accessed one Skill Video/week over 15 weeks)	teacher knowledge	Short Form (TSES), the Elementary Social Behaviour Assessment (ESBA), and a 31- item program specific Knowledge Test	practices and teacher self-efficacy	.077), teacher self- efficacy ($F(1,80) = 8.83$, $p = .004$, $\eta_p^2 = .099$), and program self-efficacy ($F(1,80) = 2.82$, $p = .097$, $\eta_p^2 = .034$).
Motoca et al. (2014)	US A part of a cluster- randomised trial multi- cohort design (this study reported on the first two cohorts)	ES; 144; 82% female	Supporting Early Adolescent Learning and Social Support (SEALS)	Training (included directed- consultation workshops, online module), and implementation meetings	Behaviour management (positive and negative feedback, redirection with and without interruption)	Group comparisons using the SEALS Observation Scales (SOS) and an abbreviated version of the Teacher Observation of the Management of Behaviour and Academics (TOMBA)	More positive feedback. More effective use of classroom structure, appropriate communication, instructional protocol, and behaviour management. Less negative feedback and redirection.	<i>t</i> statistics were reported, effect sizes were not reported
Myers, Simonsen, and Sugai (2011)	US Multiple baseline design across teachers	MS; 4; all females	Specific, contingent praise	Tiered intervention (Tier 1: Handout review, verbal recommendation)	General and specific praise statements, negative interactions with students, the ratio of positive to negative interactions	Direct observation	Increases in specific and general praise statements	PND: 64.3% on specific praise and 63.3% on general praise statements
Pas, Bradshaw, et al. (2015)	US Randomised controlled trial	ES; 210; 87% female from the original sample (222)	PAX GBG and PAX GBG- Promoting Alternative Thinking	Coaching: check- ins, modelling, need assessments, technical assistance/ performance feedback	Teacher beliefs and perceptions across efficacy, burnout, and school environmental factors	Baseline and end- of-year ratings using the Behaviour Management Self- Efficacy Scale, the Social-Emotional Learning Self-	No impact on behavioural management efficacy	End-of-year ratings of behavioural management efficacy, personal accomplishment, and emotional exhaustion were not related to the

Authors	Country/ design	Setting*; N teachers	Program content	Professional learning strategies	Dependent variable	Data collection technique	Findings	Reported effect sizes/PND
			Strategies (PATHS)			Efficacy Scale, the Maslach Burnout Inventory and the Organisational Health Inventory		number of coaching contacts
Pisacreta et al. (2011)	US Multiple baseline across participants design	MS; 3; 1 female	1:1 ratio of praise to behaviour correction	Training (included baseline review, discussion, modelling) and performance feedback	The ratio of praise to behaviour correction	Direct observation	Achievement and maintenance of 1:1 ratio of praise to behaviour correction, generalisations	PND: 74%
Simonsen et al. (2014)	US Multiple baseline across settings	MS; 4; all females	Specific praise	Tiered intervention (Tier 1: brief training and self- monitoring)	Specific praise rates	Direct observation	Increased use of specific praise	PND: 56.8%
Simonsen et al. (2017)	US Multiple baseline design across participants	ES; 6; all females	Specific and contingent praise, self- management	15-20 minutes training (included didactic training and practice), self-management, and weekly email prompts	Specific praise rates	Direct observation	Increased specific praise rates	PND: 90.3%
Simonsen et al. (2013)	US Alternating treatment design	MS; 5; all females	Specific praise and self- monitoring	Brief training (included discussion, application activity, didactic) and self- monitoring	Specific praise rates	Direct observation	Increased specific praise rates; teachers preferred the count strategy rather than tally and rate	PND: 88.6% (tally), 81.2% (count), 62.8% (rate)

*School settings: PS: Primary school, ES: Elementary School, MS: Middle school, HS: High school

Table 1: Features of Professional Learning Programs

Reference	Program	Themes/strategies of focus
Bradshaw et al. (2018)	Double Check	Culturally responsive practices, reflective thinking, the functions of student behaviours, mindfulness
Collier-Meek et al. (2017)	Good Behaviour Game (GBG) and Caught Being Good Game (CBGG)	Reinforcement of low levels of inappropriate behaviours (GBG) and high levels of appropriate behaviours (CBGG)
Fabiano et al. (2018)	Behavioural management strategies from the Classroom Strategies Assessment System (CSAS)	Clear one or two-step directives, vague directives, behavioural praise, and behavioural corrective feedback (<i>teacher selected at least one behaviour management strategy</i>)
Gaudreau et al. (2013)	Positive Classroom Behaviour Management	Classroom management, in-class prevention measures, observation and identification of difficult classroom behaviours, functional behaviour analysis and individualised intervention, non-aversive intervention techniques, intervention for students with ADHD, intervention for aggressive and oppositional behaviour, stress management, crisis intervention, collaboration and communication with parents, and social skills development
Hickey et al. (2017)	The Incredible Years Teacher Classroom Management (IY-TCM) Training Programme	Prevention of problem behaviours; the importance of teacher attention, coaching, and praise; the use of incentives to motivate children; strategies to decrease inappropriate behaviour; and strategies to develop students' social competence
Marquez et al. (2016) (Study 3)	Classroom Management in Action (CMA)	Evidence-based classroom management practices: (a) planning and organisation, (b) proactive prevention of problem behaviour, and (c) responding to problem behaviour; assessment of students' responsiveness to the strategies; and application of the response-to-intervention logic to classroom management
Motoca et al. (2014)	Supporting Early Adolescent Learning and Social Support (SEALS)	Involves three complementary components: Academic Engagement Enhancement, Competence Enhancement Behaviour Management, and Social Dynamics Management. Targeted content areas include classroom structure, feedback, instructional protocols, communication with students, behaviour management, use of groups and social dynamics, information processing and organisational strategies, and motivation
Pas, Bradshaw, et al. (2015)	PAX GBG and PAX GBG-Promoting Alternative Thinking Strategies (PATHS)	Reinforcement of low levels of inappropriate behaviours with additional strategies to promote positive classroom climate and reinforce appropriate behaviour (PAX GBG), and the implementation of a curriculum targeting social-emotional development (PATHS)

Table 2: Comprehensive Classroom Behaviour Management Programs

and emotional learning curriculum aimed to develop students' social-emotional skills (Becker, Bohnenkamp, Domitrovich, Keperling, & Jalongo, 2014). A group-based intervention program based on behavioural and social learning principles was employed in the study by Hickey et al. (2017), which provided teachers with the Incredible Years Teacher Classroom Management (IY-TCM) training. IY-TCM is an evidence-based, manualised program, aimed to strengthen teacher-student relationships, foster children's social-emotional development, and decrease problem behaviour (Fergusson, Horwood, & Stanley, 2013; Reinke, Herman, Stormont, Newcomer, & David, 2013).

Seven of the eight studies incorporating more comprehensive classroom behaviour management programs utilised a group comparison research design. Only one study by Collier-Meek et al. (2017), where teachers were trained to implement the GBG and the CBGG, employed a multiple baseline single-case design to evaluate the effect of the intervention on teachers' praise rates and corrective statements.

Teaching Strategies

Most teacher professional learning programs in the reviewed articles included a combination of several teaching strategies. Teacher professional learning programs in all but one paper included coaching or within classroom supports as a major component of the program. A few programs combined within classroom support with workshops or training sessions within the school environment (Briere et al., 2015; Collier-Meek et al., 2017; Duchaine et al., 2011), and three programs combined coaching or within classroom supports with workshops or training sessions outside the school environment (Bradshaw et al., 2018; Hickey et al., 2017; Motoca et al., 2014). The teacher professional learning program in one study which did not involve a major component of within classroom supports, mainly consisted of training workshops outside the school environment (Gaudreau et al., 2013).

Coaching was a common within classroom support strategy employed in the teacher professional learning programs. Coaching was employed in five studies (27.8%), while mentoring was a component in the teacher professional learning program in the research by Briere et al. (2015). In several other studies, within classroom supports were provided through strategies other than coaching or mentoring. Some common strategies included performance feedback (Duchaine et al., 2011; Duncan et al., 2013; Gage et al., 2018; Pisacreta et al., 2011), regular email prompts (Collier-Meek et al., 2017; Freeman et al., 2018; Simonsen et al., 2017), self-management and self-monitoring (Simonsen et al., 2017; Simonsen et al., 2013).

All programs except the one in the article by Fabiano et al. (2018) involved a component of didactic training, workshop, course or seminar, which provided structured opportunities outside the classroom to focus on the topics of interest. The duration of the training program varied between studies. In studies targeting behaviour-specific praise, seven of them delivered brief, 10 to 35 minutes didactic training sessions to introduce the specific strategy and/or intervention (Briere et al., 2015; Collier-Meek et al., 2017; Freeman et al., 2018; Gage et al., 2018; Simonsen et al., 2017; Simonsen et al., 2014; Simonsen et al., 2013). One study employed a 45-minute didactic training session to teach teachers about teacher coaching intervention and behaviour specific praise (Duchaine et al., 2011).

Studies involving more comprehensive classroom behaviour management programs employed workshops, courses or seminars of longer duration. A program with a total of 18.5 hours of professional learning, which included a directed-consultation workshop and an online training component, was delivered in the study by Motoca et al. (2014). Some studies incorporated a series of training sessions or workshops over a certain period of time. Training on positive classroom behaviour management in the research by Gaudreau et al. (2013) was delivered in eight three-hour sessions over eight months, while the IYTCM program in the article by Hickey et al. (2017) was delivered one day per month over five months. In the paper by Marquez et al. (2016), teacher participants were expected to access one online skill video per week and implement the skill in the classroom over 15 weeks.

While brief training sessions were mostly didactic in nature, most of the workshops, courses or seminars of longer duration employed a greater variety of teaching strategies which provided opportunities for teachers to practice the targeted skills within the sessions.

Some of the strategies included discussions, video modelling, role play, behavioural skills training procedures, application activities, in-class experimentation, and reflective practice. Online training modules were employed in two studies (Marquez et al., 2016; Motoca et al., 2014). In the research by Motoca et al. (2014), online training was a part of the teacher professional learning program along with direct consultation workshops and implementation meetings.

Impact on Teacher Knowledge, Practice and Efficacy

Analysis of the findings was based on the reported effect sizes of group comparison studies and calculated PND values of single-case studies. The effect sizes and PND scores of the reviewed articles are reported in Table 1. Among eleven single-case design studies focusing on specific classroom behaviour management strategies, five studies had PND scores greater than 70%, which indicates that the intervention was effective or very effective. In the paper by Duchaine et al. (2011), teacher coaching with written performance feedback was found to be very effective in increasing teacher behaviour-specific praise rates. A high PND score (90.3%) was also found in the research by Simonsen et al. (2017), in which targeted professional development that incorporated self-management and email prompts was employed to increase teacher specific praise rates. In two other studies, within-school consultation (Briere et al., 2015), and self-monitoring using tally and count strategies (Simonsen et al., 2013) were shown to be effective in improving teacher specific praise rates, with PND scores ranging from 81.2% to 88.9%. A PND score of 74% was found in the article by Pisacreta et al. (2011) in which modelling and performance feedback was employed to achieve and maintain a 1:1 ratio of praise to behaviour correction. Questionable and ineffective impacts were found in the remaining six studies, with PND scores ranging from 3.7% to 64.3%.

In the papers focusing on more comprehensive classroom behaviour management programs, five articles reported medium effect sizes of teacher knowledge, practice and efficacy of classroom behaviour management. In the study by Bradshaw et al. (2018), Double Check coaching was shown to have medium effect sizes on teacher proactive behaviour management and anticipation of student problems in the classroom. Teacher coaching was found to have medium effects on teacher selected behaviour management strategies and observed behaviour management practice in the article by Fabiano et al. (2018). The Incredible Years Teacher Classroom Management (IYTCM) Training Programme was found to have medium effect sizes on teachers' self-reported use of positive and negative classroom management strategies (Hickey et al., 2017), while the Positive Classroom Behaviour Management training program (Gaudreau et al., 2013) and the Classroom Management in Action (CMA) program (Marquez et al., 2016) had medium effects on teacher knowledge and efficacy. Meanwhile, coaching of PAX GBG and PAX GBG-PATHS in the research by Pas, Bradshaw, et al. (2015) was shown to have no significant impact on teacher behavioural management efficacy.

Discussion

Classroom behaviour management is a crucial skill for teachers; however, teachers often report low confidence and being inadequately prepared for addressing student behaviour effectively. In-service professional learning has been shown to be an important element of addressing the research to practice gap, and a valued opportunity for teachers to

fill the gaps in their knowledge and practice (Charland, 2006; Kretlow et al., 2011). This study aimed to identify the features and reported findings of recent teacher professional learning programs on classroom behaviour management.

The reported findings of the single-case design studies showed that highly effective programs which have PND scores greater than 70% share the following features: 1) the programs were focused on behaviour specific praise, with one study focused on 1:1 ratio of praise to behaviour correction, and 2) the studies included a brief (15-45 minutes) training session followed by implementation supports. The implementation supports included coaching and performance feedback (PND = 100%, Duchaine et al., 2011), self-management and weekly email prompts (PND = 90.3%, Simonsen et al., 2017), consultation that included self-monitoring, mentoring, performance feedback, discussion, and goal setting (PND = 88.9%, Briere et al., 2015), self-monitoring (PND = 88.6% (tally) and 81.2% (count), Simonsen et al., 2013), and performance feedback (PND = 74%, Pisacreta et al., 2011). A combination of brief training with indirect support strategies such as daily emailed prompts (Collier-Meek et al., 2017) and emailed visual performance feedback (Gage et al., 2018) were found to be ineffective (PND < 50%) and questionable (PND = 59.1%), respectively, in increasing teacher praise rates.

Meanwhile, group comparison studies which reported medium effect sizes share the following features: 1) the content of the programs were focused on several proactive behaviour management strategies, with one study adopting a cultural responsiveness and student engagement model, 2) all but one study incorporated a few training sessions over a certain period of time, 3) the training sessions included a variety of teaching strategies, such as case discussions, in-class experimentation, and role plays, which enable teachers to practice the targeted skills within the sessions, and 4) three studies incorporated coaching as a main teaching method, either in combination with training (Bradshaw et al., 2018), in combination with training and other professional learning strategies, such as monthly phone calls (Hickey et al., 2017), or in combination with other strategies, such as formative assessment and visual performance feedback (Fabiano et al., 2018).

In regards to the content taught to the teachers, the effective professional learning programs incorporated one or more classroom behaviour management strategies derived from the behavioural approach of classroom management. Behaviour-specific praise was a dominant strategy taught to teacher participants. Specific and/or contingent praise is an empirically supported classroom management practice designed to increase appropriate behaviour (Briere et al., 2015; Duchaine et al., 2011; Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008). Different from general praise, behaviour-specific praise clearly identifies the student behaviour that is being praised (Gage et al., 2018). Papers incorporating comprehensive classroom behaviour management programs either consisted of a number of selected classroom behaviour management strategies, or an established intervention designed to promote student behaviour, such as the Incredible Years Teacher Classroom Management (IY-TCM) program.

In terms of teacher professional learning strategies, most studies with high PND scores and medium effect sizes incorporated a combination of training sessions with one or more within classroom support strategies, such as coaching, performance feedback, self-management, and self-monitoring. The finding of this literature review supports the notion that professional learning activities within the classroom provide great opportunities for teachers to relate the knowledge and skills being delivered with their own context and daily teaching practice, and improve their classroom practice by experimenting with and reflecting on their daily practice (Knapp, 2003; Timperley, 2011). This result is also consistent with the finding of previous research which identified implementation supports as a major component in effective teacher professional learning programs (Desimone & Garet, 2015; Dunst, Bruder,

& Hamby, 2015; Ingvarson, Meiers, & Beavis, 2005). As suggested by Greenwood and Maheady (1997), teachers “can and do adjust their teaching practices” following constructive and systematic feedback about their teaching performance (p. 271).

In studies incorporating training, brief didactic sessions were shown to be effective to teach teachers in a specific behaviour management strategy, when combined with implementation supports. The training sessions, workshops, courses or seminars of longer duration, however, were not only didactic in nature, but also included a variety of teaching strategies, such as case discussions, in-class experimentation, and role plays, which enable teachers to practice the targeted skills within the sessions. Therefore, the training sessions did not merely involve information delivery, with “brief and superficial engagement of teachers,” which, according to Timperley (2011, p. 5), would be insufficient in changing teacher practice. This finding supports those of Lauer, Christopher, Firpo-Triplett, and Buchting (2014), which suggested that short-term, less than 30 hours, professional learning efforts may result in positive participant outcomes when designed effectively.

There are limitations to this review of the literature. First, while this research aimed to include all studies about teacher professional learning programs on classroom behaviour management over the past ten years, there is a possibility that some studies were overlooked and not included in the review. Second, this article only presents a narrative analysis. Future studies may include a meta-analysis to critically evaluate the effect sizes of teacher professional learning programs being reviewed. Third, the review was mainly focused on the features and effects of the professional learning program, without exploring any school-level factors. School-level factors, such as the level of the professional community in the school, program coherence, technical resources and school leadership (King, Dinham, & Bouchard, 2011; King & Newmann, 2001), may influence professional learning program outcomes, thus should possibly be included in future research.

This literature review was aimed at identifying the features and reported findings of teacher professional learning programs on classroom behaviour management in the past ten years. While it is important to develop high-quality content for a teacher professional learning program, the findings of this study indicated that effective teaching strategies were required to produce the expected outcomes. Brief didactic training with direct within classroom supports may be useful for targeting a specific behaviour management strategy, but more extended programs with coaching and other implementation support strategies may be required for more comprehensive behaviour management programs.

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