Building student-teacher relationships and improving behaviour-management for classroom teachers

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Teachers can at times view behavioural intervention procedures as time-consuming. Thus, socially-valid classroom-based interventions are a critical component to behavioural success. This study examined the effects of traditional behavioural interventions with two kindergarten students presenting with challenging behaviours, including aggression, tantrums and noncompliance. Notably, it was found that traditional behavioural procedures were not sufficient to substantially reduce the behaviours alone. Therefore, a relationship-building component was added to target positive student-teacher relationships. Student outcomes resulted in a significant reduction in challenging behaviour as well as teacher-reported behaviours showing a reduction across all measured periods. Ongoing teacher consultation, increased student-teacher relationships (STRs) and use of effective classroom management strategies are necessary for effective models of behaviour support.

***Key words*: consultation, behaviour change, student-teacher relationships.**

Introduction

Behavioural interventions within classroom settings are viewed as imperative for supporting student success. The effective implementation of behavioural strategies in classrooms requires multiple key components. First, teaching strategies grounded in applied behaviour analysis (ABA) principles have demonstrated effectiveness in improving academic outcomes and social-emotional skills for students. Second, the student-teacher relationship must be acknowledged, as it plays an important role in reducing behavioural concerns among students in the classroom. Third, the consultation process supports teachers in implementing classroom-based behavioural interventions with a high degree of fidelity. Considering these components, the current study examined the effects of traditional behavioural interventions with two kindergarten students presenting with challenging behaviours, including aggression, tantrums and noncompliance. Lastly, we discuss limitations of the study and implications for practitioners.

Classroom-based interventions are often used to support student success across social, behavioural and academic domains. The use of applied behaviour analysis (ABA) strategies, such as differential reinforcement of other behaviour (DRO) procedures, have been used in classrooms for reducing individual student problem behaviours (e.g., Buckley and Newchock, 2006; Fahmie *et al*., 2013) and for increasing contingent teacher attention (e.g., Thompson *et al*., 2003). DRO aims to replace the original reinforcement for challenging behaviour (e.g., attention for off-task behaviour) by reinforcing other behaviours and increasing the probability of reinforcement for socially-desired behaviour (e.g., attention for on-task behaviour). As providing reinforcement to students occurs throughout the day, this is often an easily malleable strategy to modify in a classroom setting, and the use of DRO is a practical intervention for a classroom setting in that reinforcement can be implemented with clear procedures (Thompson *et al*., 2003).

The class of behavioural interventions that modify environmental stimuli prior to the presence of a target behaviour are known as antecedent strategies (Radley and Dart, 2016). Antecedent strategies have demonstrated effectiveness for both the prevention and intervention of problem behaviour in the classroom (Radley and Dart, 2016). In particular, social praise is a classroom management practice with substantial empirical support at the elementary level (Briere *et al*., 2015). Social praise is often used by teachers as a way to respond and attend to positive behaviours in the classroom (Conroy *et al*., 2009). However, in order for praise to be most effective, praise should be behaviour-specific and contingent upon a

desired behaviour. Thus, social praise provides teachers with an effective tool for preventing and managing problem behaviours in the classroom if done at the right frequency and with sincerity (Conroy *et al.*, 2009).

These teaching strategies grounded in ABA principles have demonstrated successful implementation in schools towards enhancing academic and social-emotional skills. For example, improvements in literacy and writing performance have been observed when teachers provided frequent response opportunities and incorporated praise and reinforcement (Joseph *et al.*, 2016; Hansen and Willis, 2014). These reinforcement-based contingencies are important for shaping student behaviour as well as increasing positive student-teacher interactions. Instructional practices have been observed to have the greatest impact on student performance when teachers provide direct, intentional and focused feedback for students (Pianta *et al.*, 2002). Furthermore, children's time on task and academic engagement can be increased through a child-centered climate with high levels of teacher support (Pianta *et al.*, 2002).

The student-teacher relationship

This student-teacher relationship (STR), or relationship-building, is a simple and effective antecedent strategy for shaping student behaviour. Research has demonstrated that student problem behaviours can be reduced and overall classroom climate enhanced when a focus is placed on increasing positive student-teacher relationships (Hamre and Pianta, 2001). Both short and long-term social and academic benefits have been observed by increasing such relationships in elementary school students (e.g, Pianta *et al.*, 2008; Hughes, 2011). Overall, high-quality daily interactions between teachers and students provide socially-mediated reinforcement through which teachers can influence children's development (Pianta *et al.*, 2008). Specifically, disruptive behaviours can significantly impact the development of student-teacher relationships as well as impact the teachers' ability to effectively teach young students (Hamre and Pianta, 2001; Carter *et al.*, 2010; Garbacz *et al.*, 2014). When there are high levels of conflict between a student and teacher, rates of problem behaviour such as disruptive behaviour or noncompliance often increase as well. It is therefore critical to prevent the occurrence of negative student classroom behaviour, as such behaviours may interfere with student social-emotional and academic growth (Mashburn *et al.*, 2008). By effectively providing behavioural consultation, training teachers how to apply basic ABA principles of reinforcement and antecedent strategies can increase positive STR and reduce levels of disruptive classroom behaviour (Garbacz *et al.*, 2014).

Thus, relationship-building is a key piece of early academic success and a substantial mediator in reducing behavioural concerns in the classroom.

Consultation

In addition to overcoming challenges related to classroom management and instruction, teachers are often tasked with effectively supporting individual students with challenging behaviour (i.e., disruption, noncompliance, aggression) while simultaneously managing an entire class of students. Provided that traditional behavioural procedures often require a high fidelity of implementation to demonstrate intervention effectiveness, such procedures have therefore been viewed as unrealistic and time-consuming by teachers (Gresham, 2004). Thus, effective and socially valid classroom-based interventions are a critical component to behavioural success for students.

As consultation is a major component of school service delivery, school psychologists are often tasked with providing support to both teachers and students (Erchul and Sheridan, 2014). School psychologists support teachers' ability to implement behaviourally-oriented interventions. Effective consultation is dependent on both open communication as well as navigating the school culture surrounding the consultation process (Spratt *et al*., 2006). Consulting school psychologists often conduct initial intervention training when supporting classroom interventions, and teachers then play a critical role in their continued implementation. As consultation does not occur in a vacuum, it is necessary to provide intervention support that works with the teachers' need for support and classroom management while recommending evidence-based practice strategies. Behavioural consultation is one model that supports the problem identification and problem analysis between a teacher and supporting school psychologist or behaviour analyst for meeting the educational needs of a student (Kratochwill *et al*., 1995; Erchul and Sheridan, 2014). To increase effectiveness of classroom-based interventions, brief, five- to ten-minute weekly meetings are recommended to work within the context of the demands of a school schedule yet be able to effectively support a classroom teacher (Noell, 2010).

The present study sought to examine the effects of consultation support for two classroom teachers to reduce the challenging behaviour of two kindergarten students. Specifically, the effects of traditional behaviour interventions to reduce challenging behaviour were implemented, with the addition of a relationship-building (praise to target STR) component included. Therefore, the primary

research questions were: 1) What is the effectiveness of a traditional behaviour intervention for two elementary school students? 2) To what extent does the effectiveness of the behaviour intervention improve when a relationship-building component is added? 3) What is the change in teacher behaviour with respect to interactions or reports of student behaviour during each intervention phase?

The research approach

i. Participants and Setting

Two five-year-old kindergarten students from two urban school districts in Southern California participated in the study. Student One, "Mark", was a typically-developing, white/Hispanic male who attended a general education classroom. Mark's teacher was a white, female, general education teacher with 14 years of teaching experience.

Student Two, "John", was an African American/Asian male who was receiving special education services for speech-language impairment and academic support. John attended a general education classroom for most of the day, with 90-minute pull-out support for speech and academic support. John's teacher was a Hispanic, female, general education teacher with 30 years of teaching experience. It is important to note that procedural safeguards were implemented for both students and approval was received from the Institutional Review Board (IRB) of the participating University as well as district approval for the use of school-based student data.

Both teachers were referred by their respective administration for consultation due to the high rate of their students' challenging behaviours. "Mark" was referred first, and thus consultation and intervention support began immediately; "John" was referred several months later. Each student was referred for support from a dually-credentialed school psychologist and Board Certified Behaviour Analyst (BCBA). The BCBA is a graduate-level certified practitioner providing behaviour analytic services. The two students were referred due to the limited knowledge exhibited by their teachers related to the implementation of reinforcement-based procedures for increasing compliance. As a result, consultation support was offered to the classroom teacher between the teacher and school psychologist/behaviour analyst. Due to high teacher resistance, this eventually shifted to consultation support between the school principal (in collaboration with

the consultant) and their respective teachers. All interventions were conducted in both kindergarten classrooms. Consultation support was provided in weekly sessions for both teachers during the problem-solving phase (approximately 10 minutes). Consultation support was then faded to monthly meetings with the school principal during the intervention and follow-up phases with increased consultant support in the class setting. During consultation meetings, the consultant and teacher would review the report of behaviours observed, review charted data collected by the teacher and/or support staff and recommended strategies for further intervention.

ii. Intervention setting

Mark's elementary school was a public school in a middle-class socioeconomic community that has a history of teachers declining classroom-management support from a BCBA consultant. Records from school administration indicated current practices in managing behaviour included referrals to the principal's office or removal from the classroom. In-class strategies used to manage behaviour included removal of class privileges, verbal reprimands, calls/notes home to parents and/or removal of recess. At the time of this study, the school's new administration provided BCBA consultation support and recommendations related to the implementation of more pro-social and reinforcement-based behaviour intervention strategies. Thus, consultation support was provided longer in order to increase teacher buy-in and support.

John's elementary school was a large public school in a low-to-moderate socioeconomic community. John's teacher was a lead educator at the school who was outspoken against the use of positive behaviour intervention supports. Current classroom strategies used to manage behaviour included verbal feedback and reprimands, calls home to parents and removal from the classroom. Consultation was shorter in duration in order to both support the teacher's needs as well as the students.

iii. Data collection

The two students' challenging behaviours included aggression, tantrums and noncompliance. The focus of the intervention for student one (Mark) was the reduction of aggressive behaviours. Physical aggression was operationally defined as movement of the body towards another individual with enough force

to potentially cause injury or harm. Verbal aggression was defined as the use of negative or inappropriate language towards another. Tantrums were defined as crying that lasted longer than three seconds in duration. Behavioural occurrence and non-occurrences were coded in accordance to specific periods during each day. As the student attended school for 3.5 hours, the day was split into seven periods, with each period based on the activity/schedule. If challenging behaviours occurred during a particular time period, the teacher was instructed to mark the period as an occurrence on the datasheet. The data collection system provided a partial-interval recording of behavioural occurrence across extended intervals. The teacher also provided narrative reports of events that transpired during the time periods for use during consultation meetings. The teacher reports were then later coded in accordance with the operational definitions to obtain a prevalence of the challenging behaviours accounted for daily by teacher reports.

The focus of the intervention for Student Two (John) was increasing compliance. Compliance included observed behaviours congruent with the task/activity at the time or in response to teacher directives. Behavioural data was collected in the classroom by an observer operating under the supervision of the first author. Compliance with teacher instruction was recorded by the percent of presented opportunities. Tantrums were recorded by duration per occurrence. Teacher implementation data was also collected. This included frequency data pertaining to the number of tokens, social praises and corrective feedback provided per session with John. This data was then used for review with the teacher during consultation.

Inter-observer agreement (IOA) data was not obtained, as conditions would not allow for its documentation and due to significant teacher resistance to classroom observations. The consultant was only able to observe in weekly 20-minute increments due to limitations of a school classroom observation policy. Instead, teacher intervention data was reviewed during consultation meetings and support provided to target fidelity of intervention implementation based on a review of procedures.

iv. Design and procedure

Mark. During the baseline phase (problem identification), the teacher implemented a range of classroom-based interventions which included positioning the student closer to the classroom teacher, praise for compliance, verbal feedback regarding disruptive behaviour and removal from preferred activities when

disruptive behaviours occurred. Because the teacher's classroom strategies were unsuccessful for reducing Marks problem behaviours, the teacher agreed after four months to begin consultation support to develop an intervention. Based on the consultation, a DRO intervention was developed to support the needs of the classroom teacher with a simple change in reinforcement procedures with Mark, as well as a phase for increasing opportunities for positive teacher time and attention to develop the student-teacher relationship.

Phase 1: DRO (Mark). After four months of progress monitoring and demonstrated lack of behavioural compliance with classroom-based interventions and consultation, Mark's teacher was taught how to provide differential reinforcement of other behaviour (DRO Phase). Teacher training was part of the consultation meeting time in the final week before beginning the DRO procedures between the consultant and teacher. During the DRO phase, the student received access to a preferred item contingent on the nonoccurrence of classroom challenging behaviour after approximately one-hour intervals during the first half of the day and a 1.25-hour interval during the second half. Intervals were determined based on teacher agreed rate of reinforcement and the class activity schedule provided. Mark's teacher would not agree to reinforce the student at more frequent intervals or collect data at more frequent points in time during the school day. This was agreed upon as the first step to reinforcing more pro-social behaviours while progress data was collected. Access to preferred items for Mark lasted five minutes in duration. Examples of preferred items used included time on an electronic device and toys. Consultation was changed during this phase, in which the school principal provided feedback meetings with the classroom teacher as a preferred method of consultation in addition to an agreement to review and modify the intervention if the progress was limited. Ongoing training and recommendations to increase the frequency of reinforcement was provided to the teacher with the consultant as a result of the DRO procedures continuing to show variability in the student behaviour.

Phase 2: DRO + Relationship-Building (Mark). Phase Two modifications included the increased use of praise and positive interactions prior to instructional demands (DRO + Rel Phase) because of limited progress with DRO procedures alone. Modifications included training the teacher how to increase frequency of positive interactions with the student. In addition to increased behaviour-specific praise, this included providing the student additional assistance when necessary and incorporating the student's verbally-stated preference items as part of the DRO contingency. These added components were based on agreed opportunities

for reinforcement throughout Mark's day. A true reversal and removal of the DRO + relationship-building component was not incorporated in the experimental design, as the DRO could not be removed since it was incorporated with the relationship-building component of the intervention by providing attention, praise and opportunities for teacher attention in absence of aggressive behaviour. Thus, the use of both reinforcement-based and antecedent procedures were used to increase the opportunities for positive student-teacher interactions during this phase.

John. Baseline conditions also consisted of similar strategies by the classroom teacher, including positioning the student closer to the teacher, verbal feedback/reprimands and removal from the setting contingent on disruptive behaviour, but formal baseline data was not tracked prior to consultation support. Based on the consultation meetings and inconsistent use of classroom management strategies, a token economy was recommended to support the teacher in increasing the frequency of praise with a tangible system for tracking reinforcement.

Phase 1: Tokens + Praise (John). This condition included the providing of tokens by a classroom aide at a rate of approximately 10 tokens and 20 social praises during a daily three-hour session. This rate and design was agreed upon by the classroom teacher and the three-hour session to have a target ratio of praise/reinforcement roughly every 10 minutes. Tokens were provided for occurrences of compliance with teacher directions across the instructional period. The student was provided access to a preferred activity in the classroom for every five tokens received. Preferred activities were determined based off the student's time with engaged activities during a free-choice period. Social praise was behaviour specific and administered as observed for behaviour that was congruent with the stated expectations of the classroom.

Phase 2: Reversal and Fading (John). In an attempt to begin fading the token economy, the consultant recommended a gradual reduction of tokens and praises throughout phase two. Tokens and praises were reduced to 50% of the frequency administered during the first condition. With a sharp decline in student compliance, the token and praise phase was reintroduced one additional time.

Phase 3: Fading + Relationship-Building (John). As the fading of tokens and praises resulted in unstable behaviour, a relationship-building phase was then added. This phase integrated a gradual reduction of tokens and praise administered (a 50% reduction) and included a relationship-building component using

similar procedures as described for Mark. Specifically, the teacher provided John additional assistance when necessary, worked with him more on task-related activities and engaged John in interactive group activities. These positive interactions were provided contingently when John was not engaging in challenging behaviours. The teacher was also instructed to provide John praise and tokens herself rather than by the support of the classroom aide.

Phase 4a: Fading Prompts; Low Teacher Praise to Corrective Feedback (John). To target the positive STR, use of a low to high praise reversal was tested, as the teacher was confident that the student did not need as much praise as was instructed during consultation meetings. During this phase, the teacher provided John an average of less than a 0.5 ratio (LP) of social praises to corrective feedback for inappropriate behaviours. Similarly, the average number of interactions (positive or negative) with the student was lower than those during the Fading + Relationship (Phase 3).

Phase 4b: Fading Prompts; High Teacher Praise to Corrective Feedback (John). As an inverse of the previous phase, John's teacher was provided with corrective feedback and modeling to increase her ratio of praise to corrective feedback. This was determined throughout the consultation process as a necessary goal for supporting John's continued challenging behaviour in order to find the best ratio of praise to corrective feedback. During this phase, she provided the student with an average ratio 1.7 social praises (HP) to corrective feedback.

Results

To answer research question 1 and two ("What is the effectiveness of traditional behaviour interventions?" and "To what extent does the behaviour intervention improve with relationship-building?"), Figure 1 illustrates the percent of challenging behaviour across periods during each school day and intervention condition for Mark. Baseline data was collected over a span of four months, which resulted in a variable pattern ($M = 35\%$) of behaviour. Kendall's Tau was used to calculate the statistical significance in the change of student behaviour. With a small sample size, Kandall's Tau is a more accurate estimation in non-parametric analyses. The DRO phase demonstrated a small reduction ($M = 26\%$; Tau =-0.16) in behaviour in comparison to baseline. The largest observed reduction in behaviour was during the DRO + Relationship-building phase; in which noncompliant behaviour demonstrated reduced by ($M = 14\%$), which resulted in larger effect (Tau = -0.37) from baseline. Figure 2 provides an illustration of compliance data for John. While the token and praise conditions yielded a moderately high level of compliance ($M = 78\%$),
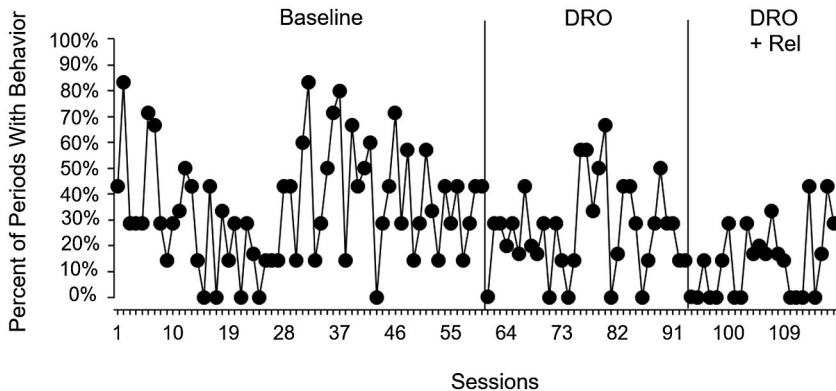
Figure 1. Overall challenging behaviours recorded via classroom periods across school days (Mark)
Note: DRO = Differential Reinforcement of Other Behaviour (Phase 2); DRO + Rel (Differential Reinforcement of Other Behaviour and Relationship Building (Phase 3)
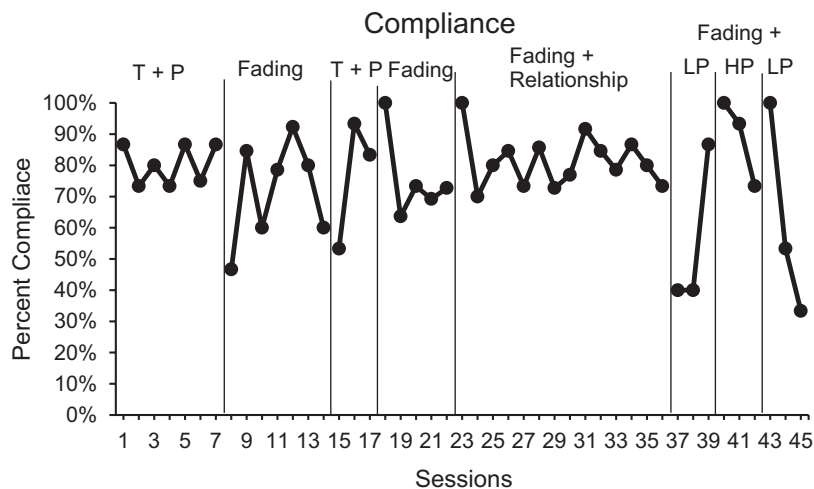

Figure 2. Compliance data for John
Note: T + P = Tokens + Praise (Phase 1); Fading = Fading prompting (Phase 2)
Fading + Relationship = Relationship Building (Phase 3), Fading + LP = Low teacher praise to corrective feedback (Phase 4a), Fading + HP = High teacher praise to corrective feedback (Phase 4b)

compliant behaviours changed minimally during both fading conditions
($M = 75\%$). Compliant behaviours demonstrated an increase when tokens and
praise were combined with relationship-building interactions with the teacher

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($M = 81\%$). A comparison was subsequently performed in which the fading of tokens was alternated with a low ratio of teacher praise to corrective feedback (Fading + LP condition) and a high ratio of praise to feedback (Fading + HP condition). The Fading + LP condition was found to yield a substantially lower average of compliance ($M = 61\%$) in comparison to the Fading + HP condition ($M = 89\%$).

Figure 3 shows the prevalence of tantrum behaviours for John throughout the intervention and monitoring of teacher use of praise and tokens. Tantrums were relatively low during token and praise conditions as well as fading phases. However, tantrum behaviours were nonexistent ($M = 0\%$) during the Fading + Relationship phase. A substantial increase in tantrums were observed during the Fading + LP conditions ($M = 3.16\%$), while Fading + HP conditions yielding a near-zero rate of tantrums.

Research question 3 ("What is the change in teacher reports of problem behaviour?") was answered through two different outcomes. The first examined the frequency of teacher-reported behaviour problems across the three behaviour measures with Mark (Figure 4). Interestingly, DRO appears to have demonstrated the steepest increase in teacher reports for all three behaviours. This is notable, considering that DRO demonstrated a decrease in prevalence in comparison to baseline for the quantitatively collected data in Figure 1. Furthermore, teacher
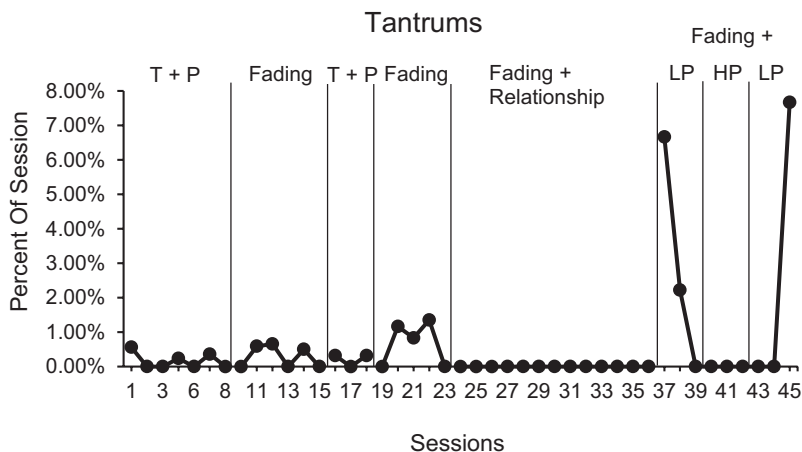

Figure 3. Tantrum Behaviours for John
Note: T + P = Tokens + Praise (Phase 1); Fading = Fading prompting (Phase 2)
Fading + Relationship = Relationship Building (Phase 3), Fading + LP = Low teacher praise to corrective feedback (Phase 4a), Fading + HP = High teacher praise to corrective feedback (Phase 4b)
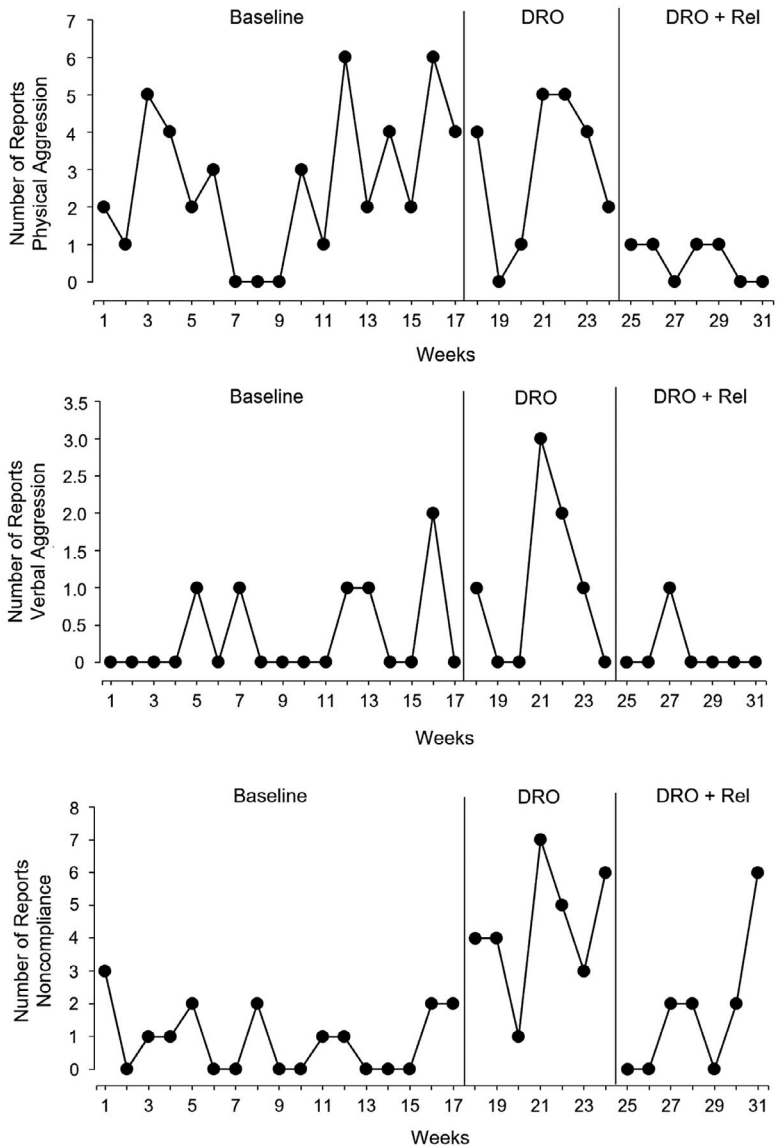
Figure 4. Teacher reports for physical aggression, verbal aggression, and noncompliance (Mark)
Note: DRO = Differential Reinforcement of Other Behaviour (Phase 2); DRO + Rel (Differential Reinforcement of Other Behaviour and Relationship Building (Phase 3)
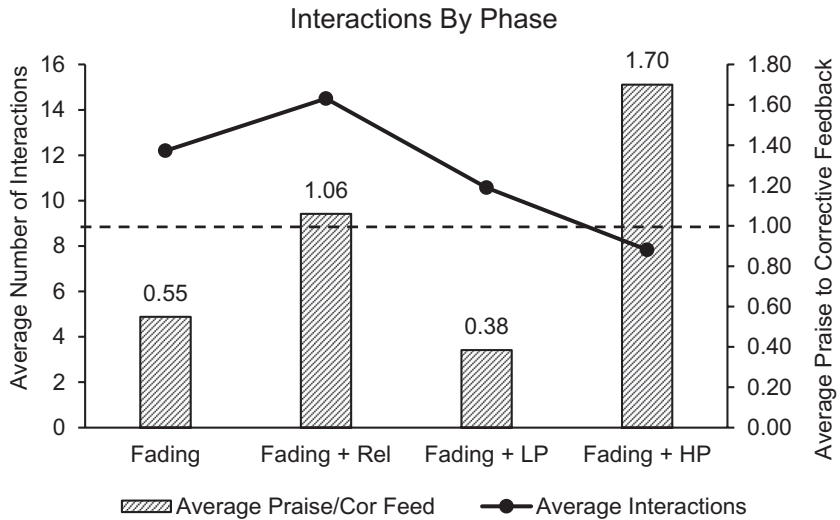
Figure 5. Teacher and Student (John) Interactions During Intervention Phases
Note: The Tokens + Praise phase data was not included here as that was implemented via the classroom aid. Fading = Fading prompting (Phase 2) Fading + Relationship = Relationship Building (Phase 3), Fading + LP = Low teacher praise to corrective feedback (Phase 4a), Fading + HP = High teacher praise to corrective feedback (Phase 4b)

reports indicated that DRO + Relationship-Building led to the largest decrease in behaviour in comparison to baseline for physical aggression ($M = 0.57$; Tau = -0.47) and verbal aggression ($M = 0.14$; Tau = -0.16). Interestingly, DRO + Relationship-Building demonstrated a notable increase in comparison to baseline ($M = 1.71$; Tau = 0.15) for noncompliance.

For John, change in teacher behaviour was measured with respect to the reversals and fading implemented during his intervention (Figure 5). The highest ratio of teacher praise (and positive attention) to corrective feedback were measured during the phases that included more opportunities for positive STR (Fading + Rel and Fading + HP phases; $M = 1.06$ and 1.70, respectively).

Discussion

The results of this study expanded prior research by examining behaviour intervention procedures with a relationship-building component to reduce student

problem behaviour. Through this approach, consultation focused on the reduction of problem behaviour by reinforcing the absence of their occurrence (e.g., DRO and token reinforcement for compliance) with the modeling and reinforcement of prosocial skills (Hamre and Pianta, 2001). To answer research question 1, this study demonstrated the effectiveness of a DRO procedure and token economy in reducing challenging behaviour and increasing student compliance in two students. However, the demonstrated change was minimal, as behaviour continued to show variability. Notably, the students' challenging behaviours significantly declined when a relationship-building component was added. This added change was effective in moderating teacher reports of negativity for Mark, as well as directly shaping both students' behaviours by demonstrating a reduction in the negative behaviour cycle (Hamre and Pianta, 2001; Garbacz *et al*., 2014). While the intervention of increasing praise and attention was insufficient to improve the students' behaviour alone, by increasing opportunities for the teacher to positively interact with each student, this consultation process demonstrated an effective strategy for improving on common classroom intervention procedures (Thompson *et al*., 2003; Buckley and Newchock, 2006). As a consultation strategy, since both teachers were resistant to providing high-intensity, frequent praise, another option may have been for the consultant to directly provide intervention for a longer period of time. However, the consultant was able to continue the indirect support by helping the teachers increase positive interactions with the student and, in turn, provide more opportunities for positive attention and reinforcement.

Ideally, as Hughes (2011) demonstrated, the longitudinal impact of high levels of support predicts students' class engagement and supports the teacher in generalizing ways to support student needs beyond the individual consultation. Changes were identified in the teacher behaviour responses when the relationship-building phases of the intervention were added. When examining results for Mark, teacher reports of behaviour problems demonstrated the greatest reduction during the DRO + relationship-building condition. This was evidenced by the reported decline across all challenging behaviours identified. Physical aggression was reported to have the greatest decline, ranging from 2–3 incidents per day to less than one, on average, per day. Verbal aggression was the lowest of the three behaviours, averaging at baseline less than one incident per day and declining to less than .25 incidents. Noncompliance was the only behaviour that demonstrated an increasing trend in teacher reports. If all three behaviours hypothetically served the same function, one advantage of relationship-building may have included a shift from more aggressive (physical aggression) to less aggressive

(noncompliance) behaviours. Such a phenomenon could therefore account for the increase in noncompliance during the last phase (Fahmie *et al*., 2013).

With John's data, teacher behaviour changes were measured with respect to their interactions with the student. The highest ratio of praise to corrective feedback was delivered during the relationship-building (Phase 3) and the high praise conditions (Phase 4b). Similar to Mark's data above, John's level of compliance was quite variable throughout the phases, but the greatest rates of compliance were measured during the relationship-building/HP phases compared to those with lower teacher interaction during the LP Phase 4a. Thus, simply targeting positive interactions and increased frequency of praise had an impact on improving both the student behaviour and teachers' behaviour separate from the token system alone. The behaviour that demonstrated the highest level of compliance and reduction in tantrums occurred during the HP phases despite the frequency of interactions being lower. This could be an indication that the success of the relationship-building component hinges more on the type of interaction than the frequency of interactions. These skills may include increased positive attention for students' prosocial behaviours, listening and responding to students using differential social attention for appropriate behaviour and increasing behavioural expectations in setting limits for negative behaviour (Votruba-Drzal *et al*., 2010).

Limitations

This study provided an insight into the use of school-based consultation support to reduce elementary students' problem behaviours in two classroom settings with teachers who had limited experience using reinforcement-based procedures. Given this challenge, the above results demonstrate ecologically-valid results that are common for implementation of novel intervention approaches in school settings. The use of teacher reports as narrative data may not provide the most robust data collection but is often preferred in practice by teachers. Therefore, the teacher reports are only supplemental to the measured student behaviour data and are useful in school-based consultation models. Data demonstrated a decrease in behaviours during the DRO phase, while teacher reports demonstrated an increase. As the problem behaviour increased by teacher report, the teacher accepted consultation support from her community, the school principal. Being dissatisfied with the initial intervention, this consultation eventually led to the STR component being added to focus on relationship-building and resulting decrease in teacher recorded behaviour problems.

One challenge with respect to beginning interventions through this consultation process was that a functional analysis (FA) was not conducted for these students, as the change was targeted through a consultation process for students in general education rather than with an FA for an assessment. Thus, an experimental design and function of each behaviour was only indirectly identified by teacher report and observation. A noted limitation to the data collection procedures included the consultant not being able to directly collect IOA data, but had to rely on developing teacher buy-in during consultation meetings to review intervention procedures and discussion of treatment fidelity. This was again not an ideal model to supporting classroom interventions, but was an accommodation made to support the teachers' ongoing data collection and to increase social acceptance of the intervention. Thus, the two interventions were designed to target the needs of the classroom teacher by addressing the referral concerns as well as to develop the teachers' exposure to reinforcement-based procedures.

Implications for practitioners

These behavioural changes are significant in that, by direct and indirect support, the two students showed a reduction in challenging behaviours in the classroom setting. Consistent with previous research, there was a significantly higher rate of teacher-perceived behaviour problems prior to intervention (Garbacz *et al*., 2014). However, the combined intervention of both behavioural strategies and STR intervention components demonstrated positive effects that resulted in substantial changes in both teacher-reported problems and reduced student challenging behaviours.

Future research should consider careful IOA data collection methods and consistent consultation meetings with a form of post-consultation evaluation to identify the teachers' change in student-teacher relationship as well. An ongoing challenge for schools can be the school norms and climate regarding receiving consultation support. However, when teachers' reports on consultation support are received, there has been a documented effect size of .95 in favor of consultation (Kratochwill *et al*., 1995). With consultation support and effective behavioural intervention design, teachers' instructional practices can significantly improve student performance when teachers provide direct, intentional and focused feedback (Pianta *et al*., 2002). As shown in the second student, John, even helping the teacher to provide a higher ratio of positive interaction and praise to correct feedback showed an increase in overall student compliance. Further, increasing the efforts of classroom teachers to develop positive student-teacher relationships

with each student is important for improving classroom management and student compliance. Interventions targeting STRs for young students with challenging behaviour might encourage teachers to recognize ways in which to increase pro-social skills with all students as well, as reducing the risk for students developing the cycle of negative classroom behaviour that can interfere with social-emotional, academic and relational growth (Mashburn *et al*., 2008; Garbacz *et al*., 2014).

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