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**The Power of Peer-Mediated Reinforcement: Nurturing Culture and Classroom Behaviour
with Tootling in Aotearoa New Zealand**

A thesis

submitted in fulfilment

of the requirements for the degree

of

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Abstract

This study aimed to extend the literature on tootling interventions within primary school classrooms in Aotearoa New Zealand. Tootling is a peer-mediated behavioural intervention in which students are taught to identify and report instances of their peers' prosocial behaviour. A single subject multiple baseline design was used to evaluate the effects of the intervention on student on-task behaviour and teacher occupational stress across three Year 7-8 classrooms in a school with a 100% Māori student population, including two English-medium and one Māori-medium setting. Five teacher nominated students participated in the study. Students recorded instances of peers' prosocial behaviour, which were later shared with the class and linked to a collective goal through an interdependent group contingency. Results indicated increases in on-task behaviour following the introduction of the intervention across classrooms, while outcomes for teacher occupational stress were mixed. Treatment integrity remained high, and teachers and students reported the intervention to be socially acceptable.

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“Ehara taku toa i te toa takitahi, engari he toa takitini.”

My strength is not mine alone, but that of many.

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Introduction

Managing disruptive or inappropriate classroom behaviour remains a persistent challenge for educators across school systems worldwide, affecting classroom organisation and instructional delivery (Michail, 2011; Mitchell et al., 2017). Research has consistently demonstrated that classrooms characterised by higher levels of behavioural disruption tend to experience lower rates of academic engagement and reduced instructional time (Närhi et al., 2017). As a result, the effective management of classroom behaviour has become a central concern within both educational research and practice (Reinke et al., 2013).

Students who frequently display challenging behaviours are more likely to experience academic difficulties, strained peer relationships, and broader social challenges over time (Michail, 2011). Persistent classroom disruptions can also affect the learning opportunities of other students by interrupting lessons and shifting teacher attention toward behaviour management. These patterns highlight the importance of identifying approaches to behaviour support that not only address individual behavioural difficulties but also strengthen the overall learning environment (Elder & Prochnow, 2016).

Given the complex and multifaceted nature of disruptive classroom behaviour, there is growing recognition that effective responses must address both behavioural and relational dimensions of the learning environment (Mitchell et al., 2017; Reinke et al., 2013). Furthermore, proactive classroom management that supports culturally responsive relationships is increasingly recognised as key to improving classroom climate and student engagement (Savage et al., 2014). Understanding how these approaches operate in classroom settings remains important for educators aiming to support both academic success and student wellbeing.

Literature Review

Contextualising Behaviour in Schools and the Need for Effective Interventions

In Aotearoa New Zealand, the impact of disruptive classroom behaviours has been described as a pressing issue, prompting a shift in how schools conceptualise and respond to behavioural concerns (Elder & Prochnow, 2016; Johansen et al., 2011). Stand downs and suspensions remain a persistent concern in Aotearoa New Zealand schools, particularly for Māori students, highlighting the need for evidence based and culturally responsive behaviour intervention supports (Elder & Prochnow, 2016). There is an urgent need for sustainable approaches that support both teachers and students in responding to challenging behaviour, as reliance on reactive and exclusionary practices has been shown to be ineffective in the long term (Michail, 2011).

In response, school wide behaviour management frameworks such as Positive Behaviour Interventions and Supports (PBIS) and its Aotearoa New Zealand based counterpart, Positive Behaviour for Learning (PB4L), have emerged as structured, tiered systems designed to reduce challenging behaviour and promote a positive school climate. These frameworks advocate for universal support for all students (Tier 1), targeted interventions for at-risk groups (Tier 2), and intensive, individualised support (Tier 3), all grounded in collaborative, data driven practices (Elder & Prochnow, 2016). These tiers not only guide resource allocation but also reflect a recognition that behavioural challenges are complex and require graduated, context sensitive responses. Evidence suggests that PB4L, when implemented with fidelity, contributes to reductions in behavioural incidents and improvements in academic achievement, particularly in schools serving high-needs populations (Boyd et al., 2014; Elder & Prochnow, 2016). However, while PB4L is widely promoted as an effective model, its success often hinges on contextual

variables such as leadership support and teacher capacity, which are not guaranteed across all school settings (Tyre & Feuerborn, 2021)

Beyond student outcomes, the impact of challenging behaviour on teachers remains a critical concern. Challenging student behaviour can disrupt teaching and learning processes and affect the overall functioning of classroom environments (Michail, 2011). Managing students' behavioural and emotional needs alongside instructional demands can contribute to elevated levels of teacher stress and influence classroom responses to behaviour, with prolonged stress increasing the risk of teacher burnout and retention difficulties (Floress et al., 2024). Davis et al. (2020) added to this discussion by providing physiological evidence that preservice teachers experience increased heart rates, indicating a stress response, when exposed to scenarios involving defiant student behaviour. This physiological arousal, particularly in the absence of adequate classroom management training or realworld experience, draws attention to how behaviour challenges can directly affect teacher wellbeing and performance. Elder and Prochnow (2016) also emphasise that teacher buy-in, leadership engagement, and capacity building are critical for sustaining behavioural initiatives like PB4L, reinforcing the centrality of staff wellbeing in any effective intervention model.

While frameworks like PB4L provide essential infrastructure for promoting positive behaviour and reducing reliance on exclusionary practices, success ultimately depends on the active engagement of all individuals within the school ecology, including students themselves (Michail, 2011). Recognising that students are not merely recipients of behavioural support but also potential contributors to a positive classroom climate, schools are increasingly turning to approaches that harness the social dynamics of peer interaction. In this context, peer mediated interventions have been described as strategies that utilise peer influence to promote prosocial

behaviour (Carter et al., 2015; Chan et al., 2009;). While Murphy (2019) emphasises the importance of collaborative responses to challenging behaviour, these principles align with the rationale for including peer mediated interventions in classroom settings.

Peer-Mediated Positive Behaviour Support and the Role of Teacher Wellbeing

Peer mediated interventions (PMIs) are evidence-based strategies that engage students in supporting one another's behavioural development. These interventions operate on the principle that peers can serve as powerful agents of change when given structured opportunities to model, prompt, or reinforce positive behaviours (Chan et al., 2009). PMIs have also been shown to promote inclusion and social connection for students with diverse learning needs. For example, Carter et al. (2015) demonstrated that structured peer support arrangements in inclusive classrooms increased opportunities for academic engagement and social interaction. PMIs have been applied across a range of settings and age groups, demonstrating positive effects on student engagement, social interaction, and academic performance (Bowman-Perrott et al., 2013). Despite their effectiveness, PMIs remain underutilised in classrooms, with reviews highlighting challenges such as limited teacher training, competing priorities, and concerns about fidelity (Chan et al., 2009; Dunn et al., 2017). This gap between evidence and practice brings to light the need to revisit and reframe peer delivered strategies as legitimate and sustainable tools for fostering positive classroom climates. One such intervention tool, tootling, has gained traction for its ability to leverage peer relationships in support of behavioural change.

Tootling is a class wide, peer mediated intervention designed to promote prosocial behaviour by having students identify and report instances of their classmates' engaging in helpful or kind actions. Adapted from the term "tattling," tootling reverses the traditional focus

on undesired peer behaviour and instead encourages students to notice and reinforce positive social interactions (Skinner et al., 2000). These reports are collected, often anonymously, and used to contribute toward a class goal, typically linked to a group contingency-based reward system. Tootling functions not only as a positive reinforcement strategy but also as a tool for shaping peer norms and social attention toward prosocial behaviour. Its structure leverages the natural influence of peers to support behavioural change, while also fostering a classroom culture of mutual respect, collective responsibility, and student voice (Crewdson et al., 2023; Skinner et al., 2000). In this way, tootling positions students not just as passive recipients of behaviour systems, but as active contributors to a relational and cooperative classroom ecology that aligns with both teacher wellbeing and student needs.

The increasing complexity of student needs, combined with teacher stress and burnout, emphasises the need for behaviour interventions that are both effective and feasible. Many teachers report feeling overwhelmed and underprepared to manage the social and emotional needs of students with behavioural challenges, leading to increased workload, diminished instructional time, and emotional fatigue (Michail, 2011). As previously mentioned, Davis et al. (2020) offer physiological evidence that even preservice teachers, those yet to assume full classroom responsibilities, exhibit heightened stress responses when faced with student defiance. This suggests that such stress is not merely a function of professional burnout but an anticipatory response to challenging behaviour in the absence of effective management training. Their findings highlight a critical need for classroom-based interventions that not only address student behaviour concerns but also build teacher confidence and reduce the emotional toll of behaviour management.

PMIs such as tootling offer a proactive alternative to punitive responses by systematically reinforcing prosocial behaviours, a pattern demonstrated across multiple class wide studies (Crewdson et al., 2023). By reinforcing students for noticing and reporting positive peer actions, tootling shifts attention away from undesired behaviour and nurtures a classroom culture of shared responsibility. Research also shows that the quality of peer relationships significantly influences students' academic engagement, with supportive peer connections linked to stronger participation and persistence in learning tasks (Knifsend et al., 2022). Together, these findings suggest that tootling not only reduces undesired behaviour but also contributes to broader class wide academic and relational benefits by embedding reinforcement within peer networks.

Teacher Stress and the Need for Dual-Impact Interventions

Teaching is widely recognised as a highly stressful profession, with numerous studies identifying classroom management and disruptive student behaviour as primary contributors to this stress (Elliot et al., 2024; Floress et al., 2024; Radley et al., 2024). Persistent stress not only diminishes teacher wellbeing and job satisfaction but also affects classroom functioning, instructional quality, and student outcomes (Elliot et al., 2024; Floress et al., 2024; Miller, 2017). When left unaddressed, chronic stress can contribute to burnout, absenteeism, attrition, and negative emotional climates in classrooms (Elliot et al., 2024; Embse et al., 2019; Miller, 2017). Recent estimates suggest that up to 40-50% of new teachers in urban districts leave the profession within the first five years, with student behaviour consistently cited as a key driver (Elliot et al., 2024; Radley et al., 2024).

The dynamic interplay between teacher stress and student behaviour has been well documented. While student misbehaviour is a leading cause of stress, elevated teacher stress can itself undermine effective classroom management and increase reliance on reactive or punitive

strategies that may also be ineffective (Elliot et al., 2024; Floress et al., 2024; Miller, 2017). High stress impairs executive functioning, reduces the use of evidence-based strategies, and can erode the quality of teacher and student relationships (Elliot et al., 2024; Floress et al., 2024; Miller, 2017). Teachers under strain may also model maladaptive social-emotional responses, indirectly reinforcing challenging behaviour patterns in students (Floress et al., 2024; Miller, 2017). These findings highlight a reciprocal relationship where student behaviour deteriorates, teacher stress increases, which in turn further reduces instructional and relational effectiveness, creating a negative feedback loop.

One of the most significant contextual variables influencing this loop is the degree to which teachers feel competent and supported. The Coping - Competence - Context (3C) theory offers a comprehensive framework, highlighting the importance of both individual coping capacity and environmental support systems (Elliot et al., 2024). Teachers who feel emotionally supported, equipped with strong behavioural management strategies, and part of a positive school culture report significantly lower stress levels (Elliot et al., 2024; Floress et al., 2024). Unfortunately, many initial teacher education programmes do not adequately prepare educators in classroom behaviour management, leaving them vulnerable to stress early in their careers (Floress et al., 2024; Radley et al., 2024). Inadequate preparation may be particularly consequential in under-resourced schools, where teachers face elevated demands and fewer structural supports (Elliot et al., 2024).

Although interventions to reduce teacher stress have traditionally focused on mindfulness, cognitive behavioural training, and psychoeducation, research suggests these approaches may have only moderate impacts, especially when implemented in isolation (Embse et al., 2019). More promising are behaviourally oriented approaches that target both teacher

wellbeing and student behaviour. Interventions that improve classroom management practices and reduce student disruptions have shown medium to large effects on reducing teacher stress (Embse et al., 2019). For example, the Good Behavior Game, a team-based contingency management intervention, has consistently demonstrated reductions in student disruption and corresponding decreases in teacher stress (Radley et al., 2024). These dual outcome interventions signal a critical shift where rather than focusing solely on the teacher's internal state, effective stress interventions should address the behavioural ecology of the classroom itself (Embse et al., 2019; Miller, 2017; Radley et al., 2024).

Peer-mediated interventions, such as tootling, align with this dual-focus model. Tootling distributes reinforcement delivery to students, reducing teacher workload while strengthening peer-based systems of behavioural support. Miller (2017) noted that teachers often struggle to maintain high rates of positive reinforcement, for example 5:1 positive-to-negative ratio, which tootling helps to redress by engaging students in recognising and reinforcing each other's prosocial behaviour. Preliminary research found that teachers reported lower stress levels following the implementation of tootling, particularly in relation to discipline and workload demands (Miller, 2017). Although these findings are based on a small sample and limited to early childhood settings, they offer a compelling rationale for exploring the broader benefits of tootling, including its potential to reduce teacher stress in general education and older age groups.

While most studies have not directly measured the relationship between tootling and teacher wellbeing, emerging behavioural models suggest that classroom based, student-centred interventions may offer important secondary gains. Teachers working in environments where students are more engaged and engage in higher rates of prosocial behaviours report higher

levels of job satisfaction and emotional resilience (Elliot et al., 2024; Floress et al., 2024; Miller, 2017). Furthermore, when student behaviour improves, teachers are more likely to implement evidence-based classroom management and instructional practices with fidelity, creating a cycle of relational reinforcement and effective instructions (Elliot et al., 2024; Floress et al., 2024).

Review of Empirical Research on Tootling

A growing body of research supports tootling as an effective class-wide intervention. Crewdson et al. (2023) found that tootling significantly increased prosocial behaviours such as helping and providing encouragement, while simultaneously reducing off-task behaviour and verbal aggression. These findings align with earlier research by Skinner et al. (2000) and Cashwell et al. (2001), which documented improvements in on-task behaviour and peer interactions following tootling implementation in education settings.

While tootling has primarily been implemented in elementary settings (Cashwell et al., 2001; Skinner et al., 2000), recent work suggests its potential applicability in older student populations, including middle school classrooms (Crewdson et al., 2023). These studies consistently demonstrate short term increases in prosocial reporting and decreases in undesired behaviour, indicating the robustness of the approach across diverse classrooms. Findings also point to the potential for maintenance of positive effects, however, research examining long term sustainability remains limited, and further investigation is needed to determine how well gains are maintained once formal supports are withdrawn (Crewdson et al., 2023).

Differentiating Tootling from Other Peer Reinforcement Strategies

While tootling falls within the broader category of PMIs, it is distinct in both its structure and objectives compared to other commonly used strategies, such as peer tutoring, peer monitoring, and positive peer reporting. Peer tutoring has been shown to effectively support academic learning through structured skill rehearsal and feedback, but its primary focus remains academic rather than behavioural (Dunn et al., 2017). Peer monitoring often involves students tracking the rule following behaviour of their classmates. Although peer monitoring can be highly effective it is not without risks, as students may overlook certain peers or report inconsistently, raising concerns about fairness in reinforcement (Skinner et al., 2000). Similarly, positive peer reporting typically targets individual students who receive reinforcement for teacher selected behaviours. While these interventions can be effective in certain contexts, they often rely on adult direction and may not fully leverage spontaneous peer interactions (Crewdson et al., 2023).

In contrast, tootling operates as a student led strategy that encourages students to observe and acknowledge any peer displaying prosocial behaviour. Rather than focusing on correction or performance, it highlights everyday acts of kindness, support, and inclusion, which are often overlooked in traditional systems. This reciprocal format allows all students to both give and receive reinforcement, but tootling's success depends on careful implementation, including teacher modelling and scaffolds to ensure participation and fidelity (Cashwell et al., 2001). Teachers can vary reinforcement criteria or embed prompts to encourage equitable peer recognition, as demonstrated by modifications requiring different students to be recognised before rewards were delivered (Kirkpatrick et al., 2019). When these conditions are met, tootling has the potential to reshape classroom norms and strengthen peer networks through the natural

social contingencies of the group (Beffel & Neal, 2023; van den Bos et al., 2018). These features position tootling, not merely as a behaviour management tool, but as a socially embedded intervention grounded in behavioural and social learning principles. It therefore warrants closer examination of the theoretical foundations that explain why it works and how it supports behaviour change.

Theoretical Foundations of Positive Peer Reporting

Foundations in Operant Conditioning and Contingency Management

The theoretical basis for tootling rests on operant principles of reinforcement, particularly the idea that behaviours followed by reinforcement are more likely to recur. As Baum (2017) explains, Skinner's radical behaviourism emphasised how naturally occurring contingencies shape and maintain behaviour, a framework that has been applied in class wide peer-reporting interventions such as tootling (Crewdson et al., 2023; Skinner et al., 2000). This peer-delivered reinforcement strengthens both the observed behaviour and the act of attending to it, creating multiple layers of reinforcement within a single system. Baum (2017) further emphasises that behaviours are maintained by their consequences within specific environmental contexts, suggesting that when reinforcement is delivered consistently and meaningfully by peers, behaviour change is more likely to generalise beyond adult led systems. However, operant frameworks alone do not guarantee meaningful or sustained change. Without attention to the relevance of reinforcement and the consistency of application, even well-designed contingencies may fail to produce lasting results (Baum, 2017). Tootling's strength lies not only in its reliance on behavioural principles, but in its ability to embed those principles within a socially meaningful and ecologically valid peer context. In doing so, it establishes a classroom ecosystem

in which prosocial behaviour is selected and maintained not just by adult intervention, but by the reinforcement dynamics of the peer group itself (Crewdson et al., 2023; Skinner et al., 2000).

Peer-Mediated Reinforcement Through Interdependent Group Contingencies

Peer delivered reinforcement plays a unique role in shaping the classroom social dynamics and is often implemented through interdependent group contingencies, where reinforcement is delivered to the group based on the behaviour of its members. Unlike teacher administered rewards, reinforcement from peers carries heightened influence due to its immediacy, authenticity, and alignment with students' priorities. This is particularly evident during middle childhood, when peer approval becomes a central motivator for behaviour (Beffel & Neal, 2023). Within the structure of tootling, this peer reinforcement functions not only to increase specific prosocial behaviours but also to shape broader classroom norms around what is valued, noticed, and celebrated. As prosocial behaviours are recognised and reinforced across the group, they begin to crowd out more disruptive or isolating behaviours, establishing a new behavioural baseline grounded in cooperation and inclusion (Crewdson et al., 2023). However, peer reinforcement is not inherently prosocial. Left unguided, it can easily sustain exclusionary practices or reinforce antisocial behaviour, particularly among peer groups with shared negative traits (Beffel & Neal, 2023). Lansford et al. (2009) found that adolescents within peer cliques resembled one another in aggression and substance use, and that peer leaders were often perceived as more aggressive, suggesting that peer group dynamics can reinforce antisocial norms. Class wide interventions such as tootling take advantage of this same social learning process but channel it in constructive ways by recognising and reinforcing positive peer behaviours.

Defining and Framing Social Validity

While peer delivered reinforcement provides the behavioural mechanism through which tootling exerts its effects, its sustained impact may hinge on social validity. Social validity refers to the extent to which an intervention is perceived as acceptable, appropriate, and meaningful by those implementing it or affected by it. First articulated by Wolf (1978), the concept challenges applied behaviour analysts to evaluate not only whether an intervention works, but whether its goals, procedures, and outcomes are socially important within the context of real-world application. In educational settings, where practicality, time constraints, and teacher buy-in are critical factors, interventions with high social validity are far more likely to be adopted, implemented with fidelity, and maintained over time.

Tootling demonstrates many features associated with strong social validity. It is simple by design, relies on positive reinforcement, and emphasis on student agency, rather than punitive practices, have made it acceptable to both educators and students. For instance, Skinner et al. (2000) found that the classroom teacher continued to use tootling independently after researcher withdrawal, reflecting its feasibility and relevance in authentic school settings. Subsequent research has also incorporated formal social validity measures, including student perception surveys evaluating the acceptability of tootling interventions (Dillon, 2019; Lum et al., 2009). These findings suggest that social validity is not merely a desirable feature of tootling, but central to its practical success.

Contemporary Perspectives of Social Validity and Critical Application

Beyond questions of reinforcement and implementation, the sustainability of peer-mediated interventions also depends on how they are perceived and received by those who

implement and experience them. Vollmer and Pendergrass (2025) argue that social validity should be understood not as a static measure but as an evolving, embedded feature of applied behaviour analysis. They caution that failing to consider the values, experiences, and preferences of intervention consumers can lead to decreased acceptability, even when technical effectiveness is achieved. Rather than relying solely on satisfaction surveys or surface level indicators, they advocate for an ongoing process of evaluation and responsiveness throughout the lifespan of an intervention. This perspective aligns with Fawcett's (1991) foundational view of social validity as more than just an outcome measure. He argues that applied behaviour analysts should actively involve 'consumer judges,' those most affected by the intervention, in judging the relevance of goals, the appropriateness of procedures, and the significance of outcomes. This participatory approach establishes social validity as both a methodological strategy and an ethical imperative within applied research. Building on this, Fawcett (2021) reflects on how community-based interventions must be co-developed with those they aim to serve, emphasising that participatory input is critical to achieving both scientific and social impact. Applied to the context of tootling, this means that its success depends not only on behavioural outcomes but also on how well it aligns with the classroom ecology, the teacher, and students. What is embraced in one setting may require adaptation in another to maintain meaning, accessibility, and relevance. In other words, social validity becomes a guiding principle for sustaining tootling over time, particularly in diverse and dynamic school environments.

Effectiveness of Tootling in Classroom Settings

Enhancing Prosocial Behaviour and Peer Affiliative Relationships

As discussed earlier, empirical evidence highlights the effectiveness of tootling in strengthening prosocial behaviour and reducing disruptive conduct. In their class wide implementation study, Crewdson et al. (2023) documented significant increases in students' reports of helping, encouragement, and cooperation, alongside reductions in disruptive behaviour. These findings support the view that tootling harnesses peer dynamics to build a more positive and inclusive classroom climate. Similarly, Beffel & Neal (2023), through social network analysis, demonstrated that prosocial behaviour tends to cluster within peer groups, and that children embedded in affiliative peer networks are more likely to engage in cooperative behaviours. Together, these findings shine a light on tootling's potential to shape classroom norms through the natural reinforcement of peer relationships. Overall, while tootling shows strong potential for increasing prosocial interactions and reshaping classroom norms, its success depends on how those norms are selected, reinforced, and monitored across diverse social groups.

Cultural and Contextual Influences

While tootling has produced promising results across a range of classroom settings, its effectiveness is not guaranteed across all cultural or educational contexts. The contextual make up of each classroom plays a significant role in shaping how peer feedback is received and enacted. Beffel and Neal (2023) highlight that peer networks are socially differentiated and influenced by homophily, meaning students are more likely to form affiliations with others who share similar behavioural profiles. In some classrooms, this may limit the reach of prosocial

modelling, particularly for students who are socially marginalised or who lack strong peer connections. Similarly, Crewdson et al. (2023) caution that the perceived value of reinforcement can vary widely depending on classroom norms, teacher modelling, and the perceived authenticity of peer recognition. Without careful implementation, tootling could unintentionally reproduce social hierarchies or fail to engage those most in need of behavioural support.

Cultural norms and expectations also influence the effectiveness of reinforcement contingencies. Manzano-Sánchez and Valero-Valenzuela (2019) note that relational climate and perceptions of fairness are crucial mediators of programme success in collectivist classroom environments. They also suggest that what is perceived as empowering in one context may be experienced as uncomfortable or inauthentic in another, particularly in classrooms serving diverse cultural communities. These findings point to the importance of cultural responsiveness in intervention design, including adaptations to language, roles, and reinforcement delivery that reflect the values and lived experiences of students. As a result, effective implementation of tootling should not only consider behavioural principles but also the cultural, relational, and structural dimensions of the classroom.

Sustainability and Classroom Climate

The success of tootling depends not only on its short-term behavioural effects but also on its capacity to support a sustained shift in classroom climate. As prosocial behaviours are increasingly reinforced by peers, they may come to function as shared norms that influence student interactions beyond the intervention period. Brass et al. (2024) highlight that classrooms with cohesive peer environments tend to show higher academic engagement, suggesting that the social climate fostered through tootling can contribute to broader educational outcomes.

Similarly, Busching and Krahé (2020) argue that peer cohesion increases the social cost of non-cooperation and helps to establish inclusion as a group norm. In this way, tootling is more than a behaviour management tool. It may function as a norm-shaping process embedded in shared reinforcement dynamics that define the relational structure of the classroom.

Despite this potential, the long-term sustainability of these effects remains uncertain. Most studies of tootling, including Crewdson et al. (2023), focus on short-term implementation, typically supported by researchers and limited to a few weeks. Few include follow-up data to assess whether behavioural gains are maintained over time. This presents a key gap in the evidence base, particularly given the importance of ecological validity in school-based interventions. For tootling to be adopted as a durable classroom practice, future research must examine its longitudinal impact, monitor implementation fidelity over time, and investigate how teacher buy-in and student voice contribute to sustained effects. Without these insights, the potential of tootling may remain under realised, particularly in classrooms with fluctuating peer dynamics or limited structural supports.

In light of these considerations, it is essential to examine how behavioural interventions such as tootling can align not only with academic and behavioural goals, but also with the relational and cultural values that underpin educational practice in Aotearoa New Zealand.

Cultural Considerations in Behavioural Interventions

Integrating Māori Values in Behavioural Interventions

From a behaviour analytic perspective, culture is defined by the interlocking contingencies that shape and sustain shared practices, rather than by the individuals who enact them (Cihon & Mattaini, 2020). Skinner's early work identified cultural practices as operants maintained within groups, and this foundation was extended by Glenn (2004), who described

cultural entities as systems of interlocking behavioural contingencies that support or modify group behaviour. In this view, classrooms and schools can be treated as cultural entities in which practices are either strengthened or weakened depending on the contingencies that support them. This perspective provides a foundation for examining how specific cultural practices in Aotearoa New Zealand's educational settings are maintained, and how behavioural interventions can be designed to align with and reinforce them.

In Aotearoa New Zealand, the effectiveness and acceptability of behavioural interventions are closely tied to cultural values that shape teaching and learning, with Māori principles increasingly recognised as essential to effective classroom practice (Macfarlane, 2000). Concepts such as *manaakitanga* (care, respect, and hospitality) and *whanaungatanga* (relational connectedness) provide the foundation for classroom practice and are increasingly recognised in education research as essential for building inclusive environments (Wright & Heaton, 2021). Choundira (2022) similarly highlights that interventions like *tootling* can be understood through a bicultural lens, aligning with Māori values that emphasise reciprocity, collective responsibility, and positive peer relationships. These cultural values also extend to the aspirations of *whānau*, who expect schooling to reflect and honour their hopes for their children's educational and cultural success (Whitinui, 2019). Further, frameworks such as *mana tangata*, which emphasises the valuing of personal and collective identity, have been proposed as optimal conditions for Māori student success, highlighting the importance of embedding cultural responsiveness into all classroom interventions (Webber & Macfarlane, 2020).

Choundira (2022) demonstrated that when *tootling* was implemented through the MANA values framework, which operationalises *manaakitanga*, *ngātahi* (unity), *aumangea* (resilience), and *ako*, the reciprocal process of teaching and learning, student engagement increased and the

perceived relevance of the intervention was strengthened. Teachers reported that tootling offered a practical mechanism to reinforce relational values already present in their classrooms.

Similarly, Whitinui (2019) found that Māori whānau prioritised educational approaches that fostered trust, connection, and relational wellbeing, particularly when they aligned with school wide initiatives such as PB4L. Together, these perspectives suggest that tootling's emphasis on recognising and celebrating prosocial behaviour can align with Māori conceptions of care and contribution, provided it is implemented in a way that honours these values authentically.

However, as tootling was not originally developed within a bicultural context, intentional adaptation and partnership with whānau are essential to ensure its application is genuinely mana-enhancing.

This interpretation is reinforced by the Mana Tangata framework, which identifies five optimal conditions for culturally responsive education: mana-enhancing relationships, inclusive and strengths-based practice, genuine partnerships, high expectations, and culturally sustaining pedagogy (Webber & Macfarlane, 2020). These are not aspirational extras, but foundational elements of effective learning environments for Māori students. While tootling has the potential to support these conditions by promoting peer affirmation and collective success, this potential depends on the depth of its cultural adaptation. Without careful integration of kaupapa Māori, even interventions that appear inclusive may reinforce individualistic or compliance-based norms that do not reflect Māori values. With this in mind, a behaviour intervention's cultural validity becomes just as important as its technical efficacy.

PB4L as an Infrastructure and the Need for Classroom Level Cultural Alignment

While values such as manaakitanga and ako offer a philosophical foundation for culturally responsive practice, their consistent expression across classrooms depends on the systems and professional practices that sustain them. PB4L may provide an infrastructural platform for embedding relational and inclusive values within schools. However, as Macfarlane (2015) argues, educational reforms that are conceptually aligned with cultural responsiveness can remain inconsistently enacted when values are not embodied in everyday teacher practice. Similarly, McRae and Averill (2020) note that initial teacher education programmes often struggle to prepare teachers to translate relational principles such as whanaungatanga into enacted pedagogy. Without this translation into practice, cultural responsiveness risks remaining rhetorical rather than relational.

Tootling offers one way to operationalise the relational intent of PB4L in a classroom setting. As shown in Choundira's (2022) study, when tootling was integrated with culturally anchored values, it served not just as a behaviour management tool, but as a vehicle for fostering ako (learning) and collective agency. The structured focus on peer recognition made visible the kinds of interpersonal behaviours PB4L aims to encourage, while also allowing for contextual adaptations that reflected the social dynamics of the class. Yet the effectiveness of this integration was not automatic. It required teacher intentionality, flexibility, and deep understanding of local values. This highlights a broader tension. While system wide behaviour frameworks like PB4L provide essential scaffolding for cultural alignment, practical tools, like tootling, may provide an avenue for educators to actively embed these values into daily relational practice. Without this interplay between structure and enactment, the cultural aspirations of PB4L risk remaining symbolic rather than transformative.

Barriers and Facilitators in Culturally Embedded Behavioural Practice

Even when behaviour interventions are guided by culturally aligned frameworks such as PB4L, their effectiveness is often constrained by how they are implemented at the classroom level. While the previous paragraph considered how tootling can give expression to Māori values within PB4L, it is equally important to examine the factors that can hinder this cultural alignment. In Te Whakahōnere ngā Wawata o te Whānau report, Whitinui (2019) draws on preliminary findings from a study conducted in two English-medium primary schools in the Otago-Southland region. The study explored the educational aspirations that whānau Māori held for their children and aimed to build stronger relationships for teaching and learning. Findings showed that whānau Māori were often disappointed by tokenistic engagement with culture in schools. They stressed that genuine partnership requires more than symbolic inclusion. It must involve relational trust, whānau voice, and aspirations rooted in cultural identity.

Similarly, in her study of tootling, Choundira (2022) identified challenges such as the abstract nature of some target behaviours, variation in the reinforcing value of the class rewards for various students, and differences in students' understandings of prosocial acts. Although these barriers were not difficult to overcome, they revealed how even a seemingly neutral intervention can become disconnected from students lived realities if it is not carefully adapted and meaningfully contextualised.

These concerns are echoed in the broader critique of applied behaviour analysis offered by Plessas et al. (2019), whose work in Māori mental health highlights the risks of behavioural science becoming detached from Indigenous frameworks of wellbeing. While their analysis is situated in the health sector, it resonates with classroom contexts where interventions may similarly overlook relational, historical, and identity affirming dimensions that are central to

Māori students' experiences. From this perspective, the challenge is not merely to adapt tools like tootling for Māori learners but to critically reflect on how such tools are embedded within kaupapa Māori aspirations. This includes recognising the importance of collective identity and historical context in shaping behavioural goals and strategies.

Culturally responsive behavioural practice therefore requires more than technical modification. It calls for deep partnership, shared meaning-making, and a commitment to sustaining cultural integrity in everyday classroom interactions (Macfarlane, 2000; Plessas et al., 2019).

Implications for Practice and Māori-Centred Behavioural Change

If culturally responsive practice requires more than technical adaptation, as the previous discussed, then it must also be grounded in long-term commitments to identity, belonging, and relational trust. Duckworth et al. (2021), in their follow-up to Ka Awatea study, a longitudinal exploration of Māori success, interviewed eight participants six years after the original participation. Findings indicated that Māori success is most likely in environments that affirm identity, prioritise relational wellbeing, and foster a sense of belonging. These conditions are consistent with the relational foundations required for peer-based interventions like tootling to be effective, but they also extend beyond its technical implementation. This suggests that such interventions must be embedded within the broader cultural ecology of the classroom, where identity, belonging, and whānau engagement are prioritised.

Wright and Heaton (2021) reinforce this by illustrating how manaakitanga and whānaungatanga are enacted through everyday relational practices such as hospitality and the crossing of thresholds, both literal and symbolic. These practices include creating intentional

spaces where students, whānau, and staff feel welcomed, respected, and connected. When behavioural interventions are aligned with these relational practices, they not only promote immediate prosocial behaviour but also help cultivate a classroom climate that supports sustained behavioural change over time.

However, realising this potential requires ongoing reflection, teacher readiness, and authentic partnership with whānau. McRae and Averill (2019) highlight the persistent gap between bicultural policy aspirations and the everyday practice of many beginning teachers, which can limit the depth of culturally responsive implementation. Without deliberate efforts to embed kaupapa Māori and foster mana enhancing interactions, even well-intentioned interventions risk becoming superficial or tokenistic.

Purpose of the Study

The purpose of the present study is to extend previous research examining tootling interventions in classroom settings, particularly the work of Powell (2020), Choundira (2022), and Enright (2023), within an Aotearoa New Zealand context. Existing studies have demonstrated that tootling can improve student behaviour in primary classrooms; however, limited research has examined its effects with older primary students or within schools serving predominantly Māori student populations. In addition, little research has explored whether improvements in classroom behaviour associated with tootling may relate to changes in teacher occupational stress.

To address these gaps, the present study evaluated the effects of a class wide tootling intervention on student on-task behaviour among upper primary students in a New Zealand school context. The study also examined the implementation and acceptability of the intervention

across English-medium and Māori-medium classroom settings. This study will address the following research questions:

Primary Research Question.

- Will a class-wide tootling intervention increase on-task behaviour for selected target students in each participating Year 7-8 classroom?

Secondary Research Questions

- Will the tootling intervention demonstrate high procedural and treatment integrity across participating classrooms, including cultural adaptations for a Māori-medium classroom?
- Will a tootling intervention, when implemented in Year 7-8 classrooms, decrease teacher occupational stress?
- Will the tootling intervention be rated as socially acceptable by Kaiako and students?

Methods

Ethical Approval and Consent

This study received ethical approval from the University of Waikato, School of Psychological and Social Sciences Human Research Ethics Committee (Reference: FS20221-30).

Prior to engaging with the classroom kaiako (teacher), an email outlining the study was shared with the participating school's tumuaki (principal) to ensure the research aligned with school tikanga (customs) and values. Following this, kaiako were invited to participate and were

provided with a detailed information sheet (see Appendix A) describing the purpose of the study, what participation would involve, and the voluntary nature of their involvement. This information was discussed *kanohi ki te kanohi* (face to face) with kaiako to support transparency and to provide opportunities for questions and clarification of any cultural or contextual considerations.

Informed consent (see Appendix B) was obtained from the participating Kaiako before sending information sheets (see Appendix C) to parents and caregivers. All data were anonymised, stored securely, and retained for the required period in accordance with University of Waikato Human Research Ethics Committee requirements.

Participants and Setting

School Context

The study was conducted at a co-educational kura (school) located in a coastal town in Aotearoa New Zealand. The kura provides both te reo Māori immersion and English immersion education for tamariki in Years 1 to 8 and has strong affiliations with local iwi (tribe) and hapū (subtribe). At the time of the study, the school had an enrolment of approximately 300 students, with school data indicating that all enrolled students primarily identify as Māori. The kura operates as a government funded full primary school and implements a Positive Behaviour for Learning School-Wide (PB4L-SW) framework. The school's approach to teaching and behaviour is underpinned by values centred on Mauri, including Mauri Ora, Mauri Mātauranga, Mauri Tangata, and Mauri Tū, which emphasise wellbeing, learning, relationships, and personal

strength. The tootling intervention was implemented in a manner that aligned with these values and the school's commitment to culturally grounded, strengths-based practices.

Classrooms and Kaiako

Within the school, three classrooms participated in the study, each led by a kaiako. All participating classes were composite Year 7–8 classrooms, with students approximately 10 to 13 years of age. Classroom 1 (CR1) was a te reo Māori immersion class, with approximately 95 percent or more of instruction delivered in te reo Māori. Classroom 2 (CR2) and Classroom 3 (CR3) were English-medium classes, with instruction delivered in English. All three kaiako identified as Māori.

The kaiako in CR1 was a female teacher fluent in te reo Māori, aged 35 years, with five years of teaching experience in the primary sector. This included three years in early childhood education and two years in her current role. The kaiako in CR2 was a female teacher with 31 years of teaching experience across the primary school age range, including 29 years at the current school. The kaiako in CR3 was a female teacher 42 years of age, with 10 years of teaching experience and two years at the current school.

Student Participants

Across the three classrooms, a total sample of five students were selected by the kaiako for direct observation. Students were identified based on kaiako observations of higher frequencies of off-task behaviour during instructional time, with selection intended to identify students for whom would benefit from increasing their on-task behaviour. The participants identified for this study included Student 1 (S1), a Year 7 male student, and Student 2 (S2), a

Year 8 male student, from CR1; Student 3 (S3), a Year 8 male student, from CR2; and Student 4 (S4), a Year 8 male student, and Student 5 (S5), a Year 8 female student, from CR3.

Parental consent (see Appendix D) was obtained for all student participants. In addition, and consistent with previous New Zealand tootling studies (Choundira, 2022; Powell, 2020), a passive parental consent process (see Appendix E) was employed for class-wide participation in the tootling intervention. Parents and caregivers were provided with an information sheet outlining the study and were invited to return a withholding consent form if they did not wish their child to be included in behavioural observations. Students whose caregivers returned a withholding-consent notice were excluded from all data collection but continued to participate fully in normal classroom routines, including the tootling activity.

Experimental Design

A multiple baseline design across classrooms was used to evaluate the effects of the tootling intervention on student on-task behaviour. This single-case experimental design allowed for demonstration of a functional relation between the intervention and changes in behaviour.

Three classrooms (CR1, CR2, and CR3) served as the three tiers of the multiple baselines. Baseline data were collected concurrently across all classrooms prior to the introduction of the tootling intervention. The intervention was then introduced sequentially across classrooms in a staggered manner, while baseline conditions continued in the remaining classrooms. This staggered introduction permitted comparison of changes in on-task behaviour within and across classrooms and strengthened causal inference by controlling for extraneous variables.

Phase change decisions were made using visual analysis of level, trend, and variability of on-task behaviour. In line with recommendations for single-case experimental design, a minimum of five consecutive baseline observation sessions was collected for each classroom prior to intervention introduction to ensure confidence in the stability and reliability of baseline data (Kratochwill et al., 2010). The tootling intervention was introduced first in CR1, followed by CR2 and then CR3, when a stable baseline trend was sufficiently demonstrated.

Dependent Variable

The sole dependent variable measured in this study was student on-task behaviour. On-task behaviour was operationally defined using explicit, observable criteria and was assessed using momentary time sampling at 15-second intervals.

On-task Behaviour Operational Definition

At the 15-second observation point within each interval, a student was scored as on-task only if all three criteria were met simultaneously. First, the student's eyes were oriented toward the teacher, assigned instructional materials, or a relevant peer when peer orientation was required as part of the task. Second, the student's body engagement was consistent with the instructional activity being delivered. This included behaviours appropriate to the task demands such as sitting with buttocks or one or two knees in contact with the seat and all four chair legs on the ground unless the task required standing; writing or drawing using a functional grip while attending to paper based materials; typing or using a device for task purposes with fingers positioned appropriately above keys; manipulating objects or materials as part of the assigned activity; walking or moving in accordance with a teacher assigned task such as collecting

resources or moving to a designated work area; or having eyes closed when this was directly related to the task. Third, no unrelated verbal or motor behaviour was occurring at the moment of observation, including behaviours such as playing with objects unrelated to the task, engaging in off topic conversation, or other motor or verbal behaviours not aligned with the instructional activity. If one or more of these criteria were not met at the observation point, the student was scored as not on task for that interval.

Data Collection

Sessions were conducted during regular morning classroom instruction following the completion of daily karakia (prayer). Data collection typically commenced at approximately 9:40 a.m. in CR3, followed by CR1, then CR2 and were continuously measured for 15-min sessions.

To ensure consistency and accuracy in the timing of observation intervals across all sessions and classrooms, a mobile device with the timing application Interval Timer installed was used to regulate observation intervals. The application was programmed to signal the end of each 15-second interval using an audio cue and vibration. At the exact moment the signal occurred, the observer recorded whether the student met the operational criteria for on-task behaviour. Behaviour occurring before or after the observation moment was not considered when scoring. Headphones were worn by the observer throughout data collection to minimise disruption within the classroom environment and to conceal the audio signal from students and teachers

The observer positioned themselves unobtrusively within each classroom to maintain a clear view of the student's eyes and task-related body engagement while minimising disruption

to classroom routines. Care was taken not to obstruct student work or interact with students during observation sessions.

Student behaviour was scored using the on-task behaviour recording sheet (see Appendix F). At each 15-second observation point, behaviour was coded as on-task if all operational criteria were met. Behaviour was coded as not on task if one or more criteria were not met at the observation moment. If the student was temporarily out of view, for example due to leaving the classroom or moving beyond the observer's line of sight, the interval was recorded as passive, and the reason was noted.

Observation sessions were conducted consistently across baseline and intervention phases using identical procedures, timing, and observation sequences.

Independent Variable

The independent variable in this study was a class-wide Tootling intervention. The intervention design closely matched procedures outlined in previous research, including positive peer reporting, public posting, and an interdependent group contingency (Choundira, 2022; Enright, 2023; Powell, 2020). An adaptation was made to the reward criterion, consistent with Enright (2023) and informed by Kirkpatrick et al. (2019).

Rather than using a fixed or pre-determined goal, the reward criterion was contingent on the number of students who received a Tootle on a given day. Each morning, the classroom teacher randomly selected a number from a drawstring bag containing numbered caps to represent the total number of students present. This number served as the daily reward criterion and was kept secret from the class until immediately prior to the reading of the daily Tootles. If

the number of students who received a Tootle met or exceeded the selected criterion, the class earned progress (star sticker) towards a shared reward. This adaptation was intended to promote reporting on multiple peers and to increase engagement by introducing a game-like element (Kirkpatrick et al., 2019).

Materials

Data Collection

Data collection forms for student on-task behaviour (see Appendix F) were developed and adapted from previous tootling studies (Choundira, 2022; Enright, 2023; Powell, 2020). Each form included the operational definition of on-task behaviour, along with examples to support consistent observation. The data sheets also provided space to record the date, classroom, instructional activity, observation time, and observer name. The data sheet was organised into 15-second intervals, with each interval assigned a student code corresponding to one of the target students for a total of 60 intervals. At the bottom of each data collection sheet, space was provided to calculate the total number of observation intervals and the percentage of intervals in which each student was scored as on task.

Procedure

Preliminary Observations

Consultations with Kaiako lead to the researcher conducting one preliminary visits to each classroom to become familiar with classroom routines, physical layout, and typical instructional activities prior to formal baseline data collection. These visits allowed the researcher

to identify appropriate observation locations that enabled a clear view of student eyes and task-related body engagement while minimising disruption to teaching and learning. No data were recorded during these visits.

Baseline

During baseline, classrooms operated as usual and no tootling materials or procedures were introduced. Teachers delivered instruction according to their regular classroom practices and did not prompt or reinforce peer reporting of behaviour. No changes were made to existing classroom behaviour management strategies.

Baseline observations were conducted following the completion of karakia, beginning at approximately 9:40 a.m., during core instructional activities. Student on-task behaviour was measured using 15-second momentary time sampling during 15-minute observation periods. Observations were conducted sequentially across classrooms, beginning in CR3, then CR1 following the morning break, and then CR2.

Baseline data were collected concurrently across all three classrooms. The duration of baseline for each classroom was determined by visual inspection of data, with consideration given to level, trend, and variability.

Teacher Training

Prior to the introduction of the Tootling intervention, teacher training was conducted to ensure consistent implementation across classrooms. An initial 20-minute hui (meeting) was held with all three participating kaiako before the intervention was introduced in Classroom 1. During

this hui, the researcher introduced the core principles of tootling, outlined the purpose of the intervention, and reviewed all materials, including the public posting chart, tootling slips, tootling box, and reward system.

Teachers were provided with the Tootling implementation script (see Appendix G), and the researcher and kaiako worked through the script together. This included discussion of examples and non-examples of appropriate Tootling behaviours, procedures for prompting students to complete slips, and guidelines for managing and reviewing Tootling entries. The reward criterion, including the use of a randomly selected secret number and the process for awarding stickers and class rewards, was also explained. The kaiako from classroom 3 also translated the script into te reo Māori, ensuring close alignment with the content and intent of the original English script (see Appendix H).

Following this initial hui, additional 20-minute hui were conducted with the remaining two kaiako prior to the introduction of the intervention in their respective classrooms. These sessions followed the same training format to ensure procedural consistency across settings.

Across all training sessions, teachers were given opportunities to ask questions and clarify procedures. Rehearsal of key components of the script was included to support treatment integrity and to ensure teachers were confident to introduce and maintain the intervention with their students.

Student Training

Each kaiako read the provided script aloud to students during the initial training session. The script explained the purpose of tootling, how the procedure would operate within the

classroom, and included examples and non-examples of appropriate tootles. The script also outlined the class-wide reward system associated with meeting the tootling goal and provided opportunities for students to ask questions.

To record observations of peers' prosocial behaviour, tootle slips were developed for student use (see Appendix I). In Classroom 2 and Classroom 3, tootle slips were written in English. In Classroom 1, all tootle materials were translated into te reo Māori to align with the language of instruction in the immersion setting (see Appendix J).

Each tootle slip provided space for the student writing the tootle to record their own name, identify the peer they observed, and describe the behaviour observed. Students were encouraged to describe a single instance of prosocial behaviour per tootle, using brief written responses. This open-response format was selected to allow flexibility across learning contexts while remaining consistent with classroom expectations.

A designated tootle box was provided in each classroom for students to submit completed tootles. A progress chart (replicated from Choundira, 2022; see Appendix K) was also displayed in each classroom to provide visual feedback on class progress towards earning the group reward. The chart reflected collective progress only and did not identify individual students or behaviours. Additional materials were used to support the interdependent group contingency. These included a drawstring bag containing numbered milk bottle caps, which were used to determine the daily reward criterion, defined as the number of students who must receive a tootle for the class to make progress towards the group reward. At a designated time, the teacher drew one numbered cap from the bag. The criterion was not disclosed to students in advance. Once the

number of students who had received a tootle met or exceeded the drawn number, the class earned progress towards the agreed group reward.

Intervention

Following baseline data collection and completion of teacher and student training, the tootling intervention was introduced sequentially across classrooms in accordance with the multiple baseline design. The intervention was introduced first in CR1, followed by CR2 and then CR3.

During the intervention phase, tootling was implemented as part of regular classroom routines. Each session began with the kaiako announcing the tootling programme and randomly selecting the daily tootle criterion, defined as the number of students who needed to receive a tootle that day. The criterion was kept secret from students.

Once the intervention was in place, students recorded observations of peers' prosocial behaviour during usual classroom activities and placed completed tootle slips into the designated container. Tootling occurred throughout the instructional period and concluded prior to the lunch break.

During the lunch break, the kaiako reviewed the submitted tootles, counted the number of students who had received a tootle, and selected a small number of tootles to read aloud to the class. Feedback was provided on the appropriateness and accuracy of the tootles. The daily criterion was then revealed, and if the criterion was met, the class earned a star sticker displayed on the class progress chart. After three star stickers were earned, the class became eligible to receive their specified group reward.

Once introduced, the tootling intervention continued in each classroom until the end of Term 4.

Maintenance

Following completion of the intervention phase, the kaiako were informed that they could choose to continue implementing the tootling programme or discontinue its use and return to their usual classroom routines. All kaiako elected to continue using the tootling programme beyond the formal intervention phase. As a result, no systematic fading or withdrawal of tootling materials was implemented. Tootling procedures continued to be used as part of regular classroom practice for the remainder of Term 4.

Integrity Measures

Procedural Integrity

Procedural integrity was assessed using two procedural integrity checklists (adapted from Choundira, 2022). The first checklist consisted of 11-items and was used to assess the integrity of teacher training delivered by the researcher (see Appendix L). This checklist evaluated whether all required components of teacher training were implemented as intended, including explanation of the intervention, modelling of procedures, and opportunities for clarification. The second procedural integrity checklist (adapted from Choundira, 2022) consisted of 11-items and was used to assess the integrity of student training delivered by the classroom teacher (see Appendix M). This checklist evaluated whether the teacher provided all essential information required to train students in the tootling procedures, including explanation of the purpose of tootling, examples and non-examples, and clarification of the reward system.

Treatment Integrity

Treatment integrity was assessed using a daily teacher treatment integrity checklist adapted from Powell (2020) (see Appendix N). The checklist was completed during intervention sessions to evaluate whether the kaiako implemented the core components of the tootling intervention as intended. The checklist included 7-items assessing preparation and implementation of tootling procedures across each session. The checklist also included space to record the daily secret number, the total number of students who received a tootle, and the total number of tootles collected.

In addition, a researcher treatment integrity checklist adapted from Powell (2020) was used to assess the integrity of the researcher's role in supporting and monitoring the intervention (see Appendix O). This checklist ensured that the researcher observed the consistent implementation of tootling procedures

Social Validity

Teacher Ratings

Teacher perceptions of the tootling intervention were assessed using a modified Behaviour Intervention Rating Scale (BIRS; Von Brock & Elliott, 1987; see Appendix P). The BIRS is a 24-item questionnaire that uses a six-point Likert scale ranging from strongly disagree (1) to strongly agree (6) and measures three factors: Acceptability, Effectiveness, and Time Effectiveness.

Consistent with adaptations used by Enright (2023) and Powell (2020), minor modifications were made to the wording of the BIRS for the purposes of this study. Items were

modified to refer to past tense rather than future tense, the term tootling was used in place of intervention, and the term children was used instead of child to reflect the class-wide nature of the intervention. Previous research has shown that such modifications do not adversely affect the psychometric properties of the instrument (Sheridan et al., 2001). Elliott and Treuting (1991) reported that the BIRS demonstrates high internal consistency ($\alpha = .92$) and good content and construct validity.

Teachers completed the BIRS independently, and responses were kept confidential and were not shared with school leadership.

Student Ratings

Student perceptions of the tootling intervention were assessed using a modified Children's Intervention Rating Profile (CIRP; Elliott, 1986; see Appendix Q). The CIRP is a 7-item measure designed to assess student acceptability of classroom interventions using a 6-point Likert-type scale.

In the present study, the CIRP was adapted to ensure developmental appropriateness and accessibility for students. Items explicitly referred to tootling as the intervention being evaluated. The numerical Likert scale was replaced with a series of colour-coded smiley-face symbols representing a continuum from do not agree to agree. Students were instructed to circle the face that best represented how much they agreed or disagreed with each statement. This format was consistent with adaptations used in previous research and has been shown to maintain good internal consistency (Mitchell et al., 2015). The CIRP has demonstrated high internal reliability, with an average reported coefficient alpha of .86 (Turco & Elliott, 1986), and has been used previously to assess student acceptability of tootling interventions.

To calculate the mean item score of the CIRP, students' scores for each item were added together and divided by the total number of students who completed the CIRP. The overall item mean was calculated by adding all individual item means together and dividing by the total number of items (7). In addition, the total score across all items for each student was summed and divided by the total number of students who completed the CIRP, resulting in a total mean score with a possible range of 7 to 42 (Turco & Elliott, 1986).

Teacher Stress

The Teacher Stress Inventory is a 49-item, 10-factor self-report instrument designed to assess levels and sources of teacher occupational stress across ten subscales (Fimian, 1984). In line with adaptations made in previous research (Enright, 2023; Miller, 2017), only five of the ten subscales were administered in the present study, as these subscales most directly assess sources of stress related to classroom practice and professional demands (see Appendix R).

The subscales administered included Time Management, which measures the extent to which teachers feel overcommitted in their professional roles; Work-Related Stressors, which assesses the degree to which aspects of the broader school environment contribute to teacher stress; Professional Distress, which measures how teachers perceive themselves in their professional role; Discipline and Motivation, which assesses stress associated with classroom discipline issues and working with poorly motivated students; and Professional Investment, which measures how personally involved teachers feel in their work and the extent to which they feel their professional opinions are valued.

All items were rated on a five-point Likert scale, ranging from not noticeable (1) to extremely noticeable (5). Previous research has demonstrated acceptable internal consistency across all TSI subscales, with correlational analyses indicating that items are strongly related to one another and to overall stress levels (Fimian & Fastenau, 1990).

The Teacher Stress Inventory was administered to participating teachers prior to data collection and post-intervention. Completed questionnaires were collected and scored according to standard teacher stress inventory scoring procedures. Individual teacher responses were kept confidential and were not shared with school leadership.

Interobserver Agreement

Interobserver agreement (IOA) was assessed to ensure the accuracy and reliability of observational data (Cooper et al., 2013). IOA data were collected by the researcher and a trained secondary observer.

The secondary observer was the Learning Support Coordinator (LSC) and Special Educational Needs Coordinator (SENCo) at the kura. The observer was an experienced kaiako with over 20 years of teaching experience. Prior to data collection, the secondary observer signed a consent form (see Appendix S), and was trained by the researcher on all observation procedures, recording systems, and operational definitions of on-task and off-task behaviour, consistent with recommended practices (Cooper et al., 2013).

On days when IOA data were collected, the researcher and secondary observer independently and simultaneously recorded student behaviour during observation sessions. Observers sat in close proximity to one another to ensure a shared view of the classroom and

target students, while maintaining sufficient distance to prevent either observer from viewing the other's recording sheet. Shared headphones were used to ensure both observers received the same timing signals from the interval timer application, while minimising classroom disruption.

IOA for on-task behaviour was calculated using the interval-by-interval agreement method, by dividing the total number of intervals in agreement by the total number of intervals in agreement plus disagreement, and multiplying by 100 (Cooper et al., 2020). Consistent with recommendations in the applied behaviour analysis literature, a minimum IOA threshold of 80% was required prior to and during data collection to ensure acceptable reliability (Cooper et al., 2020; Johnston et al., 2020). If IOA scores fell below this threshold, retraining of observation procedures and operational definitions would be undertaken. No IOA retraining was required for this study.

IOA data were collected across all three classrooms during both baseline and intervention phases. A total of 16 observation sessions were conducted in CR1 (six baseline, ten intervention), 14 sessions in CR2 (nine baseline, five intervention), and 19 sessions in CR3 (thirteen baseline, six intervention), resulting in 49 observation sessions overall. IOA was obtained for 4 sessions in CR1 and CR2 (two during baseline and two during intervention), and for 5 sessions in CR3 (three during baseline and two during intervention). This represented IOA data for 20-40% of sessions across phases and classrooms, meeting recommended guidelines for single-case research.

Mean IOA percentages for on-task behaviour across phases and classrooms are presented in Table 1. Across all classrooms and phases, mean IOA scores exceeded the recommended minimum of 80%, indicating acceptable reliability of observational data.

Table 1*Mean percentage IOA Scores for On-Task Behaviour in each Phase*

Phase	Mean % IOA Score (range)		
	CR1	CR2	CR3
Baseline	81.5 (80-83)	93.5 (90-97)	89.3 (87-93)
Tootling	90 (87-93)	90 (no range)	95 (93-97)

Data Analysis***Visual Analysis***

Following each observation session, data was entered into Microsoft Excel and displayed graphically. Ongoing graphing of data across sessions provided continuous visual representation with student behaviour, allowing analysis and decision making to remain responsive to patterns of performance as they emerged over time (Cooper et al., 2020).

Visual analysis served as the primary method for evaluating changes in on-task behaviour and focused on examination of level, trend, and variability within and between phases. These features were considered in relation to the timing of phase changes to support experimental decision making and to evaluate whether observed changes in behaviour were functionally related to the introduction of the tootling intervention (Kratonwill et al., 2010; Lane & Gast, 2014).

Effect Size Calculations

Effect sizes were calculated to supplement visual analysis and to quantify the magnitude of change in on-task behaviour between baseline and intervention phases. Consistent with previous tootling research, nonoverlap-based effect size measures were considered appropriate for the single-case experimental design used in this study.

Although Nonoverlap of All Pairs (NAP) (Parker & Vannest, 2009) has been used frequently in the tootling literature (Lambert et al., 2015; Lipscomb et al., 2018; McHugh et al., 2016), Tau-U for nonoverlap with baseline control was selected as the primary effect size for the current study. Tau-U uses similar nonoverlap principles to NAP but allows for control of baseline trend and is considered a more conservative estimate of treatment effects (Parker et al., 2011). Tau-U has been used in several previous tootling studies, including those by Enright (2023), Powell (2020), and Kirkpatrick et al. (2019).

Tau-U effect sizes were calculated for each classroom to evaluate changes in on-task behaviour from baseline to intervention. Effect size values were interpreted in accordance with Vannest and Ninci (2015), with scores from 0.00 to 0.20 indicating a small effect, 0.20 to 0.60 indicating a moderate effect, 0.60 to 0.80 indicating a large effect, and values above 0.80 indicating a very large effect. Baseline data were examined for evidence of trend prior to calculation, and baseline trend correction was applied where required.

Results

Measure of Integrity

Procedural Integrity

Procedural integrity was assessed using a researcher-teacher procedural integrity checklist and a teacher-student procedural integrity checklist, each comprising 11 items. Procedural integrity scores were calculated by dividing the number of steps correctly implemented by the total number of steps on each checklist and multiplying by 100. Across all kaiako and student training sessions, procedural integrity scores were 100% across all three classrooms.

Treatment Integrity

Across intervention sessions, mean treatment integrity was 98% across the three classrooms. In CR1, the kaiako reported that the class reward was not delivered on two occasions. During early intervention sessions, the kaiako noted that although the class had met the reward criterion, students indicated they were comfortable not receiving the reward and continued to engage in writing tootles. In response, the reward and group contingency procedures were reviewed and adjusted in collaboration with the researcher to maintain the effectiveness of the intervention.

In CR2 and CR3, kaiako reported that the progress chart was not updated on two occasions. Additionally, there were isolated instances where selected tootles were not read aloud to the class and therefore not accompanied by praise or corrective feedback, occurring on two occasions in CR2 and one occasion in CR3.

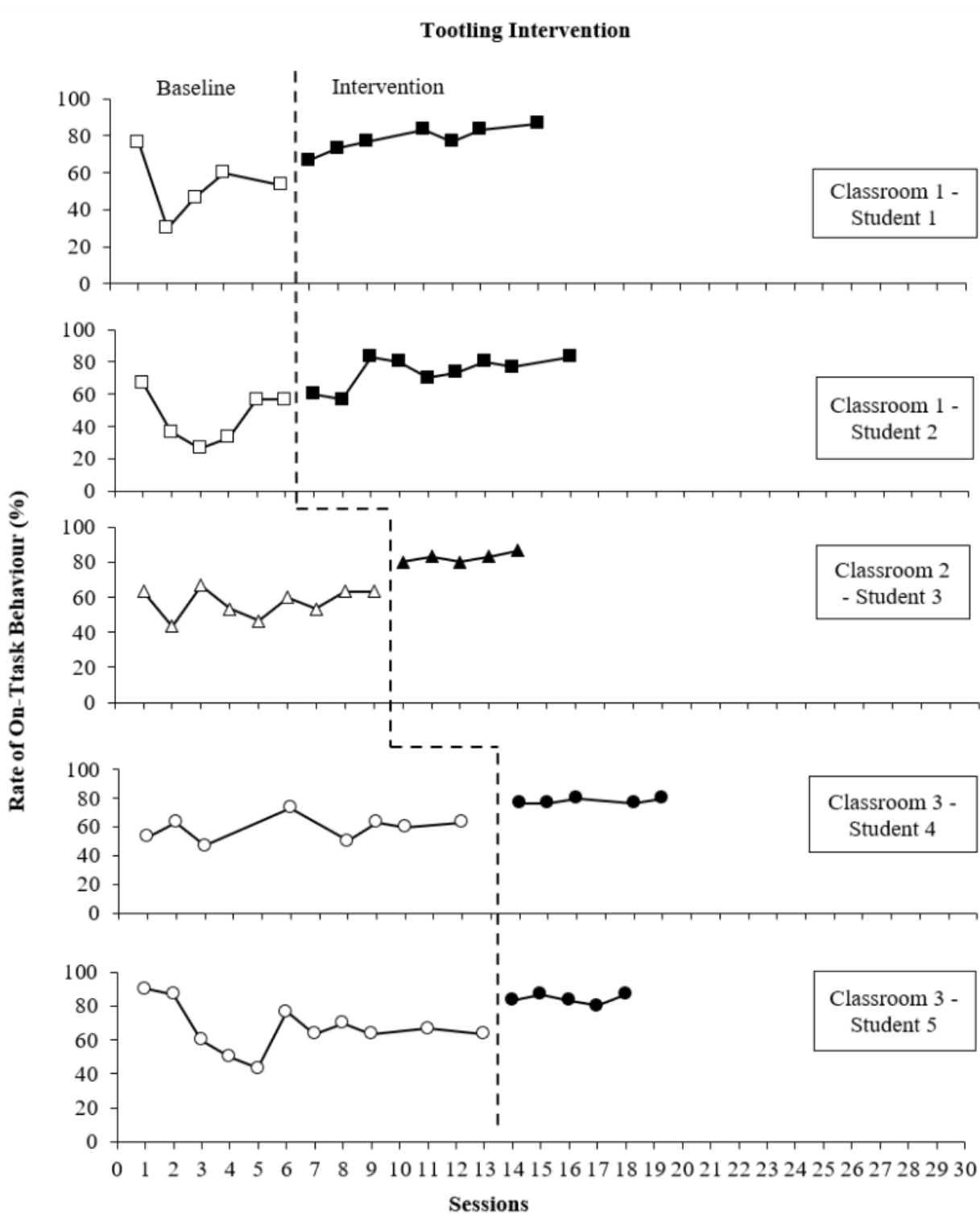
During intervention phase observations, the researcher noted occasional omissions in the distribution of tootling materials. Specifically, tootles were not placed on students' tables on two occasions in CR2 and on one occasion in CR3. In addition, the progress chart was not updated on two occasions, one in CR2 and one in CR3. These omissions resulted in a mean observer rated treatment integrity of 97% across all classrooms.

Student Behaviour

On-task behaviour was the primary dependent variable. Figure 1 displays the percentage of on-task behaviour across sessions for each student across all three classrooms. Visual analysis was conducted to examine changes in level, trend, and variability between baseline and intervention phases.

Figure 1

Percentage of Student On-Task Behaviour across Participants



Student 1

During baseline, Student 1's on-task behaviour was variable, with a mean of 53.3% (range = 30.0%-76.7%). Although responding had variability across sessions, the overall pattern shows a slight decreasing trend. The final three baseline data points demonstrated emerging stability, with responding occurring between approximately 46% and 60%.

At the introduction of the tootling intervention, an immediate increase in level was observed, with on-task behaviour slightly increasing from the final baseline value of 53.3% to 66.7%. During intervention, responding showed reduced variability and a modest increasing trend, with data points consistently ranging between 66.7% and 86.7% and a mean of 77.8%.

Student 2

Baseline performance for Student 2 was characterised by variability and an overall slight decreasing trend, with a mean of 46.1% (range = 26.7%-66.7%). At the introduction of the tootling intervention, there was an increase in level to 60%, exceeding the participant's baseline mean. More substantial increases in responding were observed from the third intervention session onward, with on-task behaviour rising to the 80% range and subsequently stabilising between 70% and 83.3%. Intervention data demonstrated reduced variability relative to baseline and a higher overall mean of 75.4% (range = 56.7%-83.3%).

Student 3

Baseline response for Student 3 was moderately variable in the early sessions, with an initial decrease followed by fluctuations across subsequent sessions. Across the latter portion of baseline, responses clustered between approximately 53% and 63%, indicating emerging stability

prior to intervention. Overall, baseline on-task behaviour had a mean of 54.4% (range = 43.3%-66.7%).

At the introduction of the tootling intervention, an immediate increase in level was observed, with responding increasing from 63.3% in the final baseline session to 80%. Across intervention sessions, on-task behaviour remained consistently high, ranging between 80% and 86.7%, with minimal variability. The intervention phase demonstrated strong stability and a higher overall level of responding compared to baseline, with a mean of 82.8% (range = 80.0%-86.7%).

Student 4

Baseline on-task behaviour for Student 4 was moderately variable during the initial sessions, with responding ranging from 46.7% to 73.3%. Early fluctuations were observed; however, the final baseline data ranged between 50% and 63.3%, indicating emerging stability prior to intervention. The overall baseline mean was 60.3% (range = 46.7%-73.3%).

Following the introduction of the tootling intervention, an increase in level and trend was observed from the final baseline value of 50% to 63.3%. Across subsequent intervention sessions, responding increased slightly further and remained between 76.7% and 80%, demonstrating reduced variability and a stable pattern of responding. The mean level of on-task behaviour during intervention was 76.9% (range = 63.3%-80%).

Student 5

Student 5 demonstrated a clear decreasing trend in on-task behaviour during the early baseline sessions, with responding declining from 90% to 43.3%. Across the final baseline observations, responding stabilised between approximately 60% and 76.7%. Overall, the baseline mean was 66.6% (range = 43.3%-90.0%).

At the introduction of the tootling intervention, an immediate increase in level was observed, with responding rising from 63.3% at the end of baseline to 83.3%. During the intervention phase, on-task behaviour remained consistently high, ranging between 80.0% and 86.7%, with minimal variability. The intervention mean was 84.2% (range = 80.0%-86.7%), reflecting a stable and elevated pattern of responding relative to baseline.

Tau-U Effect Size

Tau-U effect sizes were calculated for all target students to quantify the magnitude of change in on-task behaviour following introduction of the tootling intervention. Table 2 shows the means, ranges and Tau-U effect sizes for all five students. The baseline trend was examined for each student to determine whether baseline trend correction was required. Consistent with Parker et al. (2011), baseline trend was examined prior to calculating Tau-U. Trend correction is considered when baseline trend is substantial and in the same direction as the intervention effect. Baseline trend Tau values for all students were small; therefore, baseline trend correction was not applied.

Uncorrected Tau-U values indicated very large effects for Student 1 (Tau-U = .89), Student 2 (Tau-U = .89), Student 3 (Tau-U = 1.00), and Student 4 (Tau-U = 1.00), and a large

effect for Student 5 ($\text{Tau-U} = .67$). These effect sizes were consistent with the visual analysis and indicate increases in on-task behaviour following introduction of the tootling intervention.

Table 2

Means, Ranges, and Tau-U Effect Sizes for On-Task Behaviour

Participant	Baseline % Mean (Range)	Intervention % Mean (Range)	Tau-U
Student 1	53.3 (30.0-76.7)	77.8 (66.7-86.7)	0.89
Student 2	46.1 (26.7-66.7)	75.4 (56.7-83.3)	0.89
Student 3	54.4 (43.3-66.7)	82.8 (80.0-86.7)	1.00
Student 4	60.3 (46.7-73.3)	76.9 (76.7-80.0)	1.00
Student 5	66.6 (43.3-90.0)	84.2 (80.0-86.7)	0.67

Teacher Stress

Overall results of the Teacher Stress Inventory (TSI) indicated variable patterns of teacher stress across classrooms from pre-intervention to post-intervention. Two of the three teachers demonstrated increases in total average stress ratings from pre-intervention to post-intervention, whereas one teacher demonstrated a decrease.

Table 3 shows pre and post-intervention subscale means and total average stress ratings for all three classroom teachers. For the CR1 teacher, the total average stress rating increased from pre-intervention ($M = 3.7$) to post-intervention ($M = 4.0$). For the CR2 teacher, a slight increase in total average stress was observed from pre-intervention ($M = 3.4$) to post-intervention

($M = 3.5$). In contrast, the CR3 teacher demonstrated a decrease in total average stress from pre-intervention ($M = 3.2$) to post-intervention ($M = 2.8$).

At the subscale level, increases in occupational stress were most commonly observed in the Professional Distress and Professional Investment subscales. Professional Distress increased for the CR1 teacher (pre-intervention $M = 2.4$; post-intervention $M = 4.4$) and the CR2 teacher (pre-intervention $M = 2.2$; post-intervention $M = 2.8$), while a slight decrease was observed for the CR3 teacher (pre-intervention $M = 2.8$; post-intervention $M = 2.6$). Professional Investment increased for the CR1 teacher (pre-intervention $M = 2.5$; post-intervention $M = 4.3$) and the CR2 teacher (pre-intervention $M = 3.0$; post-intervention $M = 3.3$), whereas a decrease was observed for the CR3 teacher (pre-intervention $M = 2.3$; post-intervention $M = 2.0$).

The remaining subscales generally showed decreases in occupational stress. Discipline and Motivation decreased for the CR1 teacher (pre-intervention $M = 5.0$; post-intervention $M = 3.5$), the CR2 teacher (pre-intervention $M = 4.2$; post-intervention $M = 3.8$), and the CR3 teacher (pre-intervention $M = 3.7$; post-intervention $M = 2.7$). Time Management also decreased for all three teachers: CR1 (pre-intervention $M = 4.5$; post-intervention $M = 3.6$), CR2 (pre-intervention $M = 3.0$; post-intervention $M = 2.9$), and CR3 (pre-intervention $M = 3.4$; post-intervention $M = 3.0$). Work-Related Stressors remained stable for the CR1 teacher (pre-intervention $M = 4.2$; post-intervention $M = 4.2$), decreased slightly for the CR2 teacher (pre-intervention $M = 4.8$; post-intervention $M = 4.5$), and increased slightly for the CR3 teacher (pre-intervention $M = 3.7$; post-intervention $M = 3.8$).

Table 3

TSI Pre-Intervention and Post-Intervention Mean Scores and Total Average Stress Rating for CR1 Teacher

	Pre-Intervention			Post-Intervention		
	CR1	CR2	CR3	CR1	CR2	CR3
Work-Related Stressors	4.2	4.8	3.7	4.2	4.5	3.8
Discipline and Motivation	5.0	4.2	3.7	3.5	3.8	2.7
Time Management	4.5	3.0	3.4	3.6	2.9	3.0
Professional Distress	2.4	2.2	2.8	4.4	2.8	2.6
Professional Investment	2.5	3.0	2.3	4.3	3.3	2.0
Total Average Stress Rating	3.7	3.4	3.2	4.0	3.5	2.8

Social Validity

The direct measurement of social validity was evaluated using the Behaviour Intervention Rating Scale (BIRS) (Von Brock & Elliott, 1987) for each of the classroom teachers while the intervention from the students' perspective was evaluated using the Children's Intervention Rating Profile (CIRP).

Teacher Ratings

The BIRS is a 24-item measure scored on a 6-point Likert scale, with higher scores indicating greater agreement with each item. Item 8, which assessed perceived negative side

effects, was reversed scored prior to analysis. Overall BIRS scores and factor-level mean scores for each teacher are presented in Table 4.

According to Table 4, the overall BIRS mean scores indicate a moderate to high social validity of the tootling intervention across classrooms. The CR1 teacher reported the highest overall mean per item ($M = 5.2$), followed by the CR2 teacher ($M = 5.0$), and the CR3 teacher ($M = 4.3$). Across teachers, item responses ranged from 3 to 6, with higher overall endorsement observed for CR1 and CR2 relative to CR3.

At the factor level, Acceptability ratings were highest for the CR1 teacher, followed by the CR2 teacher, with lower but still favourable ratings reported by the CR3 teacher. A similar pattern was observed for Effectiveness ratings, with the CR1 and CR2 teachers reporting higher perceived effectiveness of the intervention compared to the CR3 teacher. Ratings for Time of Effectiveness indicated that all three teachers perceived the intervention to produce behaviour change within a relatively acceptable timeframe, with mean scores remaining above the midpoint of the scale.

Table 4

BIRS Factor Mean Scores Across Teachers

Factor	Teacher			Overall mean across factors
	CR1	CR2	CR3	
Acceptability	5.7	5.1	4.5	5.1
Effectiveness	4.4	4.6	4.0	4.3
Time of Effect	4.5	5.0	4.0	4.5

Overall Mean	5.2	5.0	4.3	4.8
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Student Ratings

The CIRP consists of seven items rated on a 6-point Likert scale, with higher scores indicating greater agreement with each statement. Items 2, 3, and 4 were reverse scored prior to analysis. Mean item scores (out of 6), total scores (out of 42), and score ranges were calculated for each classroom and across classrooms. Completed CIRP responses were obtained from 18 of 21 students in CR1 (85.7%), 15 of 22 students in CR2 (68.2%), and 15 of 26 students in CR3 (57.7%).

Across all classrooms, Table 5 indicated that students generally viewed the tootling intervention as acceptable. The overall mean item score across all students was 4.7 (range = 3.6-5.5). The combined mean total score was 33.3 (range = 24-42), exceeding the acceptability criterion of 24.5 suggested by Turco and Elliott (1986), indicating that, on average, students found the intervention acceptable.

At the classroom level (see Table 5 and Table 6), students in CR1 reported a mean item score of 4.7 (range = 4.2-5.6) and a mean total score of 32.9 (range = 16-42). In CR2, the mean item score was 4.9 (range = 3.3-5.9), with a mean total score of 35.2 (range = 12-40). Students in CR3 reported a mean item score of 4.5 (range = 3.6-5.4) and a mean total score of 31.9 (range = 24-42). Mean total scores for all three classrooms exceeded the recommended acceptability threshold, suggesting that students across settings generally perceived the tootling intervention as acceptable.

Table 5*Mean Item Scores Within and Between Classrooms for CIRP*

Classroom	Mean item-score							Overall item mean
	1	2	3	4	5	6	7	
CR1	5.4	5.3	5.5	3.5	5.3	4.9	4.4	4.9
CR2	5.4	4.0	5.7	3.2	5.3	4.8	4.3	4.7
CR3	5.1	4.9	5.6	3.5	4.9	3.8	3.4	4.5
Mean	5.3	4.7	5.6	3.4	5.2	4.5	4.0	4.7

Table 6*Mean Total Scores from the CIRP across Classrooms*

Classroom	Mean Total Score
CR1	34.3
CR2	32.7
CR3	31.3
Combined Mean Score	32.8

Discussion

The primary aim of the current study was to extend the literature examining tootling intervention within Aotearoa New Zealand classrooms. The findings of this study are consistent with prior research, Powell, (2020), Choundira (2022) and Enright (2023), In the present study,

similar patterns were observed with increases in on-task behaviour following the introduction of the intervention and improved stability of responding during the intervention phases.

Primary Research Question

The first research question examined whether a class-wide tootling intervention would increase on-task behaviour for five selected target students across three participating Year 7-8 classrooms. Visual analysis indicated clear increases in on-task behaviour across all target students following the introduction of the intervention. Behaviour change occurred only after the tootling procedures were introduced in each classroom tier, providing evidence consistent with a functional relation between the intervention and improved classroom engagement (Cooper et al., 2020). Tau-U effect size estimates supported this interpretation, indicating moderate to large reductions in overlap between baseline and intervention phases. These findings are consistent with previous research and replicated effects are consistent with the interdependent group contingency embedded within the tootling intervention (Choundira, 2022; Dillon et al., 2019; Enright, 2023; Lum et al., 2017; Lum et al., 2019; Powell, 2020). Although improvements were observed across all students, one notable pattern occurred for Student 2, who did not demonstrate an immediate increase in on-task behaviour following intervention introduction. Instead, behaviour initially remained similar to baseline levels before a clear upward trend emerged. Similar gradual improvements across intervention sessions have been reported in previous tootling research (Dillon et al., 2019; Lum et al., 2019), suggesting that students may require time to contact the reinforcement contingencies embedded within the intervention.

Secondary Research Questions

As a secondary question, the present study examined whether the tootling intervention could be implemented with high procedural and treatment integrity across participating classrooms, including a culturally adapted implementation within a Māori-medium setting. Across classrooms, integrity data indicated that teachers implemented the core components of the intervention consistently, supporting confidence that observed changes in student behaviour were attributable to the intervention rather than variation in implementation. High levels of implementation fidelity are considered a critical indicator of research quality in single-case research (Cooper et al., 2020). The What Works Clearinghouse (2020) standards similarly emphasise the importance of documenting implementation fidelity to support interpretation of intervention effects. Importantly, these integrity outcomes were observed across both English-medium and Māori-medium classrooms. Increases in on-task behaviour were observed across settings despite differences in instructional language, suggesting that the core behavioural mechanisms embedded within the interdependent group contingency operated consistently across contexts. The translation of intervention materials into te reo Māori and consultation with kaiako prior to implementation may have supported the integration of the intervention while maintaining its core behavioural components. These adaptations likely enhanced the social validity of the intervention by ensuring that procedures aligned with the linguistic and cultural practices of the classroom. This approach is consistent with kaupapa Māori research on behaviour support, which emphasise culturally grounded practices that recognise the importance of language and cultural context in shaping behaviour (Savage et al., 2014).

The third research question examined whether the tootling intervention would reduce teacher occupational stress when implemented in Year 7-8 classrooms. Overall, results revealed

mixed patterns across teachers rather than consistent reductions in stress. Stress related to discipline, motivation, and time management generally decreased following the introduction of the intervention, suggesting that improvements in student on-task behaviour may reduce stress associated with classroom behaviour management. These findings partially align with those reported by Miller (2017), who observed reductions in teacher stress following the implementation of tootling in an early primary classroom. However, the mixed pattern observed in the present study more closely reflects the findings of Enright (2023), who also reported variability across teacher stress subscales following tootling implementation. This pattern supports the view that teacher stress is a multidimensional construct influenced by both classroom behaviour and broader professional demands (Fimian & Fastenau, 1990). These findings suggest that while classroom behaviour interventions such as tootling may reduce behaviour related stress, their influence on overall teacher occupational stress may be limited because broader professional pressures extend beyond the scope of classroom level interventions (Embse et al., 2019).

The final secondary research question examined whether the tootling intervention would be perceived as socially acceptable by kaiako and students across Māori-medium and English-medium classrooms. Kaiako ratings on the Behaviour Intervention Rating Scale reflected moderate to high levels of acceptability, consistent with previous tootling research in which teachers reported the intervention to be feasible and appropriate for classroom implementation (Dillon et al., 2019; Lum et al., 2017; Lum et al., 2019). Student ratings indicated similar perceptions of the intervention procedures, suggesting that the interdependent group contingency structure was well received within the classroom context. The ratings observed within the Māori-medium classroom also suggest that the intervention aligned with the relational expectations of

the participating learning environment. This finding is consistent with kaupapa Māori view on behaviour support, which emphasises strengths-based and relational approaches to supporting behaviour within educational settings (Savage et al., 2014; Webber & Macfarlane, 2020). The translation of materials and consultation with kaiako prior to implementation may also have contributed to the cultural acceptability of the intervention within the Māori-medium classroom, highlighting an important consideration when implementing behaviour interventions in this context.

Limitations

The findings of the present study should be interpreted in light of several limitations. The study involved a small number of participants across three classrooms within a single school. Although small samples are typical in single case experimental designs, the limited number of classrooms and students may restrict the generality of the findings to other school settings. In addition, only one of the participating classrooms was a Māori-medium setting. A further limitation relates to the absence of assessment for maintenance of intervention effects over time. Although increases in on-task behaviour were observed following the introduction of the intervention, the study design did not include a follow-up phase to examine whether these improvements were sustained once the intervention procedures were reduced or removed.

Future Research

Further replication of the present findings across a larger number of classrooms and schools would strengthen confidence in the generality of the intervention effects. Examination of the tootling intervention in additional school contexts, particularly those serving predominantly

Māori student populations, would extend understanding of how class wide behaviour support strategies operate across educational environments.

Additional investigation within Māori-medium educational settings would also be valuable. The present study demonstrated that the intervention could be implemented successfully in a Māori-medium classroom when materials were translated into te reo Māori and procedures were discussed with kaiako prior to implementation. Replication across multiple Māori-medium classrooms would provide further evidence regarding the extent to which behaviour support interventions can be implemented within linguistically and culturally responsive learning environments.

Examination of the long term maintenance of behaviour change following sustained implementation of the intervention may also provide useful insights. Evaluating whether improvements in on-task behaviour persist over extended periods would help determine the durability of intervention effects in applied school contexts.

Conclusion

The present study contributes to the growing body of research examining class wide behaviour interventions by demonstrating that a tootling intervention can increase on-task behaviour among students in upper primary classrooms. The results suggest that interdependent group contingencies can support improvements in classroom behaviour by distributing reinforcement opportunities across the peer group and increasing the likelihood that appropriate behaviour will occur during instructional activities.

Replication of behaviour change across classrooms strengthens confidence in the reliability of the intervention and suggests that tootling can be implemented consistently when kaiako follow similar procedures. Importantly, the successful implementation of the intervention in both Māori medium and English medium classrooms indicates that behaviour analytic strategies may be adaptable across instructional contexts when procedures are implemented in ways that align with classroom language and practices. In doing so, the present study extends existing tootling research by providing evidence of its application within a school context serving a 100% Māori student population.

These findings provide further support for the use of class-wide peer mediated interventions as practical strategies for increasing desired classroom behaviour. Continued replication of these procedures within schools serving predominantly Māori student populations, including Māori-medium educational settings, may further extend the evidence base for behaviour analytic interventions within diverse classroom contexts.

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Appendix A: Information Sheet - School/Teacher



The Power of Peer-Mediated Reinforcement: Nurturing Culture and Classroom Behaviour with Tootling in Aotearoa New Zealand

Researcher

Tony Pekepo

Master of Applied Psychology (Behaviour Analysis) Student

University of Waikato

Mobile: 022 036 5661

Email: tonypekepo@yahoo.co.nz

Supervisor

Dr. Amarie Carnett

Senior Lecturer

Te Kura Whatu Oho Mauri,

School of Psychological and Social Sciences

University of Waikato

Phone: 07 838 4466 ext 4932

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Kia Ora,

Your school is invited to participate in a research project conducted by myself, Tony Pekepo, under the supervision of Senior Lecturer Dr. Amarie Carnett. This project forms part of the requirements for the completion of my Master of Applied Psychology in Behaviour Analysis.

About the Researcher

I am an experienced educator with over 20 years' experience in the New Zealand education sector, including the last five years as a Resource Teacher: Learning and Behaviour (RTLb). Throughout my career, I have supported students with diverse learning needs, including autism, ADHD, and emotional and behavioural challenges. My practical, relationship-based approach focuses on creating positive and inclusive learning environments that support both student growth and teacher success. This research project builds on my long-standing commitment to implementing effective, evidence-based strategies that make a real difference in classrooms.

Purpose of the Research

This research project aims to improve overall classroom behaviour among primary school-aged children in mainstream schools by implementing a peer-based intervention called tootling. Tootling involves students recording positive behaviours they observe among their classmates, which are then shared by the teacher. Research shows that tootling increases engagement, reduces disruptions, and strengthens classroom community.

What Participation Involves

The project will involve recruiting one to two year 3-8 classrooms and their teachers. The study will explore whether tootling can increase academically engaged behaviour and reduce disruptive behaviour, especially among students with emotional and behavioural challenges. If your school agrees to participate, classroom teachers will be provided with information sheets and consent forms. Parents of all students will also be informed, with active consent sought for students identified as having higher behavioural needs. Other parents will have the opportunity to opt out. Students without consent will not be included in data collection.

Throughout the study, I will carry out unobtrusive classroom observations, gathering information on engagement and peer interactions.

Teacher Involvement

Teachers will engage in brief discussions with me to help implement and adjust the tootling intervention. Regular but unobtrusive observations will be carried out during normal classroom activities. At the conclusion of the intervention, teachers will be invited to complete a short questionnaire reflecting on their experiences. Following the study phase, teachers may choose to continue using tootling or return to previous classroom practices. A follow-up observation will occur 4–6 weeks later.

Student Involvement

Students will be introduced to tootling by their teacher and will participate alongside normal classroom activities. Students will quietly record examples of positive peer behaviours and work together toward shared goals. At the end of the study, students will be invited to complete a brief, anonymous five-minute questionnaire about their experience with tootling. No personal or identifying information will be recorded during observations.

Results

Results will be used to complete my Master's thesis and may also be shared through academic publications or conference presentations. Summaries of findings can be made available to participating schools, teachers, and parents upon request.

Confidentiality

All participant information will remain strictly confidential. Codes and pseudonyms will be used to protect identities, and no identifiable information will appear in any reports, theses, or publications.

Storage of Data

All collected data will be securely stored on a password-protected University of Waikato server, managed by Senior Lecturer Dr. Amarie Carnett. Data will be retained for five years and then permanently deleted. Only Senior Lecturer Dr. Amarie Carnett and I will have access to the data.

Right to Withdraw

Participation is entirely voluntary. Schools, teachers, parents, and students may withdraw from the study at any time without consequence. Participants may request that their data be destroyed up to two weeks after their involvement in the project concludes.

What Happens Next?

If your school would like to participate, please provide a letter granting permission. For further information, or to arrange a meeting to discuss the project, please contact me using the details provided above.

Ngā mihi,

Tony Pekepo

This research project has been approved by the Human Research Ethics Committee of the Faculty of Arts and Social Sciences, University of Waikato. For any concerns about the ethical conduct of this research, you may contact the Secretary of the Committee at fass-ethics@waikato.ac.nz or by post to: Faculty of Arts and Social Sciences, Te Kura Kete Aronui, University of Waikato, Private Bag 3105, Hamilton 3240.

Appendix B: Consent Form - Teacher



Consent Form - Teacher

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

Research Project: *The Power of Peer-Mediated Reinforcement: Nurturing Culture and Classroom Behaviour with Tootling in Aotearoa New Zealand*

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: Tony Pekepo

Signature: _____

Signature: _____

Date: _____

Date: _____

Contact Details: _____

Contact Details: tonypekepo@yahoo.co.nz

022 0365661

Appendix C: Information Sheet - Parents/Caregivers



Information Sheet for Whānau

Research Title: *The Power of Peer-Mediated Reinforcement: Nurturing Culture and Classroom Behaviour with Tootling in Aotearoa New Zealand*

Researcher

Tony Pekepo
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Supervisor

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Email: amarie.carnett@waikato.ac.nz

Kia Ora,

Ko Tony Pekepo tōku ingoa. I was raised in Te Teko and whakapapa to Ngāti Awa and the Cook Islands. I am currently completing a Master of Applied Psychology in Behaviour Analysis at the University of Waikato, under the supervision of Senior Lecturer Dr. Amarie Carnett.

I have worked in education for over 20 years, including the past five years as a Resource Teacher: Learning and Behaviour (RTLB). My mahi has always focused on creating inclusive, supportive environments where ākonga can thrive. I have supported many students with diverse learning and behaviour needs, and this research reflects my commitment to using practical, evidence-based strategies that benefit both tamariki and kaiako.

Your child's classroom has been invited to take part in this research project, which aims to build positive peer relationships and strengthen classroom behaviour through a simple and strengths-based approach called tootling. The project has received ethical approval from the Faculty of Arts and Social Sciences at the University of Waikato.

What is the research about?

This project aims to support tamariki in becoming more engaged, respectful, and collaborative in the classroom. To do this, I will support the teacher to introduce tootling which encourages students to notice and celebrate positive behaviour in others. Rather than reporting negative behaviours, like tattling, students write down examples of their classmates showing kindness, cooperation, or responsibility. These positive observations, called tootles, are collected and shared by the teacher.

When the class reaches a set number of tootles, they receive a small reward. This encourages collective responsibility and whānaungatanga. Tootling has been shown in previous research to increase on-task behaviour, reduce disruptions, and improve classroom relationships. This helps create a more positive environment for both learning and teaching.

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. I will be observing the classroom to see if tootling improves behaviour and learning in the class.

Student involvement

The tootling strategy will be woven into the students usual learning routines. During the study, students will be encouraged to quietly record examples of their classmates showing positive behaviours, such as being kind, helping others, or following class expectations. These "tootles" will be collected and shared by the teacher as part of building a strong and positive classroom culture.

The class will work together toward a shared goal. When they reach a certain number of tootles, they will earn a reward that the class decides together. This helps to build a sense of teamwork, responsibility, and manaakitanga.

As part of the study, I will visit the classroom to observe how things are going. These observations will be non-intrusive and focused on 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.

At the end of the study, students will be invited to complete a short, anonymous questionnaire about their experience. No personal or identifying information will be recorded during observations.

Results

Results will be used to complete my Master's thesis and may also be shared through academic publications or conference presentations. Summaries of findings can be made available to participating schools, teachers, and parents upon request.

Confidentiality

All participant information will remain strictly confidential. Codes and pseudonyms will be used to protect identities, and no identifiable information will appear in any reports, theses, or publications.

Storage of Data

All collected data will be securely stored on a password-protected University of Waikato server, managed by Senior Lecturer Dr. Amarie Carnett. Data will be retained for five years and then permanently deleted. Only Senior Lecturer Dr. Amarie Carnett and I will have access to the data.

Right to Withdraw

Participation is entirely voluntary. Schools, teachers, parents, and students may withdraw from the study at any time without consequence. Participants may request that their data be destroyed up to two weeks after their involvement in the project concludes.

Ngā mihi,

Tony Pekepo

This research project has been approved by the Human Research Ethics Committee of the Faculty of Arts and Social Sciences, University of Waikato. For any concerns about the ethical conduct of this research, you may contact the Secretary of the Committee at fass-ethics@waikato.ac.nz or by post to: Faculty of Arts and Social Sciences, Te Kura Kete Aronui, University of Waikato, Private Bag 3105, Hamilton 3240.

Appendix D: Consent Form - Parents/Caregivers



Consent Form - Whānau

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

Research Project: *The Power of Peer-Mediated Reinforcement: Nurturing Culture and Classroom Behaviour with Tootling in Aotearoa New Zealand*

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.

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 and the identity of my child 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 understand that participation in this study is confidential and that no material, which could identify me or my child personally, will be used in any reports on this study.		
I wish to receive a copy of the findings		

Participant: _____

Researcher: Tony Pekepo

Parent/Caregiver Name: _____

Signature: _____

Date: _____

Signature: _____

Contact Details: tonypekepo@yahoo.co.nz

Date: _____

022 0365661

Contact Details: _____

Appendix E: Withholding Consent Form - Parents/Caregivers



THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

Researcher

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Research Project: *The Power of Peer-Mediated Reinforcement: Nurturing Culture and Classroom Behaviour with Tootling in Aotearoa New Zealand*

I have read and understood the Information Sheet about the research project and **DO NOT** give my consent for my child to participate.

Participant/Child's Name: _____

Caregiver / Parent Name: _____

Signature: _____

Date: _____

Appendix F: Data Collection Form

ON-TASK STUDENT BEHAVIOUR DATA COLLECTION SHEET

(15-Second Momentary Time Sampling)

Date: _____ **Class:** (Circle one) CR1, CR2, CR3 **Yr Group:** _____

Activity: _____ **Time:** _____ **Observer:** _____

Instructions for Using the On-Task Behaviour Recording Sheet

Prepare the Observation

Position yourself so you can clearly see the student's eyes and task-related body engagement without obstructing their work.

Timing

Use a timer set to 15-second intervals. At exactly the 15-second mark of each interval, observe the student's behaviour. Do not score based on behaviour before or after that exact moment.

Scoring

✓ On-task: All 3 criteria for On-Task Behaviour are met at that moment.

✗ Off-task: One or more on-task criteria are **NOT** met at that moment.

P (passive) if the student is out of view (e.g., not in direct sight, leaves the room); note the reason in the margin.

Definition of On-Task Behaviour: ✓

At the 15-second observation mark within each interval, the student has met all three criteria:

1. **Eyes** oriented toward the teacher, assigned materials, or a relevant peer (if instructed by the teacher), and
2. **Body** engagement consistent with the instructional activity, such as:

- Buttocks or 1 or 2 knees touching the seat with all four chair legs on the ground (unless the task requires standing).
 - Writing or drawing with a functional grip (e.g., tripod grip for pen/pencil while attending to workbook or touching the paper)
 - Typing or using a device for task purposes (incl fingers approximately 5 cm above keys)
 - Manipulating objects/materials as part of the activity
 - Walking or moving for a teacher-assigned task (e.g., collecting materials, moving to a work area).
 - Eyes closed if related to task (e.g., mindfulness), and
3. **No unrelated verbal or motor behaviours** (e.g., playing with objects, unrelated conversation) occurring at that exact moment.

Off-Task Behaviour: X

At the 15-second observation mark within each interval, the student has not met one or more of the on-task behaviours.

Passive Behaviour: P

At the 15-second observation mark, the student is not in direct sight of the observer or has left the classroom for any reason (e.g., toilet, medical visit, office).

Participant Code:

Target Student 1 = TS1, Target Student 2 = TS2

Classroom Code:

Classroom 1= CR1; Classroom 2= CR2; Classroom 3= CR3.

Interval	1 - (TS1)	2 - (TS2)	3 - (TS1)	4 - (TS2)
On-Task				
Notes				
Interval	5 - (TS1)	6 - (TS2)	7- (TS1)	8- (TS2)
On-Task				

Notes				
Interval	9 - (TS1)	10 - (TS2)	11 - (TS1)	12 - (TS2)
On-Task				
Notes				
Interval	13 - (TS1)	14 - (TS2)	15 - (TS1)	16 - (TS2)
On-Task				
Notes				
Interval	17 - (TS1)	18 - (TS2)	19 - (TS1)	20 - (TS2)
On-Task				
Notes				
Interval	21 - (TS1)	22 - (TS2)	23 - (TS1)	24 - (TS2)
On-Task				
Notes				
Interval	25 - (TS1)	26 - (TS2)	27 - (TS1)	28 - (TS2)
On-Task				

Notes				
Interval	29 - (TS1)	30 - (TS2)	31 - (TS1)	32 - (TS2)
On-Task				
Notes				
Interval	33 - (TS1)	34 - (TS2)	35 - (TS1)	36 - (TS2)
On-Task				
Notes				
Interval	37 - (TS1)	38 - (TS2)	39 - (TS1)	40 - (TS2)
On-Task				
Notes				

Interval	41 - (TS1)	42 - (TS2)	43 - (TS1)	44 - (TS2)
On-Task				
Notes				
Interval	45 - (TS1)	46 - (TS2)	47 - (TS1)	48 - (TS2)
On-Task				

Notes				
Interval	49 - (TS1)	50 - (TS2)	51 - (TS1)	52 - (TS2)
On-Task				
Notes				
Interval	53 - (TS1)	54 - (TS2)	55 - (TS1)	56 - (TS2)
On-Task				
Notes				
Interval	57 - (TS1)	58 - (TS2)	59 - (TS1)	60 - (TS2)
On-Task				
Notes				

End: 15min

Appendix G: Teacher Script

Teacher Script for Tootling

Kia ora koutou,

From today until the end of the term we'll be playing a class game called Tootling.

Tootling is all about noticing and celebrating the good things your classmates do. Instead of "telling on" someone for the wrong thing, we're going to "tootle" when we catch someone doing something good for you or another class member.

Here's how it works:

- Each table will get some tootling slips. (*Show slips*)
- When you see someone do something good - like helping a mate with their mahi, picking up rubbish, or showing manaakitanga or our mauri values - you write it down on a slip.
- On your slip, write your name, the name of the person who did the good thing, and what they did. Then pop your slip in the tootling container (*show container*).

It doesn't have to be a secret - you can tell your classmate you're writing a tootle for them - but remember it must be something they *actually did*.

Here are a couple of reminders:

- Don't interrupt the teacher or distract the class while you're writing your tootle.
- Keep your tootles positive, respectful, and true.

Now the fun part:

Every morning I'll pick a secret number from this bag (*show bag*). By lunchtime, I'll read out some tootles you've written. If the number of *different* students who got tootled matches the secret number, the whole class earns a star on our star-chart (*show chart*).

We'll be playing every day until the end of the term - so there will be lots of chances to earn stars together.

Let's discuss Rewards:

When we hit 3 sets of stars, the class will earn a reward. I've got a few ideas, but I'd love to hear your ideas first. The reward has to be something everyone can enjoy together. (*Take suggestions, agree on rewards*).

If we don't reach the goal one day, kei te pai - we try again the next day with a new secret number.

Before we start, let's talk about examples of things that *are good tootles* and things that are not. (*Give 3-4 examples with the class*).

Now, let's practice! (*Hand out tootle slips*) Everyone write one tootle about something positive you've seen, and place it in the container. We'll check them together to make sure we're on the right track.

Any pātai before we begin?

(*Read each student's example and provide feedback on whether each is correct. Read several correct examples out loud to the class*).

Appendix H: Teacher Script (Te Reo Māori)

Teacher Script for Tootling (Taha Rūmaki)

Kia Ora koutou,

Mai i tēnei rā ki te mutunga o te wāhanga ka tākaro kēmu tātau, ko te ingoa o tēnei kēmu “**Tootling.**”

Ko te pūtake o tēnei kēmu he whakaatu i ngā whanonga pai, he whakanui hoki i ngā āhuatanga pai o āu hoa ākongā. Kaua e aro ki ngā mahi hē a tētahi ‘telling on’, engari ka ‘tootle’ koe ina kite i tētahi e mahi pai ana mōu, mō tētahi atu rānei o te akomanga.

Anei te whakahaere:

- Ka whiwhi ia tēpu i ētahi pepa tootling (*whakaaturia ngā pepa*).
- Ina kite koe i tētahi tangata e mahi ana i tētahi mea pai - pēnei i te āwhina i tētahi hoa ki tana mahi, te kōhi para, te whakaatu manaakitanga, me ngā uara o te kura - tuhia ki runga i te pepa.
- Ki tō pepa, tuhia tō ingoa, te ingoa o te tangata nāna te mahi pai, me te mea i mahia e ia. Kātahi, whakaurua tō pepa ki roto i te ipu tootling (*whakaaturia te ipu*).

Ehara i te mea me noho huna - ka tāea e koe te whakaatu, te kōrero rānei ki tō hoa kei te tuhi koe i tētahi tootling mōna - engari kia maumahara, me whakatinana ia i taua mahi pai.

He whakamaumahara:

- Kaua e whakararu i te kaiako, i te akomanga rānei i te wā e tuhi ana koe i tō tootle.
- Me noho tō tootle hei kōrero whakanui, kōrero whakaute, kōrero pono.

Ko te wā ngahau:

Ia ata, ka whiriwhiria e au i tētahi ‘**nama toropuku**’ mai i tēnei pēke (*whakaaturia te pēke*). I te wā tina, ka pānui au i ētahi tootle kua tuhia e koutou. Mēnā ka ōrite te maha o ngā tauira rerekē i whiwhi tootle ki taua ‘**nama toropuku**’, ka whiwhi te katoa o te akomanga i tētahi whetū ki runga i te **tūtohi-whetū** (*whakaaturia te tūtohi*).

Ka tākaro i te kēmu nei ia rā ki te mutunga o te wāhanga - nō reira he nui ngā wāhi ka taea e tātou te kōhi whetū.

Ngā Whiwhinga (Rewards)

Ina eke ki te 3 o ngā huinga whetū, ka whiwhi te akomanga i tētahi whiwhinga. Kei āu ētahi whakaaro, engari me whai whakaaro ki ō koutou hiahia i te tuatahi. Me noho te whiwhinga hei painga mō te katoa. (*Whakaae ki ngā whakaaro*).

Ki te kore e eke ki te whāinga i tētahi rā, **kei te pai** - ka whakamātau anō āpōpō.

I mua i te tīmatanga, me kōrero tātau mō ētahi tauira o ngā tootles pai, me ngā mea kāre e pai. (*Tukua 3-4 tauira ki te akomanga*).

Nā, me whakaharatau! (*Hoatu ngā pepa tootle*). Me tuhi te katoa i tētahi tootle mō tētahi mea pai kua kitea, ka whakauru ki roto i te ipu. Ka arotake tahi tātou mēnā kei te tika ā koutou mahi.

He pātai āu i mua i te tīmatanga?

(*Pānuitia ngā tauira a ngā ākonga, whakahoki kōrero (feedback) mēnā he tika, kāore rānei. Pānuihia ētahi tauira tika ki te akomanga*).

Appendix I: Tootle Recording Slips

I (your name):
Noticed (Who):
Do (what):

I (your name):
Noticed (Who):
Do (what):

I (your name):
Noticed (Who):
Do (what):

I (your name):
Noticed (Who):
Do (what):

I (your name):
Noticed (Who):
Do (what):

I (your name):
Noticed (Who):
Do (what):

Appendix J: Tootle Recording Slips (Te Reo Māori)

Tō ingoa:
I kite au i a (ko wai):
E aha ana? (Kōrero whakanui):

Tō ingoa:
I kite au i a (ko wai):
E aha ana? (Kōrero whakanui):

Tō ingoa:
I kite au i a (ko wai):
E aha ana? (Kōrero whakanui):

Tō ingoa:
I kite au i a (ko wai):
E aha ana? (Kōrero whakanui):

Tō ingoa:
I kite au i a (ko wai):
E aha ana? (Kōrero whakanui):

Tō ingoa:
I kite au i a (ko wai):
E aha ana? (Kōrero whakanui):

Tō ingoa:
I kite au i a (ko wai):
E aha ana? (Kōrero whakanui):

Tō ingoa:
I kite au i a (ko wai):
E aha ana? (Kōrero whakanui):

[illegible]

Appendix L: Procedural Integrity - Teacher Training

Researcher-Teacher Procedural Integrity Checklist

Date: _____

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

1. Tootling procedure (generally) —
2. Interdependent group contingencies —
3. Public posting —
4. Current procedure:
 - i. Explain procedure (game) to students (script) —
 - ii. Hand-out slips to write tootles on —
 - iii. Pull out secret tootling target and place in a safe place —
 - iv. Students spend session tootling on peers and moving progress indicator _
Students record own name, name of peer, and peer's behaviour —
 - v. Reveal tootling target at end of session —
 - vi. Target reached = reward and re-set progress indicator —
 - vii. Target not reached = Reset the secret number —
 - viii. Silently read several tootles and provide general feedback to class —
5. Teacher values:
 - i. Classroom behaviour —
 - ii. Rewards —
6. Tootling target range (secret number) —
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 M: Procedural Integrity - Student Training

Teacher Procedural Integrity Checklist

To be completed by the researcher while the 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 adding stickers | _____ |
| 4. Show an example of correct tootle | _____ |
| 5. Explain that tootles do not need to be a 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 P: Modified 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.

	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	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 Q: Modified 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. A red face tells me you **do not** agree with the sentence. A green face tells me you **do** agree with the sentence and the other faces are all somewhere in-between.

		I do not agree				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 R: Teacher Stress Inventory Measure

Name: _____

Date: _____

The following are a number of teacher concerns. Please identify those factors which cause you stress in your present position. Read each statement carefully and decide if you ever feel this way about your job. Then, indicate how strong the feeling is when you experience it by circling the appropriate rating on the 5-point scale. If you have not experienced this feeling, or if the item is inappropriate for your position, circle number 1 (no strength; not noticeable). The rating scale is shown below.

HOW STRONG?	1	2	3	4	5
	No strength, not noticeable	Mild strength, barely noticeable	Medium strength, moderately noticeable	Great strength, very noticeable	Major strength, extremely noticeable

WORK-RELATED STRESSORS:						
1	There is little time to prepare for my lessons/responsibilities.	1	2	3	4	5
2	There is too much work to do.	1	2	3	4	5
3	The pace of the school day is too fast.	1	2	3	4	5
4	My caseload/class is too big.	1	2	3	4	5
5	My personal priorities are being short-changed due to time demands.	1	2	3	4	5
6	There is too much administrative paperwork in my job.	1	2	3	4	5
<i>Add items 1 through 6; divide by 6; place your score here: _____.</i>						

DISCIPLINE AND MOTIVATION: I feel frustrated...					
7	... because of discipline problems in my class	1	2	3	4 5
8	... having to monitor pupil behaviour	1	2	3	4 5
9	... because teaching some students who should do better if they tried.	1	2	3	4 5
10	... attempting to teach students who are poorly motivated	1	2	3	4 5
11	... because of inadequately/poorly defined discipline policies.	1	2	3	4 5
12	... when my authority is rejected by pupils/administration.	1	2	3	4 5
Add items 7 through 12; divide by 6; place your score here: _____.					

TIME MANAGEMENT:					
13	I easily over commit myself.	1	2	3	4 5
14	I become impatient if others do things slowly.	1	2	3	4 5
15	I have to try doing more than one thing at a time.	1	2	3	4 5
16	I have little time to relax/enjoy the time of day.	1	2	3	4 5
17	I think about unrelated matters during conversations.	1	2	3	4 5
18	I feel uncomfortable wasting time.	1	2	3	4 5
19	There isn't enough time to get things done.	1	2	3	4 5
20	I rush in my speech.	1	2	3	4 5
Add items 13 through 20; divide by 8; place your score here: _____.					

PROFESSIONAL DISTRESS:					
21	I lack promotion and/or advancement opportunities.	1	2	3	4 5
22	I am not progressing rapidly in my job as I would like.	1	2	3	4 5
23	I need more status and respect in my job.	1	2	3	4 5
24	I receive an inadequate salary for the work I do.	1	2	3	4 5
25	I lack recognition for the extra work and/or good teaching I do.	1	2	3	4 5
Add items 21 through 25; divide by 5; place your score here: _____.					

PROFESSIONAL INVESTMENT:					
26	My personal opinions are not sufficiently aired.	1	2	3	4 5
27	I lack control over decisions made about classroom/school matters	1	2	3	4 5
28	I am not emotionally/intellectually stimulated on the job.	1	2	3	4 5
29	I lack opportunities for professional improvement.	1	2	3	4 5
Add items 26 through 29; divide by 4; place your score here: _____.					

Total Score	Add all calculated scores; enter here _____, then divide by 5; enter the Total Score here _____
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Appendix S: IOA Confidentiality Form

Research project: *The Power of Peer-Mediated Reinforcement: Nurturing Culture and Classroom Behaviour with Tootling in Aotearoa New Zealand*

I _____ understand that this research is part of the master's thesis of Tony Pekepo. 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 _____