Tootling through a Cultural Lens: Effects of Tootling on Student and Teacher Behaviours in an Inclusive School in Aotearoa

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Abstract

This study aimed to extend the literature on the effects of tootling in an inclusive classroom in Aotearoa New Zealand. The tootling intervention involved students monitoring and reporting their peers' prosocial behaviours, which was used with an interdependent group contingency. The current study used a series of AB designs to evaluate the effects on three teacher-nominated students from primary and middle-block classrooms separately. The study also investigated the effects of tootling on teacher praise statements with participant teachers from primary and middle-block classrooms. Target students were nominated for the study as they were thought to be at risk for emotional and behavioural disorders (EBD). Students were randomly picked from the rest of the class during data collection for the comparison group. Participant teachers included the classroom teachers present in class. An increase in academically engaged behaviour (AEB) was found across all three target students in the middle-block classroom and found in two out of three students in the primary-block classroom. An increase in praise statements from the middle block participant teacher was also found. Incidentally, the tootling intervention was integrated with MANA values practised in both classes; as a result, it was accepted as socially valid by the teachers and students. Discussion focuses on limitations due to Covid-19 restrictions and direction for future research.

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Introduction

On 10th June 1994, the World Conference on Special Needs Education established the Salamanca Statement, which called for typical schools to recognize the need to provide education to all children, including children with special needs (Unesco, 1994). It endorsed the concept of inclusive schooling and the development of special needs education to become an integral part of academic programmes (Unesco, 1994). Before inclusive education, schools practiced integrative education which consisted of placing children with special educational needs in mainstream classrooms with no extra adjustments and expecting them to adapt to their environment. Even though they were physically present, their needs were not always recognized or accommodated (Avramidis & Norwich, 2002). Following the statement, mainstream education slowly started to reconstruct its programmes to aid every child's special educational needs without discrimination. The underlying principle of inclusive education is that all children must have access to regular schools and learn together to accommodate diversity, regardless of any restrictions. This goal is realised by promoting active participation for all children and providing opportunities to learn within a school context by building an inclusive community (Lim & Ireland, 2001).

It is helpful to understand the importance of participation in inclusive schooling. Participation is described by Pettersson (2015) as an idea of empowerment of the children. To be empowered is to be able to influence decisions that affect children directly or indirectly. Falkmer (2012) breaks down the two different dimensions of participation for a child: The first dimension is 'being there'. For a student with special needs, this means being allowed to attend classes with neurotypical students and attend school activities alongside them. The second dimension is 'being engaged'. While the experience of being engaged is very subjective, it is the process of a student being involved and experiencing academic activities.

The different dimensions of participation show that physical presence in a class alone does not mean participation (Papagrigoraki, 2016).

The World Health Organization's (WHO) *International Classification of Functioning, Disability and Health*, known as ICF, or its Children and Youth version, ICF-CY, has been put forward as a suitable common language and tool for analysing special education processes (Maxwell et al., 2012). The ICF/ICF-CY as a social model has several components. The participation component of the model is described as the "frequency of attending" similar situations or being "given opportunities to perform the same activities as others." Such a narrative can be closely related to inclusion and equal opportunities, and non-discrimination for people with disabilities. It is necessary to implement this aspect in an inclusive classroom because placing children with special needs in a general education classroom result in integration and does not guarantee participation (Maxwell et al., 2012). Thus, with the emergence of the Salamanca Statement and special education laws, recent trends have increased the inclusion of students with emotional and behavioural disorders (EBD) in mainstream classrooms.

Literature Review

Kauffman (2015) estimated the prevalence of EBD in the school population at 0.8%; however, he suggests this number is likely an underestimate. Bullis and Cheney (1999) found an increase in prevalence within the school population at 2-4%. Even so, behaviours associated with EBD are numerous and can be externalizing (e.g., poor pro-social behaviour) or internalizing (e.g., anxiety). Often, children with EBD have comorbid diagnoses of learning disabilities (LD), attention deficit hyperactivity disorder (ADHD), and cognitive impairments (Hallahan et al., 2015). This can be further complicated by external factors such as dysfunctional family backgrounds (Kauffman & Landrum, 2013). Problems with skills and dispositions relevant to academic tasks often produce low academic gain and disengaged behaviours (Margerison, 1996; Siperstein et al., 2011). For students with EBD, disruptive behaviours coupled with low academic motivation can hinder their social relationships with peers and teachers (Frydenberg et al., 2017).

General education settings may offer better circumstances for students with EBD to develop social skills and maintain relationships with their peers (Fisher & Meyer, 2002; Panacek & Dunlap, 2003). Inclusive education in such a setting has been acknowledged for several potential benefits (Hieneman, Dunlap & Kinaid, 2005). It helps generalize appropriate skills across other settings, such as at home or in the community (Dunlap, 1993). On the contrary, separate programmes for special education students often exaggerate behavioural and academic differences making it harder to reintegrate with peers from mainstream classrooms (Weigle, 1997). As a result of mainstream education becoming more inclusive, there is a significant increase in diversity of students under the supervision of a single teacher in a classroom. Supporting students with EBD in a mainstream classroom is no easy task. Sometimes provision of individualised interventions is not feasible because of their

constraints on time and resources. Therefore, broader classroom and school-wide strategies need to be implemented (Hieneman, Dunlap & Kinaid, 2005).

Positive Behaviour Support

Positive behaviour support (PBS) is an approach primarily derived from the principles of Applied Behaviour Analysis (Koegel et al., 1996). It is assessment-based and uses an empirically-validated set of strategies to promote prosocial behaviours and minimize maladaptive behaviours (Sugai et al., 2000). PBS emerged during the mid-1980s and was initially defined as an alternate positive, instructional approach to punishment strategies that used humiliating and stigmatizing consequences (like an electric shock or contingent water sprays) to suppress problem behaviours in individuals with disabilities (Horner et al., 1990; Repp & Singh, 1990). The PBS movement progressed into research-based interventions when researchers joined the movement and shed light on the functional relationship between behaviours and events in the environment (Hieneman, Dunlap & Kinaid, 2005).

While PBS originated as an approach for individuals with problem behaviours, it has expanded to meet the needs of diverse populations of entire classrooms and schools over the past decade. Now interventions are provided at multiple levels as part of the PBS framework; these include school-wide PBS, classroom-based PBS, and individualised PBS as units of analysis. (Hieneman et al., 2005). The school-wide PBS approach focuses on using evidence-based practices and data-based decisions to improve behaviour and academic outcomes for students (Sugar & Horner, 2000). Positive Behaviour for Learning School-Wide (PB4LSW) in Aotearoa New Zealand stems from the successful and widely used Positive Behavioural Interventions and Support framework (Ministry of Education, 2019). PB4LSW consists of a three-tiered model. Tier 1 or the primary tier is a system-wide intervention that encompasses all students. Those students who fail to respond to the primary tier interventions are offered secondary (Tier 2) and tertiary (Tier 3) interventions. Tier 2 interventions target students

(approximately 15%) that require additional support, typically via small group interventions, while Tier 3 targets students (usually a minority of 5%) that require a higher level of increasingly individualised support (Ministry of Education, 2019). Although students at-risk for emotional and behavioural disorders are recommended individualised interventions, school psychologists have suggested instructing teachers to use more class-wide interventions (Gregory, Allen, Mikami, Hafen, & Pianta, 2014).

Classroom-based PBS is an extension of school-wide PBS, which is designed to readily accommodate individualised student interventions (Jackson & Panyan, 2002; Darch & Kame'enui, 2004). Strategies used at this level are essential for integrating students with EBD by promoting positive peer behaviour. In a PBS classroom, behavioural data and academic performance are recorded to evaluate the effectiveness of interventions. Another component that dictates the effectiveness of any PBS process is the fidelity with which it is implemented. To achieve the desired outcomes for the classroom and students, the integrity of the process is critical. This includes (but is not limited to) planning, adequate personnel training, implementation practices, and an ongoing commitment to the process (Hieneman et al., 2005).

In 2008, the National Center for Education Statistics conducted a survey that revealed that around 36% of public school teachers felt that disruptive classroom behaviours hampered their teaching (Lambert et al., 2014). In Aotearoa, when Johansen et al. (2011) asked teachers if they believed they got appropriate formal training with managing classroom behaviour, 83.3% of teachers said that they felt inadequately trained. Traditionally, teachers and staff used an outdated approach to supervise appropriate classroom behaviour, which involves punishing inappropriate or antisocial behaviours with zero tolerance. Exclusionary and punitive classroom management techniques like detentions, office referrals and expulsions, which focus on problem behaviours are shown to be unsuccessful in Aotearoa (Elder &

Prochnow, 2016). Students then learn to avoid punishment procedures by acting out problem behaviours discreetly or covertly, this may result in tattling. Upon observing preschool children, Ingram and Bering (2010) found that 93% of the children's reports to their teachers consisted of tattles, while only 0.3% reported about their peers' positive behaviours. The effects of tattling can be troublesome for students as well as teachers. Students who are at-risk for behavioural and emotional problems are more vulnerable to negative attention from their peers and teachers due to tattling (Skinner et al., 2002). It also drives teachers and staff to use their instructional time to investigate reports of the tattles in place of teaching prosocial behaviour and academic tasks. Studies have shown that shifting the focus from punishing inappropriate behaviours to recognizing and rewarding prosocial behaviours can lead to incidental learning of positive appropriate classroom behaviours (Lambert, Tingstrom, Sterling, Dufrene, & Lynne, 2015). This is put into practice in peer reporting interventions where students are encouraged to notice and report their peers' appropriate behaviours. Such interventions provide opportunities for students to practice prosocial behaviours and allow teachers to reinforce appropriate behaviours. The approach of peer reporting interventions is seen to fit neatly into the school and class-wide PBS framework.

Cultural Component of PB4L

In 2009, the PB4L (Positive Behaviours for Learning) action plan materialised at the Taumata Whanonga behaviour summit (Ministry of Education, 2011). This plan consisted of several practice-based initiatives and programmes for schools, staff and whanau to promote pro-social behaviours for students across Aotearoa. One such initiative is the Restorative practice (RP), a relational approach that grounds school life in beliefs of dignity, equality, mana, and potential of all students. Cultural responsiveness is one of the inherent principles in RP, and it is described as the key to creating learning communities of inclusion and mutual

respect. Thus, RP resources are prepared, delivered, and evaluated considering the needs of tamariki (children) (Ministry of Education, 2011).

Cultural responsiveness can be demonstrated through cultural narratives of mana whenua (tribes having territorial authority over land). For a school in Aotearoa, recognising and embracing the cultural narrative of mana whenua symbolises a commitment to a continuing partnership built on open conversations consistent with the two world views (Ministry of Education, 2022). By providing the big picture for schools, cultural narratives shape the curriculum and connections in a learning community.

The concept of manaakitanga, within tea o Māori (Māori worldview), is the core of all relational interactions (Mead, 2003). By definition, manaakitanga means "hospitality, kindness, generosity, support – the process of showing respect, generosity and care for others". It is about honouring and enhancing mana (prestige, spiritual power, authority) of all people (Frydenberg, Martin & Collie, 2017). It also embodies a reciprocal relationship based on a duty of care (Macfarlane, Glynn, Cavanagh & Bateman, 2007). In the classroom, acts of manaakitanga are embedded within the teaching, class activities and learning. Aumangea is defined as being brave, resilient, determined. This is exemplified when students attempt to solve or persevere on their assigned tasks. It can also be demonstrated by reaching out and asking a peer for help. Ngātahi is the concept of coming together as one, presented in acts of working with others and caring for all students in the classroom. Ako is another teacher-learning practice that emphasizes the interactive and dialogic relationship between the teacher and students (Bishop & Berryman, 2009). Some examples of ako within the classroom include students setting goals, helping others, and making decisions about their learning. Drawing upon such Māori cultural aspirations helps in creating whanau-type relations and interactions within the classroom and supports students' success (Bishop & Berryman, 2009)

Peer Reporting Interventions

Studies have shown peer-mediated or peer reporting interventions to be effective across all age groups of students, starting from preschool children to high school students (Cihak et al., 2009; Bowers et al., 2008; Lum et al., 2017). They have also been implemented with students at-risk for behavioural and emotional problems (Ryan, Reid & Epstein, 2004). Lastly, peer reporting interventions are marked with strong social validity by teachers and students (Cihak et al., 2009; Teerlink et al., 2017) because of their resource- and time-efficient means of promoting prosocial behaviours in the classroom (Hawkins & Nabors, 2018). They have been used across different populations including: general education elementary students (Dufrene et al., 2005), high school students in remedial and special education classes (Fuchs, Fuchs, & Kazdan, 1999), and students diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) (Dupaul, Ervin, Hook, & McGoey, 1998). Peer-mediated interventions are resourceful to implement as they make use of available students while minimizing the demands placed on the educators (Dufrene, Noell, Gilbertson, & Duhon, 2005). Such interventions also facilitate learning through observations (Bandura, Ross & Ross, 1963). Students are more likely to imitate behaviours after observing their peers get positively reinforced for desired behaviours (Bandura et al., Bandura, 1965). A meta-analysis of previous research has proven peer-mediated interventions to improve social and behavioural skills of students with EBD across the elementary, middle, and high school settings (Kaya, Blake, & Chan, 2015). Peer reporting of prosocial behaviours may be more socially relevant with adolescents as Santor et al. (2000) indicated peer group conformity and peer pressure to be strong predictors of risky behaviours for high school students.

These interventions are an example of effective teaching methods that support the learning and participation of students on all academic levels. Interventions like peer mediated learning, where one student teaches or offers a learning experience to their peer, under

teacher supervision, is seen to benefit children on academic and cognitive levels (Papagrigoraki, 2016).However, research using peer mediated learning has mainly focused on academic and cognitive aspects more than their social benefits (Ladd, Herald-Brown & Kochel, 2009). In this paper, another popular peer-mediated intervention strategy and its academic and social benefits for students with EBD will be explored.

Tootling

One such intervention, developed by Skinner (2000), is known as "tootling." A term that is derived by combining the word "tattling" and the expression "tooting your own horn," it is an intervention that requires students to monitor their peers to catch them performing prosocial behaviours. Additionally, an interdependent group contingency is employed as reinforcement as the class works together to achieve their reward criteria. While Skinner's study (2000) reported an increase in positive peer behaviours it did not examine the effects of tootling on disruptive classroom behaviours. Consequently, several studies have looked at the relationship between tootling and disruptive classroom behaviours.

Tootling is a type of peer-mediated intervention that has a component of positive peer pressure as it motivates students to look for instances of prosocial behaviours in their peers. It positively reinforces the act of producing tootles as well as engaging in appropriate behaviour (Lum, 2017). Skinner et al. (2000) were the first to implement the tootling intervention along with an interdependent group contingency in a fourth-grade classroom. The study used an ABAB withdrawal design to explore the effects of the intervention programme. The dependent measure was the number of tootles or instances of students helping their peers reported for that school day. Students were informed of earning a 30-minute recess break if their cumulative total of tootles as a class reached 100. Results from their study showed the number of reported tootles to be highly variable during the first baseline and intervention phase. One extraneous variable that could have impacted this was an unplanned class-wide

punishment imposed by the principal. Students were not allowed their regularly scheduled recess until some missing books were returned. However, after the second baseline when the intervention was re-implemented, a sharp increase in the daily number of tootles was recorded.

A replication of this study by Cashwell, Skinner, and Smith (2001) found the overall rates of submitted tootles to be higher during the intervention phase where an interdependent group contingency was put in place. The participants for the study were the teacher and students from a second-grade classroom. The impact of the group contingency and visual schedules of the progress feedback on tootling was evaluated using an ABAB withdrawal design. The baseline phase consisted of the students writing reports of their peers' prosocial behaviours. In the first intervention phase, the interdependent group contingency was implemented where the students met their reward criteria twice (100 tootles) and earned two class rewards. Following this, subsequent phases of baseline conditions and then intervention conditions were re-established. The difference in the rates of tootling across all phase changes demonstrated strong experimental control of the study. It showed that interdependent group contingency along with the visual schedule of progress feedback caused an increase in tootling behaviour. Additionally, evidence of high social validity was also demonstrated when the teacher and students carried out the tootling program during the last 2.5 weeks of the school year, even after the researchers withdrew their participation. Since results measured only the levels of tootling and not its effect on any behaviour, the authors reported that tootling might have only increased the recording of peer prosocial behaviour rather than the actual behaviour. The effects of tootling on decreasing disruptive behaviour were first researched by Cihak et al. (2009), who found the levels of disruptive behaviours to reduce during the intervention phase. Here, the authors stated that this could result from tootling, the

interdependent group contingency, or the pooling of both tootling and the group contingency (Cihak et al., 2009).

Only a limited number of studies have investigated the component analysis of tootling intervention to see which aspect directly impacts actual behaviour in the classroom. Derieux (2019) explored the effects of the tootling procedure's written component by comparing it to the effects of traditional tootling and no-treatment control. The study compared its effects on academically engaged behaviour and disruptive behaviour across three classrooms in an alternating treatment design embedded within a multiple baseline design. The treatment designs included a traditional tootling condition, which consisted of the procedure's standard components; a written condition, where students wrote about two things they had learned during that day, and a control condition similar to the written condition where all reinforcement was removed. Across all three conditions, small to moderate effect sizes for AEB, disruptive behaviour, and passive off-task behaviour was reported. During the study, the predetermined rewards (present during the tootling and written conditions) were achieved only six times, and one of those was during the no-treatment control (where no reinforcement was available). The author stated that the goal of two tootles/notecards per student may have been too high and concluded that the written component was not causal for behavioural change.

Lambert et al. (2014) researched the effects of the tootling intervention on upper elementary and middle school students to increase appropriate behaviours and decrease disruptive behaviours within the classroom. Additionally, they looked at the effects of tootling on individual student behaviour as data from previous studies investigated class-wide behaviour alone. Participants for their studies included three selected classrooms referred by the teacher that met specific screen-in criteria. One target student was chosen from each class after meeting the criterion of displaying disruptive behaviour in approximately 30% of

observed intervals. The dependent variables being investigated were disruptive behaviours and appropriate student behaviour. Definitions for the dependent measures were determined after consulting with the classroom teachers, and the exact definition was used for both target student and class-wide behaviour. The study used an ABAB withdrawal design, and data was collected at least three times per week using a 10-second momentary time sampling recording procedure across a 20-minute observation period. IOA data was collected for a minimum of 25% of the observations across all phases in all three classrooms, and Kappa coefficient of the target student and class-wide behaviour were also calculated for appropriate and disruptive behaviour. Results from the study showed all three target students displaying an overall positive treatment effect, despite slight variability for both appropriate and disruptive behaviour. The study also extended literature on tootling effectiveness among upper elementary and middle school students. Certain limitations discussed by the researchers included poor treatment integrity by the teacher from the second class. Performance feedback had shown that the teacher was not updating the feedback chart regularly, and not announcing the intervention at the start of the period consistently. In one instance, they failed to provide the students with the reinforcer after the reward criteria were met. Two of the teachers also reported their concerns that only a handful of students were writing the tootles which met the reward criteria and for the rest of the class to benefit from that seemed unfair (Lambert et al., 2014).

This current study is a systematic replication of Powell's (2020) tootling research to expand on the intervention's external validity as seen in a New Zealand context. The tootling intervention was implemented in a PB4LSW mainstream school. The school had received a decile rating of 6, where decile number 1 indicated the lowest socioeconomic status and number 10 as the highest socioeconomic status (Ministry of Education, 2019). Three classes of students and two teachers participated in the study. Two of the classrooms were "home"

classes, and the participant teachers were from these classes. The third class was a mathematics class that consisted of teacher-selected students. Powell refers to the classes as "Groups" for the rest of the study. In Group 2, when the intervention was implemented, an incidental observation was made where one student, who's considered at-risk for EBD, showed considerable behaviour change due to the intervention's impact. The individual's behaviour was recorded separately and was reported as an individual case study. The dependent variables were student on-task behaviour and student disruption. On-task behaviour was operationally defined after consulting with teachers and using information from preliminary observations, this was the primary dependent variable. Student disruption was functionally defined using the teacher's corrective statements; this was the second dependent variable. The researcher opted for a functional definition of student disruption to look at the effect it had on the environment where it may or may not disrupt the classroom, depending on the teacher's perception. Teacher praise statements were also observed, divided into specific or general statements, and whether they were targeted at an individual or a group. The study used a multiple baseline across groups design, with a follow-up phase. For the individual from Group 2, an AB design with a follow-up phase was used as his results were analysed separately as a case study once data was collected. Observations took place 3 times a week for 9 weeks, along with two maintenance observations which were completed after a 7-week break. On-task behaviour was recorded using momentary time sampling techniques of 15-seconds, and teacher behaviours, which included corrective statements (to measure student disruptions) and praise statements, were recorded using event recording. Visual analysis showed an increase in on-task behaviours during the intervention phase even after having a few circumstances which posed a threat to the intervention's validity. In the first instance, the teacher from Group 2 made their own modification to the tootling procedure where the students were instructed to write more meaningful tootles to earn double

points. This modification was reverted after 2 days. Another instance involved making amendments to the previous operational definition after the teacher noted several occasions of passive off-task behaviour, resulting in the first two data points for on-task behaviour of Groups 1 and 3 to be discarded.

Nevertheless, results from the study demonstrated a functional relationship between on-task behaviour and tootling. A decrease in student disruption during the intervention phase was also observed using visual analysis for Group 2. However, for Groups 1 and 3, little change in student disruptions were found when compared to baseline. This can be attributed to the students' age, where Groups 1 and 3 consisted of 10-11 year old students and Group 2 consisted of 5- 6 year old students. Since student disruption was measured using data on teacher corrective statements, older students may have used techniques to avoid drawing the teacher's attention. Results also showed that teacher praise statements did not increase with the tootling intervention. A dramatic improvement in behaviour was observed from the individual student's case study once the intervention was introduced. Powell recommended future studies to explore effects of tootling on behaviours of students at-risk for EBD. This suggestion has been included as one of the research questions in the current study.

Tootling is traditionally used with an interdependent group contingency as all students work together towards a target goal to receive the selected reinforcement. Previous studies combined tootling intervention with interdependent group contingencies but found only a handful of students responsible for submitting the written tootles, despite the intervention results (Sherman, 2012; Lambert et al., 2015). When McHugh et al. (2016) implemented tootling for a classroom and a target student, they modified the tootling criterion to a smaller number of tootles to make the target goal more feasible so that the interdependent group contingency could be attained daily. Even so, daily tootling did not appear to increase the effectiveness of the interventions compared to previous studies. In order to increase the

number of students writing the tootles, Lambert (2015) suggested using tootling with an independent group contingency (instead of interdependent) to reward specific students for their individual contribution of tootles. The study by Lum (2017) also used an independent group contingency to discourage situations where only a handful of students were responsible for the class' success. Earlier studies have shown interdependent and dependent group contingencies to reduce disruptive behaviours more than independent group contingencies (Gresham & Gresham, 1982). However, this notion was later countered in more recent studies (Alric, Bray, Kehle, Chafouleas, & Theodore, 2007; Lynch, Theodore, Bray, & Kehle, 2009) and a meta-analysis by Little, Akin-Little, and O'Neill (2015) found no differences between the effectiveness of the three group contingencies. For their intervention programme, Skinner et al. (2000) decided on an interdependent group contingency to use along with tootling as they believed it would foster cooperation instead of competition.

While the current study used an interdependent group contingency, a modified reinforcement criterion was carried out for the class to receive their reward. This was done to increase participation from all the students when it came to writing tootles about their peers. Instead of using an interdependent group contingency that was implemented once the class had met their target number of collective tootles, reinforcement was delivered based on the number of different students who had received tootles in the class. This alteration was applied in a study conducted by Kirkpatrick et al., (2019), who found the intervention to reduce antisocial/ disrespectful interactions among four teacher-nominated students in an after-school program. The criteria for the reinforcement i.e., the number of students required to get the tootles were randomly selected and kept anonymous from the students. No previous studies have indicated a scientifically supported strategy for selecting the reward criteria; hence the criterion was determined to be randomly selected. Keeping the reward criteria anonymous also made the intervention more game-like, encouraging students to do their best.

The modified tootling intervention motivates all students to participate in the intervention and encourage their peers' prosocial behaviours, instead of having only a select few students write the tootles and display appropriate classroom behaviour (Kirkpatrick et al., 2019). Randomizing components of the intervention, such as reinforcement criteria, target behaviours, or reinforcers is recognized as “reinforcement uncertainty”. It is identified as one of the key treatment aspects in an intervention and is seen to be more effective due to the element of surprise (Coogan et al., 2007).

Reporting can be done publicly, as seen with Positive Peer Reporting or PPR, or privately, like in tootling. Private reporting in a tootling intervention requires written reports of prosocial behaviours from the students. Teachers can then decide to read all the written reports or a select few of them. As a result, tootling can be advantageous for presenting students with opportunities to practice their writing skills and reducing the amount of time taken to discuss the prosocial behaviours reported. Tootling is also a better intervention to go with when safeguarding against negative interactions (Hawkins & Nabors, 2018). With public reporting, a negative comment about a student may be met with social reinforcement from the rest of the class, such as attention and laughter. However, with written reports, the teacher can be specific and choose appropriate tootles to be read out loud. It's also important to note that inappropriate tootles are discarded and not added to the tootling intervention's reward criteria. The effectiveness of tootling has been demonstrated by several studies when it comes to reducing problem behaviours and promoting prosocial behaviours in a school setting (Cihak, Kirk, & Boon, 2009; Lambert et al., 2015; Lum, Tingstrom, Dufrene, Radley, & Lynne, 2017; McHugh, Tingstrom, Radley, Barry, & Walker, 2016).

In the study conducted by Cihak et al. (2009), a functional relationship between the tootling intervention and changes in disruptive behaviour was demonstrated. Positive peer pressure was observed when students were seen to encourage each other to perform prosocial

behaviours to report them and reach the target criteria for the reinforcement. With an increase of prosocial behaviours, the frequency of disruptive behaviours decreased. This can also be explained by the matching law (Herrnstein, 1961), which states that the relative rate of responding is equal to the rate of reinforcement. Over the years, matching law research has explored the effects of other variables like time allocation, sensitivity, quality, and immediacy of reinforcement (Baum & Rachlin, 1969; Baum, 1974, b; Wearden & Burgess, 1982). However, its application in an educational setting can explain the chances of a student choosing between working on an academic task or engaging in disruptive behaviour. Usually, in an educational setting, students receive attention from peers or teachers for disruptive off-task behaviour, which serves as an immediate reinforcement. In contrast, desired behaviours such as sitting quietly or completing their classwork often receive delayed reinforcement or no reinforcement at all (Billington & DiTommaso, 2003). As the rate of reinforcement, like rewards and naturally occurring reinforcement from teachers, increases during the intervention, an increase in prosocial behaviours and a decrease in disruptive behaviours among students are observed, as proven by matching law. Its effectiveness is not just limited to students but also extends to teacher behaviours (like praising) by increasing their awareness of daily prosocial behaviours. Often positive peer behaviours like helping a classmate, sharing, sitting quietly etc. go unnoticed by the teacher, and their attention is drawn only to disruptive behaviours.

Teacher Praise and Reprimands

Praise is a statement or gesture that describes behaviour with a positive label. Based on behavioural principles derived from Skinner's model of operant conditioning, praise often functions as positive reinforcement, resulting in the increase of future frequency of any behaviour that immediately precedes it (Skinner, 1953). Several studies have shown the effectiveness of praise in decreasing student problem behaviours and maximizing learning

opportunities by increasing engagement (Becker & Madsen, 1967; Todd, Horner, & Sugai, 1999; Partin et al., 2010). Behaviour-specific praise by teachers was observed to significantly increase student on-task behaviour when compared to vague and generic praise given by teachers (Chalk & Bizo, 2004). It is also shown to be effective for increasing on-task behaviours with students having emotional and behavioural needs (Sutherland, Wehby, & Copeland, 2000). Studies have shown the success of contingent praise over random praise (delivered arbitrarily) when it came to improving on-task behaviour and compliance among students in general and special education settings (Wilcox, Newman, & Pitchford, 1988; Ferguson & Houghton, 1992). A systematic review of evidence-based classroom management practices also identified contingent praise as one of 20 practices to improve student attention, on-task behaviour, and compliance (Simonsen et al., 2008).

Research has proven the importance of teacher-pupil interactions in determining, to a large extent, the quality of early childhood education (Kaiser & Hester, 1997; Dodge, 1993). Despite the numerous studies that have proven praise to be an effective classroom practice, teacher's natural rates of praise have been observed to be low (White, 1975). Early studies have found that teachers use more reprimands or negative statements than praise or positive statements while addressing behaviours in a classroom, especially for students that are low performing (Heller & White, 1975). Negligible rates of teacher praise were observed with 28 elementary school students having emotional and behavioural needs (Wehby, Symons, & Shores, 1995). Studies from descriptive research have shown the classroom environment to promote problem behaviours (e.g., Shores, Gunter, & Jack, 1993; Gunter & Coutinho, 1997). High rates of negative interactions were observed between teachers and students at-risk for emotional or behavioural disorders, along with high rates of teacher commands. (Shores et al., 1993; Lago-Dellalo, 1998). Studies have shown teacher attention to be contingent upon inappropriate and disruptive student behaviours with little to no attention for displaying

appropriate behaviours (McKerchar & Thompson, 2004; Lago-Dellalo, 1998; Nelson & Roberts, 2000). These results suggest the lack of contingencies for maintaining appropriate behaviour within the classroom when the most predictable way to gain a teacher's attention is to engage in disruptive behaviours rather than appropriate classroom behaviours. Lack of such contingencies fails to provide a classroom environment where positive interaction and appropriate behaviour are promoted and maintained.

Several studies have shown the use of teacher praise in classrooms to be linked with improvements in classroom management (Richardson & Shupe, 2003; Beaman & Wheldall, 2000), decrease in problem behaviours and increase in task engagement (Reinke, Lewis-Palmer, & Martin, 2007; Sutherland, Wehby, & Copeland, 2000) for students with EBD and their typical peers. Research has also shown teacher praise to strengthen the relationship between students and teachers while serving as a protective factor for all students (Shores et al., 1993; Fisher, Reynolds, & Sheehan, 2016). General praise statements can either be specific or non-specific; specific statements allow students to identify desirable behaviours and link them to positive reinforcement (Hawkins & Heflin, 2011). Specific praise statements when directed at students with EBD are seen to increase time-on-task while minimizing problem behaviours, which also decreases the amount of missed instructional time that arises from removing students from the classroom (Kennedy & Jolivette, 2008). A systematic review by Jenkins et al., (2015) proposed specific praise to be a powerful reinforcer that is linked to less disruptive behaviour. However, research has shown praise statements to be delivered at lower levels than the recommended rate (Landrum, Tankersley, & Kauffman, 2003). These recommended rates are about 18 to 30 behaviour-specific praise statements (BSPS) per hour (Floress & Jenkins, 2015), but a study of general education classrooms showed that teachers give out an average of 8 BSPS per hour (Reinke, Herman, & Stormont,

2013). The rates of praise statements were even lower for a self-contained classroom which saw the teacher providing an average of only 5 BSPS per hour (Sutherland et al., 2000)

Empirical literature (Anderson & Hendricks, 2007; Shores et al., 1993) has recorded a discrepancy between the teacher's perception of their use of praise statements and the practical use of praise in a classroom. Sutherland and Wehby (2001) found praise rates in a classroom of students with emotional and behavioural disorders to range from 1.2 to 4.5 per hour for each student. In contrast, reprimands were delivered at a higher rate, with the ratio of reprimands to praise statements as 3:1. Teachers from the study did not believe that their reprimands were delivered thrice as much as their praise statements, and often perceptions of their teaching strategies do not coincide with the classroom reality (Hester, Hendrickson & Gable, 2009). To summarise, it is clear that positive statements from teachers like praise are being delivered at lower rates than what is optimal, and as a result, attention is diverted from students' prosocial behaviours and directed towards their problem behaviours.

Interdependent Group Contingencies

There is a need for cost-effective interventions to address disruptive behaviours for students with emotional and behavioural disorders. Students with EBD are at a greater risk for academic failure when compared to their peers (Smith, Katsiyannis, & Ryan, 2011). Studies have proven this by demonstrating an inverse relationship between academic performance and disruptive behaviour (Allman & Slate, 2013; McDaniel & Flower, 2015). Disciplinary exclusion or suspension is another lasting effect of disruptive behaviours for students with EBD (Smith et al., 2011). Classrooms having multiple students with EBD can increase the workload on teachers, as they have to keep up with the application and maintenance of several individualised interventions. In such cases, group contingencies can be more cost-effective and efficient in a classroom (Theodore, Bray, & Kehle, 2004). Group contingency consists of delivering reinforcement to an entire group when an individual or

group of individuals meet the target or reward criteria (Cooper, Heron, & Heward, 2007). Considering the demands placed on a teacher, a group contingency is more feasible in a classroom. When the reinforcement is contingent upon the group's performance as a whole, it is known as interdependent group contingency.

As previously discussed, tootling is a peer-mediated intervention that utilizes a system where students monitor and record prosocial behaviours of their peers which lead to an increase in desirable classroom behaviours and directing the teacher's attention to such desired behaviours. Previous studies have evaluated various effects of interdependent group contingencies when combined with class interventions. One of the earliest uses of an interdependent group contingency in the classroom was the Good Behaviour Game (GBG). Initially introduced by Barrish et al. (1969), this intervention consisted of placing students into teams where teams would accumulate points for inappropriate behaviour, and finally, the team with the least number of points would get a reward. Several studies have successfully modified the game to focus on gaining points for appropriate behaviours (Wright & McCurdy, 2012; Wahl et al., 2016). It was found to reinforce lower rates of inappropriate behaviours (Barries et al., 1969). However, most studies that implemented the GBG found dependency on the instructor to notice behaviour (Wright & McCurdy, 2012; Wahl et al., 2016; Rubow et al., 2018). When researchers shifted their focus from reducing inappropriate behaviours to encouraging positive behaviours in the classroom, they used interdependent group-oriented rewards for positive desired behaviours, concurrently measuring their indirect influence on undesired behaviours in the classroom (Cihak et al., 2009; Page & Edwards, 1978). Skinner (2000) and Cashwell (2001) indicated the necessity for interdependent group contingencies to enhance and maintain tootling. Another effect of such group contingencies was seen on peer influence. Students started encouraging and supporting their peers to

participate in prosocial activities so it could be reported to reach the target of the class reward (C.H. Skinner, Ervin, Robinson, Neddenriep & Jones, 2002; Slavin, 1991).

Ultimately the goal is to reduce disruptive behaviours and promote positive behaviours across different settings, even when the intervention is not in place. If behavioural changes are maintained over time and are transferred to untrained settings then generalization is said to have occurred (Baer et al., 1968; Stokes & Baer, 1977). Identifying strategies to promote generalization can help with conserving resources (Hawkins, Haydon, Denune, Larkin, & Fite, 2015). This is useful for students with EBD that display disruptive behaviours across several settings and find it challenging to display newly learned behaviours outside the instructional settings (Stokes & Baer, 1977). There is a lack of response maintenance in the tootling literature. The materials present during the tootling intervention can be considered as contingencies that result in reinforcement; therefore, becoming the discriminative stimuli controlling behaviour. Once the intervention ends, when the discriminative stimuli are removed, there are no environmental stimuli indicating the availability of reinforcement; as a result, there is a decline in appropriate behaviour (Powell, 2020). While investigating maintenance effects of the GBG, researchers observed an occasion where a student went to raise her hand to get the teacher's attention but realized the class was not playing the game on that day, which she vocalized before lowering her hand and calling out to the teacher (Lynch & Keenan, 2018). Future studies with tootling interventions can investigate different aspects of generalization such as maximizing the targeted behaviours contact with natural reinforcement like teacher's praise.

Treatment Integrity

It becomes challenging to determine the effectiveness of an intervention and its functional relationship to levels of change in the target behaviour, when treatment integrity is weak (Gresham, Gansle, Noell, & Cohen, 1993; Dart, Cook, Collins, Gresham, & Chenier,

2012). Therefore, when treatment integrity is not observed, it would be incorrect to attribute behaviour change (or the lack of behaviour change) to the intervention (Dart et al., 2012; Gresham et al., 1993). Previous tootling studies have found low levels of treatment integrity with several participating teachers. (Lambert, 2014; Lambert et al., 2015; McHugh et al., 2016). Gresham et al. (2000) postulated that treatments with several well-defined components may be implemented with lesser integrity when compared to treatments with fewer and simpler components. The only study that reported consistent levels of treatment integrity was Cihak et al. (2009), however it involved only one participating teacher/ classroom. McHugh (2016) observed that teachers would forget to reward students from time to time or that they did not praise prosocial behaviours that earned students their tootles. The use of performance feedback was shown to increase treatment integrity across several types of settings (Lambert, 2014; Lambert et al., 2015; McHugh et al., 2016). In the tootling research conducted by Lum (2017) a randomized independent group contingency was used where teachers only rewarded students about whom the tootles were written. Individuals who submitted tootles were also randomly chosen to be rewarded for their active participation. This eliminated the need for counting all the submitted tootles daily, as a means to increase treatment integrity (Lum, 2017). Results showed that even with the change in group contingency, levels of disruptive behaviour decreased and academically engaged behaviour (AEB) increased during both intervention phases when compared to baseline and withdrawal phases. 100% treatment integrity was also observed across all participating teachers (Lum, 2017).

Purpose of Present Study

Previous studies within the American tootling literature have demonstrated positive effects of the intervention on class-wide behaviours (Cihak et al., 2009; Lambert, 2012). Powell (2020) was the first to conduct a study of tootling in a primary classroom, in a New Zealand context. This current study aims to extend the literature on the effects of tootling in a

New Zealand inclusive classroom and observe the effects of the intervention on target students that are at risk for emotional and behavioural disorders (EBD). Student behaviours including academically engaged behaviours (AEB) and disruptive behaviours (DB) of the teacher-nominated student and students of a comparison group are observed. Additionally, teacher behaviours like praise statements and reprimands are also be observed. In order to establish external validity of the intervention in Aotearoa, the current study is a systematic replication of Powell's study (2020). As previously mentioned, a modified reinforcement criteria is implemented to encourage participation from all the students in the class. This alteration is taken from a study done by Kirkpatrick et al. (2019) where reinforcement is delivered upon the number of different students who have received tootles in the class instead of being contingent upon a collective number of tootles. This addresses the concern of having only a select few of the students writing tootles for which the entire class is rewarded.

To conclude, the following research questions were examined in the current study:

1. Will the tootling intervention increase academically engaged behaviours (AEB), class-wide, in a primary classroom?
2. Will the tootling intervention increase target students' academically engaged behaviours (AEB), in a primary classroom?
3. Will the tootling intervention increase academically engaged behaviours (AEB), class-wide, in a middle-block classroom?
4. Will the tootling intervention increase target students' academically engaged behaviours (AEB), in a middle-block classroom?
5. Will the tootling intervention increase teacher praise statements?
6. Will the tootling intervention be rated as an acceptable classroom intervention by students and teachers?

Method

Ethical Approval and Consent

Ethics approval was granted by the University of Waikato Division of Arts, Law, Psychology, and Social Sciences Human Research Ethics Committee (FS2021-30). Permission to conduct the study at the participating school was obtained after meeting with the Principal, Special Education Needs Coordinator (SENCO), and the participant teachers. During the meeting, details of the intervention, its benefits for the students, and information regarding consent were discussed. Informed consent for the participant teacher and teacher-nominated students and passive parental consent for the remaining students in the class were obtained before the study began.

Participant and Settings

The primary researcher approached a local school with a decile rating of 3 that supports inclusive education. The decile rating of a school indicates the students' socio-economic position, and these are ranked from decile 1 (lowest socio-economic communities) to 10 (highest socio-economic communities) (Ministry of Education, 2020).

Participants for this study were selected from two classrooms, including the classroom teacher and three target students (TS) nominated by the teacher, who were considered to be at risk for emotional and behavioural disorders by the school. For comparison, students from the rest of the class were randomly picked during data collection. Participant teachers only included classroom teachers present in the class; this group did not include teacher aids or relief teachers.

Classroom A was a middle-block inclusion classroom containing 25 students. The first target student (TS1) was an 8-year-old Māori male. He was nominated because he had attention deficit hyperactivity disorder (ADHD) and often displayed disruptive behaviours that affected his learning and the learning of his surrounding peers. The second target student

(TS2) was a 7-year-old New Zealand European male diagnosed with ADHD and special learning needs. Lastly, the third target student (TS3) was a 7-year-old Māori-Tongan male. While his learning was on par with his peers, the teacher referred him because of his consistent non-compliance, interfering with his academic tasks. The participant teacher was a 30-year-old Māori female with 3 years of teaching experience and worked at this school for the past year.

Classroom B was a primary-block inclusion classroom containing 22 students. TS1 was a 6-year-old Māori male. According to his teacher, he has come a long way in regulating his outbursts. Previously, he would display disruptive behaviours, which included pushing students if they got too close or brushed against him, having reactive outbursts where he would use cuss words and kick objects close to him, and sitting in the corner of the class if he did not get the teacher's attention or did not want to engage with his classwork. While he has learned to self-manage when it comes to finishing set tasks and participating in buddy discussions, he was nominated as he still has events of reactive outbursts. TS2 was a 6-year-old Indian male. A year ago, when he first joined the class, his English vocabulary was minimal, affecting his performance in academic tasks. The class-teacher noted dramatic improvements in his language and vocabulary ever since, and she nominated him to see his performance after the intervention. TS3 was a 6-year-old Māori male selected for his disruptive behaviours, which commonly included fidgeting. The participant teacher was a 50-year-old Māori/ Samoan female with 5 years of teaching experience and worked in the current school for 1 year 5 months.

While the participants' school was not recognized as a PB4L School, the classrooms had some behavioural programmes put in place before the study started. The practices present in the classrooms were based on the school's commitment as a bicultural partner of Te Tiriti o Waitangi/ The Treaty of Waitangi. Strategies used to promote educational achievement and

well-being for the students came from an understanding of te ao Māori/ the Māori worldview. Learning and demonstrating acts of manaakitanga, aumangea, ngātahi and ako were essential for every student throughout the school. These values also played a significant role during the implementation of the intervention.

Materials

Prior to data collection, a teacher interview script (see Appendix A) was used to assess values that the teachers held for their students to obtain information on classroom behaviours and rewards for reaching the tootle goal. These forms were similar to the ones used by Powell (2020). Additionally, teachers were asked to nominate three target students who demonstrated difficulties staying on-task either due to special needs or emotional and behavioural disorders (EBD). Due to time constraints, no screening observation for the criterion was held.

Separate data collection forms were created to record student and teacher behaviours. The data collection form for student behaviours included information on the observed class, operational definitions of academically engaged behaviours (AEB) and off-task behaviours with examples and non-examples. It also had numbered intervals with student codes assigned to each one. Comparison students (CS) were selected at random from the rest of the class at the start of every session. The numbered intervals followed the sequence of TS1, CS1, TS2, CS2 and TS3 for 90 intervals (see Appendix P).

Data collection forms for teacher behaviours were used to record instances of teacher praise statements and reprimands directed at an individual or a group in class. The form included details of the class, such as the name of the participant teacher, date, and ongoing activity (see Appendix Q). Operational definitions of praise and reprimand with examples and non-examples were also included, and space was provided to record occurrences of teacher behaviour as tally marks.

An interval timer app was downloaded onto a mobile device delivering an audio recording and a vibration at the end of every interval. Headphones were also used to conceal the noise from the rest of the class.

Tootling

A tootling script was given to the teachers for them to read out in the classroom (see Appendix O). The script explained the intervention, examples and non-examples of tootles and the rewards for achieving the target goal. For recording the tootles, index cards (16.5cm x 11cm) were given to the teachers.

As the intervention was conducted in classes with students of 5 – 8 years, a modification was made with the index cards (see Appendix G). The index cards included the name of the person writing the tootle, the person receiving the tootle and a checklist of behaviours from which they could select the appropriate option. This modification was made to reduce the written component of the intervention to make it easier for the students to give out tootles. The list of behaviours was selected after consulting the teachers who wanted values of manaakitanga, aumangea, ngātihi and ako along with some other behaviours that they wanted to see more of in class.

A decorative tootle box was provided for each class where the written tootles were placed, along with a progress chart (see Appendix H) that displayed the students' progress towards earning their reward. Other materials included a paper bag that held numbered paper slips for the reward criteria of the day (i.e., the number of students who must receive a tootle).

Procedural Integrity

A researcher-teacher procedural integrity checklist of 13-items was developed to ensure the participant teachers were trained appropriately to administer the tootling intervention within their classrooms (see Appendix B; Adapted from Powell, 2020). The

teacher-student procedural integrity checklist of 8-items was designed to ensure each teacher included all the relevant information necessary to explain the tootling intervention to the students (see Appendix C; Adapted from Powell, 2020)

Treatment Integrity

Treatment integrity was assessed with checklists used by Powell (2020). The treatment integrity checklist contained steps to ensure the tootling procedure was implemented accurately and took approximately 1 minute to complete. During the intervention phase, the primary researcher completed the checklist on observation days while the participant teachers were asked to complete it the rest of the days when tootling took place without the observer present (see Appendix D).

Social Validity

Modified Behaviour Intervention Rating Scale (BIRS). At the study's conclusion, teachers completed a Modified Behaviour Intervention Rating Scale (BIRS; see Appendix E), a 24-item questionnaire with a 6-point Likert scale that measured three factors, i.e., Acceptability, Effectiveness, and the Time of Effect (Von Brock & Elliott, 1987). The BIRS was followed by a post-study interview for the participant teachers to discuss their answers, along with feedback and suggestions, with the researcher.

Modified Children's Intervention Rating Profile (CIRP). Students from the comparison group were asked to anonymously complete the CIRP to rate their acceptance of the intervention on a 6-point Likert scale (see Appendix F). The CIRP was modified using smiley faces instead of numbers to represent the Likert scale. Previously, when similar modifications have been used, it has maintained good internal consistency (Mitchell et al., 2015).

Dependent Variables

The dependent variables for target students and comparison students consisted of academically engaged behaviour (AEB) and off-task behaviour (OTB). The definitions for student behaviours were based on the information from the teacher interview and preliminary observations.

Academically engaged behaviours were defined as "actively participating in independent seatwork, group activities, and/or attending to teacher instruction" (McHugh et al., 2016). Examples of AEB include: following instructions from teachers; eyes oriented towards the task at hand, peers or towards the teacher while class is in session; asking peers or teacher for help; responding to teacher posed questions; working on independent activities, and actively participating in group assignments. The interval for AEB was checked when the students showed behaviours that fit the definition.

Off-task behaviours (OTB) were defined as "engaging in any behaviour that is not related to the assigned task, including (i) inappropriate vocalizations and (ii) playing with objects". Inappropriate vocalizations consisted of making noises unrelated to the task at hand. Examples include: talking to peers without permission or about an unrelated topic, grunting, or making animal sounds. Playing with objects consisted of manipulating or touching objects that were not relevant to the task at hand. Examples include: making paper planes, tapping a pen, or throwing objects. However, after completing set tasks, students were allowed to move on to their choice of activity. Therefore, a non-example was a student playing a dice game with their peer after completing the class activity given by the teacher. The operational definition for off-task behaviours was modified to exclude "being out of seat". The teacher did not identify being out-of-seat to interfere with a student's ability to work. In her class, if a student got out of their seat without permission, they would typically return to their seat

within 15 seconds. If any student engaged in inappropriate vocalizations or started playing with irrelevant objects, while being out-of-seat, this was coded as OTB.

The dependent variable for teacher behaviours consisted of praise statements and reprimands. *Praise* was defined as a verbal statement or gesture made by the class teacher to denote the approval of academic behaviour or any social behaviour aligned with MANA values practised in class (Powell, 2020; Rubow et al., 2018). Examples of praise statements included “Ka Pai! (Well done)”, “Good job following the instructions”, and “Well done for asking”. All behaviours of praise statements were counted together, whether it was directed to a group or an individual.

Reprimands were defined as verbal statements or gestures made by the class teacher to denote disapproval of students’ social behaviour alone. For academic behaviours, the class teacher showed corrective feedback or instruction. Examples include statements informing students to cease a non-academic behaviour or delivering a negative consequence like writing the student’s name on the board (Rubow et al., 2018). All behaviours of reprimands were counted together, whether it was directed to a group or an individual.

Independent Variable

The tootling intervention was similar to that used by Powell (2020). However, the current study used a modified reinforcement criterion where the reward for students was contingent upon the number of different students needed to receive the tootles instead of a pre-determined tootle goal (Kirkpatrick et al., 2019). This reward criterion was randomly selected from a bag of paper slips containing numbers for each student in the class. The criterion was selected and kept secret from the students and only revealed towards the end of the day. This application was meant to make the intervention more fun and game-like for the students.

Observations

Data was collected twice a day, from Mondays to Thursdays. With this arrangement, the first observation session took place in class A and the second observation session in class B. Student behaviour was recorded using a 15s momentary time sampling (MTS) technique, and as a result, the observation periods lasted for 22.5 minutes after being divided into 90 intervals. On completion of each observation period, the percentage of occurrence of the dependent variables was recorded and determined by dividing the total number of intervals of occurrence by the total number of intervals and multiplying this number by 100. Student behaviour at an individual level was only measured for the target students. Two students were selected at random during the observation period for the comparison group, and their behaviour was observed on a rotation. No personal information was collected on any individual student, and the normative data collected was reported at the group level only, i.e. as a singular data point, which is the composite of behaviours for these randomly selected students. Event recording was used to record teacher behaviour. A minimum of five data points per phase was obtained, and phase change decisions were made based on visual analysis of the phase data.

Experimental Design

The original design for the intervention was an ABAB reversal design. This was later modified into an AB design to accommodate time constraints and limitations from the ongoing pandemic. A series of two AB designs followed by maintenance was implemented in both classrooms to evaluate the effects of the tootling intervention on the AEB of target students and their typical peers and the levels of praise statements made by the participant teachers.

Procedure

Preliminary Observation

Before data collection, the researcher had several observation sessions in the classroom to define the dependent variables operationally and evaluate recording procedures. These pre-experimental observations were also meant to reduce participant reactivity (Shapiro, 1987). A teacher interview was also conducted over zoom to assess behaviours and values both the participant teachers expected from their students, gather information on the types of behaviours observed in class, get names for the teacher-nominated students, and decide rewards for the class. Both the participant teachers agreed upon the reward of 15 minutes of playtime outside the class. Data collection took place over ten weeks.

Baseline

Baseline data was collected by the primary researcher and a trained observer (during IOA observations) before any intervention implementation or training. Every 15-second interval was numbered and designated to a TS or CS. These students were observed on rotation until the end of the observation session. The specific behaviour was scored if any AEB or OTB was observed at the end of the 15s interval. If the student was absent or had stepped out during their assigned interval, it was marked as N/A. For event recording of teacher behaviours, any instance of discrete behaviours that fell under teacher praise or corrective statements was tally marked.

Training

Once baseline data was collected, the participant teachers received training from the primary researcher on the tootling intervention over zoom. The teachers were taught the basic principles of tootling, and received a script containing examples and non-examples of tootles and a reward board. The reward criterion (i.e., the number of students that need to receive the tootles) was explained and demonstrated to the teacher.

During the training, concerns over the written component of the tootle cards were brought up. Most of the students from both classes did not have many writing behaviours apart from their names and a few other words. As a result, a set of behaviours that the teachers expected to see in their class were printed out on the tootle index cards (see Appendix G). This list also included MANA values i.e acts of manaakitanga, aumangea, ngātahi and ako. The participant teacher from class B (primary block) went one step further and colour-coded the MANA values so students from her class could easily recognize the word.

Once both the participant teachers were confident about the procedure, they presented the intervention as a class-wide game and taught the students how to record tootles by providing appropriate examples and non-examples of classroom behaviours. Students were then asked to give their examples of tootles, for which the teachers provided feedback on the accuracy of the behaviour recorded. Students were asked to write their name, the name of their peer they were reporting on, and tick the appropriate action of their peer for every tootle card. Additionally, the teachers allowed the students to approach them for assistance in spelling the names and words right. If the class met or exceeded the randomly selected reward criterion, it was explained that they would win a star. After the class earned three stars (displayed on the reward board), they received their group reinforcement which was 15-minutes of playtime.

Intervention

During the intervention phase, the tootling programme was implemented in both classes. Each day of the intervention phase began with the participant teachers announcing the tootling programme and randomly selecting a tootle target (kept secret from the students). Once the intervention started, students recorded their tootles during their usual classroom routines and placed them in a specified container. The tootling for the day concluded at the

start of the lunch break. During the lunch break, the teacher counted the tootles and selected a few tootles to read out to the class providing feedback on their accuracy. The tootle target was also revealed, and if the target was met, the class received a star. After three stars, the class was eligible to receive their specified reward. The intervention phase carried on till the end of the school term.

Maintenance

Upon completing the intervention phase, the researchers informed the teachers that they could continue implementing the tootling programme or stop and return to their previous classroom routine. Both the teachers decided to carry on with the tootling programme for the rest of the year, therefore, not participating in the fading process of the systematic removal of tootling materials.

Inter-Observer Agreement (IOA)

IOA data was collected for at least 20% of observation sessions across all phases in both classrooms between the primary researcher and a trained observer. The trained observer was a Graduate Psychology Student who was trained prior to any data collection. Training consisted of going over observation and recording procedures as well as being given operational definitions of the target behaviours. The primary researcher and the trained observed independently and simultaneously recorded the target behaviours during observation. The observers had to meet a criterion of 85% agreement throughout the study. If IOA scores fell below the criterion, retraining of operational definitions and recording procedures would occur to ensure consistency. However, retraining was not needed for any of the sessions.

Table 1

Mean percentage IOA Scores for Student and Teacher Behaviour in Class A

Type of Behaviour		Mean % IOA Score (range)		
Student		TS1	TS2	TS3
AEB	Baseline	91 (no range)	90 (no range)	98 (no range)
	Tootling	88 (87-89)	89.5 (88-91)	90 (89-91)
	Across AB	89.5	89.75	94
Teacher		Teacher 1A		
Praise statements	Baseline	86.5 (85-88)		
	Tootling	86.5 (84-89)		
	Across AB	86.5		

Data was collected for 11 sessions in each classroom (5 for baseline; 6 for intervention), and IOA was obtained for 3 of these sessions (1 for baseline; 2 for intervention). This met the requirements of obtaining IOA for at least 20% across all phases as per previous research (Kennedy, 2005). For both the classrooms, IOA was measured during 20% of the baseline phase and 33% of the intervention phase. For student behaviours, which were recorded using MTS, IOA was calculated using the total number of agreements divided by the total number of agreements plus disagreements and multiplied by 100. For teacher behaviours, which were recorded using event recording, IOA was calculated by dividing the intervals with 100% agreement by the total number of intervals and multiplied by 100.

Table 1 shows the mean IOA scores, with range, for target students' AEB and participant teacher's praise statements in Class A. Average IOA for academically engaged behaviours in TS1 was 89.5%, 89.75% for TS2 and 94% for TS3. The average IOA score for Teacher 1A's praise statements was 86.5%.

Table 2

Mean percentage IOA Scores for Student and Teacher Behaviour in Class B

Type of Behaviour		Mean % IOA Score (range)		
Student		TS1	TS2	TS3
AEB	Baseline	98 (no range)	97 (no range)	92 (no range)
	Tootling	97.5 (95-100)	91.25 (89-93.5)	91.5 (90-93)
	Across AB	97.75	94.12	91.75
Teacher		Teacher 1B		
Praise statements	Baseline	89 (87.5–90.5)		
	Tootling	100 (no range)		
	Across AB	94.5		

Table 2 shows the mean IOA scores, with range, for target students' AEB and participant teacher's praise statements in Class B. Average IOA for academically engaged behaviours in TS1 was 97.75%, in TS2 was 94.12% and in TS3, it was 91.75%. Lastly, the average IOA score for Teacher 1B's praise statements was 94.5%.

Data Analysis

Visual Analysis

Microsoft Excel was used to produce graphs with the data collected throughout the study. Graphing data after every session allowed the observer to be in continuous contact with the behaviours under investigation (Cooper et al., 2007).

Visual analysis of the graphs was then used to determine trends, variability, and levels of each participant's data. The trend indicates the "direction" of the data, the level marks the position of the data points with respect to the Y-axis, and variability can be observed by the way data points are spread (Cooper et al., 2007). These factors allow for decisions regarding phase changes and determining the effects of the intervention.

Effect Size Calculations

Effect size quantifies the effects of the treatment and is used in adjunction to visual analysis of graphed data (Johnston et al., 2020). Nonoverlap of All Pairs or NAP measures data overlap between data points in any two phases. It is calculated by dividing the number of non-overlapping pairs of data points by the total number of comparisons (Parker & Vannest, 2009). NAP has been used commonly as an effect size calculation in previous tootling studies (McHugh et al., 2016; Lipscombe et al., 2018; Lum et al., (2018). While NAP is resistant to the influence of outlier values, it is insensitive to data trends (Parker, Vannest, Davis & Sauber, 2011). Tau-U (Parker et al., 2011) is another nonoverlap measure like NAP that adjust for trends. Thus, while controlling for baseline trends, it can result in significant changes to the effect size when compared to NAP (Vannest & Ninci, 2015). The effect size calculation used in the current paper is that of Tau-U, which was also used in Powell's study (2020) and a few other tootling studies (Lum et al., 2019; Kirkpatrick et al., 2019). Also interpreted as a continuous index of improvement, when the effect size is scored from .0 to 0.20, it is indicative of a small change. A score between 0.20 to 0.60 indicates a moderate change, 0.60 to 0.80 is for a large change, and anything exceeding 0.80 indicates a substantially large change. These interpretations are relative to settings, client needs, and intervention comparisons (Vannest & Ninci, 2015). Calculations for Baseline-Correct Tau was completed using an online Tau-U calculator (Vannest et al., 2016).

Results

Measures of Integrity

Procedural Integrity

Procedural Integrity was administered using a 13-item researcher-teacher procedural integrity checklist and an 8-item teacher-student procedural integrity checklist. The scores were calculated by dividing the number of steps performed by the teacher with the total number of steps on the checklist, multiplying it by 100. During teacher and student training sessions, integrity scores for Class A and Class B were 100%.

Treatment Integrity

A treatment integrity checklist was created for the teachers to ensure all the steps of the intervention were implemented. Mean scores for observer-rated treatment integrity were 100% in class A for teacher 1A and 100% in class B for teacher 1B. The researcher evaluated treatment integrity during observation days. While all the steps were completed during the days tootling was implemented, several extraneous variables were also present that led to the postponement of the tootling programme for a certain number of days during the intervention phase. During week 3 of the intervention, class B was joined by the adjacent primary classroom because of the drop in student numbers. Most students, including TS2, were self-isolating at home, and the tootling intervention was paused until they resumed their regular class strength. In class A, during week 4, teacher 1A was self-isolating at home, and the tootling intervention was discontinued until she returned to class. The treatment integrity checklist was not evaluated consistently by the teachers for the reasons stated above. Despite the inconsistencies, the days during which the teachers rated the checklist, an integrity score of a 100% was scored in both classrooms.

Student Behaviour

Academically engaged behaviour (AEB) was the primary dependent variable of the study. Figure 1 displays behavioural occurrences from classroom A. Table 1 indicates the mean, range and baseline-corrected Tau effect sizes for all participants from classroom A.

Figure 1

Percentage of Academically Engaged Behaviour for Participants in Class A across Sessions

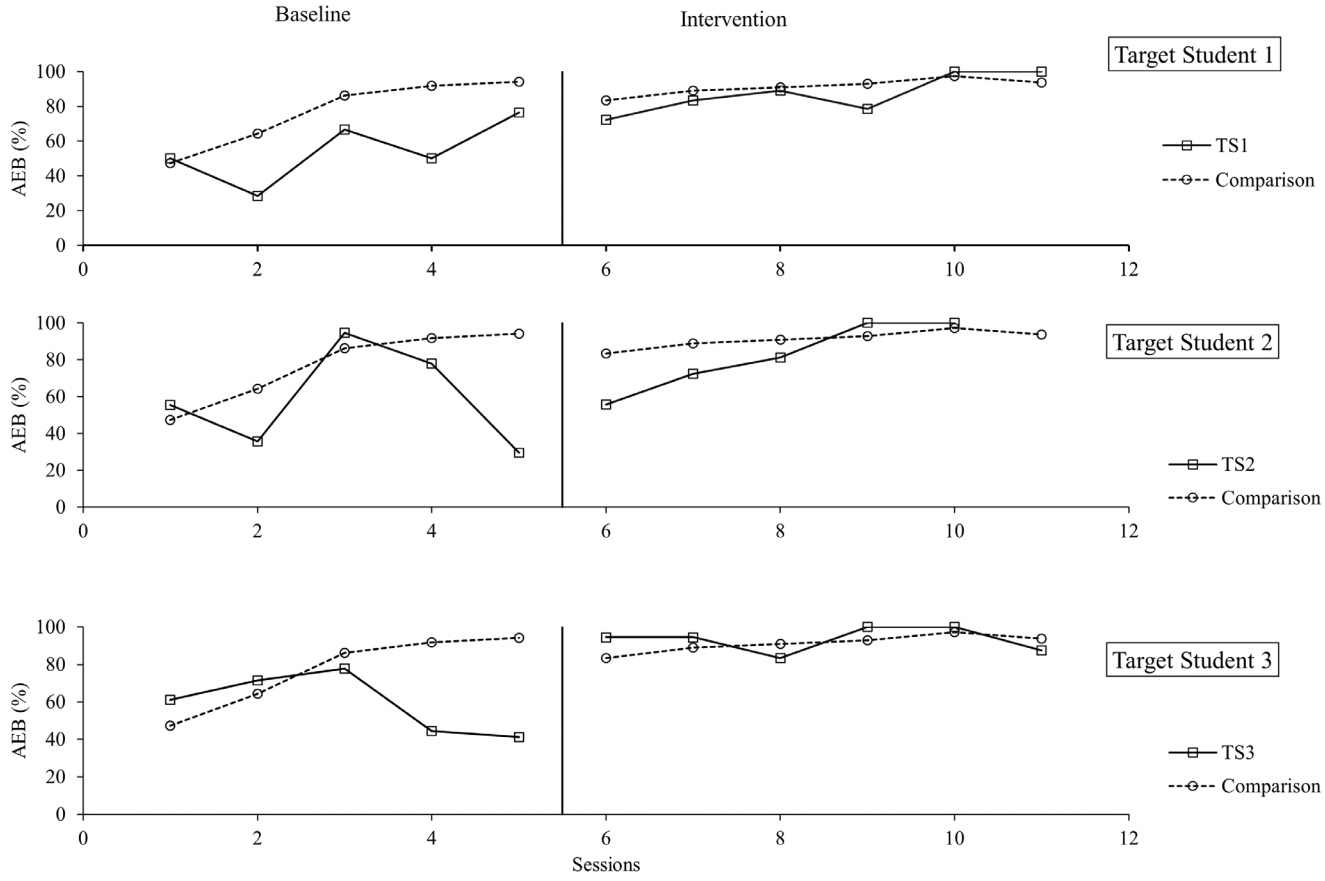


Figure 1 illustrates the percentage of intervals scored with AEB for TS1, TS2, TS3 and the comparison group from Class A. During baseline, AEB data for TS1 was not stable but was seen to generally trend upwards. Mean percentage of AEB for TS1 was 54.34% (range = 28.5%-76.5%). Data increased to a mean of 87.19% (range = 72.3%-100%) once the intervention was introduced, with a more stable increasing trend.

During baseline, the data for percentage of AEB for TS2 started off slightly variable before showing a decreasing trend towards the end of the phase. On the third session, TS2

was involved in a one-on-one activity with the class teacher, resulting in a high AEB score of 94.5%. Mean percentage of AEB in baseline phase was 58.57% (range = 29.4% - 94.5%). After the intervention, mean percentage of AEB increased to 81.83% (range = 55.6% - 100%).

For TS3, the data for the percentage of AEB showed an increase in trend until the third session, after which the levels of AEB percentage decreased. Mean percentage for AEB during baseline was 59.17% (range = 41.1% - 77.78%) which rose to 93.30% (range = 83.34% - 100%) once the intervention was introduced. During baseline, an increasing trend in the percentage of AEB was displayed for the comparison students from class A until the end of the phase (Figure 1, figure 2 & figure 3). An increase in trend for AEB without the intervention in place can result from the presence of extraneous variables in the classroom. Some of them have been discussed in the limitations. For the comparison group, mean score for AEB was 76.71% (range = 47.2% - 94.2%) and during the intervention mean score for AEB gradually increased to 91.19% (range = 83.4% - 97.3%).

Tau-U effect size was calculated for target students and the comparison group from class A to determine if the tootling intervention impacted the participants' level of AEB. The baseline trend had to corrected only for TS1 and the comparison students group. The criteria for baseline trend control were only for data sets with Tau ≥ .40 in Phase A and in the AB contrast, i.e., trends going in the same direction (Parker, Vannest, Davis & Sauber, 2011). Effect size for TS1 indicated a large change in AEB (TAU= .76), moderate changes for TS2 (TAU= .60) and TS3 (TAU = .60), and only a small change in AEB for the comparison students (TAU = .06) in class A.

Table 3

Mean, Ranges and Baseline-Correct Tau Scores for Academically Engaged Behaviour (AEB) in Class A.

Participants	Baseline Mean [Range]	Intervention Mean [Range]	Baseline-Corrected Tau
Comparison Students	76.71 [47.2-94.2]	91.19 [83.4-97.3]	0.06
Target Student 1	54.34 [28.5-76.5]	87.19 [72.3-100]	0.76
Target Student 2	58.57 [29.4-94.5]	81.83 [55.6-100]	0.60
Target Student 3	59.17 [41.1-77.78]	93.30 [83.34-100]	0.60

Figure 2 displays behavioural occurrences among participants from classroom B. Table 2 indicates the mean, range and baseline-corrected Tau effect sizes for all participants.

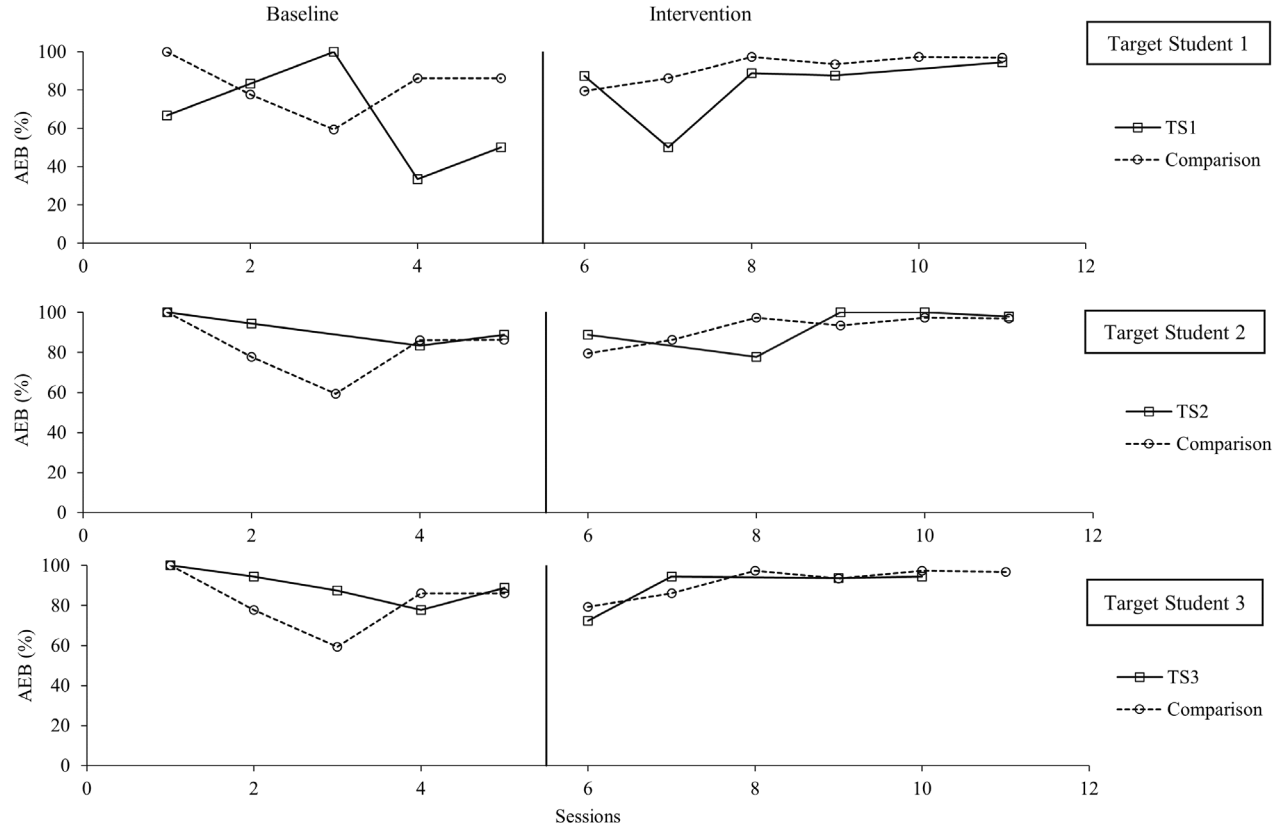
During baseline, the data for the percentage of AEB for TS1 showed an increase in levels till the third session, after which it immediately dropped, with the fourth session having the lowest percentage of AEB. This can be the consequence of a reactive outburst he had with one of his friends during morning break before observations began. Mean percentage for AEB during baseline was 66.7% (range = 33.4%- 100%). After the intervention, mean percentage of AEB increased to 81.62% (range = 50% - 94.45%). On the day of the seventh session, TS1 argued with another student before observation began, and he gave himself a time-out until he regained composure to join the class. This could explain the drop in the levels of AEB (50%) during the intervention phase.

Figure 2 illustrates the percentage of intervals scored with AEB for TS2 and the comparison group from class B. During baseline, TS2 was absent on the third day, showing up for only four observation sessions, and during the intervention, TS2 was absent on the second day. From figure 2, a gradual downwards trend can be observed from the data of the

percentage of AEB and during the intervention phase, it slightly increased until a steady-state responding was observed. For baseline, mean percentage of AEB was 91.69% (range = 83.4% - 100%). AEB percentage had already reached a high level before the intervention was introduced. After the intervention, mean percentage went up another percent becoming 92.93% (range = 79.42% - 97.3%).

Figure 2

Percentage of Academically Engaged Behaviour for Participants in Class B across Sessions



During baseline, the data for AEB percentage for TS3 showed an overall decrease in trend before increasing for the last session. The trend for AEB data continued to increase during the intervention phase as well. TS3 was part of a small group of advanced learners in class that worked separately with the teacher during multiple sessions. As a result, he showed high levels of engagement with his classwork in a smaller group. He also missed two sessions during the intervention phase (the third and sixth sessions). Mean percentage for AEB during

baseline was 89.71% (range = 77.7% - 100%) and decreased to 88.76% (range = 72.3% - 94.5%). TS3 was the only participant whose AEB decreased after the intervention was introduced.

For the comparison students from class B, there was a steep decrease in the trend for the percentage of AEB until the third session. There was an increase in trend for the rest of the baseline phase before it stabilised. During the intervention, there was a stable increase in trend till the end of the phase. Mean percentage for AEB during baseline was 81.88% (range = 59.4% - 100%) and it increased to 91.74% (range = 79.42% - 97.3%) after the intervention was implemented.

Tau-U effect size was calculated for all the participants from class B to determine the impact of the tootling intervention on their AEB. No correction for baseline trends was required. Effect size in AEB for TS1 (TAU= .40) showed a moderate change. For TS2, the effect size in AEB indicated a minimal change (TAU= .15), and for TS3 (TAU= 0), there was no change in AEB. Effect size demonstrated a moderate change in AEB for the rest of the students from class B (TAU= .43)

Table 4

Mean, Ranges and Baseline-Correct Tau Scores for Academically Engaged Behaviour (AEB) in Class B.

Participants	Baseline Mean [Range]	Intervention Mean [Range]	Baseline-Corrected Tau
Comparison Students	81.88 [59.4-100]	91.74 [79.42-97.3]	0.43
Target Student 1	66.7 [33.4-100]	81.62 [50-94.45]	0.40
Target Student 2	91.69 [83.4-100]	92.93 [79.42-97.3]	0.15
Target Student 3	89.71 [77.7-100]	88.76 [72.3-94.5]	0

Teacher Praise Statements

The secondary dependent variable of the study was teacher praise statements. Figure 3 illustrates the rate of praise statements (per minute) from the participant teacher in class A. Based on visual analysis of the graph, the baseline phase showed low levels of praise statements. A variable but a moderate level of praise statements was observed during the intervention phase. Mean rate of praise statements was 0.1 per minute (range = 0.05 - 0.15) which increased to 0.28 per minute (range = 0.15 - 0.35) once the intervention began.

Figure 4 illustrates the rate of praise statements (per minute) by the participant teacher in class B. In both phases, a downward trend of praise statements was observed. During baseline, the mean rate of praise statements was 0.14 per minute (range = 0 - 0.3) and during intervention the mean percentage was 0.18 per minute (range = 0.1 - 0.3). The difference in the mean percentages of the two phases was not a significant one.

Figure 3

Rate of Teacher Praise Statements from Participant Teacher in Class A across Sessions.

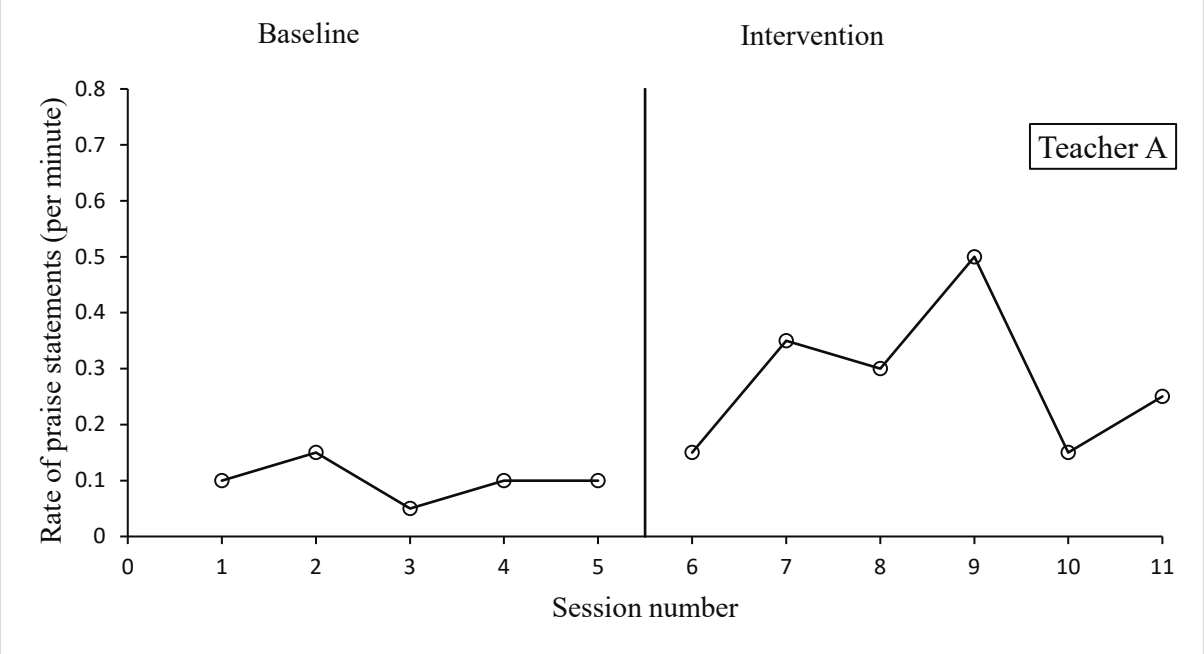
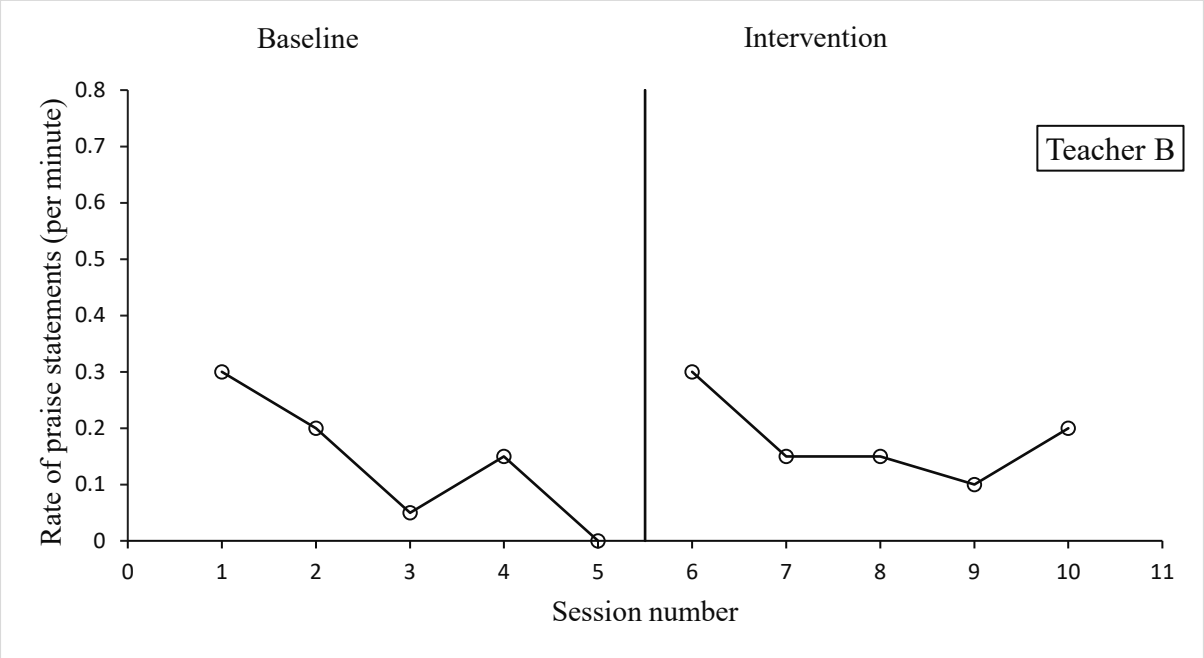


Figure 4

Rate of Teacher Praise Statements from Participant Teacher in Class B across Sessions.



Accordingly, Tau-U effect size calculations were made to determine the impact of the tootling intervention on the rate of praise statements made by the participant teachers from class A and class B. In class A, the effect size for praise statements made by the participant teacher showed a significant change (TAU= .93) after the tootling intervention was introduced. For the participant teacher in class B, the effect size indicated a slight change in praise statements (TAU= .20).

Table 5

Mean, Ranges and Baseline-Correct Tau Scores for Teacher Praise Statements across Participants.

Participant	Baseline Mean [Range]	Intervention Mean [Range]	Baseline-corrected Tau
Teacher A	0.1 [0.05-0.15]	0.28 [0.15-0.35]	0.93
Teacher B	0.14 [0-0.3]	0.18 [0.1-0.3]	0.20

Social Validity

Teacher ratings

Upon completion of the study, both the participant teachers completed the Modified BIRS (Elliott & Treuting, 1991) to rate the social validity of the intervention. Each question was scored from 1 to 6; a higher score indicated a higher agreement. The only exception was item 8, which stated, “Tootling resulted in negative side-effects for some children”, and reverse scoring was applied for this question. The total score on the BIRS was 144, and the participant teacher from class A scored 101 while the teacher from class B scored 98. Overall mean per item for Teacher A was 4.20 (range = 2.00 – 6.00), and for Teacher B was 4.26 (range = 1.00 – 5.00).

Student ratings

Students from the comparison group were asked to score the CIRP. In class A, 15 (60%) out of 25 students completed the CIRP, and 11 (50%) out of 22 students completed it in class B. Each question was represented with smiley faces instead of numbers from 1 to 6, with number 1 being a sad face and number 6 being a very happy face. A higher number indicated a higher agreement with the exceptions of item 2, “Tootling was too hard on me”, item 3, “Tootling caused problems with my friends”, and item 4, “There are better ways to handle problem behaviour than tootling”. These items used reverse scoring. Mean total score for class A was 32.15 (range = 20 – 40) and for class B was 31.71 (range = 16 – 38). According to Turco and Elliott (1986), a rating of 24.5 or above indicates that an intervention is acceptable. Therefore, ratings from class A and class B students suggested that they found Tootling an acceptable intervention in their classrooms.

Discussion

The results of the current study aimed to systematically replicate findings from Powell's study (2020) and extend the research on tootling literature within a classroom in Aotearoa New Zealand. While Powell (2020) used a multiple baseline across groups research design, the current study opted for a non-concurrent AB design to accommodate time constraints due to the Covid-19 restrictions. It has been stated that through the systematic manipulation of the independent variable, a functional relationship is established with the target outcomes (Kennedy, 2005). Some researchers recommend three or more replications within single case experimental designs to demonstrate the functional relationship between the dependent and of the independent variable (Horner et al., 2005; Kratochwill et al., 2013). Therefore, an AB design is shown to demonstrate correlation and not necessarily causation (Byiers, Reichle & Symons, 2012).

While the current study uses a series of two AB designs to evaluate the effects of the tootling intervention in a primary and middle-block classroom, the results should provide a foundation for future research on peer-mediated interventions in classrooms that emphasize the practice of MANA values. Overall, positive treatment effects were obtained for academically engaged behaviour (AEB) in all students except for one teacher nominated student in the primary classroom. It also showed a significant change in the rate of praise statements made by the participant teacher from the middle-block classroom. Limitations of the current study and implications for practise are discussed.

Research Questions

Question 1

Will the tootling intervention increase academically engaged behaviours (AEB), class-wide, in a primary classroom?

The baseline phase started one week after the school term commenced. The class teacher divided the students into smaller groups based on their phonological awareness and started with the term's curriculum. Visual analysis of the graph showed the class wide percentage of AEB to start with the highest score of 100% as soon as baseline began, which declined until the third session. AEB percentage improved from the third to fourth session and stabilized around 86%. The possible ceiling effect in the baseline phase can be attributed to the class teacher's structure and plans for the students' learning. She already had activities and materials prepared for each student group starting from the first week of school. The mean percentage for AEB increased by 9.86% after tootling was introduced. Visual analysis indicated a stabilized positive trend for AEB, which can correlate to the presence of the tootling intervention.

Effect size calculations also indicated a moderate change (TAU= .43) for the intervention. The researcher notes that while this data is not sufficient for a conclusive finding to the research question, it can support the claim that tootling had an impact on the levels of AEB in the classroom, which is in accordance with previous research on tootling used class-wide (Powell, 2020; Derieux, 2019; McHugh et al., 2016; Lum et al., 2017; Lambert et al., 2015).

Question 2

Will the tootling intervention increase target students' academically engaged behaviours (AEB), in a primary classroom?

Three target students were nominated by their class teacher for the study. According to the class teacher, TS1 used to display disruptive behaviours in the classroom. That included pushing students if they got too close or brushed against him, having reactive outbursts where he would use cuss words and kick objects close to him, and sitting in the corner of the class if he did not get the teacher's attention or did not want to engage with his

classwork. It has been a year since he started to work on self-management with the help of some behavioural programmes; this had dramatically improved his prosocial behaviour in class; however, he still had moments or "episodes" of reactive outbursts. Visual analysis showed that the trend for AEB percentage was the opposite of the trend of class-wide data for AEB. In the third session, which has the highest level of AEB (100%), TS1 worked one-on-one with a Learning Support Assistant (LSA) separately at the teacher's table. However, in the following session, the percentage of AEB rapidly dropped to the lowest level (33.4%) when TS1 had an episode of a reactive outburst during the morning break, before observation began.

Once tootling was introduced, the percentage of AEB showed an increasing trend, except for the second session in the intervention phase, which had an unusual drop in the percentage of AEB (50%). The researcher noted that TS1 argued with another student before observation began, and during class, he gave himself a time-out before joining in the class activities. Despite that, the mean percentage for AEB increased from 66.7% to 81.62% after tootling was implemented. These results are also backed up by the effect size calculations that indicate a moderate change (TAU= .40) with the intervention, in spite of the variable baseline trend.

TS2 was a new student in school who had recently moved to Aotearoa and had a limited English vocabulary. For this reason, he had a more challenging time integrating with his peers and staying on task with the class activities. Although he did not present any disruptive behaviours, the class teacher nominated him to see his improvement and engagement with the class once the intervention was implemented. The mean percentage for AEB during the baseline phase was 91.69%, higher than the average AEB percentage for the rest of the class, showing a ceiling effect. When the intervention was introduced, TS2 was isolating at home for a week after the first session, missing the second session, and once he

got back, he had to be re-introduced to the tootling procedure. This might explain the drop in AEB percentage during the intervention phase, which was at 77.78%. The mean percentage of AEB during the intervention phase was 92.93% which is only a slight improvement from the baseline phase. Even though effect size calculations showed a minimal change (TAU= .15), the feedback from the class teacher was positive as she described the improvement in TS2's understanding of the MANA values. As a student who was recently introduced to Māori culture and language, she noticed that he was able to make the connection between classroom behaviours that correlated to the respective MANA values because of tootling.

The class teacher nominated TS3 for showing certain disruptive behaviours like fidgeting and talking to other kids while the teacher was not looking. In terms of academic progress, TS3 was ahead of his peers regarding phonological awareness. As a result, he was part of a smaller group of students that worked closely with the class teacher while the rest of the class was assigned some other class activity. The pattern of trend for AEB percentage in TS3 is like that of TS2 and the comparison students. It started with the highest level of AEB percentage (100%) and gradually receded till the fourth session. In the following session, the AEB percentage jumped up to 88.89%. Before and during the intervention, TS3 missed some sessions as he was either pulled out of class by another teacher or stayed at home to isolate. From the first session, the AEB percentage increased and showed a steady-state response after the second session in the intervention phase. However, TS3's mean percentage of AEB dipped from 89.71% during baseline to 88.76% during intervention. He was the only participant whose levels of AEB decreased after the introduction of tootling. This can be possibly attributed to TS3's infrequent participation in the tootling programme, as he missed more sessions than his peers. Additionally, TS3's AEB performance during the baseline phase showed a ceiling effect, which leaves little room for improvement.

Overall, two out of three target students, i.e., TS1 and TS2, had increased their AEB after tootling was implemented in the class. It must be noted that many participants had already started out with 100% of AEB even before the intervention, showing a ceiling effect. This can result in limited beneficial treatment effects. The primary classroom was also very well managed by the class teacher. Thus, a high engagement was shown by the students towards their classwork. In future, a screening observation can be put in place to see if the class qualifies for the intervention by meeting a criterion for AEB, which will allow for the prevention of ceiling effects and observe the potential effects of the intervention (Lambert, 2014). Even with the ceiling effect and variable baseline trends, the gap between the levels of AEB data for the target students and the comparison group for smaller in the intervention phase.

Question 3

Will the tootling intervention increase academically engaged behaviours (AEB), class-wide, in a middle-block classroom?

The class took a few weeks to settle down when the term commenced. Students were being shuffled between classes, and new admissions were being added to the class. Throughout the observation period, the size of the class kept fluctuating. During the baseline phase, data for AEB started at 47.2% and gradually rose to 94.2%. An increase in levels of AEB without the presence of the intervention can be attributed to the students getting familiar with the class routines and variations in the number of students present. Once the intervention was introduced, the mean percentage for AEB went from 76.71% to 91.19%. The trend for AEB data is more stable in the intervention phase from visual analysis. Baseline correct tau was used to calculate the class's effect size, which indicated a small change (TAU = .06) for the intervention. The researcher noted that the class teacher had frequent fitness breaks for the students even before the intervention began. During the teacher-researcher meeting prior

to the data collection, the class teacher decided to go with the fitness break as the reward for meeting the tootling goal. This overlap of rewards could have resulted in confounding the reward contingency of the intervention. Later on, the class teacher started to choose different rewards for the tootling intervention, which was decided by the majority of class votes.

Question 4

Will the tootling intervention increase target students' academically engaged behaviours (AEB), in a middle-block classroom?

Three target students were nominated by their class teacher for the study. TS1 was diagnosed with ADHD and was selected by his class teacher for his disruptive behaviours that affected his learning and his peers. During several instances, he would engage in other activities like playing with blocks or reading picture books when the teacher gave instructions to the entire class. Only after several prompts from the teacher TS1 would get on task with the assigned classwork. AEB data was variable from visual analysis but still showed a positive trend. There was also a gap in the levels of AEB percentage when compared to the rest of the class. The mean percentage of AEB for TS1 was 54.34% which increased to 87.19% after the intervention was implemented. The gap between the levels of AEB data for TS2 and the CS got smaller in the intervention phase. A slight dip in AEB percentage was seen for the fourth session (78.6%) when he was crying before the observation began, and as a result, the teacher permitted him to read a picture book before joining in the class activity. Despite that, he was on-task during the entire observation period in the following sessions, resulting in an AEB data of 100%. Baseline corrected tau was used for effect size calculations which showed a significant change for the intervention (TAU= .76). The class teacher pointed out that TS1 wrote the most tootles out of all three target students and constantly volunteered for the role of adding stickers to the reward chart.

TS2 was also diagnosed with ADHD and had special learning needs. His class teacher nominated him because of his inappropriate vocalisations. He engaged in long conversations instead of listening to teacher instructions and working on his tasks. He had an individualised reward chart, where he was given a sticker every time he completed his tasks. Using visual analysis, the data for the percentage of AEB was variable and then continued to show a decreasing trend towards the end of the baseline phase. The third session had the highest level of AEB (94.5%) as he was working directly with the class teacher at her table. During the intervention phase, the level for AEB data showed a steady rise until it reached the maximum AEB percentage (100%). A similar pattern was observed for TS1. Overall, the mean percentage for TS2 went from 58.57% at baseline to 81.83% during intervention and effect size calculations indicated a moderate change (TAU= .60) for the intervention.

TS3 was nominated for non-compliant behaviour, i.e., not following the instructions given by the teacher or participating in class activities, and these behaviours interrupted his academic tasks. The researcher noted that TS3 thoroughly enjoyed fitness breaks where they played dodgeball, and for several instances, the teacher reprimanded him by making him sit out for a couple of minutes if he did not complete his previous tasks. During baseline, the data for the percentage of AEB showed an increase in trend until the third session, after which the AEB levels started to decline. The mean percentage for AEB data in the baseline phase was 59.17%. After tootling was introduced, the mean percentage for AEB data increased to 93.30%, and the level of AEB data overlapped with the level of class-wide AEB data. Effect size calculations also showed a moderate change (TAU= .60) for the intervention.

To summarise, AEB levels for all three target students was impacted in the desired direction, by the effects of tootling and was shown to be on par with the rest of the class once the intervention was introduced.

Question 5

Will the tootling intervention increase teacher praise statements?

The tootling intervention had different effects on praise statements for the teacher from the primary block and teacher from the middle block. The primary block class teacher already had established class routines and set the curriculum for the students when the school reopened. During the teacher interview before the study commenced, she mentioned that she did not give out many extrinsic rewards, and she believed in instilling an intrinsic satisfaction within the students and thus had a considerable focus on MANA values as one of their learnings. She also gave importance to self-autonomy. She frequently used the phrase "owning your body" and brought attention to actions like watching with your eyes, keeping your hands to yourself, and having good listening, which was expected from her students. A downward trend of praise statements was observed during the baseline phase with a mean rate of 0.14 praise statements per minute. A similar downward trend was observed in the intervention phase, with a mean rate of 0.18 praise statements per minute. Similar results to Lannie and McCurdy (2007), teacher praise statements did not increase with the presence of the intervention. Powell also found similar findings where the observed rates of teacher praise did not increase during the intervention phase. However, in their study, teacher praise was contingent on prosocial behaviour alone and not academic behaviour, unlike the current study.

The middle block class teacher used different behavioural programmes for the class and specific students. Before the observations commenced during the teacher interview, she clearly stated the values and expectations she had from for her students. This included focusing on MANA values and students learning to take responsibility for their actions, words and learning. Statements like "leading your learning" and "living above the line" were common in her class, also mentioned in the tootle cards. The mean rate during baseline was 0.1 praise statements per minute. As mentioned previously, even after the first few weeks,

once the school reopened, students from the neighbouring class were being shuffled into Class A. Once the intervention was introduced, the level of praise statements dramatically increased, with a mean rate of 0.28 per minute. Students started to take up responsibility for their learning from the class teacher's comments during the post-study interview. When they sought her attention, it was followed by a praise statement. She also turned the action of taking out a secret tootle goal from the paper bag and adding stickers to the reward chart as roles for the students. This was met with a lot of enthusiasm from the students, who offered to hand in their tasks quickly and volunteer for the roles mentioned. Effect size calculations also show a significant change in teacher praise (TAU= .93) for the intervention. Findings are similar to the study done by Craft (1998), who trained students to attract the teacher's attention which increased in the frequency of teacher praise. It is also similar to other studies that have examined the effect of interventions coupled with interdependent group contingency on teacher praise statements, which have found praise statements to increase during intervention phases compared to baseline and withdrawal phases (Rubow et al., 2018; Elswick & Casey, 2011).

To reiterate, all the findings from this study only support the claim for the effects of the tootling intervention, and they are not meant to be used as conclusive findings. However, it has elicited interesting observations that the researcher had not expected in terms of being closely related to MANA values expected from the students. This is discussed in detail under social validity and in Participant Teachers' Opinions.

Question 6

Will the tootling intervention be rated as an acceptable classroom intervention by students and teachers?

Class A. In the middle block classroom, the students completed the CIRP, and the participant teacher completed the Modified BIRS to rate the acceptability of the intervention.

A post-study interview was also conducted with the teacher, where she discussed her feedback and limitations of how tootling was implemented in her classroom. 15 (60%) out of 25 students completed the questionnaire, and the mean total score for the intervention was 32.15 (range = 20 – 40). This indicated that the students found tootling to be an acceptable intervention. The results from the Modified BIRS showed that the participant teacher scored 101 out of 144. A post-study interview was also conducted to discuss the participant teacher's answers for the Modified BIRS. She identified tootling as a good way to recognise those students who are just on the cusp of "problem behaviour" and need that gentle reminder or refocus given by tootling. The component of tootling that helped in class was looking at what values the students knew and what they needed help with. This allowed her to elaborate more on taking responsibility so the students can "live above the line". She also realised that only some students were motivated by the reward. This can also stem from the fact that the class teacher changed the reward every three days based on the class majority. While it interfered with the integrity of the intervention, she decided to change it because the initial reward overlapped with another behavioural programme. She decided to change it based on the majority's interests to keep the intervention engaging. However, she noticed that the component of tootling, which required the students to drop their tootles into the tootle box, would interfere with their on-task behaviour. For example, suppose they were required to sit on the carpet waiting for her next instruction. In that case, movement to drop the tootles into the box caused some hindrance which ironically resulted in off-task behaviours, making it counterproductive. Despite that, the students were excited to participate in the tootling intervention, and they looked forward to reading their tootles. During the day, the class teacher would assign different roles for students, like picking up a chit from the bag for the tootle criterion or putting a sticker on the reward chart, making it just as reinforcing as the

reward. This suggestion from the participant teacher can be used as a fading tactic for the intervention from tootling with interdependent group contingency to tootling alone

Class B. In the primary classroom, 11 (50%) out of 22 students completed the CIRP. The mean total score on the questionnaire was 31.71 (range = 16 – 38), which indicated that the tootling intervention was acceptable in their classroom. The participant teacher scored 98 out of 144 on the Modified BIRS. A post-study interview was conducted to discuss the answers to the questionnaire. Tootling was found to be appropriate for improving general classroom behaviour and was consistent with other strategies used in the classroom. Overall, tootling helped students understand the links between MANA values and classroom behaviours. Manaakitanga is learned as an interwoven web of values, including Aumangea, Ngātahi and Ako, and this learning was solidified through tootling.

Tootling alone was insufficient to change children's problem behaviour, especially for target students. This is because target students have already been following specific behaviour learning interventions for over a year. A recommendation for modifying the intervention with primary school students involved having a transparent jar that can be filled with ping pong balls or anything of the same to represent the tootles. It might prove to be more impactful because of tangible and visual cues for the students and can also be made for each student, promoting individual effort. With primary school students, the tootle goal of a secret number was an abstract concept to grasp, so when they did not meet the day's target, it often resulted in negative reactions like feeling demoralised. The participant teacher continued with the tootling intervention even after data collection ceased, without using number chits (i.e. they did not have a tootle criterion for their interdependent group contingency). Although classroom behaviour was managed directly by the teacher, tootling did highlight positive behaviours during reflection sessions in the class. Since students from the primary class had just started learning their alphabet, a reflection session was initiated

before their lunch break. The teachers, i.e., participant teacher and learning support assistants, would help them write down tootles about their peers. She did note that whenever the students were asked to use their "spy eyes", only a handful of students could observe their surroundings while doing their classwork, while the rest missed out if they were focusing on their given task. It felt redundant as they had to spend some time off-task in order to find behaviours to tootle on. For her final feedback, the teacher stated that the intervention did help target students' and their peers' behaviour to be more alike because of the emphasis the intervention had on MANA values and how it was supposed to look in a classroom setting.

To summarise, both the teachers had their mixed opinions on different components of the intervention, but the main feature that made the tootling intervention stand out was its integration with the MANA values. As the first tootling study to associate the effect of the intervention with Māori concepts in a classroom, tootling can enhance the students' and educators' awareness towards behaviours encouraged by Māori values. This aligns with the PB4L framework that promotes culturally responsive practices to enhance student learning (Rose, Smith, Leverson, McIntosh & Pinkelman, 2019).

Limitations and Conclusion

As the current study was conducted during a pandemic, several extraneous variables intervened with the research, some of which have been addressed throughout the study. In Aotearoa New Zealand, alert levels were first implemented as part of covid protocols. The first data collection in August 2021 had come to a halt after all of Aotearoa moved to Level 4, which was a lockdown. Once schools re-opened, the researcher found that her participant students had been shuffled into different bubbles within the school and did not have enough time to start from scratch for the remaining term. As a result, the researcher re-started data collection in February 2022. At this point, covid-19 restrictions had moved from Alert levels to the Traffic Light System. In the traffic light system, anyone who tested positive for covid-

19 or was in close contact with someone who tested positive had to isolate for a week. This happened to several participants in the study and the researcher as well. With the time constraints placed by the covid-19 restrictions, only an AB design in two classrooms was implemented. As a result, findings from the current study could not be used to determine a functional relationship between the intervention and the observed behaviours. However, it does support the claim that the tootling intervention influenced behaviour related to academic engagement and disruptions (Powell, 2020; Dillon et al., 2019; Lum et al., 2019; Lipscomb et al., 2018; McHugh et al., 2016). Findings also showed an improvement in praise statements for the participant teacher from the middle block classroom when she observed students meet expectations of taking responsibility once the tootling intervention was implemented, which was not found in Powell's (2020) study. Future research should replicate the current study with a multiple baseline research design across groups or an ABAB reversal design and investigate ways to incorporate more culturally relevant components within the tootling programme. Implementing a screening criterion to select participants that meet a specific level of AEB can help avoid the possibility of a ceiling effect (Lambert, 2014). It can also modify components of the tootling intervention to make a better fit for the classroom. Examples of this include using transparent jars instead of a tootle box in a primary classroom so that students can get a visual aid for reaching their target goal. Future studies can also investigate if assigning roles like picking a secret number for the tootle criterion or adding stickers to the reward chart can act as strategies to fade out the interdependent group contingency.

Tootling implemented with an interdependent group contingency along with a public display of progress has shown promising results in classrooms. It has been identified as an evidence-based practice that works at a class-wide and individual level, fitting neatly into the PB4L framework. As demonstrated in this study, its association with cultural narratives has

the potential to make the systems and students more responsive to the communities and culture that they serve.

References

Alric, J. M., Bray, M. A., Kehle, T. J., Chafouleas, S. M., & Theodore, L. A. (2007). A comparison of independent, interdependent, and dependent group contingencies with randomized reinforcers to increase reading fluency. *Canadian Journal of School Psychology, 22*(1), 81–93. https://doi.org/10.1177/0829573507301254

Anderson, L. F., & Hendrickson, J. M. (2007). Early-career EBD teacher knowledge, ratings of competency importance, and observed use of instruction and management competencies. *Education and Treatment of Children, 30*(4), 43-65.

Avramidis, E., & Norwich, B. (2002). Teachers' attitudes towards integration/inclusion: a review of the literature. *European Journal of Special Needs Education, 17*(2), 129-147.

Barrish, H. H., Saunders, M., & Wolf, M. M. (1969). Good behavior game: Effects of individual contingencies for group consequences on disruptive behavior in a classroom. *Journal of Applied Behavior Analysis, 2*(2), 119-124. https://doi.org/10.1901/jaba.1969.2-119

Baum, W. M. & Rachlin, H. C. (1969). Choice as time allocation. *Journal of the Experimental Analysis of Behavior, 12*, 861–874

Baum, W. M. (1974, b). On two types of deviation from the matching law: Bias and undermatching. *Journal of the Experimental Analysis of Behavior, 22,* 231–242.

Becker, W. C., Madsen Jr, C. H., Arnold, C. R., & Thomas, D. R. (1967). The contingent use of teacher attention and praise in reducing classroom behavior problems. *The Journal of Special Education*, *1*(3), 287-307.

Bishop, R., & Berryman, M. (2009). The Te Kotahitanga Effective Teaching Profile. *Set: Research Information For Teachers*, (2), 27-34. doi: 10.18296/set.0461

Bowers, F. E., Jensen, M. E., Cook, C. R., McEachern, A. D., & Snyder, T. (2008). Improving the social status of peer-rejected youth with disabilities: Extending the research on positive peer reporting. *International Journal of Behavioral Consultation and Therapy, 4*(3), 230–246. https://doi.org/10.1037/h0100851

Bullis, M., & Cheney, D. (1999). Vocational and transition interventions for adolescents and young adults with emotional or behavioral disorders. Focus on Exceptional Children, 31, 1–24.

Cashwell, T. H., Skinner, C. H., & Smith, E. S. (2001). Increasing second-grade students' reports of peers' prosocial behavior via direct instruction, group reinforcement, and

progress feedback: A replication and extension. *Education and Treatment of Children, 24,* 161–175.

Chalk, K., & Bizo, L. A. (2004). Specific praise improves on-task behaviour and numeracy enjoyment: a study of year 4 pupils engaged in the numeracy hour. *Educational Psychology in Practice, 20*(4), 335–352.

Cihak, D. F., Kirk, E. R., & Boon, R. T. (2009). Effects of class-wide positive peer "Tootling" to reduce the disruptive classroom behaviors of elementary students with and without disabilities. *Journal of Behavioral Education, 18,* 267–278

Cooper, J., Heron, T., & Heward, W. (2007). *Applied Behaviour Analysis*. New Jersey: Pearson Education

Craft, M., Alber, S., & Heward, W. (1998). Teaching elementary students with developmental disabilities to recruit teacher attention in a general education classroom: Effects on teacher praise and academic productivity. *Journal Of Applied Behavior Analysis*, *31*(3), 399-415. doi: 10.1901/jaba.1998.31-399

Darch, C.B., & Kame'enui, E.J. (2004). Instructional classroom management: A proactive approach to behavior management. Upper Saddle River, NJ: Pearson Education, Inc.

Derieux, J. (2019). Is the written component of tootling effective? A comparison of the group contingency to a comparison writing procedure [Master's thesis, University of Southern Mississippi]. Aquila. https://aquila.usm.edu/masters_theses/712

Dunlap, G. (1993). Functional analysis of classroom variables for students with emotional and behavioral disorders. Behavioral Disorders, 18, 275–291.

Elder, K., & Prochnow, J. (2016). PB4L school-wide: What will support the sustainability of the initiative? *New Zealand Journal of Educational Studies, 51*(1), 83-97. https://doi.org/10.1007/s40841-016-0036-1

Elswick, S., & Casey, L. B. (2011). The good behavior game is no longer just an effective intervention for students: An examination of the reciprocal effects on teacher behaviors. Beyond Behavior, 21(1), 36-46

Falkmer, M., Granlund, M., Nilholm C. & Falkmer, T. (2012). From my perspective Perceived participation in mainstream schools in students with autism spectrum conditions. *Developmental Neurorehabilitation, 15*(3), 191-201.

Fisher, M., & Meyer, L.H. (2002). Development and social competence after two years for students enrolled in inclusive and self-contained educational programs. *Research and Practice for Persons with Severe Disabilities, 27*, 165–174.

Fisher, S. D., Reynolds, J. L., & Sheehan, C. E. (2016). The protective effects of adaptability, study skills, and social skills on externalizing student-teacher relationships. *Journal of Emotional and Behavioral Disorders, 24*, 101–110. doi:10.1177/1063426615598767

Frydenberg, E., Martin, A., & Collie, R. (2017). *Social and Emotional Learning in Australia and the Asia-Pacific*.

Gregory, A., Allen, J. P., Mikami, A. Y., Hafen, C. A., & Pianta, R. C. (2014). Effects of a professional development program on behavioral engagement of students in middle and high school. *Psychology in the Schools, 51*, 143-163.

Gresham, F. M., & Gresham, G. N. (1982). Interdependent, dependent, and independent group contingencies for controlling disruptive behavior. *The Journal of Special Education, 16,* 101-110

Gunter, P. L., & Coutinho, M. J. (1997). Negative reinforcement in classrooms: What we're beginning to learn. *Teacher Education and Special Education, 20*, 249–264.

Hallahan, D. P., Kauffman, J. M., & Pullen, P. C. (2015). Exceptional learners: An introduction to special education (13th ed.). Upper Saddle River, NJ: Pearson Education

Hawkins, S. M., & Heflin, L. J. (2011). Increasing secondary teachers' behavior-specific praise using a video selfmodeling and visual performance feedback intervention. *Journal of Positive Behavior Interventions, 13*, 97–108. doi:10.1177/1098300709358110

Hawkins, S. and Nabors, L. (2018). Promoting Prosocial Behaviors in Children Through Games and Play. *Nova Science Publishers*.

Heller, M. S., & White, M. A. (1975). Rates of teacher verbal approval and disapproval to higher and lower ability classes. *Journal of Educational Psychology, 67*(6), 796–800. doi:10.1037/ 0022-0663.67.6.796

Herrnstein, R. J. (1961). Relative and absolute strength of a response as a function of frequency of reinforcement. *Journal of the Experimental Analysis of Behavior, 4,* 267–272.

Hester, P. P., Hendrickson, J. M., & Gable, R. A. (2009). Forty years later - The value of praise, ignoring, and rules for preschoolers at risk for behavior disorders [Article]. *Education and Treatment of Children, 32*(4), 513-535. https://doi.org/10.1353/etc.0.0067

Hieneman, M., Dunlap, G., & Kincaid, D. (2005). Positive Support Strategies for Students with Behavioral Disorders in General Education Settings. *Psychology in the Schools, 42*, 779-794. https://doi.org/10.1002/pits.20112

Hieneman, M., Dunlap, G., & Kincaid, D. (2005). Positive Support Strategies for Students with Behavioral Disorders in General Education Settings. *Psychology in the Schools, 42*, 779-794. https://doi.org/10.1002/pits.20112

Horner, R.H., Dunlap, G., Koegel, R.L., Carr, E.G., Sailor, W., Anderson, J., Albin, R.W., & O'Neill, R.E. (1990). Toward a technology of "nonaversive" behavioral support. *Journal of the Association for Persons with Severe Handicaps, 15*, 125–132.

Ingram, G. P. D., & Bering, J. M. (2010). Children's tattling: The reporting of everyday norm violations in preschool settings. *Child Development, 81*(3), 945–957. https://doi.org/10.1111/j.1467-8624.2010.01444.x

Jackson, L., & Panyan, M.V. (2002). Positive behavioral support in the classroom: Principles and practices. Baltimore: Brookes.

Jenkins, L. N., Floress, M. T., & Reinke, W. (2015). Rates and types of teacher praise: A review and future directions. *Psychology in the Schools, 52*, 463–476. doi:10.1002/pits

Johansen, A., Little, S. G., & Akin-Little, A. (2011). An examination of New Zealand teachers' attributions and perceptions of behaviour, classroom management, and the level of formal teacher training received in behaviour management. *Kairaranga, 12*(2), 3-12.

Johnston, J.M., Pennypacker, H.S., Green, G. (2020). *Strategies and Tactics of Behavioral Research and Practice* (4th ed.). Routledge.

Kauffman, J. M. (2015). The 'B' in EBD is not just for bullying. Journal of Research in Special Education Needs, 15, 167–175. doi:10.1111/1471-3802.12102

Kauffman, J. M., & Landrum, T. J. (2013). Characteristics of emotional and behavioral disorders of children and youth (10th ed.). Upper Saddle River, NJ: Merrill Prentice-Hall.

Kennedy, C., & Jolivette, K. (2008). The effects of positive verbal reinforcement on the time spent outside the classroom for students with emotional and behavioral disorders in a residential setting. *Behavioral Disorders, 33*, 211–221. doi:10.1177/019874290803300402

Koegel, L.K., Koegel, R.L., & Dunlap, G. (Eds.). (1996). Positive behavioral support: Including people with difficult behavior in the community. Baltimore: Brookes

Lago-DeLello, E. (1998). Classroom dynamics and the development of serious emotional disturbance. *Exceptional Children, 64,* 479–492.

Lambert, A. M., Tingstrom, D. H., Sterling, H. E., Dufrene, B. A., & Lynne, S. (2015). Effects of tootling on class-wide disruptive and appropriate behavior of upperelementary students. *Behavior Modification, 39,* 413-430.

Lambert, A. M., Tingstrom, D. H., Sterling, H. E., Dufrene, B. A., & Lynne, S. (2014). Effects of Tootling on Classwide Disruptive and Appropriate Behavior of Upper-Elementary Students. *Behavior Modification, 39*(3), 413-430. https://doi.org/10.1177/0145445514566506

Landrum, T. J., Tankersley, M., & Kauffman, J. M. (2003). What is special about special education for students with emotional and behavioral disorders? *Journal of Special Education, 37*, 148–156. doi:10.1177/00224669030370030401

Lewis, T. J., McIntosh, K., Simonsen, B., Mitchell, B. S., & Hatton, H. L. (2017). School-wide Systems of Positive Behavior Support: Implications for Students at Risk and With Emotional/Behavioral Disorders. AERA Open. https://doi.org/10.1177/2332858417711428

Lim, L., & Ireland, R. (2001). *Inclusive education. International Journal of Disability, Development and Education, 48*(3), 313-316.

Lum, J. D. K., Tingstrom, D. H., Dufrene, B. A., Radley, K. C., & Lynne, S. (2017). Effects of tootling on class-wide disruptive and academically engaged behavior or general-education high school students. *Psychology in the Schools, 54*, 370–384.

Lynch, A., Theodore, L. A., Bray, M. A.,& Kehle, T. J. (2009). A comparison of grouporiented contingencies and randomized reinforcers to improve homework 95 completion and accuracy for students with disabilities. *School Psychology Review, 38,* 307.

Lynch, D., & Keenan, M. (2018). The good behaviour game: Maintenance effects. International Journal of Educational Research, 87, 91-99. https://doi.org/10.1016/j.ijer.2016.05.005

Macfarlane, A., Glynn, T., Cavanagh, T., & Bateman, S. (2007). Creating Culturally-Safe Schools for Māori Students. *The Australian Journal Of Indigenous Education*, *36*(1), 65-76. doi: 10.1017/s1326011100004439

Margerison, A. (1996). Self-esteem: Its effects on the development and learning of children with EBD. Support for Learning, 11, 176–180. doi:10.1111/j.1467-9604.1996.tb00256.x

Maxwell, G., Alves, I., & Granlund, M. (2012). Participation and environmental aspects in education and the ICF and the ICF-CY: Findings from a systematic literature review. *Developmental neurorehabilitation, 15*, 63-78. https://doi.org/10.3109/17518423.2011.633108

McHugh, M. B., Tingstrom, D. H., Radley K. C., Barry, C. T., & Walker, K. M. (2016). Effects of tootling on class-wide and individual disruptive and academically engaged behavior of lower-elementary students. *Behavioral Interventions, 31*, 332-354.

McKerchar, P. M., & Thompson, R. H. (2004). A descriptive analysis of potential reinforcement contingencies in the preschool classroom. *Journal of Applied Behavior Analysis, 37,* 431–444.

Mead, H. M. (2003). Tikanga Māori: Living by Māori values. Wellington, New Zealand: Huia Publishers.

Ministry of Education. (2011). PB4L Restorative Practice / Welcome - Positive Behaviour for Learning (tki.org.nz)

Ministry of Education. (2019). PB4L- School-Wide. http://pb4l.tki.org.nz/PB4L-School-Wide

Ministry of Education. (2020). School deciles. https://www.education.govt.nz/school/funding-and-financials/resourcing/operationalfunding/school-decile-ratings/

Ministry of Education. (2022). Embracing cultural narratives / Māori education success / Leading change / Home - Educational Leaders

Mitchell, R. R., Tingstrom, D. H., Dufrene, B. A., Ford, W. B., & Sterling, H. E. (2015). The effects of the good behavior game with general-education high school students. *School Psychology Review, 44*(2), 191. https://doi.org/10.17105/spr-14-0063.1

Nelson, J. R., & Roberts, M. L. (2000). Ongoing reciprocal teacher–student interactions Involving disruptive behaviors in general education classrooms. *Journal of Emotional and Behavioral Disorders, 8,* 27–37.

Panacek, L., & Dunlap, G. (2003). The social lives of children with emotional and behavioral disorders in self-contained classrooms: A descriptive analysis. *Exceptional Children, 69*, 333–348.

Papagrigoraki, A. (2016). *Peer mediated learning in inclusive education : A systematic literature review on the methods and their effects on children* [Student thesis, DiVA. http://urn.kb.se/resolve?urn=urn:nbn:se:hj:diva-30347

Parker, R., & Vannest, K. (2009). An Improved Effect Size for Single-Case Research: Nonoverlap of All Pairs. *Behavior Therapy*, *40*(4), 357-367. doi: 10.1016/j.beth.2008.10.006

Parker, R., Vannest, K., Davis, J., & Sauber, S. (2011). Combining Nonoverlap and Trend for Single-Case Research: Tau-U. *Behavior Therapy*, *42*(2), 284-299. doi: 10.1016/j.beth.2010.08.006

Partin, T. C. M., Robertson, R. E., Maggin, D. M., Oliver, R. M., & Wehby, J. H. (2010). Using Teacher Praise and Opportunities to Respond to Promote Appropriate Student Behavior. *Preventing School Failure: Alternative Education for Children and Youth, 54*(3), 172-178. https://doi.org/10.1080/10459880903493179

Pettersson, K. E. (2015). *Children's participation in preschool documentation practices. Childhood, 22*(2), 231-247.

Powell, C. (2020). *Use your kind words please: Effects of tootling on student and teacher behaviour in New Zealand primary-school classrooms* (Master's thesis, University of Waikato, New Zealand). Retrieved from http://researchcommons.waikato.ac.nz/

Reinke, W. M., Lewis-Palmer, T., & Martin, E. (2007). The effect of visual performance feedback on teacher use of behavior-specific praise. *Behavior Modification, 31*, 247–263. doi:10.1177/0145445506288967

Reinke, W., Herman, C., & Stormont, M. (2013). Classroomlevel positive behavior supports in schools implementing SW-PBIS: Identifying areas for enhancement. *Journal of Positive Behavior Interventions, 5,* 39–50. doi:10.1177 /1098300712459079

Repp, A.C., & Singh, N.N. (Eds.). (1990). Current perspectives in the use of non-aversive and aversive interventions with developmentally disabled persons. Sycamore, IL: Sycamore Press.

Richardson, B. G., & Shupe, M. M. (2003). The importance of teacher self-awareness in working with students with emotional and behavioral disorders. *Teaching Exceptional Children, 36*, 8–13.

Rose, J., Smith, K., Leverson, M., McIntosh, K., & Pinkelman, S. (2019). Center on PBIS | resource: PBIS cultural responsiveness field guide: Resources for trainers and coaches. Retrieved 12 May 2022, from https://www.pbis.org/resource/pbis-cultural-responsiveness-field-guide-resources-for-trainers-and-coaches

Rubow, C. C., Vollmer, T. R., & Joslyn, P. R. (2018). Effects of the good behavior game on student and teacher behavior in an alternative school. Journal of Applied Behavior Analysis, 51(2), 382-392. https://doi.org/10.1002/jaba.455

Ryan, J., Reid, R. and Epstein, M., 2004. Peer-Mediated Intervention Studies on Academic Achievement for Students with EBD. *Remedial and Special Education*, 25(6), pp.330-341.

Siperstein, G., Wiley, A., & Forness, S. (2011). School context and the academic and behavioral progress of students with emotional disturbance. Behavioral Disorders, 36, 172–184

Shapiro, E. S. (1987). *Behavioral assessment in School Psychology*. Hillsdale, NJ: Lawrence Erlbaum.

Sherman, J. C. (2012). Positive peer reporting and positive peer reporting combined with tootling: A comparison of interventions (Doctoral dissertation). Retrieved from Proquest Dissertations and Theses. (Accession Order No. 3530739)

Shores, R. E., Gunter, R L., & Jack, S. L. (1993). Classroom management strategies: Are they setting events for coercion? Behavioral Disorders, 18, 92-102.

Shores, R. E., Jack, S. L., Gunter, P. L., Ellis, D. N., DeBriere, T. J., & Wehby, J. H. (1993). Classroom interactions of children with behavior disorders. *Journal of Emotional and Behavioral Disorders, 1*, 27–39.

Shores, R. E., Jack, S. L., Gunter, P. L., Ellis, D. N., DeBriere, T. J., & Wehby, J. H. (1993). Classroom interactions of children with behavior disorders. *Journal of Emotional and Behavioral Disorders, 1*(1), 27–39.

Simonsen, B., Fairbanks, S., Briesch, A., Myers, D., & Sugai, G. (2008). Evidence-based practices in classroom management: Considerations for research to practice. *Education and Treatment of Children, 3,* 351–380. doi:10.1353/etc.0.0007.

Skinner, B. F. (1953). Some contributions of an experimental analysis of behavior to psychology as a whole. *American Psychologist, 8*(2), 69–78. doi:10.1037/h0054118.

Skinner, C. H., Cashwell, T. H., & Skinner, A.L. (2000). Increasing tootling: The effects of a peer-monitored group contingency program on students' reports of peers' prosocial behaviors. *Psychology in the Schools, 37*, 263-270.

Skinner, C. H., Neddenriep, C. E., Robinson, S. L., Ervin, R., & Jones, K. (2002). Altering educational environments through positive peer reporting: Prevention and remediation of social problems associated with behavior disorders. *Psychology in the Schools, 39,* 191–202.

Sugai, G., Horner, R.H., Dunlap, G., Hieneman, M., Lewis, T.J., Nelson, C.M., et al. (2000). Applying positive behavior support and functional behavioral assessment in schools. *Journal of Positive Behavior Interventions, 2*, 131–143.

Sugai, G., Horner, R.H., Dunlap, G., Hieneman, M., Lewis, T.J., Nelson, C.M., et al. (2000). Applying positive behavior support and functional behavioral assessment in schools. *Journal of Positive Behavior Interventions, 2,* 131–143.

Sutherland, K. S., Wehby, J. H., & Copeland, S. R. (2000). Effect of varying rates of behavior-specific praise on the ontask behavior of students with EBD. *Journal of Emotional and Behavioral Disorders, 8*(1), 2–8. doi:10.1177/ 106342660000800101.

Sutherland, K., & Wehby, J. (2001). The effect of self-evaluation of teaching behaviour in classrooms for students with emotional and behavioural disorders. *The Journal of Special Education,* 35(3), 161-171.

Todd, A. W., Horner, R. H., Sugai, G., & Sprague, J. R. (1999). Effective behavior support: Strengthening school-wide systems through a team-based approach. *Effective School Practices*, *17*(4), 23–27.

Teerlink, E., Caldarella, P., Anderson, D. H., Richardson, M. J., & Fuzman, E. G. (2017). Addressing problem behavior at recess using peer praise notes. *Journal of Positive Behavior Supports, 19*(2), 115-126.

Turco, T. L., & Elliott, S. N. (1986). Students' acceptability ratings of interventions for classroom misbehaviors: A study of well-behaving and misbehaving youth. *Journal of Psychoeducational Assessment, 4*(4), 281-289

Unesco. (1994). *The Salamanca Statement and Framework for action on special needs education: adopted by the World Conference on Special Needs Education; Access and Quality. Salamanca, Spain, 7-10 June 1994*. Unesco.

Von Brock, M. B., & Elliott, S. N. (1987). Influence of treatment effectiveness information on the acceptability of classroom interventions. *Journal of School Psychology*, 25(2), 131-144. https://doi.org/10.1016/0022-4405(87)90022-7

Vannest, K., & Ninci, J. (2015). Evaluating Intervention Effects in Single-Case Research Designs. *Journal Of Counseling &Amp; Development*, *93*(4), 403-411. doi: 10.1002/jcad.12038

Vannest, K.J., Parker, R.I., Gonen, O., & Adiguzel, T. (2016). Single Case Research: web based calculators for SCR analysis. (Version 2.0) [Web-based application]. College Station, TX: Texas A&M University. Retrieved Tuesday 26th April 2022. Available from singlecaseresearch.org

Wahl, E., Hawkins, R. O., Haydon, T., Marsicano, R., & Morrison, J. Q. (2016). Comparing versions of the good behavior game: Can a positive spin enhance effectiveness? Behavior Modification, 40(4), 493-517. https://doi.org/10.1177/0145445516644220

Wearden, J. H. & Burgess, I. S. (1982). Matching since Baum (1979). *Journal of the Experimental Analysis of Behavior, 38,* 339–348.

Wehby, J. H., Symons, F. J., & Shores, R. E. (1995). A descriptive analysis of aggressive behavior in classrooms for children with emotional and behavior disorders. *Behavioral Disorders, 20*(2), 87–105. doi:10.1177/019874299502000207.

Weigle, K.L. (1997). Positive behavior support as a model for promoting educational inclusion. *Journal of the Association for Persons with Severe Handicaps, 22*, 36–48.

White, M. A. (1975). Natural rates of teacher approval and disapproval in the classroom. *Journal of Applied Behavior Analysis, 8*(4), 367–372. doi:10.1901/jaba.1975.8-367.

Wilcox, R., Newman, V., & Pitchford, M. (1988). Compliance training with nursery children. *Educational Psychology in Practice, 4*(2), 105–107. doi:10.1080/0266736880040210.

Wright, R. A., & McCurdy, B. L. (2012). Class-wide positive behavior support and group contingencies: Examining a positive variation of the good behavior game. Journal of Positive Behavior Interventions, 14(3), 173-180. https://doi.org/10.1177/1098300711421008

Appendix A

Teacher Interview Script

I am going to introduce a simple evidence-based procedure into your classroom which has been found to improve student behaviour. “Tootling” is a procedure whereby students report the good behaviour of their peers, by writing the behaviour on note cards and posting them into a container. The idea is that the students all work together to reach a pre-determined (but secret) tootle goal, which will be disclosed to the students at the end of the lesson/day, in order to receive a reward. The total number of tootles recorded is posted publicly, on the wall, so that all students can see their daily progress. Once the target is revealed, if it has been met, the students immediately receive their reward. If the target is not met, those tootles for the day stay on the public chart and are used towards the next day’s target.

Together, there are a couple of things we need to decide, but firstly I would like you to consider what you value. What do you value about being a teacher?

_____

_____

_____

What values do you hold for your students?

_____

_____

_____

What values do you hold for your classroom, generally?

_____

_____

_____

With these values in mind, what behaviours would you like to see more of in the classroom?

_____

_____

_____

What behaviours would you like to see less of in the classroom?

_____

_____

_____

Again, while considering what you value, please give me some suggestions of what you might like the students to have as a reward for reaching their target. It is important that this reward aligns with your values.

_____

_____

_____

What do you think is an achievable target-range for the students to aim for in order to win their reward daily?

_____

Tick the box if you consider them to be disruptive behaviours

- ☐ Making audible noises not related to the task at hand (e.g: talking without permission, making animal sounds, or grunting)
- ☐ Being out-of-seat (not being in contact with their chair for more than 3 seconds and standing/ walking around without permission)
- ☐ Playing with objects (unrelated to the task at hand)

Tick the box if you consider them to be academically engaged behaviours

- Following instructions from teacher
- Looking at the teacher while class is in session
- Responding to teacher posed questions
- Working on independent work
- Actively participating in group assignments

Appendix B

Researcher-Teacher Procedural Integrity Checklist

Date: _____

Tick appropriately once item has been discussed/is understood by teacher. (✓)

1. Tootling procedure (generally) ___
2. Interdependent group contingencies ___
3. Public posting ___
4. Current procedure:
    - Explain procedure (game) to students (script) ___
    - Hand-out cards to write tootles on ___
    - Pull out secret tootling target and place in a safe place ___
    - Students spend session tootling on peers and moving progress indicator ___
    - Students record own name, name of peer, and peer's behaviour ___
    - Reveal tootling target at end of session ___
    - Target reached = reward and re-set progress indicator ___
    - Target not reached = tootles count towards next session's target ___
    - Silently read several tootles and provide general feedback to class
5. Teachers values:
    - Classroom behaviour ___
    - Rewards ___
6. Tootling target range ___
7. Important not to use removal of reward as a punishment for other behaviour ___
8. Script given ___
9. Script rehearsed ___
10. Feedback ___
11. Questions ___

Appendix C

Teacher Procedural Integrity Checklist

To be completed be researcher while teacher is training students.

Date:

Did the teacher… Y/N

1. Explain tootling ___
2. Show container for storing tootles and location ___
3. Show progress chart, location, and how to move marker up ___
4. Show an example of correct tootle ___
5. Explain that tootles do not need to be secret ___
6. Describe how interdependent group contingency works, including results of meeting and not meeting random target ___
7. Explain how feedback will be given at end of session ___
8. Discuss rewards ___
9. Discuss examples and non-examples of correct tootles ___
10. Ask for and answer questions ___
11. Allow everyone to practice tootling and provide appropriate feedback ___

Number of items completed: /11 Treatment integrity percentage:

Appendix D

Treatment Integrity Daily Checklist – Intervention Phase

Date:

Please tick appropriately when each item has been completed daily

Before tootling period commences:

1. Notes placed on student desks ___
2. Tootle container accessible ___
3. Progress chart visible and within reach ___
4. Tootling procedure reviewed (if needed) and any questions answered ___
5. Target tootle randomly selected and placed in envelope ___

Once tootling period has finished:

1. Reveal tootling target ___
2. Provide reward if target achieved ___
3. Re-set progress chart if target achieved (or leave as is, if not) ___
4. Silently read several tootles and provide feedback ___

For researcher use only

Number of items completed: /9 Treatment integrity percentage:

Appendix E

Modified Behaviour Intervention Scale (BIRS)

Having finished implementing the tootling intervention, please evaluate the intervention by circling the number which best describes your agreement or disagreement with each statement. You must answer each question. 1 to 6 is ranked from strongly disagree to strongly agree

1.	Tootling was an acceptable intervention for children's problem behaviour.	1	2	3	4	5	6
2.	Most teachers would find tootling appropriate for a variety of behaviour problems.	1	2	3	4	5	6
3.	Tootling proved effective in changing children's problem behaviour.	1	2	3	4	5	6
4.	I would suggest the use of tootling to other teachers.	1	2	3	4	5	6
5.	Behaviour in the classroom was severe enough to warrant the use of tootling.	1	2	3	4	5	6
6.	Most teachers would find tootling suitable for improving general classroom behaviour.	1	2	3	4	5	6
7.	I would be willing to use tootling in the classroom again.	1	2	3	4	5	6
8.	Tootling resulted in negative side-effects for some children.	1	2	3	4	5	6
9.	Tootling was appropriate for a variety of children.	1	2	3	4	5	6
10.	Tootling was consistent with other strategies I have used in the classroom setting.	1	2	3	4	5	6
11.	Tootling was a fair way to handle children's problem behaviour.	1	2	3	4	5	6
12.	Tootling was reasonable for the behaviour problems experienced in my classroom.	1	2	3	4	5	6
13.	I liked the procedures used in tootling.	1	2	3	4	5	6
14.	Tootling was a good way to handle classroom behaviour.	1	2	3	4	5	6
15.	Overall, tootling was beneficial for the children in my classroom.	1	2	3	4	5	6
16.	Tootling quickly improved the children's behaviour.	1	2	3	4	5	6
17.	Tootling will produce a lasting improvement in the children's behaviour.	1	2	3	4	5	6
18.	Tootling improved the children's behaviour to the point that it was not noticeably deviate from other children's behaviour.	1	2	3	4	5	6
19.	Soon after using tootling, I noticed a positive change in problem behaviour.	1	2	3	4	5	6
20.	The children's behaviour will likely remain at an improved level even after tootling is discontinued.	1	2	3	4	5	6
21.	Using tootling not only improved the children's behaviour in the classroom, but also in other settings (e.g., other classrooms, home).	1	2	3	4	5	6
22.	When comparing the children in my classroom with well-behaved peers before and after use of tootling, the children's and the peers' behaviour was more alike after using tootling.	1	2	3	4	5	6
23.	Tootling produced enough improvement in the children's behaviour that behaviour is no longer a problem in the classroom.	1	2	3	4	5	6
24.	Other behaviours related to the problem behaviour also improved as a result of tootling.	1	2	3	4	5	6

Appendix F

Modified Children's Intervention Rating Profile (CIRP)

I'd love to know what you thought about tootling! Please circle the smiley face which shows how much you agree or disagree with each sentence below. Frowney face means I do not agree and Happy face is I agree.

1	Tootling is fair	
2	Tootling was too hard on me	
3	Tootling caused problems with my friends	
4	There are better ways to handle problem behaviour than tootling	
5	Tootling would help other children too	
6	I liked tootling	
7	I think tootling would help me do better in school	

Appendix G

Tootle-Recording Note Cards

TOOTLE TICKET – You were caught showing good behaviour!

Your name:

Who are you writing about?

What good thing did this student do/show?

- ☐ Manaakitanga
- ☐ Aumangea
- ☐ Ngātahi
- ☐ Ako
- ☐ Explained their learning
- ☐ Played their part
- ☐ ned their behaviour
- ☐ living above the line
- ☐ g kind with their body
- ☐ g kind with their hands
- ☐ ther

Appendix H

Tootle Progress Chart

Our Tootle Progress Chart

1	2	3	1	2	3	1	2	3
1	2	3	1	2	3	1	2	3
1	2	3	1	2	3	1	2	3
1	2	3	1	2	3	1	2	3
1	2	3	1	2	3	1	2	3
1	2	3	1	2	3	1	2	3
1	2	3	1	2	3	1	2	3
1	2	3	1	2	3	1	2	3
1	2	3	1	2	3	1	2	3
1	2	3	1	2	3	1	2	3

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Appendix I

Consent Form – Parents

Please retain a copy of this form for your personal records.

Research Project: Tootling through a Cultural Lens: Effects of Tootling on Student and Teacher Behaviours in an Inclusive School in Aotearoa

Name of participant: _____

I have received a copy of the Information Sheet describing the research project and have been given sufficient time to read it. Any questions that I have, relating to the research, have been answered to my satisfaction. I understand that I can ask further questions about the research at any time during my participation, and that I can withdraw my child's participation at any time (up to two weeks) after completion of data collection.
I understand that I can ask to have the observations stopped at any time.
When I sign this consent form, I will retain ownership of the collected data, but I give consent for the researcher to use the data for the purposes of the research outlined in the Information Sheet.
I understand that my child's identity will remain confidential in the presentation of the research findings

Please complete the following checklist. Tick [✓] the appropriate box for each point.	**YES**	**NO**
I have the right to decline for my child to participate in any part of the research activity.		
I know who to contact if I have any questions about the study in general.		
I understand that the information supplied by me could be used in future academic publications.		
I wish to receive a copy of the findings		

Participant:	_____	**Researcher:**	_____
Signature:	_____	**Signature:**	_____
Date:	_____	**Date:**	_____
Contact Details:	_____	**Contact Details:**	_____
	_____		_____
	_____		_____

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Appendix J

Consent Form – Teachers

Please retain a copy of this form for your personal records.

Research Project: Tootling through a Cultural Lens: Effects of Tootling on Student and Teacher Behaviours in an Inclusive School in Aotearoa

Name of participant: _____

I have received a copy of the Information Sheet describing the research project and have been given sufficient time to read it. Any questions that I have, relating to the research, have been answered to my satisfaction. I understand that I can ask further questions about the research at any time during my participation, and that I can withdraw my participation at any time (up to two weeks) after completion of data collection.

I understand that I can ask to have the observations stopped at any time.

When I sign this consent form, I will retain ownership of the collected data, but I give consent for the researcher to use the data for the purposes of the research outlined in the Information Sheet.

I understand that my identity will remain confidential in the presentation of the research findings

Please complete the following checklist. Tick [✓] the appropriate box for each point.	**YES**	**NO**
I have the right to decline to participate in any part of the research activity.		
I know who to contact if I have any questions about the study in general.		
I understand that the information supplied by me could be used in future academic publications.		
I consent to being interviewed at the beginning of the research regarding what I value within my classroom and for my students.		
I consent to completing a questionnaire near the end of the study, as a post-intervention measure on my thoughts about the intervention.		
I consent to having up to two trained observers in my classroom during times agreed upon by myself and the lead researcher.		
I wish to receive a copy of the findings		

Participant:	_____	**Researcher:**	_____
Signature:	_____	**Signature:**	_____
Date:	_____	**Date:**	_____
Contact Details:	_____	**Contact Details:**	_____
	_____		_____
	_____		_____

Appendix K

Withholding Consent Form – Parents/Guardians

Associate Professor Angelika Anderson
Faculty of Social Science
Waikato University
Phone: 07 838 4466 ext 9209
Email: angelika.anderson@waikato.ac.nz

Rhea Choundira
Phone: 0273413734
Email: dechhhu@gmail.com

Research Project:
Tootling through a Cultural Lens: Effects of Tootling on Student and Teacher Behaviours in an Inclusive School in Aotearoa

I have read and understood the Information Sheet regarding the above research project and do **NOT** give consent for my child to participate in the research on classroom behaviour.

Participant's name (please print): _____

Signature: _____ Date: _____

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Appendix L

Information Sheet – Teachers

Associate Professor Angelika Anderson
Faculty of Social Science
Waikato University
Phone: 07 838 4466 ext 9209
Email: angelika.anderson@waikato.ac.nz

Rhea Choundira
Phone: 0273413734
Email: dechhhu@gmail.com

To whom it may concern,

You are invited to participate in a research project conducted by Rhea Choundira, under the supervision of Associate Professor Angelika Anderson from the Faculty of Social Science at the University of Waikato. This project is part of the requirement for the completion of my Master of Applied Psychology (in Behaviour Analysis). Please read this information sheet in full before deciding if you will participate. If you would like further information about the project, please contact myself or Associate Professor Anderson via the contact details above.

The topic of the research
This research project has been designed to reduce disruptive behaviours within an inclusive classroom, by implementing a "tootling" intervention package. Tootling is a peer-mediated intervention during which students' records of appropriate peer behaviour are collected, counted, and read aloud to the class by the teacher. Previous research has found improvements in whole-class and individual behaviour as a result of tootling implementation. Improved behaviour in the classroom leads to a better learning environment for the students along with a more pleasant teaching environment for the educators.

What's involved?
We are looking to recruit one classroom of students and their teacher. If you consent to participate, an information sheet and an email will be sent home to the parents of all the students in your class. Parents of children with high rates of disruptive behaviours will be given the opportunity to sign informed consent forms if they want their child to be involved in the study. Other students' parents will be given the opportunity to opt out for their child, by returning the withholding consent form. If the parents of the remaining students choose not to respond, their child will be included in the study. Any students without consent will be excluded from data collection.

Your involvement
At various stages throughout the research, we will have discussions with you to gather information which will contribute towards decision-making regarding aspects of the

intervention. One of these discussions will include when it is appropriate for us to make regular, unobtrusive classroom observations, lasting no more than one hour each.

During the baseline data collection stage, you will be asked to continue your classroom teaching as normal. Then, prior to the first intervention phase, you will be trained on how to implement tootling within your classroom. During this phase, you will guide the students to ensure they understand and participate in tootling. The third phase will be a return to baseline and you will be asked to remove all tootling equipment from your classroom and return to previous classroom management techniques. The final phase will be re-implementation of the tootling intervention.

Towards the end of the study, you will be invited to complete a 10-minute questionnaire assessing your views about the intervention.

On completion of the initial four phases, observations will stop and you will be invited to return to your previous classroom management techniques or continue using the tootling intervention. It is expected that the duration of the study, including initial discussions and all four phases of data collection, will take up to one term to complete (10 weeks).

Student involvement
Students will learn about the tootling procedure from you, after you have received training, and it will be incorporated alongside their normal classroom activities. During two intervention phases, students will be asked to record incidents of their peers' appropriate behaviour (tootling), throughout class-time. All students will work together to achieve a shared tootle-goal.

Throughout the study, I will engage in frequent, non-obtrusive observations of teacher nominated students who have high disruptive/antisocial behaviours. Any students, teachers or schools involved in the study will remain confidential and no personal information will be shared or reported on. I will also observe teacher behaviour in relation to the amount of praise and reprimands to behave appropriately, given by them to the students.

Results
It is expected that, as a result of the tootling intervention, students' prosocial behaviours in the classroom will improve. Results will be presented within my master's thesis. It is also possible that results will be published in a journal article and/or presented at a conference. A summary of the results can be forwarded to the participating school, teachers, and parents of participating students, on request, as can a copy of any published journal articles.

Confidentiality
Although your name will be known to me, no personal data will be collected on any participating students. Participation in this project will remain confidential and no identifying information will be disclosed to anyone outside of the study. Codes and pseudonyms will be assigned to participating schools and teachers to ensure no data can be traced back to any participants. Neither the school nor participants will be identifiable in the presentation of any results.

Storage of data
On completion of my thesis all data will be given to my supervisor, Associate Professor Angelika Anderson, to be stored on a password-protected university drive for five years.

Only Associate Professor Anderson and I will have access to the data at any time. After five years the data will be destroyed by deleting the electronic files.

Right to withdraw
Participation in this project is voluntary and the school, students, parents, or teachers are under no obligation to give consent to participate.

All participants have the right to withdraw from the project at any time, for any reason, and with no consequence. This includes the destruction of data, upon request, up to 2 weeks after participation in the project is complete.

What happens now?
If you are happy to participate in this project, please complete the consent form for teachers and return to myself. If you have any questions regarding the project, please contact me on the details at the top of this form.

Yours Sincerely,

Rhea Choundira

This research project has been approved by the Human Research Ethics Committee of the Faculty of Arts and Social Sciences. Any questions about the ethical conduct of this research may be sent to the Secretary of the Committee, email fass-ethics@waikato.ac.nz, postal address, Faculty of Arts and Social Sciences, Te Kura Kete Aronui, University of Waikato, Te Whare Wananga o Waikato, Private Bag 3105, Hamilton 3240

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Appendix M

Information Sheet – Parents/Guardians

Associate Professor Angelika Anderson
Faculty of Social Science
Waikato University
Phone: 07 838 4466 ext 9209
Email: angelika.anderson@waikato.ac.nz

Rhea Choundira
Phone: 0273413734
Email: dechhhu@gmail.com

Dear Parents/Guardians,

Your child's class has been chosen to participate in a research project conducted by myself, Rhea Choundira, under the supervision of Associate Professor Angelika Anderson from the Faculty of Social Science at the University of Waikato. This project is part of the requirement for the completion of my Master of Applied Psychology (in Behaviour Analysis) at the University of Waikato and is sponsored by the university. Please read this information sheet in full. If you would like further information about the project, please contact myself or Associate Professor Anderson via the contact details above.

The topic of the research
This research project has been designed to improve overall behaviour within an inclusive classroom, by implementing a "tootling" intervention package. Tootling is a peer-mediated intervention during which students' records of appropriate peer behaviour are collected, counted, and read aloud to the class by the teacher. Previous research has found improvements in class-wide and individual behaviour as a result of tootling implementation. Improved behaviour in the classroom leads to a better learning environment for the students along with a more pleasant teaching environment for the educators.

What's involved?
Your child's teacher will be implementing a tootling intervention package as described above. All students in the classrooms will participate in the tootling strategy. We will be observing the classroom to see if tootling improves behaviour and learning in the class.

Student involvement
Students will learn about the tootling procedure from their trained teacher and it will be incorporated alongside their normal classroom activities. During two intervention phases, students will be asked to record incidents of their peers' appropriate (good) behaviour (tootling), throughout class-time. All students will work together to achieve a shared tootle-goal.

Throughout the study, I will engage in frequent, non-obtrusive observations of teacher behaviour, the whole class behaviour, and your child's behaviour. Any students, teachers or schools involved in the study will remain confidential and no personal information will be shared or reported on.

I will also observe the teacher's behaviour in relation to the amount of praise and reprimands to behave appropriately, given by them to the students. Towards the end of the study, the students will

be invited to complete a voluntary 5-minute, 7-item, anonymous questionnaire, which asks about their thoughts on tootling.

Results
It is expected that, as a result of the tootling intervention, students' prosocial behaviours in the classroom will improve. Their engagement with their academic tasks is also expected to increase. The intervention is a way for the students to have fun and benefit from, in the long run. Results will be presented within my master's thesis. It is also possible that results will be published in a journal article and/or presented at a conference. A summary of the results can be forwarded to the participating school, teachers, and parents of participating students, on request, as can a copy of any published journal articles. Please contact the researchers or your child's school if you would like to see a copy of the results.

Confidentiality
Although the name of the participating teachers and students will be known to me, participation in this project will remain confidential and no identifying information will be disclosed to anyone outside of the study. Codes and pseudonyms will be assigned to participating schools and teachers to ensure no data can be traced back to any participants. Neither the school nor participants will be identifiable in the presentation of any results.

Storage of data
On completion of my thesis all data will be given to my supervisor, Associate Professor Angelika Anderson, to be stored on a password-protected university drive for five years. Only Associate Professor Anderson and I will have access to the data at any time. After five years the data will be destroyed by deleting the electronic files.

Right to withdraw
Participation in this project is voluntary and the school, students, parents, or teachers are under no obligation to give consent to participate.

All participants have the right to withdraw from the project at any time, for any reason, and with no consequence.

What happens now?
If you agree for your child to be observed individually and / or to be invited to complete the voluntary 5-minute, 7-item, anonymous questionnaire, please complete and sign the attached consent form and return it to me by the first week of the following school term. If you have any questions regarding the project, please contact me on the details at the top of this form.

Yours Sincerely,

Rhea Choundira

This research project has been approved by the Human Research Ethics Committee of the Faculty of Arts and Social Sciences. Any questions about the ethical conduct of this research may be sent to the Secretary of the Committee, email fass-ethics@waikato.ac.nz, postal address, Faculty of Arts and Social Sciences, Te Kura Kete Aronui, University of Waikato, Te Whare Wananga o Waikato, Private Bag 3105, Hamilton 3240

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Appendix N

Information Sheet – Schools

Associate Professor Angelika Anderson
Faculty of Social Science
Waikato University
Phone: 07 838 4466 ext 9209
Email: angelika.anderson@waikato.ac.nz

Rhea Choundira
Phone: 0273413734
Email: dechhhu@gmail.com

To whom it may concern,

Your school is invited to participate in a research project conducted by myself, Rhea Choundira, under the supervision of Associate Professor Angelika Anderson from the Faculty of Social Science at the University of Waikato. This project is part of the requirement for the completion of my Master of Applied Psychology in Behaviour Analysis at the University of Waikato. Please read this information sheet in full before deciding if your school will participate. If you would like further information about the project, please contact myself or Associate Professor Anderson via the contact details above.

The topic of the research
This research project has been designed to improve overall behaviour within the classroom of primary school-aged children in mainstream schools, by implementing a "tootling" intervention package. Tootling is a peer-mediated intervention during which students' records of appropriate peer behaviour are collected, counted, and read aloud to the class by the teacher. Previous research has found improvements in whole-class and individual behaviour as a result of tootling implementation. Improved behaviour in the classroom leads to a better learning environment for the students along with a more pleasant teaching environment for the educators.

What's involved
We are looking to recruit between one to two mainstream classes of students and their teachers. I will specifically be looking at if tooling interventions can be used to increase rates of academically engaged behaviour and decrease disruptive behaviours. Because of this, the research will be focusing on those students who are identified as having emotional and behavioural needs. If you give permission for your school to participate, information sheets will be provided to potential teacher participants and informed consent will be obtained from them, prior to any materials being introduced into the classroom. An information sheet and an email will then be sent home to the parents of all the students in that classroom. Parents of the students who have been identified as having high rates of emotional and behavioural needs will be given informed consent forms to sign if they wish for their child to be included in the project. Parents of the remaining children will be given the opportunity to opt out for their child, by returning a withholding consent form. If they choose not to respond, their child will be included in the study. Any students without consent will be excluded from data collection.

Teacher involvement

At various stages throughout the research, I will have discussions with the teacher to gather information which will contribute towards decision-making regarding aspects of the intervention. One of these discussions will include when is appropriate for me to make regular, unobtrusive classroom observations, lasting no more than one hour each.

An area of interest within this research is the effect tootling has on teacher behaviour, as well as student behaviour. Therefore, specific teacher behaviour will be recorded to contribute to the understanding of how tootling works within the classroom.

Towards the end of the study, the teacher will be invited to complete a 10-minute questionnaire assessing their views about the intervention.

On completion of the initial intervention phase, observations will stop and the teacher will be invited to return to their previous classroom procedures or continue using the tootling intervention. I will then return to collect follow-up data 4-6 weeks later.

It is expected that the initial phase of the study, including initial discussions and all data collection, will take up to one term to complete, with follow-up data expected to be collected within 1-2 weeks.

Student involvement
Students will learn about the tootling procedure from their trained teacher and it will be incorporated alongside their normal classroom activities. During two intervention phases, students will be asked to record incidents of their peers' appropriate behaviour (tootling), throughout class-time. All students will work together to achieve a shared tootle-goal.

Throughout the study, I will engage in frequent, non-obtrusive observations of the students who have been selected for their high aggressive behaviours as well as the other students who do not have high instances of aggressive behaviour. No personal or identifying data will be recorded on any student.

Towards the end of the study, the students will be invited to voluntarily complete a 5-minute, 7-item, anonymous questionnaire, which asks about their thoughts on tootling.

Results
It is expected that, as a result of the tootling intervention, the students' academically engaged behaviour will increase. Results will be presented within my master's thesis. It is also possible that results will be published in a journal article and/or presented at an Applied Behaviour Analysis conference. A summary of the results can be forwarded to the participating school, teachers, and parents of participating students, on request, as can a copy of any published journal articles.

Confidentiality
Participation in this project will remain confidential and no identifying information will be disclosed to anyone outside of the study. Codes and pseudonyms will be assigned to participating schools, students, and teachers to ensure no data any can be traced back to participants. Neither the school nor participants will be identifiable in the presentation of any results.

Storage of data

On completion of my thesis all data will be given to my supervisor, Associate Professor Angelika Anderson, to be stored on a password-protected university drive for five years. Only Associate Professor Anderson and I will have access to the data at any time. After five years the data will be destroyed by deleting the electronic files.

Right to withdraw
Participation in this project is voluntary and the school, students, parents, or teachers are under no obligation to give consent to participate. If your school grants permission, in the form of a permission letter, for the research to commence, participating teachers and certain parents must then give consent by signing a consent form and parents of other participating children can withhold consent by signing and returning parental consent forms.

All participants have the right to withdraw from the project at any time, for any reason, and with no consequence. This includes the destruction of data, upon request, up to 2 weeks after participation in the project is complete.

What happens now?
If you would like your school to participate in this project, please provide a letter granting permission or, if you have some questions, you can contact me via the contact details at the top of this information sheet. I am available to answer questions at any time and can arrange a time to meet with you if you would like to discuss the project further.

Yours Sincerely,

Rhea Choundira

This research project has been approved by the Human Research Ethics Committee of the Faculty of Arts and Social Sciences. Any questions about the ethical conduct of this research may be sent to the Secretary of the Committee, email fass-ethics@waikato.ac.nz, postal address, Faculty of Arts and Social Sciences, Te Kura Kete Aronui, University of Waikato, Te Whare Wananga o Waikato, Private Bag 3105, Hamilton 3240

Appendix O

Script for Teachers

Please read the following script to the students, which will explain how tootling will work in your classroom.

For the next two weeks we'll be playing a game called Tootling in class. The tootling challenge is a game where you catch your classmates doing good things. I will be giving each table few notecards so when you see another student in class do something good, you can write it down and place your card or "tootle" in this container (show container). (Give examples of good/prosocial classroom behaviours) If you saw XYZ help ABC with his worksheet or if EFG cleaned her desk after completing her work, those are examples that you can write on the notecards. This is called tootling. (Show notecard) When you write your tootle on the card, it is important that you write your name at the top corner, and then write the name of the student who did something good and what the act was. Here is an example *(show example).* Tootles do not need to be a secret so you can tell people when you are writing about them, as long as it is something your classmate actually did.
It is important to not disturb the class or the teacher while you're writing and submitting your tootles. The game is only fun if everyone tries to write a tootle and for that you guys will have to be on your best behaviour, by completing your work, helping your classmates and showing manaakitanga.

Now this is the exciting part of the game, in this bag there are chits numbered from 1 to 25/22 (show bag containing paper slips). Every morning I'll pick a chit from this bag (pick a chit as an example) and keep it secret from the rest of the class. Before lunchtime, once everyone has put their tootles in the container I will quietly read some of your tootles and let you know the sort of awesome behaviours you've noticed about each other. If the tootle is about a student from another class or written about something which is not a good behaviour it won't be counted. (Open chit to show the number) If I count tootles on x different students like the number on this paper, the class will earn a star, which will go on your star chart (show progress chart). We'll be playing this game everyday for the next two weeks, so there will be lots of opportunities to earn stars. And finally for the big prize, if the class earns three stars in a row, you get 15 minutes of Fitness/ playtime outside! It's a reward for writing tootles about

your classmate's good behaviours. In case the class does not earn a star for that day, you can always try again the next day when a new secret tootle goal is picked.

Now we will talk about the sorts of things you can and can't write down about other students *(this can either be done as a class discussion or you can give 3-4 examples of correct and incorrect tootles).*

Any questions?

Finally, I'd like you all to practice writing one tootle on a piece of paper and posting it in the tootle container. *(Read each student's example and provide feedback on whether each is correct. Read several correct examples out loud to the class).*

Appendix P

Data Collection Sheet – Samples

Date: _____ Activity: _____ Time: _____

STUDENT BEHAVIOURS DATA COLLECTION SHEET

Interval time: 15 seconds

Definitions

Academically Engaged Behaviour (AEB): Actively participating in independent seatwork, group activities, and/or attending to teacher instruction. Examples are following instructions from teachers; eyes oriented towards the task at hand, peers or towards the teacher while class is in session; asking peers or teacher for help; responding to teacher posed questions; working on independent activities, and actively participating in group assignments.

Disruptive Behaviour (DB): (i) inappropriate vocalizations and (ii) playing with objects. Inappropriate vocalizations consisted of making audible noises unrelated to the task at hand. Examples include: talking to peers without permission or about an irrelevant topic, grunting, or making animal sounds. Playing with objects consisted of manipulating or touching objects that were not relevant to the task at hand. Examples include: making paper planes, tapping a pen, or throwing objects. Operational definition does **NOT** include being out of seat.

Passive is marked if the participant is not in plain sight of the observer or if they've left the class.

Target Student 1 = TS1, Target Student 2 = TS2, Target Student 3 = TS3
Comparison Student 1 = CS1, Comparison Student 2= CS2

Interval	**1(TS1)**	**2(CS1)**	**3(TS2)**	**4(CS2)**	**5 (TS3)**
DB					
AEB					
Passive					
Interval	**6 (TS1)**	**7(CS1)**	**8(TS2)**	**9(CS2)**	**10 (TS3)**
DB					
AEB					
Passive					
Interval	**11 (TS1)**	**12 (CS1)**	**13 (TS2)**	**14 (CS2)**	**15 (TS3)**
DB					
AEB					
Passive					
Interval	**16 (TS1)**	**17(CS1)**	**18(TS2)**	**19(CS2)**	**20(TS3)**
DB					
AEB					
Passive					
Interval	**21(TS1)**	**22(CS1)**	**23(TS2)**	**24 (CS2)**	**25 (TS3)**
DB					
AEB					
Passive					

Interval	26(TS1)	27(CS1)	28 (TS2)	29(CS2)	30(TS3)
DB					
AEB					
Passive					
Interval	31(TS1)	32(CS1)	33(TS2)	34(CS2)	35(TS3)
DB					
AEB					
Passive					
Interval	36 (TS1)	37(CS1)	38(TS2)	39(CS2)	40(TS3)
DB					
AEB					
Passive					
Interval	41 (TS1)	42(CS1)	43 (TS2)	44 (CS2)	45(TS3)
DB					
AEB					
Passive					
Interval	46(TS1)	47(CS1)	48 (TS2)	49(CS2)	50(TS3)
DB					
AEB					
Passive					
Interval	51(TS1)	52(CS1)	53(TS2)	54(CS2)	55(TS3)
DB					
AEB					
Passive					
Interval	56(TS1)	57(CS1)	58(TS2)	59(CS2)	60(TS3)
DB					
AEB					
Passive					
Interval	61 (TS1)	62(CS1)	63(TS2)	64(CS2)	65(TS3)
DB					
AEB					
Passive					
Interval	66 (TS1)	67(CS1)	68(TS2)	69(CS2)	70(TS3)
DB					
AEB					
Passive					
Interval	71(TS1)	72(CS1)	73(TS2)	74(CS2)	75(TS3)
DB					
AEB					
Passive					
Interval	76(TS1)	77(CS1)	78(TS2)	79(CS2)	80(TS3)
DB					
AEB					
Passive					
Interval	81(TS1)	82(CS1)	83(TS2)	84(CS2)	85(TS3)
DB					
AEB					
Passive					

Interval	86 (TS1)	87(CS1)	88(TS2)	89 (CS2)	90(TS3)
DB					
AEB					
Passive					

Appendix Q

Data Collection Sheet – Samples

Date: _____ Class:_____ Teacher: _____

Activity:_____

Start time:_____ End time: _____

Definitions:

Praise: Any verbal statement or gesture made by the class teacher to denote the approval of academic behaviour or any social behaviour aligned with MANA values practised in class. Examples of praise statements included “Ka Pai! (Well done)”, “Good job following the instructions”, and “Well done for asking”. All behaviours of praise statements were counted together, whether it was directed to a group or an individual.

Reprimand: Any verbal statements or gestures made by the class teacher to denote disapproval of students’ social behaviour alone. Examples include statements informing students to cease a non-academic behaviour or delivering a negative consequence like writing the student’s name on the board. All behaviours of reprimands were counted together, whether it was directed to a group or an individual.

	Praise	Reprimand
Teacher A		
Teacher B		

Appendix R

IOA Confidentiality Form

Research project: Tootling through a Cultural Lens: Effects of Tootling on Student and Teacher Behaviours in an Inclusive School in Aotearoa

I _____ understand that this research is part of the masters thesis of Rhea Choundira. All information in relation to participants and non-participants in the school will remain confidential at all times during and after data collection. I will not discuss any details of this research or the participants with anyone other than the researchers.

Signed: _____

Name: _____

Date :_____