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The paradox of teacher professional development programs for behaviour management: Comparing program satisfaction alongside changes in behaviour management practices¹

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ABSTRACT

A teacher professional development program using applied behavioural techniques was delivered to primary school teachers. Teachers ($N=78$) rated the program highly and reported improved knowledge and skills in managing disruptive student behaviour. Objective measures of teacher ($n=32$) pre- and post-workshop data revealed significant changes in teachers' use of positive strategies for female students. Change in teachers' use of punishment was in the expected direction, with insufficient power to produce statistical significance. Juxtaposed to high teacher self-reported satisfaction are objective pre and post data for a small group of very difficult students who showed no change in disruptive behaviour. This study found that teacher satisfaction ratings are a poor indicator of change in the classroom and argues that professional development for teachers must incorporate objective measures of child behaviour.

Keywords: behaviour management, disruptive behaviour, teacher professional development, primary school children

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INTRODUCTION

Dealing with disruptive and challenging behaviour in the classroom is of significant concern to teachers. The behaviours universally identified in the research, as of most concern to primary school teachers include calling out, non-compliance, not listening, poor concentration, inattention, disturbing others and arguing when reprimanded (Arbuckle & Little, 2004; Giallo & Little, 2003; Merrett & Wheldall, 1984; Stephenson, Martin, & Linfoot, 2000). These behaviours can significantly interfere with lesson delivery and student learning opportunities (Cains & Brown, 1996; Merrett & Wheldall, 1984). Furthermore, attending to these disruptive behaviours in the classroom can contribute significantly to teacher stress and burnout (Griffith, Steptoe, & Cropley, 1999; Martin, Linfoot, & Stephenson, 1999). One study documented that teachers who perceive that classroom behaviour is difficult to manage are more likely to leave the education system than teachers who perceive that they are able to effectively manage classroom behaviour (Ingersoll, 2001). Therefore, adequate training and support in the area of classroom behaviour management may lower the risk of stress and burnout among teachers.

Supporting teachers in classroom behaviour management also has important implications for student learning and wellbeing, particularly for children with persistent behaviour difficulties. Some research indicates that teachers are least tolerant of children with behaviour difficulties in their classrooms (Cartledge & Johnson, 1996). As a result, children with behaviour difficulties often receive less support and encouragement from teachers, and tend to receive more criticism, punishment and time out from the classroom than other children (Patterson, Reid, & Dishion, 1992; Walker, Colvin, & Ramsey, 1995). Given the significant stress arising from dealing with difficult behaviour in the classroom, it is not surprising that teachers may find it difficult to respond in a positive way with students with persistent disruptive behaviours.

However, adequate support and the appropriate management of difficult behaviour at the school level is critical given the overwhelming body of research documenting poor short- and long-term academic and social outcomes for children with persistent disruptive behaviours. For instance, the seminal research arising from the Oregon Longitudinal Study of Antisocial Boys (Dishion & Patterson, 1999; Patterson, DeBaryshe, & Ramsey, 1989; Patterson, Reid, & Dishion, 1992; Patterson & Yoerger, 1997) identified that they are specifically at-risk of (a) failure to engage with the education system and hence are likely to fail academically, (b) an escalation of the severity of behaviours across the school years, (c) disengagement from socialisation with peers, teachers, and other adults, and (d) disconnection with the service system particularly if difficulties escalate to continued school suspensions. Other research indicates that children who disengage from the education system are at significant risk of developing adolescent delinquent and substance use problems (Hawkins, Catalano, & Miller, 1992). Thus, it is evident that intervening early at a school level is critical for improving a wide range of social, emotional, behavioural and academic outcomes for children with disruptive behaviour disorders.

Many studies have demonstrated the effectiveness of classroom interventions to improve outcomes for children with persistent behaviour difficulties (e.g. LIFT, PATHS). The PATHS program, *Promoting Alternative Thinking Strategies*, has been recognised as a model US program and has demonstrated improvements in children's social and emotional development through classroom based activities (Greenberg, Domitrovich, & Bumbarger, 2001; Greenberg, Domitrovich, Graczyk, & Zins, 2005); whilst the LIFT program, *Linking the Interests of Families and Teachers* (Reid, & Eddy, 2002) has followed on from the seminal work of the Oregon Youth Study and showed that providing in school programs can reduce the long-term impacts of anti-social behaviour in young children. Classroom interventions usually require teachers to utilise behavioural strategies to respond to inappropriate behaviour, to promote positive behaviour, and teach new skills in children. Classroom interventions are particularly important as they promote generalisation of behaviours and skills across home and school settings (Greenberg et al., 2001).

Although teachers play a critical role in implementing behaviour management strategies in the classroom, there is much research indicating that Australian teachers report feeling unprepared and lack confidence in the area of classroom behaviour management. A recent survey of 96 Victorian teachers found that 52.1% were confident in their classroom management strategies, whilst 40.6% who completed this survey refrained from answering questions on their confidence in managing disruptive behaviours (Arbuckle & Little, 2004). In a second survey of 130 New South Wales early primary teachers, 20 % indicated that they were not confident in managing disruptive behaviour (Martin et al., 1999). The decrease in confidence was significantly associated with increases in teacher reports of disruptive behaviour. This research also revealed that as hyperactivity and non-compliance in male students increases, the confidence and willingness of teachers to report on their management skills decreases. Given that teachers play a critical role in implementing behaviour management strategies in the classroom, it is important that they are well trained, and provided with adequate resources and support in this area.

Despite the need for adequate training, resources and support, in a recent survey of 79 Victorian new graduate and student teachers, education and training in classroom behaviour management was rated as minimally sufficient (Giallo & Little, 2003). Furthermore, 80% of the teachers in this study indicated that they would like additional training in behaviour management strategies. Additional training in this area could be made available through university training, as well as ongoing professional development opportunities. For instance, a study evaluating the effectiveness of a four-day teacher training session focusing on effective classroom management strategies for handling difficult behaviour, promoting positive relationships and strengthening social skills revealed that it was effective in improving teacher-child relationships and decreasing teacher's negative behaviour toward children with behaviour difficulties (Webster-Stratton, Reid, & Hammond, 2004).

From the literature, it is evident that there is a need to improve training and support for teachers in the area of behaviour management, particularly for children with difficult and challenging behaviour. Therefore, the aim of the current study was to conduct a pilot evaluation of a teacher professional development program based on well validated and widely used behavioural principles and specifically aimed at increasing teachers' knowledge and skills in managing children with disruptive behaviours in their classrooms. Teacher satisfaction with the professional development activity was assessed, along with changes in teacher's knowledge and skills in behaviour management strategies and child behaviour.

METHOD

Participants

A total of 86 school personnel were recruited from government schools in the Central Highlands/Wimmera region of Victoria and the University of Ballarat. There were 58 teachers (67.4%), 6 part-time student wellbeing (welfare) staff (7%) and 22 students undertaking a Bachelor of Teaching degree (25.6%), with average years teaching experience of 18.99 (SD=11.54), 11.75 (SD=11.68), and 3.33 (SD=1.27) respectively. Teachers from lower and upper primary school years comprised 50% and 18.6% of the sample, respectively, while 26.7% were participants who work with students across a variety of primary school levels, many were in welfare roles. The remaining 4.9% did not indicate which grades they work with. Of the 65 post-professional development questionnaires distributed to the teachers and student wellbeing staff, 32 participants returned their questionnaires, providing a return rate of 50%. Therefore, 32 pre-to post-professional data sets were available for data analysis.

Measures

Participants completed the following measures:

Child Behaviour Survey (Martin et al., 1999) was used to assess teachers' perceptions and management of children's behaviour in the classroom. Slight modifications were made for the

purposes of this evaluation. Teachers were asked to complete demographic information pertaining to qualifications, years of teaching/support students, and current grade level taught/supported. They were also asked to estimate the number of children with difficult behaviours and special learning needs in their classroom. Teachers' use of support to manage behaviour problems in the classroom, as well as the specific strategies they use to deal with disruptive classroom behaviour for male and female students were also assessed on a 3-point Likert scale. Internal consistency for each of the sections on the original scale range from Cronbach's alpha of .79 to .92.

Adapted The Difficult Behaviour Assessment Form (Bruininks, Woodcock, Weatherman, & Hill, 1996) was developed based upon the formatting of the items from the Scales of Independent Behaviour – Revised, a reliable and valid measure designed to assess adaptive and maladaptive behaviour. It is a two-item measure in which teachers are to nominate two problem behaviours of a student displaying high levels of difficult behaviour in their class. The behaviours are rated on a five-point scale on how frequently the behaviour occurs, and how serious it is to the teacher. The adapted Difficult Behaviour Assessment Form has been used in other studies with parents of children with an Acquired Brain Injury (Giallo, Matthews & Anderson, 2006) and mothers of infants and toddlers (Hayes, Matthews, Copley & Welsh, 2007).

Post Professional Learning Event Participant Survey (Department of Education, Science and Training, 2007) was a requirement of the Australian Government Quality Teacher Programme (AGQTP) Reporting Framework and was used to obtain teacher satisfaction data about the professional development session. For instance, participants were asked to indicate the degree to which the PD had enhanced their skills and understanding in children's difficult behaviour and managing problem behaviour in the classroom on 3-point scale, where 1 = *yes*, 2 = *to some extent*, and 3 = *no*.

CAST Teacher Professional Development Program

The teacher PD program formed part of the CAMHS and Schools Together Program (CAST), which is an early intervention service in schools, funded by the Mental Health branch of the Victorian Department of Human Services, working with teachers, parents and children on managing disruptive behaviour (Brann, Corboy, Costin, McDonald, Hayes, & Turner 2007). The professional development program was a three-hour session aimed at providing a rationale for and demonstrating well validated behaviour management strategies to (a) promote appropriate behaviour, (b) handle and decrease difficult behaviour, and (c) teach new skills. The participants were also provided with information and examples pertaining to conducting functional behavioural assessment and developing a behaviour management plan. Finally, participants developed a behaviour management plan for a current child in their class. By providing participants with the opportunity to work on examples that are relevant to their own work environment, it was expected that this would increase the likelihood that the strategies are used, and that generalisation of strategies to other situations occurs. Each participant was provided with a comprehensive manual with full details of strategies for managing difficult behaviour (manual is available from the second author).

Procedure

An invitation to attend the teacher professional development session was sent to all government schools in the Central Highlands/Wimmera region of Victoria, and to undergraduate teaching students at the University of Ballarat. At the beginning of the professional development session, participants were invited to take part in the evaluation research. Interested participants were provided with a plain language statement outlining the nature of the research, a consent form and survey. The survey was given to teachers and student wellbeing staff at two time points: Time 1 (T1) prior to the professional development and Time 2 (T2) two weeks after the professional development. Undergraduate students did not participate in the T2 measure due to variation in their placement and opportunity to use the behaviour management strategies outlined

in the professional development. In order to match the participants' questionnaires at each time point, a registration number was allocated to each participant at the time of registration. Finally, the participant satisfaction question was completed at the end of the professional development session.

Data Analysis

The data were collated and analysed on a group basis using quantitative research methodology. The participant satisfaction data obtained was presented using descriptive statistics and their written comments were summarised according to salient themes. The effectiveness of the professional development was assessed by examining changes in the participants' use of behaviour management strategies and uptake of child behaviour management techniques from pre- to post-professional development. The effect of the professional development on the frequency and seriousness of three problem behaviours of a student displaying high levels of difficult behaviour nominated by each teacher was also assessed. Repeated measures analysis of variance (MANOVAs) were conducted to compare the pre- and post-test scores on the dependent measures (time x positive/punishment; time x frequency/seriousness). Effect sizes have been reported where appropriate, with 0.01, 0.06 and 0.14 as small, medium and large effect sizes for η^2 , respectively.

RESULTS

Statistical Assumptions and Data Screening

Data from all the dependent measures were screened to assess for (a) violations of the assumptions for inferential statistics (b) missing data, and (c) outliers. No cases or data points were deleted due to missing data or outliers. The K.S Lilliefors' tests of normality indicated that distributions on some dependent measures had some skewness, however, given the small sample sizes and the graphical normality plots showing that the data for all dependent measures were approximately normally distributed, no data transformation procedures were conducted.

Participant Satisfaction

Participant satisfaction data was available for 78 (90%) of the 86 participants. This represented 60 (76.9%) teachers/student wellbeing staff and 18 (23.1%) student teachers. Meetings subsequent to the workshops prevented a small number of participants from completing the satisfaction measure (n=8). Mann-Whitney *U* statistical comparison of the two groups revealed that there were no significant differences in satisfaction ratings amongst teachers and students. Therefore, the teacher and student teacher data were collated for descriptive analysis. Figure 1 shows the percentage of participants responding to various statements about the professional development on a 3-point scale, where 1 = *yes*, 2 = *to some extent*, and 3 = *no*. All participants indicated that their skills and understanding of children's difficult behaviour and managing problem behaviour in the classroom had *improved* or had *improved to some extent* following the professional development session. With respect to expected changes in student outcomes, all participants indicated that they expected student behaviour, and student engagement and motivation would *improve* or *improve to some extent* once the professional development activity strategies were implemented. Of note, the satisfaction data in Figure 1 shows that 76% rated their knowledge and understanding at the highest level (first two bars), but only 43.2% were as positive they could transfer this into improvements in student behaviour, engagement and motivation (3rd and 4th bars); this suggests that teachers are very confident in taking up knowledge but less confident this knowledge can result in reduced problem behaviour amongst the most difficult students (this point will be taken up in the discussion).

Finally, the majority of participants indicated that the professional development activity had encouraged them to reflect on their teaching and had encouraged them to participate in future

workshops, with a very small percentage of participants reporting disagreement. Furthermore, the majority of participants indicated that the value they place on working in professional association with their colleagues had *increased* or *increased to some extent* following the professional development activity.

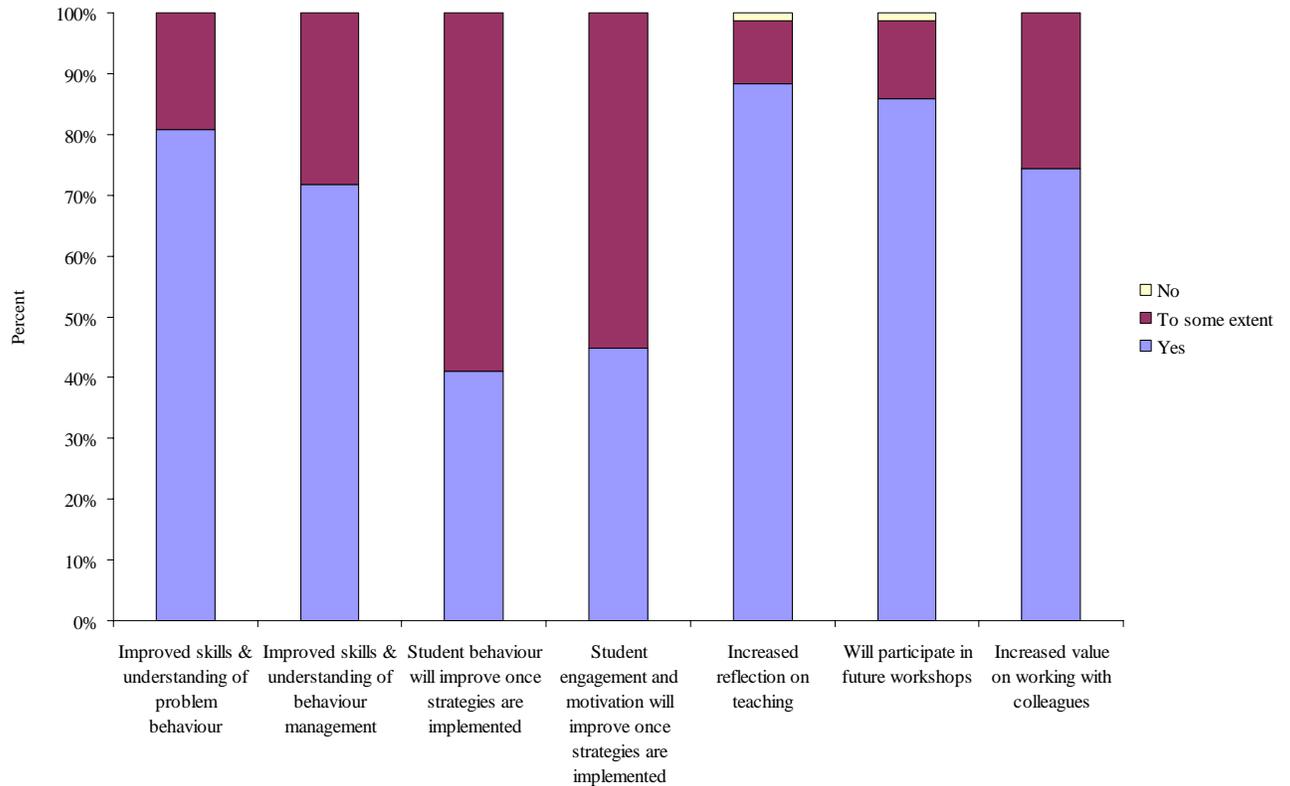


Figure 1: Percentage of participants responding to various statements about the professional development activity

Teachers’ Use of Behaviour Management Strategies

Changes in teachers’ use of various behaviour management strategies for male and female students following the professional development session were assessed. Table 1 provides the mean scores for the teachers’ use of a range of behaviour management strategies for male and female students. A repeated measures MANOVA revealed that there was no significant change in teachers’ use of various behaviour management strategies for male students following the professional development session. However, there was significant change in teachers’ use of behaviour management strategies for female students following the professional development session, Wilks’ $\lambda = .324$, $F(4, 28) = 3.36$, $p = .023$, multivariate $\eta^2 = .32$. Follow-up univariate analyses for each of the dependent measures revealed that teachers’ use of positive strategies increased following the professional development session, $F(1, 31) = 5.20$, $p = .03$, $\eta^2 = .14$. The decrease in teachers’ use of punishment strategies following the professional development session was approaching statistical significance, and $F(1, 31) = 3.07$, $p = .09$, $\eta^2 = .09$. The direction of effects supports the contention that these non-significant results may be attributed to insufficient power. Of note, the results directly mirror the workshop teachings, which emphasised using positive strategies to reduce problem behaviour and decreasing punishment.

Table 1: Teachers' Use of Behaviour Management Strategies for Male and Female Students pre and post-professional development session (N=32).

Strategy	Range	Male Students		Female Students			
		Pre-Professional Development <i>M (SD)</i>	Post-Professional Development <i>M (SD)</i>	Pre-Professional Development <i>M (SD)</i>	Post-Professional Development <i>M (SD)</i>		
Punishment	1-10	5.88 (1.96)	5.53 (1.97)	<i>ns</i>	4.66 (2.24)	4.22 (2.01)	<i>ns</i>
Positive Strategies	4-22	14.03 (3.55)	14.53 (3.25)	<i>ns</i>	12.13 (4.06)	13.44 (3.48)	*

Note: * = $p < .05$, *ns* = not significant

Difficult Behaviour in the Classroom

This measure asked teachers to nominate one student that they found very difficult, and then rate the frequency and severity of two of this student's problem behaviours and also rate the student's non-compliance. The effect of the professional development session on the frequency and seriousness of these three problem behaviours was assessed before the workshop and two-weeks afterwards. Table 2 shows the mean scores for the three problem behaviours. The repeated measures MANOVA revealed no significant changes in the frequency or severity for the most difficult students' behaviour following the professional development program. The mean scores in Table 2 show that there is almost no change at all and this contradicts the teacher satisfaction measure. This issue of transfer of knowledge into changed teacher practices and changes in student behaviour for the most difficult students will be taken up in the discussion.

Table 2: Descriptives for three problem behaviours of students nominated by teachers (N=17)

Behaviours	Pre-Professional Development <i>M (SD)</i>	Post-Professional Development <i>M (SD)</i>
Behaviour 1		
Frequency	3.76 (1.09)	3.65 (1.00)
Seriousness	3.76 (0.90)	3.41 (0.71)
Behaviour 2		
Frequency	3.59 (1.37)	3.47 (1.18)
Seriousness	3.71 (1.10)	3.53 (1.01)
Non-compliance		
Frequency	3.47 (1.37)	3.41 (1.00)
Seriousness	3.47 (1.37)	3.06 (0.90)

Note: All statistical comparisons were not significant

DISCUSSION

The results of this study are important because teacher training is rarely evaluated with objective measures of behaviour change amongst difficult students. This is surprising given increasing discourse on teacher distress toward problem students, coupled with economic imperatives to use teacher training resources effectively. Teachers in the current study rated the professional development activity on behaviour management strategies for children with difficult behaviour highly. Specifically, teachers reported (a) an increase in their knowledge and skills in behaviour management and understanding of child behaviour, (b) that they expected student behaviour, engagement and motivation to improve, and (c) that participation in the activity had encouraged them to think about their current practice and place greater value on working in professional association with their colleagues. These findings are important for several reasons. First, given the significant body of literature indicating that teachers often report lacking preparedness and confidence to manage students with difficult behaviours (Arbuckle & Little, 2004; Giallo & Little, 2003; Martin et al., 1999), strengthening teacher knowledge and skills in behaviour management and their understanding of child behaviour is a critical step toward supporting and improving outcomes for children with disruptive behaviours.

Second, these findings are important as it has been argued that professional development programs are most effective when teachers are provided with the opportunity to reflect on their current practices (Reys, Reys, Barnes, Beem, & Papick, 1997), and when they believe that their behaviour will result in student learning behaviours that are desired and valued (Haney, Czerniak, & Lumpe, 1996). The current study provided a strong, clear rationale for the use of behavioural strategies with children with disruptive behaviours by presenting the theoretical underpinnings and research evidence supporting this approach. This is likely to have contributed to teachers' high satisfaction with the PD and the expectation that student behaviour, engagement and motivation to improve once the behaviour strategies were implemented. This is particularly important when professionals are introduced to new knowledge, skills and teaching approaches. Eisner (1992) argues that teachers can be resistant to new knowledge and skills if they perceive that their existing practices are better than or as equally effective as those introduced in the PD. Strengthening teachers' understanding of why new intervention approaches will enhance their practice and student outcomes is important (Gersten & Domino, 2001).

Third, these findings are also important from a social validity perspective, as research shows that interventions that are viewed as acceptable are more likely to be endorsed and used by the professionals they are intended for than interventions with low acceptability (Foster & Mash, 1999; Gullone & King, 1989). Assessing social validity is considered an important first step in the development and evaluation of new interventions (Foster & Mash, 1999; Matthews & Hudson, 2001; Schwartz & Baer, 1991).

Paradoxically, teachers' high satisfaction with the PD did not result in significant changes in their application of behaviour management strategies and did not reduce their ratings of problem behaviour for the most difficult students. These findings suggest that although teachers can be highly satisfied with professional development content and strategies introduced, this will not necessarily lead to a change in their teaching behaviours or improvements in student outcomes. Much research has been conducted to understand the relationships between professional development, change in teacher knowledge and practice, and student outcomes (e.g., Guskey, 1996), and how effective research based practices can be implemented, supported and sustained in schools over a period of time (eg., Gersten & Dimino, 2001). Despite this, teacher professional development sessions continue, often without objective measures of effectiveness. Drawing on this body of literature, the findings of the current study and areas for further development of the PD will be discussed.

First, the mode of delivery and brevity of the PD may have contributed to the lack of significant findings. The single session professional development activity may have provided limited opportunity for teachers to trial, discuss and receive feedback and follow-up support in using the new PD knowledge and strategies. These are important aspects in the teacher development process, as Schumm, Vaughn, Gordon, and Rothlein (1994) argue that teachers are unlikely to alter their teaching behaviour unless given sufficient opportunity to strengthen their skills, knowledge and confidence. Therefore, it is proposed that teachers may benefit from a series of PD sessions which make use of more intensive instructional methods often used in parenting programs such as video tape modelling, case examples and role-play practice. While teachers in this study were given an opportunity to trial the strategies on one student, more specific instruction and follow-up feedback and support to share case examples and troubleshoot any difficulties that may arise in using the PD strategies may be needed. Guskey and Sparks (1996) suggest that when training programs are tailored to provide opportunities for classroom practice with coaching, changes in teaching become more evident. Further to this, a series of PD sessions over a period of time would allow teachers to discuss the change in student behaviour outcomes observed from implementing the strategies, which is also considered a critical factor in the adoption and sustained use of innovations (Rogers, 2002). These factors will be taken into consideration in the further development of the PD activity.

Second, the degree of 'fit' between the PD content and teachers' current practices is likely to influence whether teachers implement the new knowledge and strategies in the classroom. Small action changes in teaching practice are likely to be most effective. Guskey and Sparks (1996) argue that programs requiring significant changes in the magnitude, scope and practicality of current practice are likely to be less successful. Interestingly, while the present study did not measure the degree of 'fit' between the PD content and teachers' current practices in managing children with disruptive behaviour, qualitative evaluation feedback indicated that teachers were very comfortable and familiar with the theoretical content and core concepts. They were however introduced to new concepts and skills such as how to conduct a functional behaviour assessment and how to use this assessment information to develop a behaviour management plan. It is possible that teachers were introduced to too many concepts requiring a significant alteration in their daily current practice, and therefore adoption of the PD strategies may have been limited as a result. What this present study highlights is a dilemma surrounding the best use of the education dollar. It is possible that the widespread use of teacher PD delivered to groups in a workshop fashion is not economical in a real sense because it may not change teaching. Alternatives, such as mentoring in the classroom need to be evaluated alongside group delivery using objective measures of student behaviour. More individuality would allow measures of teacher fit, comparing current practice and the PD content to strive for incremental change in the teachers practice.

Third, it is also necessary to consider factors associated with individual school's context, systems, teaching philosophy. For instance, health care research that sustained implementation is influenced by organisational characteristics, such as existing knowledge and skill base of professionals, having a shared vision and approach, the allocation of resources and support, and collegiality (Greenhalgh, Robert, MacFarlane, Bate & Kyriakidou, 2004). Similarly, these factors would surely influence whether teachers' adopt and implement changes in their teaching practice. For example, sustained use of particular behavioural strategies to support children with disruptive behaviour are unlikely if the strategies do not 'fit' with the school's approach. In recent times there has been greater emphasis on the development of 'communities of practice', which highlight the importance of whole-school approaches to intervention and practice, and the development of professional or collegial networks to promote the sustained use of evidence-based practices in educational settings (Gersten & Domino, 2001; Guskey & Sparks, 1996; Stichter, Lewis, Richter, Johnson, & Bradley, 2006). Therefore, it is proposed that future professional development opportunities for disruptive student behaviour are offered with the explicit support of the whole-school communities, particularly the leaders. In addition to presenting content

pertaining to classroom-based strategies, it would be beneficial to nest within the PD proactive policy development for the whole-school and explicit mentoring to provide peer-support during the implementation.

Finally, there are several methodological limitations to note. First, although intended to be a small pilot evaluation, no control group was used and the sample size was small, limiting the statistical power to detect small differences from pre- to post-measurement. Future research using an intervention and waitlist group with larger sample sizes will increase the power to detect small changes between the groups, and determine whether any changes in the outcome measure are the result of participation in the PD. Second, it is likely that the post-test period of 2 weeks following the PD was too short for teachers to undergo any significant changes in their use of behaviour management strategies. A longer period of time may be required for the skills and concepts introduced in the PD to be implemented and consolidated in the classroom. The inclusion of a longer follow-up period would assist in determining whether there are changes teacher and student outcomes in the longer-term. Finally, it was evident that the pre-test means for some of the strategies were relatively high, and therefore, a ceiling effect could have operated, making it difficult to detect changes in teacher or student outcomes. Furthermore, the 3-point Likert scale on the Teacher Use of Behaviour Management Strategies questionnaire may not have been sensitive enough to detect more subtle changes in teacher's use of behaviour management strategies.

The current study has important implications for further design and delivery of teacher professional development for behaviour management. Firstly, teacher satisfaction ratings are a poor indicator of change in the classroom. Second, delivery of any PD to teachers must include an evaluation component with objective measures of change to teacher practices. Third, PD programs must account for the individual needs of the teacher, just as education actively embraces the individual learning needs of children. Fourth, the PD requires active support at the whole-school level, passive support is insufficient. And finally, these results call for more research that will demonstrate effective use of the limited training resources that are available for developing teachers.

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