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Using the Classroom Check-Up model to support implementation of PATHS to PAX

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The purpose of this paper is to describe the process of adapting the Classroom Check-Up (CCU) coaching model to bolster teacher implementation of a universal evidence-based social–emotional and classroom management intervention, PATHS to PAX. This paper includes a description of the intervention and a rationale for supporting implementation with the CCU coaching model. Findings from a feasibility test and initial pilot study are provided. Implications for school-based intervention implementation are also discussed.

Keywords: evidence-based intervention; coaching; teacher consultation; fidelity; implementation

Introduction

Evidence-based prevention and intervention in schools offer an immense opportunity for prevention of behavioural and mental health problems in children. Schools are increasingly encouraged by state and federal policy to adopt evidence-based practices and programmes. However, schools have unique contextual factors that create challenges and influence the quality of implementation of interventions (Ringeisen, Henderson, & Hoagwood, 2003). Thus, treatment integrity is a critical issue in the dissemination of effective practices in schools. The effect of any intervention is mediated by the quality of implementation of the intervention itself and the support systems, or infrastructure necessary to coordinate, deploy, and sustain the intervention (Domitrovich et al., 2008). Existing literature suggests that teachers struggle to implement evidence-based practices without ongoing supervision and support (Fixen, Naoom, Blasé, Friedman, & Wallace, 2005).

One approach that has proven to be especially helpful in improving adherence behaviours is Motivational Interviewing (MI; Miller & Rollnick, 2002). Although initially developed to address motivational issues of substance users, MI principles have since been extended to effectively promote motivation and adherence to a variety of populations and problem areas, including adolescent risky behaviours, eating disorders, and families of children with disruptive behaviour problems (see Miller & Rollnick, 2002). Although

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most of these applications have focused on improving compliance among patient populations, recent applications have focused on using MI principles to improve implementation practices of school personnel (Frey et al., 2011; Reinke, Herman, & Sprick, 2011; Reinke, Lewis-Palmer, & Merrell, 2008).

The Classroom Check-Up

The Classroom Check-Up (CCU; Reinke et al., 2011) is a teacher-coaching model that uses MI to enhance teacher motivation to improve their classroom behaviour management practices. Some specific motivational enhancement strategies used by the CCU include providing personalized feedback to teachers on classroom behaviours, encouraging personal responsibility for decision-making while offering direct advice if solicited, developing a menu of options for interventions, and supporting teacher self-efficacy by identifying existing strengths and times when teachers have successfully changed classroom behaviours in the past (see Miller & Rollnick, 2002).

The CCU model provides a systematic process for consulting with teachers. First, the coach conducts a motivational interview with the teacher. The purpose of this interview is to build a rapport, gain an understanding of the values and beliefs guiding the teacher's practices, and gather data on current and past teaching practices. Next, the coach gathers data on teacher behaviours in the classroom using direct observations and teacher report.

Once the assessment is complete, the coach meets with the teacher to provide feedback with regard to the strengths and weaknesses of their current implementation of practices in the classroom setting using a user-friendly feedback form. The CCU feedback form is unique in that information about performance is provided along a colour continuum of green, yellow, and red (see Reinke et al., 2011). Areas of positive performance or teacher/classroom strengths are marked in green, indicating that the teacher should keep doing what they are doing. Areas that could use some improvement are indicated as yellow, whereas areas in need of immediate attention are marked as red. As the coach delivers this personalized feedback, MI strategies are used to encourage teachers to talk about the practices they would like to change (i.e. change talk). During the feedback session, when the teacher refers to areas they would like to target for improvement (e.g. increasing use of praise, developing clear expectations), the coach writes this on a menu of options form. Following the conclusion of the feedback discussion, the coach asks the teacher to choose from the menu of options selecting a new or underused practice from which they collaboratively develop an action plan. During the action planning phase of the CCU, the coach asks questions about how important it is for the teacher to change a behaviour or use a new strategy as well as how confident they are that they can follow through with this change. Once a plan is developed, the coach uses behavioural coaching strategies such as modelling, role-playing, rehearsal, and feedback to support the teacher in the classroom.

For teachers who continue to struggle with implementing the identified classroom practices with high fidelity, the coach may provide visual performance feedback. The coach graphically depicts the use of the practice in the classroom following direct observation. This type of performance feedback has been shown to be effective in increasing teacher's use of effective strategies (Reinke, Lewis-Palmer, & Martin, 2007; Reinke et al., 2008). Finally, the coach works collaboratively with the teacher to use the new practice, they determine if it is effective and develop the next steps, including revisiting the action plan, going onto another option on the menu, or on successful maintenance of the practice, ending consultation. The use of MI throughout the process

increases the likelihood that the teacher will believe the new practices are relevant, useful, and of value in the classroom context, making it more likely that the teacher will attempt and persist in their use of the identified practices. The CCU model protocol and implementation forms are provided in a book (Reinke et al., 2011).

Several studies have evaluated the effectiveness of the CCU. A recent study looked at changes in teacher and student behaviours using a multiple baseline design across four elementary school classrooms (Reinke et al., 2008). The CCU increased teacher's implementation of classroom management strategies, including increased use of overall praise and behaviour-specific praise, and decreased use of reprimands. Further, these changes in teacher behaviour corresponded to decreases in classroom disruptive behaviour and were maintained over time. Mesa, Lewis-Palmer, and Reinke (2005) reported that the CCU model resulted in a significant increase in teacher's use of behaviour-specific praise, which in turn led to reductions in student disruptive behaviours on a class-wide level. Further, across studies, teachers rated the intervention as very important, effective, unobtrusive, and practical (e.g. requiring minimal time, resources, and effort to implement). Collectively, these studies indicate that the CCU coaching model is a feasible, acceptable, socially valid, and an effective method for improving classroom teacher's implementation of evidence-based practices.

In this paper, we describe an adapted version of the CCU model for bolstering teacher's implementation of a universal evidence-based social-emotional and classroom management intervention, PATHS to PAX (P2P). We provide a brief description of the intervention and a rationale for supporting its implementation with the adapted CCU coaching model. Following this, we describe a feasibility test and the pilot study examining the initial impact of the integrated model in improving treatment fidelity to the P2P intervention.

PATHS to PAX

P2P refers to the integration of two school-based universal interventions, Promoting Alternative Thinking Strategies (PATHS) and the PAX version of the Good Behavior Game (GBG; Domitrovich et al., 2010). PATHS (Kusche & Greenberg, 1995) is a universal classroom-based preventive intervention for elementary students designed to promote pro-social friendship skills, emotional understanding and expression skills, self-control/emotion regulation, and problem-solving skills. PATHS has been shown to significantly improve social cognition, social competence, and academic outcomes, as well as reduce internalizing and externalizing behaviour problems (see CPPRG [Conduct Problems Prevention Research Group], 1999; Kam, Greenberg, & Wells, 2003; Riggs, Greenberg, Kusche, & Pentz, 2006).

The PAX/GBG (Embry, 2002; Embry, Staatemeier, Richardson, Lauger, & Mitich, 2003) is a classroom-based group-contingency token economy strategy in which students are organized into 'teams' that are reinforced for their collective success in inhibiting inappropriate behaviour, including aggressive, disruptive, and off-task behaviour. The PAX version has been enhanced from the original GBG model (Barrish, Saunders, & Wolf, 1969) by incorporating a number of experimentally validated instructional and interpersonal cues and strategies that engage students in the learning process. Research on the original GBG implemented from first to second grade indicated that GBG was associated with immediate and long-term reductions in off-task, aggressive, disruptive, and violent behaviour (Brown, 1993; Dolan et al., 1993; Kellam, Ling, Merisca, Brown, & Ialongo, 1998; Kellam, Rebok, Ialongo, & Mayer, 1994; Petras et al., 2008), conduct

disorder (Brown et al., 2008), antisocial personality disorder, drug and alcohol abuse and dependence, tobacco use (Kellam et al., 2008), and school-based mental health service use (Poduska et al., 2008).

PATHS and PAX/GBG interventions were integrated in an effort to tap into the potential positive synergistic effects of the two in combination. The integration of P2P was conducted by the faculty at the Center for Prevention and Early Intervention (CPEI) at the Johns Hopkins Bloomberg School of Public Health. The Center brought together developers of the two programmes who collaboratively integrated the interventions for application in urban elementary schools. The blending of PATHS with the PAX/GBG reinforces the goals of each programme. This is accomplished through teacher-led instruction of the PATHS curriculum to facilitate initial exposure to social-emotional skills, whereas the PAX/GBG provides repeated opportunities for students to practice and teachers to reinforce these skills (Domitrovich et al., 2010).

PATHS to PAX training and coaching model

Efforts to maximize implementation fidelity of P2P were shaped by the models of implementation fidelity offered by Han and Weiss (2005) and Domitrovich et al. (2008). Training and coaching protocols were developed to support teacher implementation in the classroom. The P2P teacher training consists of two full days of training followed by a full-day booster session two months later. Intervention manuals are provided to teachers in hard copy, as well as electronic versions. The trainings are carried out by the intervention developers and their staff. The training includes modelling of the use of the PAX/GBG and PATHS intervention components by the trainers, viewing of videotapes of actual teachers implementing the lessons, conducting role plays and guided practice, and panel discussions with veteran teachers sharing their successes using the programme.

The developers of the P2P integration recognized the need for a standard coaching approach for assisting teachers with adoption of the integrated model. The coaching model was developed based on a review of the existing literature on topics such as coaching, training, supervision, and school-based consultation, as well as on many of the key principles that guide the P2P programme. Thus, in addition to the P2P trainings, all teachers are provided with ongoing consultation throughout the school year by a coach. The coach conducts observations of teacher's implementation of PATHS lessons and PAX/GBG games, and provides constructive feedback. The coaching model is documented in a manualized coaching protocol (Becker et al., 2011). In the following paragraph, we describe general aspects of the P2P coaching approach.

The guiding principles of the P2P coaching model (i.e. engagement, collaboration, supported skill development, constructive feedback, and positive reinforcement) parallel those that guide the P2P intervention and are reflected in specific coaching strategies (e.g. coaches sharing their experiences as teachers, modelling, providing incentives and written feedback). The standard P2P universal coaching strategy is used with all teachers regardless of their initial implementation quality. At the beginning of the school year coaches assist each teacher in preparing the classroom for the intervention and then model intervention components in the classroom. Next, coaches observe teachers implementing the intervention components and provide performance feedback and reinforcement. The modelling and observation(s) continue as needed, along with routine check-ins, where coaches and teachers solve problems regarding students not responding to the intervention or barriers to implementation.

During the initial application of the P2P programme in urban schools, researchers from Johns Hopkins CPEI found a proportion of teachers were implementing the intervention with lower than optimal fidelity even in the context of intensive supervision and support offered by the P2P standard coaching model (Domitrovich, Bradshaw, Poduska, Becker, & Ialongo, 2011). The finding that some teachers experience challenges in implementing new interventions with high levels of fidelity is not unusual, particularly within the school context (Ringwalt et al., 2003). Therefore, finding methods to assist low-implementing teachers to improve their fidelity is a critical need for school-wide adoption of effective practices.

Integrating the CCU with PATHS to PAX

The CCU model provides a systematic framework for working with teachers struggling to implement effective practices. Therefore, it was considered an optimal model for supporting teachers having difficulties implementing P2P with high fidelity. Thus, researchers at Johns Hopkins CPEI worked to adapt and integrate the CCU model with the P2P intervention to support teachers. Only teachers that were identified as needing additional coaching supports, beyond the standard coaching model, received the adapted CCU.

Coaches monitor teacher's implementation of P2P using the P2P implementation rubric (Domitrovich, Greenberg, Schaffer, Rouiller, & Ialongo, 2006). The rubric provides an objective measure of teacher's implementation across the core components of the PAX/GBG, PATHS lessons, generalization of programme elements, and basic classroom management and interpersonal style. Each teacher is provided a score based on observations conducted by the coach in the classroom ranging from 0 (i.e. *low to no implementation*) to 4 (i.e. *high implementation with consistent use of effective practices*). On the basis of these assessments, teachers in need of additional supports can be readily identified. Teachers who were having trouble implementing P2P then received the adapted CCU model (CCU P2P).

Integration and adaptation steps

A series of steps were taken to adapt the CCU model to support teachers' implementation of P2P. To begin the process of adapting the original CCU model, the key features of the P2P intervention were systematically identified, documented, and operationalized. Next, the classroom assessment measures used with the CCU were modified so that the objective data on implementation of P2P by the classroom teachers could be accurately and feasibly gathered by the coach. Concurrently, the CCU feedback form was tailored to map directly onto P2P key features. In addition, the interview, observation, and feedback tools were modified to include language consistent with P2P. For instance, the CCU P2P interview was developed to include a series of questions that were specifically related to the social-emotional climate of the classroom (e.g. 'Tell me, how you promote the social-emotional development of children in your class?'). The CCU P2P feedback form included information on teacher's implementation of key components of the P2P intervention, including whether the teacher played the PAX/GBG game and taught the PATHS lessons, how well the teacher counted disruptive behaviours; whether they identified a PATHS Kid of the Day and delivered the group reward; and how engaged the students were in the lessons. In addition, a brief student interview was developed to ascertain from the students in the classroom if the games and lessons were truly occurring. This provided additional information about the frequency and quality of P2P implementation by allowing the coach to see if the students were aware of or

were acquiring key information related to the intervention. Several core domains of the original CCU model were retained (praise ratios, quality of interactions, level of disruptive behaviour), because these are critical management skills that cut across the classroom interventions.

In the action planning phase, the CCU menu of options was re-conceptualized to include choices that matched with the PAX/GBG game or the PATHS curriculum. As mentioned before, the model focused on giving feedback about what the teacher is doing well and any areas in need of attention. These areas in need of attention are then translated into options for where to start ('Which area would you like to focus on first?') and methods for improving their skills in the chosen area (e.g. ongoing feedback, visual prompts/reminders, modelling, and role plays). Overall, the core structure of the CCU model is identical, but the content of the interview, feedback, and action planning were adapted to fit the critical feature of the P2P. All procedures and forms for the CCU P2P coaching model have been documented in a treatment manual with the CPEI.

The CCU P2P coaching model is distinct from the standard P2P coaching model in three ways: (1) the CCU P2P model provides personalized feedback using the colour continuum of green, yellow, and red while the standard model does not; (2) the CCU P2P model uses a menu of options which allows the teacher to select the practices they would like to increase while the standard model does not. The standard model is collaborative in nature, but the coaches guide the selection of practices to improve; and (3) the CCU P2P uses MI strategies throughout all the meetings with the teachers, whereas, the standard model does not include the explicit use of MI. In addition, the CCU P2P model is only implemented for teachers with lower levels of implementation. Thus, the CCU P2P model is not implemented at the start of the year, but instead after the standard model is used and in case a teacher still continues to struggle with the implementation. Typically, implementation of the CCU P2P coaching would begin in late November depending on when teachers were identified as needing additional supports.

The CCU P2P coaching materials and procedures were developed over a course of a few months and then piloted by one coach in the schools. Feedback from this coach and teachers about the feasibility and utility of the model was gathered. This information was then used to further revise the materials and procedures. For instance, it was determined that a shorter CCU P2P interview, typically conducted when first initiating the model with a teacher, could be used because often the coach had already built a rapport and had some knowledge of the classroom from their experience of coaching the teachers using the standard coaching model. The following section provides a summary of the feasibility study and information gathered during the first year of using the CCU P2P coaching model in the schools.

CCU PATHS to PAX: feasibility test

One coach implemented the CCU P2P coaching model with six teachers across two elementary schools. One of these teachers was implementing the intervention at appropriate levels and had a good rapport with the coach. The rationale for including this teacher was that she would be receptive to the model and could then provide constructive feedback on the overall process. The remaining five teachers were implementing components of the P2P intervention with low fidelity. Identification of these teachers was determined by the P2P implementation rubric.

As part of the CCU P2P model, direct observations of key classroom management variables were gathered by the coach. These variables included the frequency of teacher’s use of praise and reprimands as well as student disruptive behaviour. Each variable was concretely and operationally defined for reliable objective data. This information was then used to provide performance feedback using the CCU P2P feedback form. The coach provided feedback to the teacher on their use of the PAX/GBG game (frequency and quality), the teaching of PATHS lessons (frequency and quality), and the teachers’ use of effective classroom management strategies (praise, reprimands). Teachers were observed on their implementation and frequency of the game, lessons, and classroom management strategies several times before being provided feedback. The coach provided feedback as part of the CCU P2P process towards working to improve fidelity of the intervention and then again at the end of the year, after receiving the CCU P2P.

Direct observation data

The CCU P2P coach was able to gather all necessary data, indicating that inclusion of additional assessments needed for the CCU P2P model was feasible. Often, the coach completed the classroom observations during the same time when she was gathering information for the P2P implementation rubric. This data were used to: (1) provide the CCU P2P feedback to the teachers; and (2) document changes over time in teachers’ use of classroom management strategies.

The data associated with the direct observation of classroom management practices and disruptive student behaviour across all six teachers, including the teacher implementing at an appropriate level, indicated increased use of praise in their classrooms. Five of the six teachers exhibited an increase in their rate of using behaviour-specific praise, which describes the reason for being praised (e.g. ‘The green team is sitting quietly and ready to begin.’). Behaviour-specific praise is a higher quality form of praise that is associated with decreased disruptive behaviour (Reinke et al., 2008). In addition, three of the six teachers’ classrooms were observed to have fewer disruptive student behaviours at the end of the year. These data are promising in that the coach found the data easy to gather, that the data

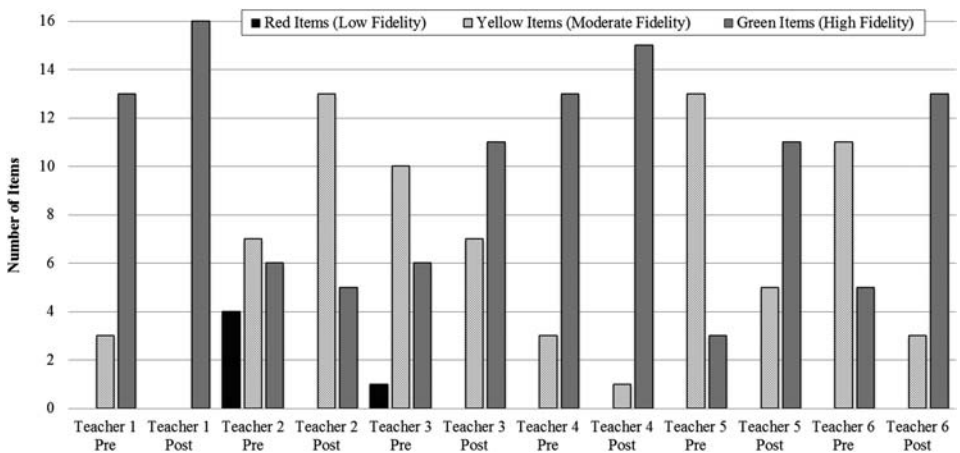


Figure 1. Pre- and post-teacher implementation feedbacks.

were useful in providing performance feedback to the teachers, and that the data were successfully used to document changes in teacher behaviour over time.

Personalized feedback on implementation

Another indicator of changes in teachers' use of P2P intervention strategies was the type of feedback provided to them during the CCU P2P feedback session and the feedback they received at the end of the year. All classroom assessments were completed before the CCU P2P feedback session and again at the end of the year. These data were then compiled and provided to teachers using the CCU P2P feedback form. The coach provided this feedback to the teachers to develop plans for implementation with them at the start of the CCU P2P process and then again at the end of the year. Figure 1 shows the changes between number of items in red (low implementation), yellow (moderate implementation), or green (high implementation) pre-CCU P2P and, again at the end of year, post-CCU P2P implementation. All of the teachers, except Teacher 2 who was the lowest implementing teacher, had a higher number of green items post-CCU P2P in comparison to pre-CCU P2P coaching. Teacher 2, who started with four items in the red, ended with zero items in the red.

Teacher feedback

All teachers reported that they found the process helpful. For instance, teachers reported liking the CCU P2P feedback forms because they were 'more data-oriented', 'easy to use/see', 'were non-threatening and presented well', and 'helpful'. They also found the coaching process to be very helpful, stating that the coach was 'encouraging', 'supportive and caring', and respected the 'privacy/confidentiality' of the teachers.

The feasibility test indicated that the process could be completed effectively with several classroom teachers in need of additional support by one coach. Further, the teachers found the process helpful and showed some positive changes in their implementation of P2P over the school year. Given these positive findings, plans were devised for an initial pilot study of the CCU P2P model with a comparison group the following year.

CCU PATHS to PAX pilot study

Following the initial feasibility study, we conducted a CCU P2P pilot study in which we conceptualized low fidelity to implementation as an example of response to intervention and attempted to support teachers with low implementation in a stepped care, public health approach. Following this approach, at the universal level, all teachers received the standard P2P training and ongoing supervision and support. Teachers who continued to have difficulty implementing P2P with high fidelity received indicated support in the form of the CCU P2P coaching model. In this manner, a realistic model for maximizing resources and providing the intensive supports only for those teachers who need it would be provided. In this study, key indicators of improved implementation fidelity included independent observations of teacher behaviours and classroom environments. In addition to scores on the P2P scoring rubric, we reasoned that additional indicators of adherence would include other classroom- and teacher-related characteristics including supportive interactions with students, clear behaviour expectations, and high rates of praise relative to reprimands. Accordingly, we hypothesized that low-implementing teachers exposed to CCU P2P coaching would evidence increased use of P2P strategies as well as improved classroom atmosphere and behaviour management practices. We expected, in comparison, teachers who received the standard coaching model to experience more modest change on

these variables as indicated by change on fewer of these indicators and/or by change of a smaller magnitude.

Method

Participants

Eight teachers from two Baltimore City elementary schools participated in the pilot study. Of these teachers, four received the CCU P2P and the other four received the standard coaching model only. All teachers were identified as having lower levels of implementation by the P2P implementation rubric. Once identified, the teachers were randomly assigned to receive either the CCU P2P coaching model or the standard model. All coaching was completed by one highly skilled coach who received bi-weekly supervision in both coaching models separately (i.e. CCU P2P supervision with the first author and standard model supervision with the fifth and sixth authors).

Measures

The following measures were used to assess changes in the classrooms and in teacher's implementation pre- and post-CCU P2P. Independent observers collected pre and post data and were unaware of the coaching model being used (CCU P2P versus standard coaching only).

Classroom Atmosphere Scale

The Classroom Atmosphere Scale (CAS), a 10-item questionnaire developed for use in the Fast Track trial (CPPRG), was completed by observers. The observers rated general classroom factors such as overall disruptive behaviour and students' responsiveness to rules. The observers also coded the teacher's responsiveness to student needs and support for student effort. The CAS shows good internal consistency (Cronbach's alphas ranging from 0.94 to 0.95) and adequate interrater reliability (ICC = 0.55–0.70).

Classroom Ecology Checklist

Immediately following the classroom observation, the independent observers completed a CCU P2P Classroom Ecology Checklist (CEC). This measure was revised from the CEC (Reinke & Lewis-Palmer, 2005) used in the original CCU studies to include items that cover teacher's use of social–emotional strategies in the classroom as well as effective classroom management strategies. This measure is an 18-item questionnaire that assesses the classroom on the following dimensions: (1) social–emotional learning; (2) classroom behaviour management; (3) teaching expectations; (4) active supervision; and (5) interacting positively with students. A three-point scale was used to indicate the level of implementation for each item (e.g. 0 = *no*; 1 = *somewhat*; and 2 = *yes*). For the purpose of this study total score on the measure was used to determine any changes between pre and post assessments.

PATHS to PAX implementation rubric (Domitrovich et al., 2006)

The P2P implementation rubric was completed by independent observers pre- and post-CCU P2P. The rubric observation scale includes 22-items, including indicators of both PAX/GBG and PATHS implementation. All items are rated on a scale ranging from 0 (*not*

observed/not evident) to 4 (highly evident and/or implemented with the highest degree of fidelity), with higher scores indicating better quality implementation. The correlations between the total score on the rubric and teacher's reports of impact on classroom behaviour and child social-emotional development, ease of use, and fit with schedule and teaching philosophy ranged from 0.81 to 0.87. For the purposes of the pilot study the total score on the rubric was used.

Results

Paired *t*-test comparisons were conducted and indicated that teachers receiving the CCU P2P coaching model showed significant improvement on the CEC and the CAS from pre- to post-test scores (see Table 1). In comparison, teachers receiving the standard coaching model had significant improvement on the CEC only. Although the rubric score for the CCU P2P condition was not significant, improvements were in the expected direction. Given the small sample size, which lowered power for all analyses, we also calculated effect sizes to characterize the practical significance of the CCU model. Cohen's *d* values were in the medium to large effect size for all three variables (Rubric = 0.79; CAS = 0.65; CEC = 1.11).

Teachers receiving the CCU P2P coaching model were asked to provide input on the social validity of the model. They rated the intervention as helpful, practical, realistic, and relevant to the context of their classroom. They reported that the following were most helpful: 'positive feedback', 'going over specific data', 'help with difficulties and suggestions', 'setting goals', and 'discussing things that are not working'.

Discussion

Teachers receiving the CCU P2P model rated the integrated model favourably and evidenced gains in improved classroom environments and management practices. Initial evidence suggests that these improvements may even have exceeded, in number and magnitude, those for teachers who received the standard coaching model delivered as part of the P2P teacher support system.

The latter finding was especially noteworthy given that a single coach delivered both coaching models to all teachers under the careful supervision of each programme developer (the P2P standard coaching model and the CCU P2P model). Thus, differences

Table 1. Results of paired sample *t*-tests and means (SD) for CCU P2P and comparison pilot.

	Pre-test mean	Post-test mean	<i>t</i>	<i>p</i>
Standard coaching comparison				
CEC	19.50 (6.03)	26.75 (4.11)	-6.14*	0.01
CAS	67.83 (14.19)	57.33 (12.97)	0.77	0.50
P2P rubric	72.75 (7.63)	79.25 (6.85)	-0.94	0.42
CCU P2P model				
CEC	24.75 (3.50)	30.25 (1.71)	-3.81*	0.03
CAS	25.50 (3.11)	16.00 (4.08)	9.13*	0.003
P2P rubric	74.25 (9.60)	84.25 (5.67)	-2.27	0.11

Note: Decreasing scores on CAS indicate positive outcome.

*Values indicate statistical significance.

in improvements are unlikely to be attributed to variation in the personal qualities of the coach, which are known to have large effects on the success of social interventions such as coaching (see Herman, 1993).

Showing any benefit of a coaching model with such an active comparison condition highlights the potential utility of using the CCU model as an adjunctive, tiered support system for teachers who do not respond to standard interventions. The CCU model is fairly time-intensive. Thus, it may not be optimal to conduct it with every teacher in a given building, and as this study suggests, is likely unnecessary. A large group of teachers respond to standard or universal implementation support systems as long as these support systems are consistent with what is known about effective training (e.g. providing initial training and modelling in addition to ongoing coaching and supports). When effective universal supports are in place, researchers and educators can be more confident that the teachers who continue to struggle with implementation are those who truly need more intensive supports. In this study, we used the CCU model as a second-tier of support for teachers with low implementation.

Evidence from the pilot study suggested that CCU P2P supports might have been more beneficial than the standard P2P coaching model. Given that both models are based on sound theory and research, this leads to questions about what may be the active ingredients in the CCU relative to the standard coaching model. Although the limited pilot data collected here cannot answer questions about mechanisms, we can speculate on the basis of the differences between the two models. The primary difference is the extent to which MI is a central component of the CCU model. MI is the foundation for the CCU and not for the standard P2P model. Thus, a tenable hypothesis is that some aspect of MI, from its relationship promotion to its motivational enhancement (e.g. progress monitoring, goal setting) strategies, is a critical active ingredient in enhancing the impact of the CCU.

Regardless, further research is needed. Next steps would include additional developmental work. In particular, continued examination of the feasibility of the CCU P2P model for wide-scale dissemination and evaluation of the minimal supports needed for it to be implemented with fidelity are required. Additional pilot-testing that includes rigorous methods of reliably gathering data using independent observers with more than one coach would be beneficial. In addition, further evaluation of the social validity of the CCU P2P model is needed. Following this additional work, an efficacy trial of the CCU P2P with a larger number of low-implementing teachers randomly assigned to receive the CCU P2P model or the standard P2P coaching model could be conducted.

Some challenges that future research needs to address include the risk of contamination. In the present study, we relied on a single coach to deliver both coaching models. The advantage of this is that it reduced the likelihood that effects would be driven solely by the personal qualities of the coach. A disadvantage is that it is difficult to maintain treatment integrity from the CCU P2P model to the standard condition. That is, because the coach was trained and supervised to deliver the CCU model and MI strategies, it is likely that some of these new skills leaked over into her delivery of the standard coaching condition. In addition, in this model, it was not possible for the coach to be blind to the hypotheses of the study. Future research needs to record all coaching sessions to determine the level of cross-coaching contamination if such a design is used. However, it is worth noting that contamination would likely only serve to lower the effect size as it could bolster the impact of the standard condition. Another option would be for future studies to use a larger number of coaches and randomly assign them to deliver the two models. Coach effects could then be parcelled out and measured using multilevel analyses.

The present study suggests the CCU model may also be a promising method for promoting adherence to other school and classroom interventions delivered by school

staff. For instance, the CCU model might be adapted to assist staff and teachers deliver tier-two supports, such as the Behavior Education Program (Crone, Horner, & Hawken, 2004), or even tier-three interventions, such as Functional Behavior Assessments and Behavior Support Plans. A recent adaptation of the CCU model is focusing on using it to increase teacher implementation of the positive classroom strategies associated with First Step to Success (see Frey et al., 2011). Supporting teachers in effective practices and high-quality implementation of evidence-based interventions is an important endeavour. MI-enhanced approaches and models, such as the CCU, may support the implementation infrastructure needed to improve the fidelity to implement school-based intervention, shrinking the gap in implementation quality often noted when interventions move from efficacy trials to effectiveness or real-world applications.

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