Increasing Compliance with Teacher Instructions within the Classroom using Variable Interval Tactile Prompting in a Self-Management Intervention

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Abstract

The skill of compliance is considered an essential keystone behaviour that correlates with academic performance and pro-social behaviours. This study extended the research of Lee (2016) by implementing a self-management intervention (with and without a tactile prompt) to increase compliant behaviour of a typically developing child in a mainstream New Zealand classroom. Two key components of this intervention were treating compliance as a skill to be taught, and evaluating the use of a discrete tactile prompt. It was expected that this self-management intervention would effectively increase compliance with teacher instructions within the classroom. The main hypothesis of this study was that a self-management intervention is more effective at increasing compliance with teacher instructions if it includes the use of a tactile prompt than if no prompts are used. A single-subject alternating treatment design was used to assess and compare the efficacy of both conditions. Secondly it was hypothesised that this self-management intervention would have high social validity for both the student and teacher. Thirdly, it was hypothesised that the intervention would result in a concomitant increase in on task behaviour. The findings of this study supported these hypotheses. Additionally increases in both compliance and on-task behaviour generalised to other settings and were maintained beyond the fading phase of the intervention. The findings of this study have theoretical implications relevant to the general classroom and future research.

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If joy is contingent on being yourself then may life provide all the reinforcement you need to be you!

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Introduction

The ability to follow instructions is an essential life skill known as compliant behaviour. Compliance is a skill commonly considered to be a keystone behaviour associated with other desirable and pro-social behaviours. Within the classroom the ability to comply with teacher instructions correlates with academic performance, is fundamental to developing pro-social behaviours, and considered a transferable foundation skill required within later life contexts such as the workplace (Cooper et al., 2014; Radley & Dart 2016) Whilst both home and school environments provide the early settings in which to learn the skill of following instructions, children do not always develop the skill unaided. As compliant behaviour is an important skill supporting one to function well within society across one's lifespan addressing the skill deficit at an early age is important.

Many students develop the skill of compliant behaviour and achieve both academically and socially without additional interventions. However, as may be considered obvious, there is a significant portion of students that do require individualized support to meet the demands of learning and socialization within the school environment. For the typically developing student however there is minimal support as a result of multiple factors. Now more than ever inclusive classrooms in mainstream schools are being actively promoted, meaning teachers are expected to meet a diverse set of learning needs on a regular basis (Raines et al., 2010). Bulla and Frieder (2018) state that "recent data suggests that roughly 95% of students with disabilities are receiving some form of education in the general education setting" (p. 305). Many of these students receive varying forms of in-class support. An on-going shortage of teachers, large class sizes, the diverse learning needs, and an increase in the number of children presenting with challenging behaviour patterns within mainstream classrooms are presently considered to be at an all-time high, and increasingly

difficult for classroom teachers to manage (Raines et al., 2010). These factors are leaving teachers feeling under resourced and overworked.

There is a need for a classroom intervention that is low on teacher resources, i.e. it is simple to implement and does not require large amounts of time and individual teacher-learner contact to administer. Self-management interventions meet this need within mainstream classrooms. Self-management interventions are evidence-based approaches whereby the individual has autonomy over modifying their behaviour through goal setting, self-monitoring, and reinforcement (Bulla & Frieder, 2018; Cooper et al., 2014). The value in using a self-management approach is that not only is it low in teacher resources, but also promotes the opportunity for the individual to develop the skill of following instruction whilst also developing independence and autonomy (Reinecke et al., 2018).

Many of the interventions currently being used within classrooms to develop and improve the skill of compliant behaviour require one-on-one contact time between teacher and learner or are overall difficult to appropriately administer whilst teaching the class as a whole, therefore placing high demand on teacher resource and not practical within todays mainstream classroom (Gureasko-Moore et al., 2006; Rames-Lapointe et al., 2014). The social validity of an intervention is also an important factor to consider both from teacher and the student perspectives. An obtrusive intervention noticed by peers may not have the highest acceptance and therefore engagement of the deemed typically developing child. Therefore, in this study I aim to evaluate the use of a self-management intervention with and without a variable interval tactile prompt to increase compliance and on-task behaviour with typically developing children within a mainstream New Zealand primary school.

Literature Review

Compliant Behaviour

Compliance as a skill.

Compliance as a skill is predominantly established and developed throughout childhood and considered to be an essential or keystone behaviour for children to have within schools or general education settings (Radley & Dart, 2016). Compliance is the skill of acting in accord of a directive, or instruction which ultimately is delivered with the expectation that the individual will perform the appropriate response within a reasonable time (Atwater & Morris, 1988; Owen et al., 2012; Schoen 1983). Any response that is not in accordance with the instruction or completed within the appropriate timeframe is considered *non-compliant* behaviour, including failing to respond at all (Owen et al., 2012). An appropriate timeframe between the instruction being given and the target response is dependent on the nature of both the instruction and expected target behaviour, and capability of the individual. However, in order to operationally define compliance numerous guidance promotes a 10-second timeframe between the delivery of the instruction and onset of target behaviour (Radley & Dart, 2016).

Within the classroom compliance is the ability to listen to teachers and follow instructions and considered fundamental to effective learning and social competence (Raines et al., 2010). Compliance, the act of following instructions is therefore considered to be an "academic enabler" (Raines et al, 2010, p. 77). According to Raines et al. (2010) research shows that children who do not develop the skill of compliance and therefore do not effectively follow teacher instructions generally underachieve within school potentially both academically and socially.

Much of the existing research defines compliance by also acknowledging and describing what non-compliance is. Some developmental psychologists such as Kochanska and Askan (1995) for example have discussed the complexities of compliance through five

types of behaviour; committed and situational compliance are compliant behaviour, whereas negotiation and refusal, defiance, and passive non-compliance are non-compliant behaviour. *Committed compliance* is characterized by high self-motivation and commitment to complying irrespective of the presence of others, whilst *situational compliance* refers to compliance occurring but contingent on the presence of an external control such as an adult prompting the child (Kochanska & Askan, 1995; Plata-Caviedes, 2018). *Negotiation or refusal* and *defiance* refers to the overt responses that pose objection or rejection of the instruction and may present as the refusal to follow the rules or instruction and direct challenges to the teacher's authority (Kochanska & Askan, 1995). Worth considering however, is that a refusal to comply, as seen with negotiation or refusal and defiance, is considered a choice on the child's part to not perform the desired response with an assumption that the child has the appropriate understanding and skills to respond desirably.

Alternately *passive non-compliance* refers to the absence of responses and may present as passively ignoring rules or instructions (Kochanska & Askan, 1995). Interestingly this definition suggests 'ignoring' is a deliberate behaviour and excludes the possibility that the individual may simply not know to comply. However, passive non-compliance may in fact be due to factors outside of the child's control such as not hearing the instruction or having the appropriate understanding or skills to respond desirably.

Whilst non-compliance is generally not a desirable behaviour it is widely understood to be common within classrooms, particularly in pre and primary or elementary school levels (Ducharme & Schecter, 2011; Gaastra et al., 2016; Smith et al., 2022; Trump; 2018). The negative effects of non-compliant behaviour span across not only the individuals' academic learning and development of pro-social skills, but also impact peers and teachers through distraction and need for attention (Owen et al., 2012; Smith et al, 2022). Considering compliance in the classroom as the skill of following common instructions, means non-

compliance is therefore not complying with common instruction and is generally describing all alternate behaviour. A lack of compliance can therefore be identified as a behaviour deficit and a skill that can be taught.

Compliance as a skill to be developed could be broken down into three parts, acquisition, fluency, and generalisation. *Acquisition* refers to learning the skill and being able to perform the skill – measured as the individual performing the desired behaviour following a request within an appropriate timeframe. *Fluency* refers to the ability to consistently and accurately perform the desired behaviour within the appropriate timeframe. *Generalisation* refers to the behaviour occurring in different settings or contexts without specific teaching.

Wadsworth et al. (2015) discuss compliance from a Functional Behaviour Assessments (FBA) approach and consider non-compliance, a highly studied topic within research on FBA-based interventions, to be maintained by positive and negative reinforcement. However, in recognising that compliance itself is a learned behaviour, one must then consider that a lack of compliance may simply be a skill deficit of that individual. It would therefore be prudent to not assume when a child comes into the school environment that they are able to discriminate an instruction from other behaviour of the teacher or therefore what it is they are meant to be doing or that there is a requirement to comply.

A common narrative made by teachers when referring to a student presenting with non-compliant behaviour is that the student cannot follow instructions. However, it is important to consider the definition of following an instruction and understand the type of instruction that is being given. Within the classroom three types of instructions can be identified, direct instruction, indirect instruction, and routine instruction. *Direct instructions* are given directly to the individual and are inclusive of direct connection between the giver and receiver of the instruction such as eye contact, using their name to initially gain attention, or using their name within the instruction, or touching the individual. *Indirect instructions* are

given to a group without specific identification of one individual, such as the teacher saying ‘class put your books down and look at the board’. *Routine instructions* are previously agreed and learned instructions that occur regularly such as hanging one’s bag on the hook as they come into class, or sitting on the mat when the bell rings. Over time no verbal instruction needs to be given.

The overall aim of education is to develop independent learners with transferable skills that support them to succeed in the workplace and function well within society. Interestingly, both non-compliance and absolute compliance have negative connotations. Autonomy and the ability to appropriately challenge or deny requests are desired and adaptive behaviours that individuals ideally develop over time (Bergin & Bergin, 1999).

Bergin and Bergin (1999) discuss the importance of recognizing that negotiation or self-assertion on the child's part when presented with a request does not necessarily equate to disobedience, but rather may be reflective of the child's level of social skill and active engagement in social interactions. The ability to critically question and negotiate are considered foundation skills that can promote the development of pro social skills (Bergin & Bergin, 1999; McMahon & Forehand, 2003). Conversely, automatic compliance may actually equate to maladaptive behavior (Bergin & Bergin, 1999). The famous study undertaken by Milgram (1974) whereby adults obeyed commands to give electric shocks to other adults demonstrated adverse effects of diligently and unquestioningly following instructions.

It is important to acknowledge that a teacher’s overall goal is to create a classroom culture that promotes learning for all children, therefore, compliance within the classroom is highly valued. However, this is balanced with the understanding that 100% compliance may be circumstantially maladaptive or even unsafe, such as following inappropriate requests. As discussed by Stephenson and Hanley (2010) normative data show that the most compliant students still do not comply 100% of the time. Developing the autonomy and skill of

appropriately questioning instructions can foster learning. Some researchers consider that a compliance rate of around 80% represents an ideal and adaptive level for children following instructions (Lee, 2016; McMahon & Forehand, 2003).

Common Evidence-Based Strategies to Increase Compliance

Evidence based strategies founded in the principles of Applied Behaviour Analysis (ABA) have been commonly used within the education setting (Trump, 2018). Lui et al., (2014) consider that there has been a shift in conceptualization with more research and interventions focusing on increasing compliance rather than decreasing non-compliance. Evidence based approaches to increase compliant behaviour tend to fall into two categories: consequent and antecedent strategies (Lipschultz & Wilder, 2017). Consequent strategies are implemented after a behaviour occurs with the intention of preventing occurrence or repetition of an undesired behaviour or to reinforce a desired behaviour (Cooper et al., 2020). Antecedent strategies are implemented before a behaviour occurs with the intention of eliciting a desired behaviour or preventing the occurrence of an undesired behaviour (Cooper et al., 2020).

In a systematic review undertaken by Radley and Dart (2016) it was found that high-probability instructional sequences, effective instruction delivery, and errorless compliance training are effective antecedent strategies for increasing children's compliance with adult requests.

High-Probability Instructional Sequences.

The theory behind High-probability Instructional Sequence (HPIS), also known as high-probability command or request sequence, is that an individual is more likely to comply with an instruction when it is easily achievable (Lipschultz & Wilder 2017; Mace et al., 1988). Therefore, HPIS is an approach that involves manipulating the order of requests to create success based behavioural momentum; low probability instructions are presented after

successive compliance with high probability instructions. HPIS involves presenting approximately 3-5 easy to follow (*high probability*) instructions (with correct responses reinforced) and then presenting a target instruction (*low probability*) (with correct responses reinforced) (Cooper et al, 2020; Lipschultz & Wilder 2017; Mace et al., 1988). This approach requires one to vary the instructions and sequence, keeping the high probability instructions engaging (Cooper et al., 2020; Lipschultz & Wilder 2017) whilst also keeping to less than a 5 second latency between high and low probability instructions to maintain appropriate behavioural momentum (Lipschultz & Wilder 2017).

HPIS is a common intervention procedure used to increase compliance among children with intellectual and behavioural disabilities within applied settings (Axelrod & Zank, 2012; Lipschultz & Wilder 2017; Radley & Dart, 2016). In a study with three children with autism Rosales et al. (2020) found that a high-probability instructional sequence intervention had a moderate effect on increasing compliant behaviour. Axelrod and Zank (2012) built on from previous studies by examining the effectiveness of HPIS interventions within the general education setting with two students performing below average academically and engaging in high rates of non-compliant behaviour, acknowledging the growing teaching challenges presented by inclusive classrooms with diverse learning needs. Axelrod and Zank (2012) found that whilst HPIS based interventions were indeed successful in increasing compliant behaviour within a general classroom setting these students were supported by a secondary specialist teacher meaning the classroom teacher was not the only one delivering or managing the intervention; the classroom was more highly resourced.

Errorless Compliance Training.

Errorless Compliance Training (ECT) is another success-focused approach that involves a graduated exposure to increasingly more challenging requests at a slow enough rate to ensure low rates of noncompliant responses and many opportunities for reinforcing

compliant responses (Ducharme et al., 2007). Generally, this intervention starts with a range of instructions being delivered and rates of compliance recorded to create a hierarchy of compliant probabilities from instructions that yield compliance (level 1) through to instructions that yield noncompliance (level 4) (Ducharme et al., 2007). At treatment phase many level 1 instructions are presented and correct responses reinforced. Higher-level instructions (level 2, 3, and 4) are faded in gradually (Ducharme et al., 2007; Radley & Dart, 2016).

In a study undertaken by Ducharme & Drain (2004) errorless compliance training was successfully used by parents to increase compliant behaviour of children with autism who were presenting with low rates of compliance when given instructions to complete academic or household tasks. Durchame and Drain (2004) also found that errorless compliance training effectively increased generalised compliance and gains were maintained for up to 6 months. In another study undertaken by Ducharme and Ng (2012) three teachers were trained to implement ECT within a classroom as an intervention with students with autism. Findings showed improved compliance to classroom requests that had previously yielded noncompliance, and also found a covariant increase in on-task behaviour. However, even though the ECT intervention was designed to incorporate commonly used teacher instructions and be of minimal disruption to the workings of the classroom, a limitation of this study was still the length of time and teacher resources required to implement the intervention (Ducharme & Ng, 2012).

Effective Instruction Delivery.

Instructions may be delivered in varying forms such as directives, commands, suggestions, or non-verbal cues (Atwater & Morris, 1988). Effective Instruction Delivery (EID) is an approach that involves altering the way an instruction is delivered to promote an increase of target behaviour. After initially establishing eye-contact and proximity a clear and

direct instruction is delivered, followed by a five second wait for a response, and delivering reinforcement for appropriate responses (Everett et al., 2005; Radley & Dart, 2016; Stephenson & Hanley, 2010). Studies have shown EID interventions to successfully increase the rate of compliant behaviour within both the home (Mandal et al., 2000; LaBrot et al., 2022) and within schools (Dufrene et al, 2012; Scoggins, 2005; Stephenson & Hanley, 2010)

Many studies note that non-verbal cues and wording of instructions may impact behaviour depending on the individual (Beaulieu et al., 2013; Dufrene et al, 2012; Everett et al., 2005; Mandal et al., 2000; Scoggins, 2005; Stephenson & Hanley, 2010). Some studies have posed that the form of the instruction (e.g. a suggestion versus a demand) is important (Stephenson & Hanley, 2010; LaBrot et al., 2022), however others argue that it is context that will impact the behaviour (Atwater & Morris, 1988). Atwater and Morris (1988) found that those who were already engaged in a task had higher rates of compliance to a new instruction than students who were already off-task. Whilst EID has been shown to be successful across numerous contexts, a challenge within the classroom is the high teacher resource required to learn and implement the intervention well while simultaneously teaching a full classroom (Dufrene et al., 2012; Scoggins, 2005).

Self-management as a solution.

Overall, these three antecedent approaches (HPIS, ECT, and EID) highlight some individual components that correlate with increased compliance to instructions. Across numerous studies there is a general consensus that eye contact and or proximity correlates with increased compliance (Axelrod & Zank, 2012; Everett et al., 2005; Lipschultz & Wilder 2017; Mandal et al., 2000; Scoggins, 2005; Stephenson & Hanley, 2010). Potentially the individual may simply be missing the instructions rather than not complying. The form of the instruction is relevant to consider and may provide insight into what exact skill deficit may be impacting low rates of compliance (LaBrot et al., 2022), and the level of probability the

individual may engage in appropriate responding based on prior behavioural observations would also aid in developing appropriate reinforcement schedules (Ala'i-Rosales et al., 2018; Wadsworth et al., 2015). An intervention that incorporates these components may well yield an even more significant result across levels of compliance, generalisation, and maintenance.

Whilst these interventions (HPIS, ECT and EID) have been shown to increase levels of compliance, they also pose some challenges when addressing compliant behaviour with teacher instructions within the classroom. It is not practical for teachers; to firstly individualize these interventions to each specific child and then effectively implement the intervention whilst simultaneously teaching a full class is not a feasible expectation. Self-management, an approach shown to effectively increase levels of compliance, addresses these challenges.

Self-management-What is it?

Self-management is an important skill considered to be a pivotal behaviour, meaning learning to self-manage will lead to more widespread behavioural change through the development of appropriate social, emotional, and behavioural skills (Carr et al., 2014; Smith et al., 2022). The ability to self-manage is valued by society and equips one to proactively manage their daily life expectations. Self-management is also an inclusive term for an effective evidence-based strategy to change one's own behaviour using operant techniques and the understanding that actions followed by reinforcement will be strengthened and more likely to occur again in the future (Briesch & Daniels, 2013; Briesch et al, 2019; Carr et al., 2014; Cooper et al., 2014; Reinecke et al., 2016). Cooper et al. (2014) define *self-management* from an ABA perspective as "the personal application of behaviour change tactics that produce a desired change in behaviour" with success measured by the occurrence of the targeted behaviour change (p. 586); individuals are taught to observe, evaluate, and modify their own behaviour.

As a self-delivered behavioural strategy, self-management packages can include goal setting, self-monitoring, self-recording, evaluation, and reinforcement (Carr et al., 2014, Higgs, 2019; Reinecke et al., 2018). Whilst each component can be used in isolation self-management interventions commonly use a combination of two or more components (Cooper et al., 20014; Schulze, 2016). These components relate to three behaviours to be identified or learned (the target behaviour to be increased or decreased, self-monitoring of that behaviour, self-delivery of the reinforcer) (Reinecke et al., 2018). Goal setting, self-monitoring and reinforcement are the most commonly used components within self-management packages (Cooper et al., 2014; Higgs, 2019).

For self-management interventions to be successful a prerequisite is that the individual can perform the target behaviour (Schulze, 2016). Therefore, the intervention may also involve a teaching or discrimination stage whereby for example through in vivo role play, practice, and feedback the participant is taught how to discriminate target behaviour variations from non-appropriate behaviour (Carr et al, 2014; Koegel et al., 1992; Schulze, 2016).

A self-management intervention utilising the above components generally begins with goal setting for a target behaviour based on either normative measures or personal objectives (Cooper et al, 2014; Higgs, 2019; Moore et al., 2001). The participant then systematically monitors their own behaviour self-recording the occurrence or non-occurrence of target behaviours during a set period (Cooper et al, 2014; Schulze, 2016). Following an agreed timeframe of self-recording, the participant then self-evaluates their level of compliance or correct target behaviour responses against a predetermined goal. Finally, based on meeting the predetermined goal that participant may receive a predetermined reinforcer.

Goal setting.

There are three aspects of goal setting to consider; identifying a target behaviour to be increased or decreased, determining the desired level of behaviour, and identifying the behavioural changes that need to occur to reach this goal (Cooper et al, 2014; Higgs, 2019; Schulze, 2016). Goals need to be specific and measurable so there are clear criteria for achievement, and it is generally considered that for optimum engagement goals also need to be attainable and accepted as meaningful by the individual whilst also being appropriately challenging (Locke, 1996; Moore et al., 2001; Schulze, 2016).

Whilst goal setting can be done by the individual and/or another person (Moore et al., 2001) interestingly studies have found that having another person aware of the goal or involved in the goal setting process increased effectiveness of the intervention overall (Hayes, 1985). Research shows goal setting is a socially acceptable and important component of self-management interventions as it provides performance standards to self-evaluate and track behaviour changes against (Aljadeff- Abergel et al., 2015; Cooper et al., 2014; Higgs, 2019; Moore et al., 2001; Schulze, 2016).

Self-monitoring.

Self-monitoring is considered to be the most commonly used component of self-management interventions and has been successfully used to increase both on-task behaviour and pro-social behaviours within the classroom (Carr et al., 2014; Schulze, 2016). There are two aspects of self-monitoring to consider; self-observation and self-recording of the occurrence or non-occurrence of target behaviours during a set period of time (Cooper et al, 2014; Schulze, 2016). Rafferty (2010) note that for self-monitoring interventions to be appropriate the individual must be taught to identify and discriminate between appropriate and inappropriate behaviour, and to be able to monitor and record their behaviour.

Graphing one's behaviour, though not a necessary component of self-monitoring, is often paired as a part of self-monitoring with the purpose of guiding self-evaluation and has been shown to be more effective than only recording (Briesch et al., 2019; Schulze, 2016). Prompting is another component that is often paired with self-monitoring to indicate when to monitor and/or to record behaviour (Cooper et al., 2020; Reinecke et al., 2018; Schulze, 2016). Typically prompting takes the form of auditory or tactile prompting set at fixed or variable intervals (Schulze, 2016). The inclusion of prompting within self-monitoring is considered important particularly when the individual is expected to be engaging in an activity or complex environment such as a classroom. The act of monitoring and recording one's behaviour is an environmental manipulation that promotes the desired change in behaviour (Cooper et al, 2014; Rafferty, 2013).

Reinforcement.

The operant principal of reinforcement is that a response that is followed by a reinforcer is more likely to occur again (Cooper et al., 2014), and therefore reinforcement is a commonly included component within a self-management intervention. Within the framework of a self-management intervention reinforcement can be administered by the individual (referred to as self-reinforcement) or an external agent (Cooper et al., 2014; Lui et al., 2014; Speidel & Tharp, 1980) after evaluating the self-recorded data and achieving the set goal.

Speidel and Tharp (1980) analysed the contingencies of self-determined reinforcement with twenty-four first grade students within a classroom. Interestingly Speidel and Tharp (1980) found that reinforcement (without controlling environmental contingencies promoting accurate self-reporting) motivated the adoption of strategies to increase payoff rather than increased the target behaviour. However, some researchers have found the accuracy of

recording and evaluating the data prior to the delivery of reinforcement is not necessarily detrimental to the outcome (Fritz et al, 2012; Hautz, 2019).

More interestingly, research also shows that a level of transparency (that another person is aware of the goals and measures) promotes increased levels of target behaviour and appropriate self-delivery of reinforcement (Speidel & Tharp, 1980). As reinforcement can be administered by the individual or another agent (Cooper et al., 2014; Lui et al., 2014; Speidel & Tharp, 1980), consideration should be given on a contextual basis as to whether it may be most appropriate for the Teacher (or other agent) to be involved in the reinforcement stage of the intervention. Reinforcement is an important component based on the understanding that behaviour followed by reinforcement is more likely to be maintained. Additionally, a socially valid target behaviour is likely to make contact with naturally occurring reinforcement.

Why self-management?

A factor that makes self-management interventions desirable is that the individual is responsible for changing their own behaviour; teaching an individual the required skills to monitor and change their behaviour reduces the need for external controls and therefore demands little teacher time and resources (Carr et al., 2014). The approach of inclusion for students with disabilities or diverse learning needs into general classrooms has correlated with an increase in the need for self-management as a skill to be developed within the classroom (Reynolds et al., 2014). The increased inclusion of students with disabilities or diverse learning needs has also placed pressure on teachers limiting the time and capacity they have for implementing behaviour management procedures (Reinecke et al., 2018). Preventative approaches, such as self-management interventions focussing on increasing compliant behaviour, promote pro-social behaviour before problem behaviour occurs (Ala'i-Rosales et al, 2018). Therefore, the use of self-management strategies to increase target behaviours is an appropriate choice as the outcome can be not only that the target behaviour increases, but that

the student learns the skill of 'self-management' as a pivotal behaviour. An increased use, acceptance of, and access to technology within the classroom is also supporting self-management to be more socially acceptable, more engaging, easier to implement, and potentially better able to support the individual to manage on their own (Bedesem & Dieker, 2014; Chia, 2018; Higgs, 2019; Finn et al., 2015).

Self-management as an intervention to modify behaviour has been researched across many behaviours and settings including reducing undesired behaviours and increasing desired behaviours within schools (Busacca et al., 2015; Briesch et al., 2019; Carr et al., 2014; Higgs, 2019; Smith et al., 2022). In particular self-management interventions within schools commonly target increasing on-task behaviour, pro-social skills such as sharing, and compliant behaviour, or target reducing non-compliant or problem behaviours such as inappropriate talking and out of seat behaviour (Busacca et al., 2015; Lee, 2016; Rafferty, 2010). Self-management has also been researched and effectively used across a wide range of populations both in age (from preschool children through to adults) and in ability (typically developing individuals and those with developmental or learning disabilities) (Busacca et al., 2015; Carr et al., 2014; Lui et al, 2015; Schulze, 2016).

Self-management has been extensively researched particularly with children with ASD (Lui et al., 2014) and numerous researchers have found successful outcomes when using self-management to teach and promote social skills to children with ASD (Carr et al., 2014; Schulze, 2016). Self-management interventions promote independence and classroom participation (Reynolds et al., 2014; Shulze, 2016) and are increasingly being used within general education settings (Carr et al., 2014; Shulze, 2016).

On-task Behaviour

Like compliance, on-task behaviour has been found to correlate with academic achievement (Holifield, 2010) and is also a valued behaviour within the classroom. Whilst on-

task behaviour is context specific, an operational definition of on-task behaviour within the classroom refers to behaviour that is relevant to actively or passively engaging in assigned tasks and classroom rules (Imasaka, 2019; Moore et al., 2013); sitting at one's desk, working on a teacher directed activity, using appropriate materials for the task, attending to a task at the appropriate time.

Numerous studies have shown that self-management can successfully increase on-task behaviour for children with diverse learning needs, from developmental difficulties such as ASD and other disabilities (Lui et al., 2014; Holifield 2010; Imasaka, 2019; Legge et al., 2010) through to typically developing children (Moore et al., 2013).

Technology and Tactile Prompting

While self-management interventions have been shown to be effective, some drawbacks are that many researchers have utilised awkward paper recording forms, and obtrusive in-person prompts (physically, verbally, or audibly) (Beckman, 2019; Chia, 2018; Higgs, 2019; Lee, 2016). Refined use of technology could address these issues. Technology, in the context of behavioural analysis refers to devices and software applications that can be utilised within an intervention ideally increasing efficacy and ease of application.

Technology has been utilised within behavioural interventions for decades in various forms from calculators and tape recorders through to highly computerised devices. Commonly used technological devices such as iPads, smart phones, tablets, and smart watches are now becoming more accessible and easily utilised within interventions (Beckman, 2019, Bedesem, 2014; Bruhn, 2017; Kirkpatrick, 2020; Trump, 2018). In a systematic review of technology used within behavioural interventions within classrooms, Kirkpatrick (2020) identified that touch screen devices, and applications such as I-Connect© and SCORE IT© were commonly used within self-management interventions. However, despite the growing advancement of sophisticated technology and software applications,

technology devices are still potentially underutilised within self-management interventions (Beckman et al., 2019; Bruhn et al., 2017; Chia, 2018; Kirkpatrick, 2020).

Technology can be utilised in numerous ways across some (or all) of an intervention. Within self-management interventions devices can be used in the teaching or modelling phase, as an audio or tactile prompt, for self-recording and evaluation, graphing and providing feedback (Beckman et al., 2019; Chia, 2018). Such technology is likely of great appeal to students, teachers and researchers alike increasing social validity and improving both manageability, portability, and adaptability of self-management interventions (Chia, 2018; Higgs, 2019; Kirkpatrick, 2020).

Technology has been used successfully within self-management interventions in both the health and education sector. Use of technology in the health sector promoting appropriate self-medication, monitoring, and management has been examined through systematic reviews (Edwards, 2021; Knox, 2019). Whilst these studies have found technology to be effective within self-management interventions the overall conclusions are that more research is required to identify which elements of the interventions and technology use are producing the desired behaviour changes.

Use of technology within interventions in the education sector predominantly promotes the development of pro-social skills and on-task behaviour (Chia, 2018). Within the classroom, much of the research using technology within self-management interventions has been with children with ASD or other disabilities (Crutchfield et al., 2015; Kumm, 2021; Legge, 2010; Lui et al, 2014; Rosenbloom, 2016). Chia et al. (2018) completed a review assessing the efficacy of single-case studies that used technology within self-management interventions (specifically with individuals with ASD) within school settings. Findings showed that utilising technology within interventions can improve efficacy by reducing dependency on external agents for prompting and promoting independence, generalisation,

and spontaneous use of the acquired skill of compliance. However, the results of the review showed that use of technology within self-management interventions is under-investigated (Chia et al.,2018).

A relatively small number of studies utilise technology in self-management interventions within the classroom with typically developing children (Higgs, 2019; Moore et al., 2013). An even smaller number are specifically evaluating the use of technology, a study by Higgs (2019) is one of these. The recent study undertaken by Higgs (2019) examines the efficacy of technology within a self-management intervention to increase compliance with two typically developing children within a mainstream New Zealand classroom. Within this study Higgs (2019) examined the use of an iPod Touch as a recording device with the added ability of the researcher to send visual prompts to the student from a smartphone to the iPod when an instruction was missed. The findings showed that the intervention was successful both at increasing compliance and having high social validity. However, the intervention still required the researcher to be present to deliver the prompt.

Wearable tactile prompting devices are one way of removing the obtrusive nature of physical prompting by an external agent such as a teacher or researcher and reducing disruption to other students (Moore et al., 2013; Reinecke et al., 2018). The MotivAider® (see: https://habitchange.com) is one such device, that can be programmed to produce a continuous or variable interval schedule of tactile prompting. Numerous studies have successfully incorporated the MotivAider® into self-management interventions within the classroom, particularly targeting increasing on-task behaviour (Amato-Zech, 2006; Boswell, 2013; Legge, 2010; Moore et al., 2013; Otero, 2016; Wills & Mason, 2014).

Moore et al. (2013) used the MotivAider® within a self-management intervention to increase on-task behaviour with low performing but developmentally typical high-school students and found this to be a practical and socially acceptable way to promote independence

within the intervention. However, as Edwards (2021), Knox (2019) have identified as a common limitation, Moore et al. (2013) did not provide specific measurements of the effect the tactile prompt component of the intervention had on increasing target behaviour.

The aim of self-management within the classroom is for children to be self-regulated rather than teacher-regulated, and this is where technology is most beneficial. The use of technology within a self-management intervention can increase acceptance of the procedure overall by reducing the need for external resources, providing an alternate and efficient means for modelling, prompting, recoding, and graphing (Beckman, 2019, Bedesem, 2014; Bruhn, 2017; Chia, 2018; Trump, 2018). Most significantly, the use of technology promotes the ability to implement an intervention discretely.

Social Validity

Social validity is a key component to any successful intervention and refers to the social importance and acceptability of intervention goals, procedures, and outcomes (Cooper et al., 2014). Determining the social validity of an intervention requires identifying whether the intervention firstly addressed socially significant goals. Secondly consideration must be given to identifying whether the intervention procedures were socially acceptable. Thirdly, one must consider whether the intervention produces socially important outcomes (was the behaviour change meaningful) (Common & Lane, 2017; Kennedy, 2002).

If the target behaviour (goal of the intervention) is important, and the actual level of change achieved is meaningful, then this behaviour should contact naturally occurring contingencies of reinforcement (Common & Lane, 2017; Kennedy, 2002). Based on this theory, Kennedy (2002) consider that a behaviour that is maintained and or generalised can be considered an indicator of the individual's social context reinforcing the behaviour, and therefore the degree of maintenance and generalisation can act as a measure of social validity (Kennedy, 2002). Social validity ideally encompasses the perspectives of everyone involved

with the intervention (for example, the teacher, parent, and student) (Common & Lane, 2017) as even the most effective intervention is of no use if people will not use it.

Why Single Subject Design?

The single-subject research design is widely used within ABA and is characterised by the manipulation of an independent variable and repeated measures of dependent variable(s) before (baseline) and after (intervention phase) introducing the independent variable (Cooper et al., 2020; Holcombe et al., 1994). Single subject designs use the participant as their own control by comparing the effect of each condition against the participants own data in baseline observations and throughout the intervention (Cooper et al., 2014).

Single-subject designs are implemented with small numbers of subjects and therefore a limitation is that it is difficult to generalise the results to other subjects. However, this is addressed through replications and extensions of studies across subjects either within or across studies (Cooper et al., 2014; Holcombe et al., 1994). Single-subject designs can be low on resources as there is not a need to find large numbers of subjects and allows the researcher to examine how subjects specifically respond to experimental factors as unique individuals.

Whilst the self-management intervention in the present study was implemented by a researcher it could be easily implemented by the class teacher; the transition from an external application such as by a researcher or teacher aid to the teacher is relatively easy and manageable.

Gaps in the Literature

Self-management interventions have long been successfully used to create behaviour change across various settings and participants. Much of the existing research on self-management strategies within the classroom focuses on increasing on-task behaviour, with studies spanning across both individuals with and without disabilities. However, not only is there a limited number of studies examining the effects of self-management interventions on

increasing compliant behaviour, but most of this small number are with individuals with disabilities (Lee, 2016; Lui et al, 2014; Imasaka, 2019).

To my knowledge there are very few studies that have conducted self-management interventions addressing compliance with teacher instructions within the classroom with typically developing children, Higgs, (2019) being one. It is undoubtedly important and appropriate to support children with disabilities using self-management interventions. However, it is also important and appropriate that students without disabilities are also supported. Given that compliance is an essential or keystone behaviour within classrooms and leads to pivotal life skills beyond education compliance is an important research topic.

Secondly, within the existing studies on increasing compliance in the classroom any prompting has been intrusive or highly resourced. The study undertaken by Lee (2016) required the researcher to sit directly behind the participant and physically prompt with taps on the shoulder, as did the study by Imasaka (2019). Whilst Higgs (2019) utilized technology as a prompting mechanism, this prompt was still required to be delivered by an external agent who was present and able to observe the participant.

To my knowledge, there are no studies that specifically examine the effectiveness of tactile prompting to increase compliance within the classroom removing the need for obtrusive prompting.

Current Study

There are gaps in existing research regarding the concept of addressing compliance as a skill to be taught within the classroom, and using self-management interventions to increase compliance inclusive of typically developing children. The purpose of this study is to add to existing evidence that compliance is a skill that can be taught, and that self-management is an effective and appropriate intervention to increase compliance within the general classroom with typically developing children.

This current study is a systematic replication and extension of the study by Lee (2016). Lee (2016) used a self-management intervention to increase compliance with teacher instructions for an eight-year-old with ASD. The study was successful at increasing compliant behaviour and a concomitant increase in on-task behaviour was also observed. Three studies using self-management within the classroom have all demonstrated a close relationship between compliant and on-task behaviour (Higgs, 2019, Lee, 2016, Imasaka, 2019). Research has shown that prompting within self-management interventions is effective. Research has also shown that the MotivAider® is an effective discrete tactile prompt within self-management interventions to increase on-task behaviour (Boswell, 2013; Moore et al., 2013; Otero, 2016; Wills & Mason, 2014). Therefore, there is an expectation that within this study using a MotivAider® as a tactile prompt will also be an effective component to increase compliant behaviour.

In the current study I aimed to increase compliance with teacher instructions using a variable interval tactile prompting in a self-management intervention with a typically developing child in a mainstream New Zealand classroom. I extend the research of Lee (2016) by examining the efficacy of a tactile prompt as a means to increase compliant behaviour, remove obtrusive prompting, and in turn increase the social validity of the intervention. Specifically, it was hypothesised that a self-management intervention is more effective at increasing compliance with teacher instructions if it includes the use of a tactile prompt than if no prompts are used. Secondly, it was hypothesised that the intervention would result in a concomitant increase in on task behaviour. Thirdly, it was hypothesised that this self-management intervention would have high social validity for both the student and the teacher.

Social validity of interventions has long been recognised as an important factor to consider. The level of generalisation and maintenance of a behaviour has been recognised as

an indicator of the intervention addressing socially appropriate goals, procedures, and outcomes. Therefore, this study also evaluates social validity as reported by the participant and class teacher, along with generalisation and maintenance measures.

Method

Ethics approval was obtained from the University of Waikato Psychology Research and Ethics Committee prior to conducting this research (#19:04). Permission was obtained from the school principal to conduct this research in the school. The class teacher, the parents and the participant gave their informed consent/assent for participation in the research project within the regular teaching classroom. Passive consent from parents was also obtained for all children in the classroom due the collection of normative data (Appendix S).

Recruitment and Selection

The participant of this research project was recruited from a mainstream primary school in New Zealand. The teacher nominated and invited potential participants (those who exhibit low levels of compliance with teacher instructions) by providing the parents / guardians with explanatory statements and the research Information Sheet (Appendix C). One student met the inclusion criteria of this research (Appendix H).

Participants and Settings

Jack (a pseudonym) was a typically developing 10-year-old Year 6 student attending a mainstream New Zealand primary school. Jack was recommended by his teacher to participate in this study as the teacher had identified low rates of compliance and on-task behaviour within the classroom environment for this student. The teacher reported that these rates were considerably lower compared to peers and were negatively impacting learning opportunities for Jack.

During an initial face-to-face interview, the teacher reported that Jack presented with good general expressive communication strategies and was able to understand complex

requests or instructions. However, the teacher also reported that when an instruction was given Jack would often either miss the instruction or partially comply missing steps outlined by the teacher. Jack did not always stay on the appropriate task, it often looked like Jack was on-task but he was actually doing something different than instructed. Jack was not receiving any additional help for these behaviours at the time of this study.

This research project was conducted within a mainstream primary school setting. The observation and intervention sessions were conducted in Jack's usual classroom amongst peers. The teaching sessions were conducted away from the classroom and peers, either in the staffroom or at a playground table outside the classroom. These settings were observable by the teacher or other staff members. Both the teacher and students used technology in the classroom (computer projector for instruction and teaching purposes, iPads and laptop computers for research and task completion).

Following the Functional Assessment Interview (FAI) with the teacher and preliminary in-class observations two settings were identified in which an increase in the target behaviour of compliance was desired: Math and Reading/Writing lessons. Both math and reading/writing lessons occurred in the first learning block of the day. This block started with routine instruction of coming and sitting on the mat for whole class notices and instructions before moving to group or independent tasks at the desks.

Baseline observations were conducted in both math and reading/writing lessons. The teacher identified increasing compliance with teacher instruction in math lessons as her priority. The intervention was therefore applied in math lessons only, and generalisation probes were conducted in the reading/writing lessons.

Independent and Dependent Variables

Independent Variables.

There are two variants of the independent variable: A self-management package with and without a tactile prompt. In condition A the independent variable was the self-management intervention package, consisting of self-monitoring, goal setting, and reinforcement of appropriate behaviour with no prompt. Condition B was identical to condition A with the addition of a tactile prompt. Conditions A and B were randomly allocated treatment sessions, in accordance with parameters for an alternating treatments design (Cooper et.al., 2014). This was determined by a coin flip at the beginning of each treatment session, but neither conditions were in place for more than two sessions in a row.

Dependent Variables.

The primary dependent variable was compliant behaviour, operationally defined as the initiation of the required response within 10 seconds of the teacher instruction. Using the event recording method, every time the teacher gave an instruction I recorded whether Jack was complying. The nature of instruction was also recorded every session.

The nature of the instructions the teacher gave were categorised into *routine instruction* defined as regular previously set instructions not verbalised by the teacher that the students are expected to comply with, such as coming to the mat at the beginning of class; *directed instruction* defined as instructions or requests that were given directly to individual students by the teacher by using the students name, direct eye contact with, or touching the student whilst initiating or giving the instruction; or *undirected instruction* defined as an instruction or request addressed to the whole class or sub-group of the class not specific to an individual. Compliant behaviour was reported as a percentage of the total number of teacher instructions observed within that session.

The secondary dependent variable was on-task behaviour, operationally defined as behaviours relevant to the task that the student was expected by the teacher to engage in at that moment of time, inclusive of paying attention, participating appropriately, being in the right location. Using the momentary time sampling method, every 30 seconds I recorded whether Jack was on-task. On-task behaviour was reported as a percentage of the total observed intervals within that session.

Comparative peer normative data of two randomly selected peers was also collected for both dependent variables.

Materials

Functional assessment questionnaire.

During the initial interview with the teacher, I used a revised version of the Functional Assessment Interview (FAI; O'Neill et al., 1997) (Appendix I). The purpose of conducting the Functional Assessment Interview was to gain better understanding of the participant, the class environment, and participant in-class behaviour. The FAI informs whether there is a behavioural excess or deficit, and the function of those behaviours. The information gathered from this interview indicated that compliance was a skill deficit, and the identified goal was to increase compliance and concurrently on-task behaviour.

Teaching materials.

Story. The material used to explain what compliance is (in the classroom context of following teacher instructions) was a replication of the 52-word teaching story (Appendix L) used in the study by Lee (2016) initially adapted from a story used by Lui et al. (2014).

Role Play. The material used to teach discrimination between compliant and non-compliant behaviour (in the classroom context of following teacher instructions) was a list of twenty role-play situations (Appendix L) that was used in the study by Lee (2016).

Tactile prompting devices.

MotivAider®. The tactile prompt used for this project was a MotivAider® (see: https://habitchange.com/ and Appendix M), an electronic device which can be set to vibrate at programmed intervals. The MotivAider® could be discretely clipped onto Jacks clothing meaning it was not obvious to peers and he could move around the classroom freely. This device was set to vibrate at a 2-minute variable interval as a discreet tactile prompt for participant self-recording of on-task behaviour.

Interval Timer. During the observations I used a free android application 'Interval Timer' set to vibrate every 30-seconds as a discrete tactile prompt for researcher recording of momentary time sampling data for on-task behaviour.

Data collection forms.

The event recording form for compliance and the momentary time sampling form for on-task behaviour used for this research project were adapted from the study by Lee (2016).

Event-recording form for Compliant Behaviour. The number of compliant responses made by Jack and two randomly selected peers was recorded every observation session using the event recording form (Appendix J). The nature of the instructions (*routine, directed, or undirected*) was also recorded. I used these data to calculate compliant behaviour as a percentage of the total number of teacher instructions observed within each session.

Momentary Time Sampling Recording Form for On-Task Behaviour. On-task behaviour for Jack and two randomly selected peers was recorded at 30-second intervals every observation session using the momentary time sampling recording form (Appendix K). I used these data to calculate on-task behaviour as a percentage of the total number of observed intervals within each session.

Self-monitoring Recording. Technology was frequently used in the classroom and considered by the teacher to have high social validity. Therefore, an iPod Touch (6_{th}

generation) with iOS 12.2 with the application 'StickerPop! Sticker Charts' (Appendix M) was used in this research project. Jack self-recorded whether he had complied with the teacher request and therefore was engaging in on-task behavior over a sustained period. This application is an electronic sticker chart developed by Climb Industries and was easily adapted to suit the purpose of this project. The task and goal can be entered prior to each session and the participant added predetermined stickers to represent sustained compliant behavior. All other functions of the iPod Touch were password locked so Jack could only use the app purposed for this project.

Treatment fidelity checklist. Treatment fidelity was ensured and monitored during the sessions through the use of a checklist of steps during the intervention and fading phases (Appendix N). Treatment fidelity was calculated as a percentage of steps delivered correctly in each session during the intervention and fading phases. The overall mean treatment fidelity was 100% indicating steps were followed correctly.

Social validity.

Social validity was calculated by comparing the total score of the pre and post measures of the following rating scales:

Behaviour Intervention Rating Scale (BIRS). The BIRS uses a 6-point Likert scale for 24 items intended to assess the teachers' acceptability and perceived effectiveness of the intervention applied within a classroom context (Elliott & Treuting, 1991).

Children's Intervention Rating Profile-Adapted (CIRP-A). The CIRP uses a 6-point Likert scale for 7 items intended to assess the participants' acceptability and perceived effectiveness of the intervention applied within a classroom context (Elliott & Treuting 1991). For the purpose of this study I used an adapted version from the study by Lee (2016) which was simplified in language and used a pictorial form of Likert scale (Appendix P).

Design

To be able to answer the research question I used a single case experimental design. I used an alternating treatments design with follow-up phases and generalisation probes. This design is well suited to comparing the effectiveness of two or more interventions and results can be ascertained in a relatively short time span to evaluate effectiveness of an intervention (Cooper et al., 2014). In this study the comparison is of the two variants of the independent variable: A self-management package with and without a tactile prompt.

Procedure

The research project was conducted during 22 sessions over a 10-week period (the baseline, intervention, and fading period occurred over 6-weeks, with follow-up maintenance sessions at 10-days and 3-weeks post intervention fading). All observation sessions were no longer than 50 minutes, however the duration of these lessons varied dependent on the length of time the teacher allocated for that day (Maths *M*=42 minutes; 30-50 minutes, Reading/Writing *M*=27 minutes; 15-50 minutes).

Teacher involvement.

Before commencing observations or data collection I conducted a 40-minute interview with the teacher. During this interview I outlined the study in detail, answered any questions the teacher had, and conducted the FAI- Revised to gain understanding of the participant's present in-class behaviour. The teacher completed a Behaviour Intervention Rating Scale (BIRS) during this interview and again at the end of the intervention during the 3-week follow-up phase. The purpose of conducting the BIRS was to assess teachers' acceptability and perceived effectiveness of the intervention (social validity was calculated by comparing the total score of pre and post measures). Appropriate tangible rewards were also identified and approved by the teacher. No other involvement was required from the teacher and there was minimal disruption to the teacher and class environment or routines.

Data collection.

I was the primary observer and as agreed with the teacher I sat towards the back of the classroom and kept interaction with the students to only what was necessary for the research project minimising disruption. The rate of compliant and on-task behaviour was measured across the research period.

Preliminary observations. Two sessions of preliminary observations were conducted prior to the collection of baseline data or implementation of the intervention. During these observations I ascertained whether the operational definitions of compliant and on-task behaviour were appropriate. I gained a better understanding of the students' behaviour and established a familiar presence within the classroom.

Normative data. Throughout the research I also collected normative data to identify typical compliant and on-task behaviour of classroom peers. This was done by randomly selecting two children at the beginning of each session to observe. I recorded their compliant and on-task behaviour at the same time as recording Jacks behaviour. I used these data for the purpose of comparing participant compliant and on-task behaviour against normative classroom behaviour and the setting of target levels of desired behaviour. No identifying data was recorded for these children.

Compliant behaviour. Compliant behaviour was recorded for the duration of each observation session using event recording for *routine*, *directed* and *undirected instructions*. Every time the teacher gave an instruction I recorded the type of instruction and whether the appropriate response was initiated within 10 seconds of that instruction being given. I recorded peer normative data alongside Jacks response for both routine and indirect instructions and only Jacks for direct instructions.

On-task behaviour. On-task behaviour was also recorded for the duration of each observation session using momentary time sampling of 30-second intervals for a randomly

selected discrete activity (i.e., activity with clear starting and ending points) during the observation. At every 30-second interval I recorded whether Jack and the two randomly selected peers were engaging in on-task behaviour.

Both compliant and on-task behaviour were calculated as a percentage of possible responses for the participant (number of observed target behaviours divided by the number of opportunities to engage in target behaviour, multiplied by 100) for each session. Peer compliant and on-task responses were also calculated this way. The mean score across two randomly selected peers each session was used to provide an estimated of normative peer behaviour for comparison.

Participant involvement.

Baseline phase. Baseline measurements for the participant and two peers were taken during usual classroom activities prior to any implementation of the intervention. These observations occurred in both Math (4 sessions) and Reading/Writing (3 sessions) until data showed a stable or deaccelerating trend.

Teaching sessions. Following baseline observations, two 30-minute teaching sessions were conducted to explain self-management and ensure the participant was able to self-monitor and discriminate between compliant and non-compliant behaviour. Discrimination training involved using the 52-word story (explaining compliance) and role-playing of situations selected based on preliminary observations (Appendix L). I acted out 10 of the situations and ask the participant to identify/say which behaviour was compliant behaviour. When a role-played behaviour was identified incorrectly the correct answer was explained.

The tactile prompt (MotivAider®) was introduced in these teaching sessions. I explained how it worked, how it was discrete, and that it would be worn in some sessions but not others. I demonstrated how to utilise it in this intervention as a self-monitoring prompt by pairing the prompt question ‘am I doing what the teacher instructed?’ every time the

participant felt the device vibrate. The participant was instructed to then self-record their behaviour using the sticker chart.

Completing the self-monitoring sticker chart on the electronic App was modelled and any skill requirement was taught if necessary. This consisted of showing the participant how to use the self-monitoring App on an iPod to select virtual stickers to place on a virtual board each time they recognised they were following an instruction.

A preference assessment was conducted with the participant using six rewards options agreed by the teacher to be appropriate. Using a reinforcement survey schedule three items were identified as preferred rewards for reaching goals.

The participant had the opportunity to practice self-recording with the inclusion of the tactile-prompt during the teaching sessions. Once the participant achieved at least 80% accuracy in self-recording in two consecutive activities the participant completed the pre-intervention CIRP-A rating scale and intervention sessions commenced. The CIRP-A rating scale post-measure was taken after the completion of the last observation session of the intervention.

Self-monitoring intervention. The self-monitoring phase occurred across 9 sessions during usual math lessons. Prior to the start of each observation session I set goals and rewards with the Jack for that session. Goal criteria depended initially on the participant's current performance (60%) such as to guarantee success and increased over the intervention (up to 90%). The rewards chosen depended on individual preference from the selection pre-determined in negotiation with the teacher.

A coin was tossed to determine whether condition A (*no variable interval tactile prompt*) and condition B (*variable interval tactile prompt*) was to be implemented. The self-monitoring App and the tactile prompt device (if used in that session) were given to the

participant for the duration of the session. The first session was conducted under condition A (*no variable interval tactile prompt*).

Condition A (no variable interval tactile prompt). Condition A sessions began with a reminder for Jack to ask himself *'Am I doing what the teacher instructed?'* when an instruction was given and record whether he did so on the iPod. No further intervention was applied.

Condition B (variable interval tactile prompt). Condition B sessions began with this same reminder and recording instruction as condition A with the addition of wearing the tactile prompt. Each time the MotivAider® vibrated this prompted Jack to ask himself *'Am I doing what the teacher instructed?'*

The skill taught was 'following teacher instructions', the nature of the prompt used meant the participant was asking themselves whether they were following teacher instruction over a sustained period. At the end of each session I reviewed the self-recorded data together with Jack. When the daily session agreed goal was met Jack had access to the agreed reward.

Fading. The fading phase was implemented after a stable desirable rate of compliant behaviour was obtained. Fading consisted of phasing out of the use of the self-monitoring and tactile prompt; suspension of the intervention on Day 1, its resumption on Day 2, and suspension on Days 3. In addition, there was a shift of rewards from tangible reinforcements (e.g., preferred items given out by the researcher) to naturally-occurring reinforcements (e.g., praise, computer time given by the teacher).

Maintenance observations. Follow-up observations were conducted at two points after the last fading session and were conducted under Baseline conditions. At 10-days post fading follow-up observations were made in the Math setting. At 3-weeks post fading follow-up observations were made in both Math and Reading/Writing settings.

Generalisation. Generalisation probes in Reading/Writing were conducted during the intervention phase (session 15) and again in the 3-week follow-up phase (session 21).

Inter-observer agreement. An independent observer performed inter-observer checks for a portion (22.7%) of the sessions across all phases of the intervention. This observer was a postgraduate student who had been prepared with the operational definitions of target the behaviours and practiced data recording. Both the primary and secondary observers simultaneously collected independent data for comparison.

Inter-observer agreement indicates that both observers measure the same occurrence of target behavior. An inter-observer agreement level of over 80% is an acceptable level and scores over 90% are considered by Cooper et al. (2014) to confirm that the data accurately reflects observed behaviour. Inter-observer agreement levels were calculated by dividing the number of agreements by the number of agreements and disagreements, multiplied by 100. The mean inter-observer agreement for compliant behavior was 100%, and for on-task behavior was 95.67% (91%-100%) demonstrating accurate data was collected throughout the intervention.

Data analysis.

Visual analysis is considered the most appropriate and commonly used method of analysis used in single case experimental designs (Cooper et al., 2014; Lane & Gast, 2014). Therefore, to demonstrate evidence of a relation between the independent and dependent variable visual analysis of graphed data was the primary approach used in this study. From the recorded data using Microsoft Excel I produced graphs to analyse both within condition and across condition results including trend, immediacy of effect, level, and stability of data. By plotting data following each session and analysing in accordance with the guidelines of Lane and Gast (2014) I could determine what next step to take. For example, when to move

from the baseline phase into teaching and intervention phases, or when to fade out the intervention.

A between-condition analysis was also used to determine what level of experimental effect was achieved. Calculating the percent of non-overlapping data (PND) is a common and appropriate method of effect size analysis (Scruggs et al., 1987). PND is defined as the proportion of observation data points from the intervention phase that exceed the highest data points in the baseline phase when an increase in target behaviour is desirable (Scruggs et al., 1987). When interpreting the effect size indices according to Scruggs and Mastropieri (1998) PND scores greater than 90% indicate a very effective intervention, 70-90% indicates an effective intervention, 50-70% is interpreted as a questionable intervention, and below 50% indicates the intervention was ineffective.

Results

Compliance

The primary dependent variable was compliant behaviour. The level of teacher instructions complied with are presented in Figure 1 as the percentage of compliant responses for each session across conditions for Jack and includes mean normative peer data.

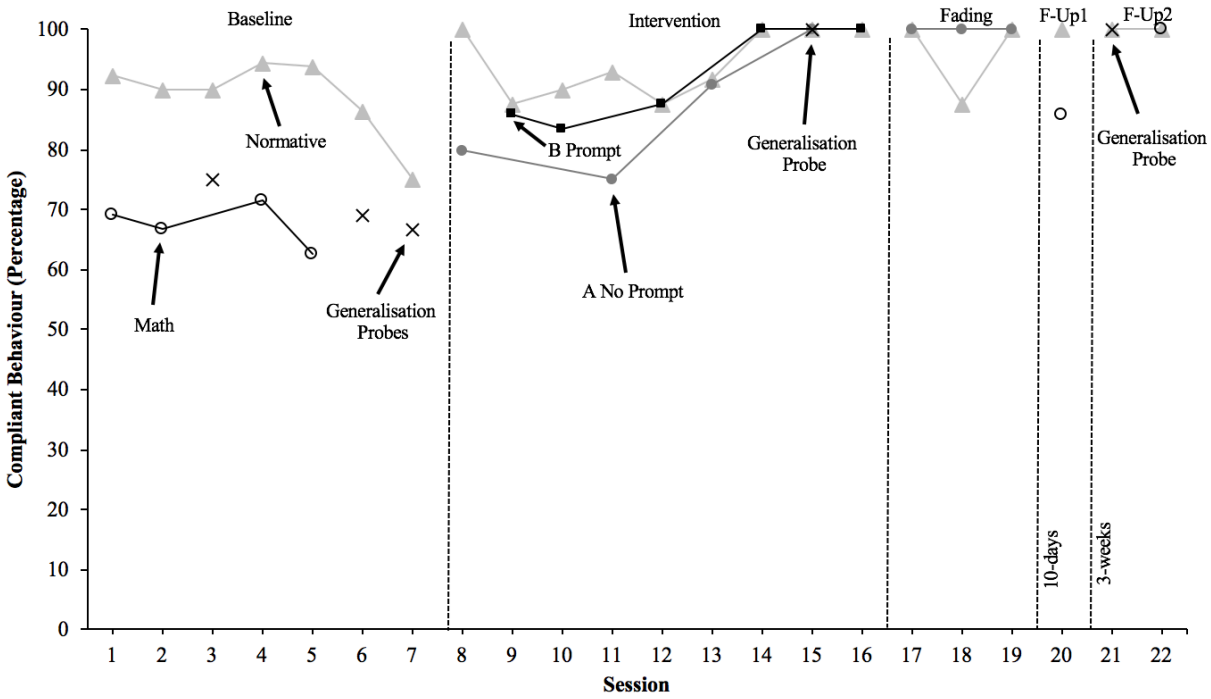

Figure 1. Percentage of compliant responses to teacher instructions within the classroom for each session across conditions for Jack and normative peer data in a self-management intervention with and without a variable interval prompt.

The mean normative data collected for peer compliant behaviour was overall relatively stable and high (M=93.2%, 75%-100%). Specifically, the data shows a decelerating trend in baseline (M=88.8%, 75%-94.4%) and higher and more stable trend across the intervention and follow-up sessions (M=95.5%, 87.5%-100%). Jack's baseline compliant responses showed a variable decelerating trend observed in the Math setting with a mean of 67.5% (62.5%-71.4%) and a decelerating trend in the Reading setting with a mean of 70.3% (66.7%-75%).

The intervention was introduced in the Math setting only. Session 8 was observed under condition A (no prompt) following the teaching phase of the intervention and Jack's level of compliant responses increased from the baseline mean of 67.5% (62.5%-71.4%) to 80% in this session. Across the intervention phase Jack's overall level of compliant responses increased to a mean of 89.2% (75%-100%) and after 4 sessions showed a stable accelerating trend, consistently achieving at the same level as his peers after 4 intervention sessions (at

session 12) and reaching a 100% compliant response rate after 6 intervention sessions (at session 14). Importantly, Figure 1 demonstrates that condition B (Prompt) (M=91.3%, 83.3%-100%) increased compliant responses more than condition A (No Prompt) (M=86.5, 75%-100%). Jack continued to maintain a 100% response rate through the fading phase out-performing his peers (M=95.8%, 75%-100%). Overall, Jack's compliant responses remained high during the follow-up phase (85.7% at the 10-day follow-up, and 100% at the 3-week follow-up).

Generalisation. Generalisation probes in the Reading setting measured Jack's compliant responses at session 15 (100%) and 21 (100%) and matched that of the mean normative peer data.

Effect Size. The PND was calculated to determine the efficacy of the intervention as a means to improve Jack's compliant behaviour. The PND for condition A (No Prompt) was 100% and the PND for condition B (Prompt) was also 100% indicating overall, according to Scruggs and Mastropieri (1998), that the intervention was a very effective method to increase compliant responses to teacher instructions. As a second measure of effect size, the Tau-U was calculated. The Tau-U was again the same for both condition A (No Prompt) and B (Prompt) at 1(95% CI [0.499,1.5010]) showing that between the baseline phase and intervention phase 100% of the data did not overlap and again indicating the intervention was a very effective method to increase compliant behaviour.

On-task Behaviour

The secondary dependent variable was on-task behaviour and was concomitantly measured. The level of on-task behaviour is presented in Figure 2 as the percentage of on-task behaviour for each session across conditions for Jack and includes mean normative peer data.

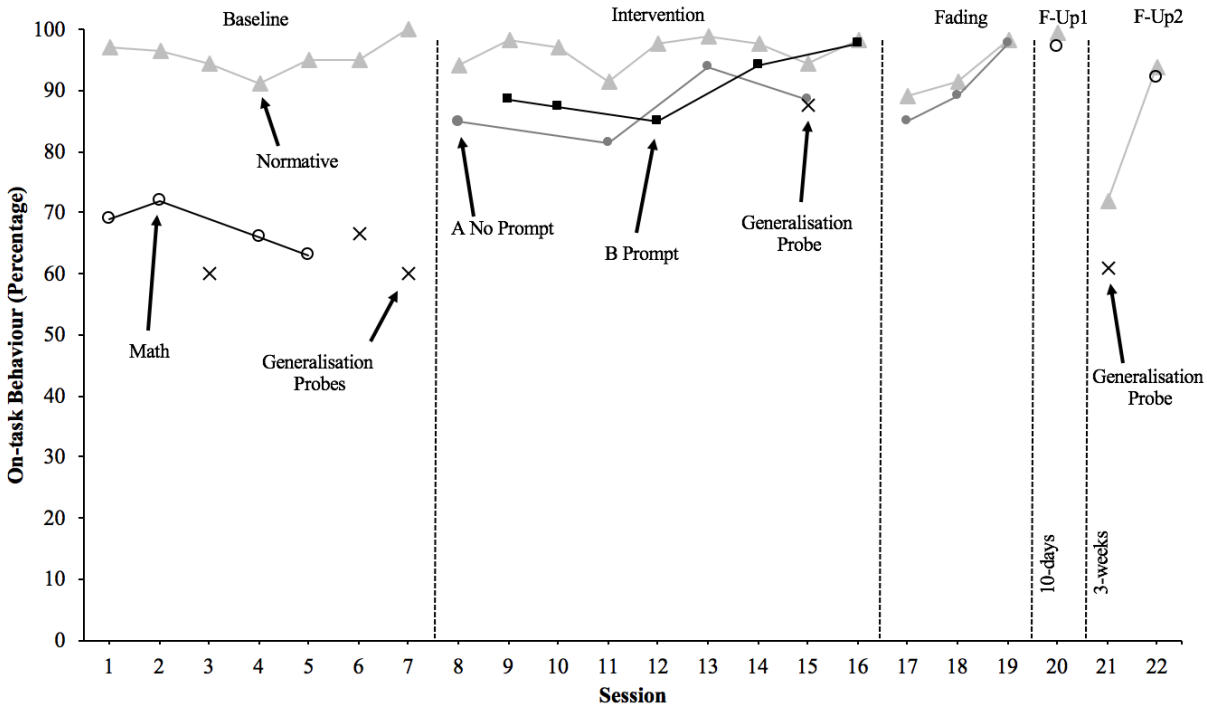

Figure 2. Percentage of on-task behaviour for each session across conditions for Jack and normative peer data in a self-management intervention with and without a variable interval prompt.

The mean normative data for peer on-task behaviour was stable and high (M=95.7%, 89%-100%) across the first four phases of the study. During the 3-week follow-up (session 21) normative on-task behaviour drops to a mean of 72%, however this is the only time on-task behaviour of normative peers drops below a mean score of 89% and increases again to 93.8% in the final session (session 22).

Jack's baseline on-task behaviour showed a decelerating trend observed in the Math setting with a mean of 67.5% (63%-72%) and a stable trend in the Reading setting with a mean of 62.2% (60%-66.7%), both falling below the desired level of 80%. The intervention was introduced in the Math setting only. The first session of the intervention phase (session 8) was observed under condition A (no prompt) following the teaching phase of the intervention and Jack's level of on-task behaviour increased from the mean of 67.5% (63%-72%) to 85% in this session. Across the intervention phase overall Jack's level of on-task behaviour

increased to a mean of 89% (81.5%-97.8%). Interestingly, Figure 2 demonstrates that condition B (Prompt) (M=90.5%, 85%-97.8%) increased compliant responses more than condition A (No Prompt) (M=87.2%, 75%-93.75%). Jack continued to maintain a high target response rate for on-task behaviour (M=90.5%, 85-97.5%) through the fading phase consistent with that of his peers (M=92.8%, 89%-98.1%). Overall, in the Math setting Jack's on-task behaviour remained high during the follow-up phase (97.1% at the 10-day follow-up, and 92% at the 3-week follow-up).

Generalisation. Generalisation probes in the Reading setting measured Jack's on-task behaviour at session 15 during the intervention phase to be 87.5% following the same trend as that of the mean normative peer data. At session 21 Jack's on-task behaviour drops back to baseline levels (61%), however so did the normative data (72%) indicating this was reflective of class-wide behaviour.

Effect Size. The PND was calculated to determine the efficacy of the intervention as a means to improve Jack's on-task behaviour. The PND for condition A (No Prompt) was 100% and the PND for condition B (Prompt) was also 100% indicating overall, according to Scruggs and Mastropieri (1998) that the intervention was a very effective method to increase on-task behaviour. As a second measure of effect size, the Tau-U was calculated. The Tau-U was again the same for both condition A (No Prompt) and B (Prompt) at 1(95% CI [0.499,1.5010]) showing that between the baseline phase and intervention phase 100% of the data did not overlap and again indicating the intervention was a very effective method to increase on-task behaviour.

Social Validity

To measure social validity a BIRS was completed by the teacher, and a CIRP by the participant pre and post intervention. The BIRS has a total possible score of 144 and the CIRP has a total possible score of 42. The appropriateness, acceptability, perceived effectiveness,

and significance of the intervention was determined by comparing the pre and post intervention scores.

Participant's perceptions.

The scores on the CIRP before and after the intervention were 25 (59.5%) and 39 (92.85%), respectively. Scores greater than 24.5 are considered acceptable (Turco & Elliot, 1986). Whilst Jack's score initially did meet this criteria, Jack's total score between preintervention and postintervention increased by 33.33% showing that Jack's attitude toward the intervention improved to be considerably more positive following the implementation of the intervention. Only 14.29% of the questionnaire items remained unchanged, whereas 85.71% of the items increased by one point or more.

Item 1 "The method that the researcher described to me to help with my behaviour seems fair" shifted from 'I agree' to 'I strongly agree' (one-point increase). Item 2 "The method is too hard on me" did not change, Jack scored this as "I slightly disagree". Item 3 "The method will cause me some problems with my friends" change from 'I slightly agree' to 'I disagree' (two-point increase). Item 4 "There are better ways to help with my behaviour than the one described here" had the biggest shift with Jack initially scoring this with 'I strongly agree' but after experiencing the intervention he scored this with 'I strongly do not agree' (five-point increase). Item 5 "The method will help other children too", item 6 "I like the method that the researcher just shared with me", and item 7 "I think the method will help me do better in school" all changed from 'I slightly agree' to 'I strongly agree' (two-point increase).

Teacher's perceptions.

The scores on the BIRS completed by the teacher before and after the intervention were 125 (86.8%) and 137 (95.1%), respectively. Scores greater than 84 are considered acceptable (Elliott & Treuting, 1991). The teacher initially did have an acceptably positive

attitude towards the intervention, and this increased by 8.3% postintervention. Preintervention, the teacher scored ‘agreed’ or ‘strongly agreed’ with 95.83% of the items indicating a strong positive attitude toward the efficacy, acceptability, and appropriateness of the intervention.

Postintervention 58.33% of the responses to items remained unchanged, 37.5% changed by one point and 4.16% (one item) changed by five points. The most significant measured change of the teacher’s perception of the effectiveness of the intervention was for item 18 “The intervention would improve the child’s behaviour to the point that it would not noticeably deviate from other classmates’ behaviour”. Preintervention the teacher noted she considered item 18 not applicable (scored 0), whereas postintervention she scored this with ‘I agree’ (five-point increase).

The teacher commented regarding two further items for which the score also increased; item 21 “Using the intervention should not only improve the child’s behaviour in the classroom, but also in other settings (e.g., other classrooms, homes), and item 24 “Other behaviours related to the problem behaviour also are likely to be improved by the intervention”. The teacher stated “I agree this can totally work and has across settings within the classroom and school environment…do I think it would also work at home?- yes if the parent was on board”.

Additional Measures

Instructions delivered.

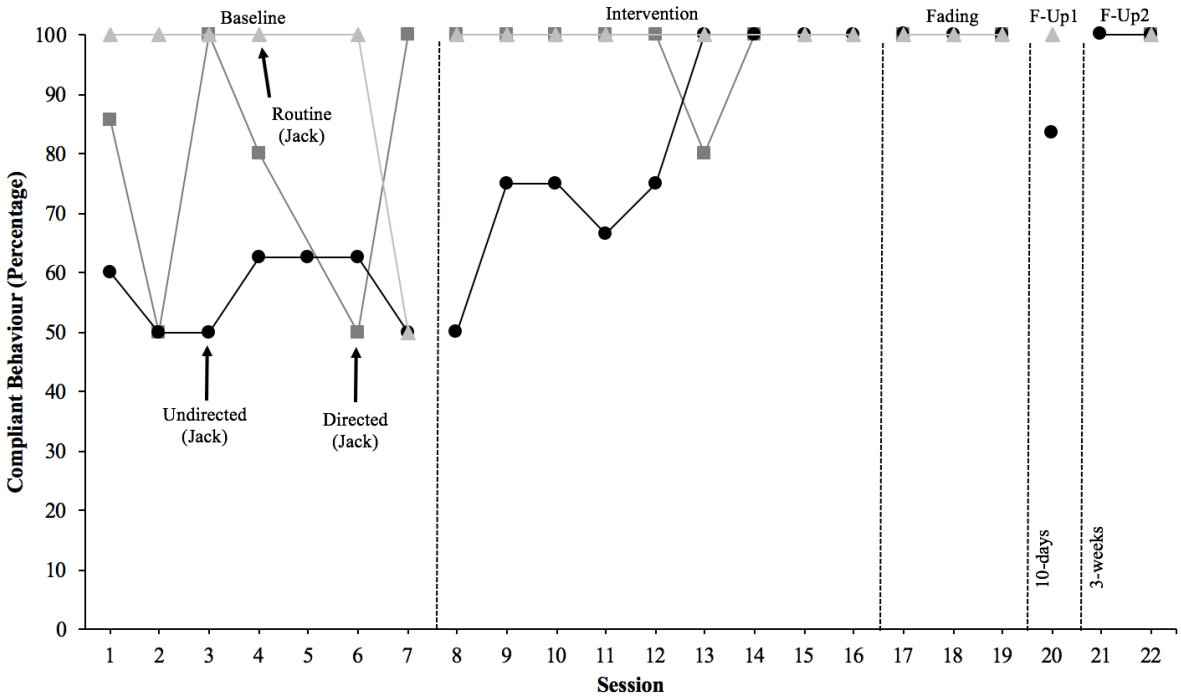

Figure 3. Percentage of compliant responses Jack made for three types of instruction delivery (directed, undirected, and routine) across a self-management intervention with and without a variable interval prompt.

Figure 3 shows the percentage of compliant responses to each type of teacher instruction (routine, directed, and undirected) across each phase of the intervention irrespective of the condition. Jack performed highest when it was a routine or direct instruction, consistently scoring 100% compliance for routine instructions, only once scoring lower in the last session of the baseline phase (M=91.67%, 50-100%). During the baseline phase figure 3 shows a variable trend for directed instructions (M=77.62%, 50-100). Post the teaching sessions this immediately increases to 100% (as can be seen at session 8) and continues to remain high and stable across the intervention, fading and follow-up phases. Undirected instructions were identified as target behaviour to increase. Figure 3 demonstrates that compliant responses to undirected instructions did increase over the intervention, shifting from a stable but low score in the baseline phase (M=56.79%, 50-62.5%) to an accelerating

trend across the intervention phase (M=82.41%, 50-100%). Jack's compliant responses to undirected instructions continued to remain high at the 10-day follow-up (M=83.33%) with five out of six compliant responses to undirected instructions, and 100% compliant responses in the 3-week follow-up sessions.

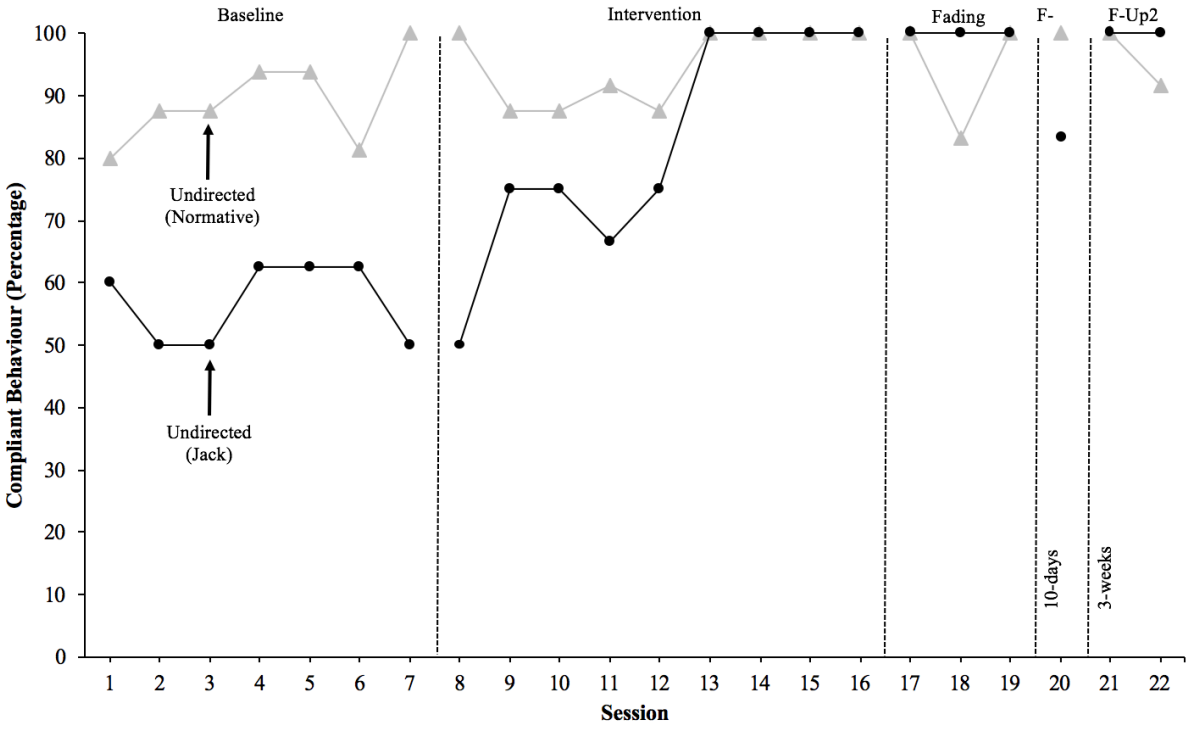

Figure 4. Percentage of compliant responses to undirected teacher instructions within the classroom for each session across conditions for Jack and normative peer data in a self-management intervention with and without a variable interval prompt.

Figure 4 shows a comparison of the participants responses to undirected instruction in comparison to peer normative data irrespective of the condition. The baseline results show that Jack's compliant responses (M=56.79%, 50-62.5%) to undirected instructions was 32.41% below that of his peers (M=89.11%, 80-100%). Across the intervention phase Jack's score for compliant responses to undirected instructions showed an accelerating trend that equalled his peers at 100% by session 13. Jack maintained a high score across the fading and follow-up phases, at times outperforming his peers as can be seen in in session 18 and 21.

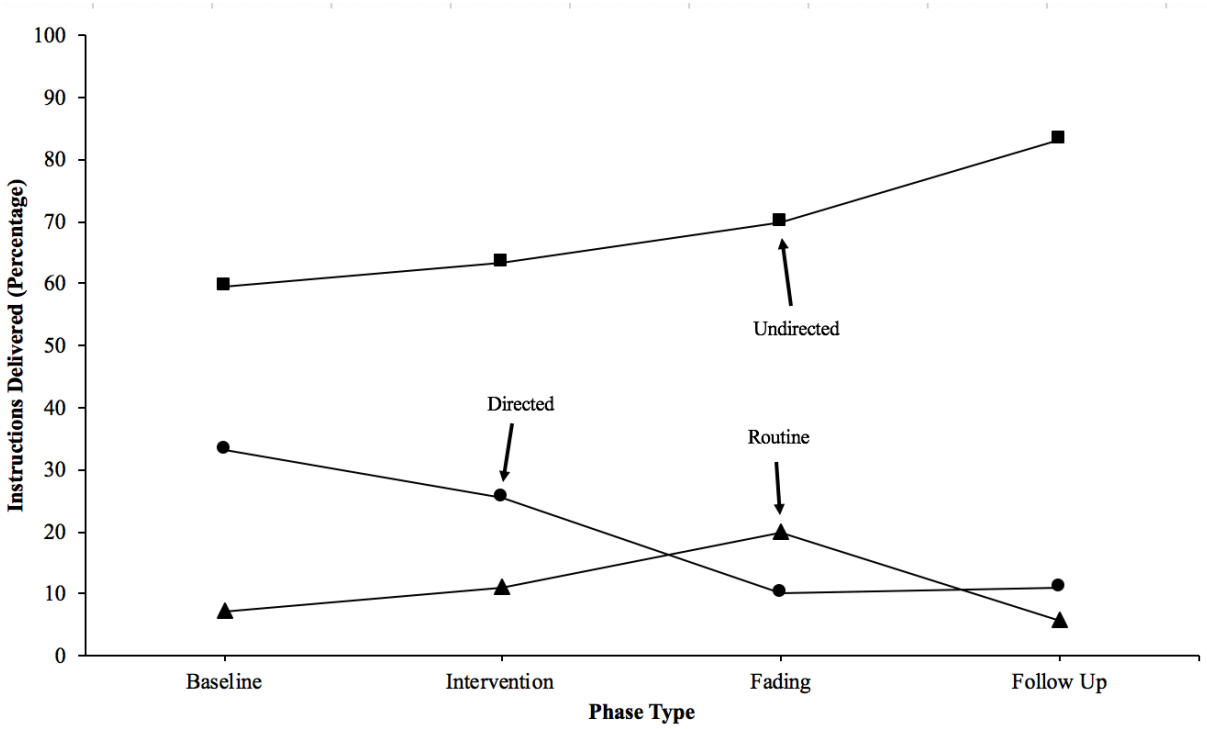

Figure 5. Percentage of routine, directed, and undirected instructions delivered across conditions for Jack in a self-management intervention with and without a variable interval prompt.

As can be seen in figure 5, the number of routine instructions delivered were low and consistent across all phases of the intervention (M=12.62%, 10-15.8%). The percentage of instructions being delivered that were directed instructions, however, show a decelerating trend starting at 29.4% in the baseline phase and dropping to 0% in both the 10-day and 3-week follow-up phase. Conversely, the percentage of instructions being delivered by the teacher as undirected instructions show an accelerating trend across the intervention starting at 60.3% in the baseline phase and increasing to 90% of all instructions being delivered by the 3-week follow-up phase.

Discussion

The purpose of this study was to compare tactile prompting versus no prompting within a self-management intervention to increase compliant behaviour with typically

developing children in a mainstream New Zealand classroom, whilst also monitoring for concomitant effects on on-task behaviour. This study was a systematic replication and extension of a study conducted by Lee (2016). Lee (2016) used a self-management intervention to increase compliant and on-task behaviour of a child with ASD within the classroom. The comparison of an unobtrusive tactile prompt versus no prompt was a key extension of this study with the aim of removing the obtrusive nature of prompting by the researcher. I hypothesised that a self-management intervention is more effective at increasing compliance with teacher instructions if it includes the use of a tactile prompt than if no prompts are used and would have high social validity for both the student and teacher. Additionally, it was hypothesised that the intervention would result in a concomitant increase in on task behaviour.

Overall, findings supported these hypotheses showing an increase in compliant behaviour, a concomitant increase in on-task behaviour, and that these behaviours generalised to other settings, and were maintained post the fading phase of the intervention.

Environmental conditions were relatively constant across the intervention; observation sessions were conducted in one classroom, with the same teacher and group of peers, during the same teaching sessions (numeracy and literacy). While effort was undertaken to keep environmental conditions consistent to minimise the impact of extraneous and confounding variables of the students' behaviour, complete control of environmental conditions is not possible within the context of a classroom. Normative data collected within this study reflects natural variability within the classroom providing an appropriate comparison measure of typical classroom behaviour across the intervention.

Single case research designs use repeated measures and data analysis to observe an individual's behavioural variability, to determine the effect of an intervention, and demonstrate control over target behaviour. Based on the criteria outlined by Clearinghouse

(2017) the findings of this study demonstrate a strong experimental effect as there were three or more replications of the effect across the intervention. The effect size calculations suggest this self-management intervention with and without a tactile prompt met criteria to be classified as *very effective* in increasing compliance with teacher instructions across settings.

Self-management and Compliant Behaviour

In baseline measures Jack presented with levels of compliance well below his peers (as seen in Figure 1). However not only was there an immediate increase following teaching discrimination and the implementation of the intervention, but the trajectory was stable and at the same level as peers within 5 sessions (as seen in the intervention phase, Figure 1). These levels of compliant behaviour remained equal or above peer performance for the rest of the intervention.

A point of note is the immediate increase in target behaviour upon implementing the intervention. This first session following teaching discrimination was implemented in condition A, no-prompt. Therefore, the only component of the intervention implemented at that point was the self-recording of target behaviour following an instruction. Both compliant and on task behaviour increased from mean baseline measures by 12.5% and 17.5% respectively in that session alone. It may have been appropriate to have continued with baseline observations following the teaching sessions to identify what effect teaching itself had on Jack's compliant and on-task behaviour.

Future research could address this issue by implementing further baseline observations immediately following the teaching sessions to ascertain what effect only teaching compliance as a skill has. It may be that teaching students what compliance is and looks like within the classroom alone has a positive effect with typically developing, or all children within mainstream classrooms and could be implemented as a class-wide or individual lesson from a preventative approach.

Self-management and On-task Behaviour

In addition to increasing compliant behaviour, this self-management intervention also resulted in concomitant increases in on-task behaviour to levels that were comparable to the peer normative data (Figure 2). Similar to the results for compliant behaviour, initially Jack presented with rates of on-task behaviour well below his peers (as seen in the baseline phase, Figure 2). However again not only was there an immediate increase in Jack's on-task behaviour following teaching discriminations and the implementation of the intervention, the levels of on-task behaviour remained stable and consistently comparable to that of Jack's peers.

An interesting observation is that during the 3-week follow-up (Figure 2) Jack's on-task behaviour levels in a generalisation probe show to be at baseline (session 21), and one may interpret this to mean the increase in on-task behaviour did not generalise across settings. However, peer normative data also dropped to similar levels in this session indicating Jack's behaviour was in line with peer behaviour and further exploration would be needed to identify true generalisation results for on-task behaviour. This example highlights the importance of collecting peer normative data.

Social Validity

Overall, the self-management intervention was considered acceptable by both the teacher and the student. Prior to the study both the teacher and the student were positive about the intervention. Following the intervention their ratings had further increased. The implementation of the tactile prompt was intended to increase social validity as well as compliant behaviour, the self-recording options presented to the teacher during the initial FAI and information discussions were of either pen and paper or sticker chart on an iPod. Based on existing high in-class use of technology such as laptops or iPads it was decided by the teacher that the iPod would be used. The decision to use technology for the recording as well

as prompting led to further increase in social validity. The use of a time-based tactile prompt potentially eliminates the need for a therapist or other adult being present, and the use of the iPod reduced the cumbersome nature of recording by pen and paper.

Interestingly, whilst Jack was happy with wearing the tactile prompt as it was discrete and unnoticeable to his peers, Jack had expressed some hesitancy regarding using the iPod Touch as peers would see that. Jack considered that his peers may behave undesirably towards him as a direct result of using a device within the intervention that singled him out within the classroom; though the iPod Touch was a small easy to use device it was not common within the classroom. However, the opposite occurred; peers were curious, and some indicated that they wanted to use one too. Social validity for Jack increased from this positive interaction and feedback from peers. Implementing a tactile prompt reduced the human resources required to implement this intervention and increased the social validity for both the student and the teacher.

The teacher was very responsive to the data that showed the type of instructions (routine, direct or indirect) that Jack specifically had low levels of compliance for, and until experiencing this intervention had not given such consideration to identifying which specific compliance skill deficit might exist for her students.

Interestingly, pre intervention the teacher did not find it applicable to even consider whether the intervention would improve Jack's behaviour to the point that it would not deviate from peer behaviour. However, post intervention the teacher positively agreed with this, and identified that she had observed generalisation and maintenance across settings within the classroom and wider school environment.

Treatment Integrity

Treatment fidelity across this intervention was 100% which indicates that this self-management intervention was implemented as planned. Jack used an iPod touch to self-record

using the StickerPop! application, and the wearable MotivAider® as a tactile prompt. The high treatment fidelity suggests these devices were appropriate, simple, and acceptable to use within the self-management package.

Strengths and Limitations

A key strength of this study was that the implementation of the self-management intervention resulted directly in an improvement in Jack's compliant and on-task behaviour. As an outcome of discrimination training and self-monitoring Jack was able to master compliance with teacher instructions as a skill. Compliance as a skill in this context has the potential to generalise and further develop across other settings, situations, and relational interactions, promoting opportunity for pro-social development and further academic achievement.

Another strength of this intervention was the high social validity of the intervention overall. Jack indicated pre the intervention that he agreed it was an appropriate intervention and considered it would help Jack to develop the skill of compliance. Specific components of the intervention were identified as particularly contributing to the social validity. One was that self-recording on the StickerPop! application was simple and appealing for Jack, as was the discrete nature of the MotivAider®. The class teacher also agreed it was an appropriate intervention and the teacher was willing to recommend this intervention to other teachers and parents.

The relevance of these findings is important as many typically developing children may present with low levels of compliance but not be eligible for extra in-class support to address this. Having an intervention that is self-managed and low teacher resourced, socially accepted, and proven effective may meet the needs of this group of children.

These findings support the hypothesis that this self-management intervention will have high social validity. Whilst previous studies, such as by Lee (2016) or Imasaka (2019)

have also shown relatively high social validity, this study (akin to the study by Higgs (2019)) utilised technology to further enhance social validity and potentially reduce even further the resources required to effectively implement successful self-management interventions with typically developing children within mainstream classrooms. This intervention was also easy to teach and implement resulting in high treatment integrity. Additionally using a single-case research method enabled ease of monitoring behaviour and concise appropriate decisions around various components and phases of the intervention based on data from each session (Cooper et al., 2014); in this study I used sessional data to decide when to implement the intervention, when to fade, and end the intervention.

A key aim of this intervention was to compare the effects of the intervention with and without a tactile prompt. An alternating treatment design enabled me to make this comparison over a short period of time. It was hypothesised that using a tactile prompt (condition B) would have a greater effect on compliant and on-task behaviour than no prompt (condition A). The findings of this present study support this hypothesis; as shown in both Figure 1 and 2 results indicate that condition B was more effective than condition A. It is noteworthy however, that both condition A and condition B resulted in high levels of compliant and on-task behaviour, and these behaviours generalised across settings and were maintained over time.

Alternating treatment designs offer the advantage of not requiring treatment withdrawal, minimising sequence effects, and the opportunity to compare two or more treatments quickly (Cooper et al., 2014). However, a limitation is that multiple treatment interference may mean there are confounding effects between intervention conditions (Cooper et al., 2014). Therefore, it is recommended that once a condition is identified to be most effective within the alternating treatment phase, this should be followed by a *best treatment*

phase; a phase in which only the most effective condition is implemented in isolation (Cooper et al., 2014). In this current study this phase was not implemented.

Theoretical and Practical Importance

From the findings of this study one can also pose an interesting challenge to the well cited guidance from McMahon and Forehand (2003) that 60 to 90% compliance is ideal, and 100% compliance is problematic and maladaptive. The context in which compliant behaviour is or is not occurring and is being measured must be taken into consideration. In baseline measures peer normative data for compliance was 93% and Jack's was 68%. According to the guidelines of McMahon and Forehand (2003) this would have one assume Jack was performing at appropriate levels and the peers were potentially performing at maladaptive levels. However, this does not take into account the context of a classroom including appropriate expectations from the teacher and normative levels of compliance with the classroom. The key reason Jack was identified for this intervention was that his level of compliant behaviour was well below peers and correlated with academic levels also well below his peers (Radley & Dart, 2016).

Numerous researchers have also found the implementation of a self-management intervention to increase compliant levels to 100% at points (Higgs, 2019; Imasaka, 2020; Lui et al, 2014). Whilst 100% compliance 100% of the time may be maladaptive, within classrooms it is likely that a very high level of compliance with Teacher instructions is both desirable and optimal. In some situations compliance is not only considered optimal but imperative; compliance with all flight crew instructions is a requirement of flying with most airlines, and there is an expectation that one would comply with police or custom officer instructions. Some children may need to be taught to discriminate between situations where compliance is required, and where compliance is optional.

Across this intervention both the participant and peers achieved compliance rates of 100%. Existing high rates of peer normative compliant behaviour could be attributed to not only the existing skill set of the peers, but the clear directive way in which the teacher was delivering instructions overall. If we are to consider the theory of EID and research that shows that the form and delivery of instructions is linked to rates of compliance (Dufrene et al, 2012; Mandal et al., 2000; LaBrot et al., 2022; Scoggins, 2005; Stephenson & Hanley, 2010) then a teacher that delivers clear instructions that meet the academic, cognitive, and behavioural level or capacity of the students can expect a high level of compliance. Whilst this study did not assess to what extent the teacher delivered clear and appropriate instructions, the high normative data suggests that they did. Consideration however must also be given as to whether the student/s have the skill set of recognising an instruction and discriminating appropriate responses.

What was interesting with the findings of this study was that Jack's levels of compliant behaviour for routine instructions was consistently 100% indicating Jack had the appropriate knowledge and behavioural skill set to meet the expectation of routine instructions. A possible explanation for this is that routine and associated behavioural expectations were likely deliberately taught class wide as a part of general classroom management. Initially in baseline there were mixed results for direct instruction but following teaching discrimination Jack also showed consistent 100% compliance. However, baseline results indicated significantly lower levels of compliant responses to undirected instructions than peer normative response levels (Figure 3) giving insight into specifics details of Jacks skill deficit relating to compliant behaviour- potentially Jack was not responding to indirect instructions as either an instruction at all, or an instruction that involved him. It was evident that a level of learning compliance as a skill had occurred for Jack when 6 sessions into the intervention phase (session 13) Jack turned to me, the researcher, immediately following an

indirect instruction from the teacher wide eyed and grinning self-answering his question *'was that an instruction?…that was an instruction!'* then immediately complied with that instruction. It appeared Jack had a moment of new understanding, supported with the evidence that shows in this same session (13) Jack's compliant behaviour for indirect instructions was equal to peer normative data at 100% and maintained well across the intervention (Figure 4). These findings and observations support the argument that non-compliance was not defiance, but rather Jack did not initially have the appropriate skill set.

Interestingly, the percentage of directed instructions reduced over the implementation of the intervention and the percentage of undirected instructions increased (Figure 5). These findings indicate that the intervention may have promoted a change in participant behaviour that reduced the time and attention the teacher needed to specifically attend to Jack's behaviour. The outcome was adaptive for the Jack as it reduced the negative attention he received. Over the course of the intervention the teacher was providing the same or similar amount of attention to Jack as his peers.

Furthermore, it is beneficial not to assume all students know what an instruction is within the context of a classroom. In considering that there were three types of instructions (direct, indirect, and routine instructions) that make up teacher instructions within the classroom, then identifying which type of instruction most commonly correlates with low compliance is relevant and important. This knowledge alone may inform and guide the teacher's behaviour through recognising there is a specific skill deficit, and therefore a skill to be taught. An outcome is also that awareness that there is a skill deficit shifts the onus of the behaviour- i.e., the teacher teaches the skill as opposed to simply managing the outcome of not teaching the skill and viewing the child negatively as non-compliant.

An overall historical approach has been to focus on non-compliance as a behaviour to be reduced. This study sought to increase rates of compliance based on the notion that

compliance is a skill to be taught. Therefore, this study supports the conceptual shift toward research and interventions focussing more on increasing compliance (and as a result the means to reduce non-compliant behaviours) from a skill deficit paradigm.

The findings of this study indicate that compliance is a skill that can be taught to typically developing children using a self-management intervention with and without a tactile prompt. Findings indicate that teaching what compliance with teacher instructions is and how to discriminate is appropriate and relevant. Finding also show that teaching compliance has a concomitant effect on on-task behaviour. From a developmental/strategic perspective, it makes sense that for one to be on-task one first needs to know what the instruction is. Secondly, on-task behaviour could be considered as compliance sustained over time. Therefore, teaching compliance as a skill could be identified as a building block that scaffolds a child to be able to perform on-task. That is, first the child recognises the instruction as an instruction, then complies with the instruction initially and sustained compliance results in on-task behaviour- all conducive to enabling academic achievement.

Future Research

The results of this study show self-management is an effective and socially valid way of increasing compliance with teacher instructions. Enhancing social validity by further refining the technology used (i.e., wearable technology such as the smart watches) could mean that prompting and recording and self-evaluating could occur on the same wearable and discrete device. Data could also be set up to be sent directly to the teacher; this would support the idea that transparency promotes increased levels of target behaviour. These extensions may facilitate greater independence from the researcher or teacher. Recent studies such as Higgs (2019) have made some advances in utilising technology within self-management interventions to increase compliant behaviour. Combining such findings with that of this

study support the promotion of further investigation of technology and its use within self-management interventions to increase compliant behaviour within classrooms.

The main finding of this study was that compliant behaviour increased with the implementation of a self-management intervention with and without tactile prompting. Whilst it appears from the results that using a tactile prompt had a stronger effect on increasing compliance and on-task behaviour than no tactile prompt, potentially no-prompting was needed at all for an effective result. Condition B was faster to achieved 100% compliance, but condition A also achieved 100% compliance. Future research comparing the two conditions (with and without a tactile prompt) across participants may be beneficial in identifying further if teaching compliance as a skill is enough. While results from this alternating treatment design suggest the same terminal levels of compliance, the possibility of treatment interference or spontaneous generalisation or maintenance cannot be ruled out. Researchers may even take it a step further, and study only teaching discrimination without applying a self-management intervention. This could be taught class-wide firstly, then individual students could receive more intensive intervention inclusive of self-management as required.

Conclusion

I used an alternating treatment design to compare the effectiveness of a self-management intervention with and without a tactile prompt on compliant and on-task behaviour for a typically developing child within a mainstream New Zealand classroom. Compliance and on-task behaviour are regarded as academic enablers, and pivotal life skills for children to learn promoting both academic and social success (Raines et al., 2010; Radley & Dart, 2016). This study not only demonstrated the effectiveness of self-management as a socially acceptable intervention for increasing compliance with teacher instructions within the classroom, but also effective in concomitantly increasing on-task behaviour.

Given the modern inclusive nature of classrooms and therefore even more diverse learning needs – now more so than ever interventions that support the typically developing child presenting with low levels of compliance are important. Not only that, but interventions that promote independence and require low teacher involvement are appealing. Based on the findings this intervention meets these needs and ideals. Furthermore, this study has highlighted the benefit of teaching compliance as a skill. Potentially the implementation of teaching compliance class wide as a fundamental first approach may address a previously unrecognised skill deficit for many typically developing children within mainstream classrooms.

Declaration of Interest

None of the authors have any conflicts of interest with the information presented within this article.

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Appendices

Appendix A: Information sheet for schools

School of Psychology

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

INFORMATION SHEET
For Schools

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

Research Project: Increasing compliance with teacher instruction within the classroom using variable interval tactile prompting in a Self-Management intervention

Associate Professor Angelika Anderson
School of Psychology
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Sarah Veitch
Phone: 0211567279
email: sjv18@students.waikato.ac.nz

You are invited to take part in a research project conducted by Sarah Veitch under the supervision of Associate Professor Angelika Anderson from the School of Psychology, University of Waikato. This project forms part of the requirement for completing the Master of Applied Psychology (Behavioural Analysis). Please read this Explanatory Statement in full before deciding whether or not to participate in this research. If you would like further information regarding any aspect of this project, you are encouraged to contact the researchers via the phone numbers or email addresses listed above.

What does the research involve?

The aim of the research project is to implement a self-management intervention package to increase compliance in 5 to 10 year old students that partake in a group teacher led learning environment (i.e. classroom). Following teachers' instructions is a very important skill for all children, in particular in a school environment. Children need to be able to follow instruction in order to engage in learning activities and to allow teachers to create a positive and safe classroom environment.

Who we are looking for

This project aims to recruit

- One to four 5 to 10 year old students who the teachers report exhibit low rates of compliance with teacher instructions.
- The teacher of the student.

Recruitment process

The student is identified through staff of the school. The school will provide the parents / guardians with the Information Sheet (for Parents/Guardians) (through classroom teacher). Parents/guardians of the student who are interested in this study will contact the researchers.

Once the student is determined to be suitable and both the parents and students have consented to participate in the project, the researchers will inform the school and give the Information Sheet (for Teacher) and Consent Form (for Teacher) to the classroom teacher. The teacher will then return the Consent Form (for Teacher) to the researchers if he/she consents to take part in this project.

Teacher involvement

1. The teacher will identify potential participants.
2. The teacher will be invited to a 30-40-minute interview with the researchers to understand more about the behaviour of the student. The teacher will also complete a 10-minute rating scale as pre-intervention measure.
3. Towards the end of the project, the teacher will be invited to complete a 10-minute rating scale as post-intervention measure.
4. Throughout this project, the researchers will engage in regular, unobtrusive observations in the classroom. The focus of the observations will be mostly on the consenting student. The time and duration of the observations will be negotiated between the researchers and the teacher/school.

Parent / Guardian involvement

1. The parents / guardians of the identified student will receive the Information Sheet (for Parents), Consent Form (for Parents).
2. The parents / guardians will contact the researchers directly if they are interested in the project. This is followed by a brief interview with the parents / guardians (approximately 15 minutes) to gather background information about the child.
3. If the suitability of the student is ascertained, the parents / guardians will return the signed copies of Consent Form to the researchers to indicate their consent.

Student involvement

1. Once consent from the parents for the child to participate in the study has been obtained, assent will be gained directly from the child.
2. Prior to the start of the intervention, the student will be invited to complete a 5-minute rating scale as pre-intervention measure.
3. The student will then participate in 2 or 3 training sessions (30 minutes each) where he/she will be taught strategies to manage his/her behaviour in class. The strategies are likely to include components of monitoring his/her own behaviours, the tactile prompt, understanding the appropriate and inappropriate behaviours, and setting own behavioural goals.
4. Once trained, the student will be instructed to use these strategies. These strategies are intended to be unobtrusive and minimally disruptive to the teaching and learning processes.
5. Throughout this project, the researchers will engage in regular observations in the

classroom. The researchers will only focus on the consenting student. Parents / Guardians of non-targeted students in the same classroom will be informed of the researchers' presence (via the appropriate school communication pathway such as letter home to parents from school). The project is likely to be completed within 1 school term.

6. Towards the end of the project, the student will be invited to complete a 5-minute rating scale as post-intervention measure.

Consenting to participate in the project and withdrawing from the research

Participating in this project is voluntary and the student, parents, or teachers are under no obligation to consent to participate. Consent is given through signing and returning the consent/assent forms to the researchers. Even after consent is given, the student, parents, or teachers can withdraw their participation in this project at any point of time, without explanation. They also have the right to ask that any data collected to that point be destroyed.

Possible benefits and risks to participants

The project could potentially benefit not only the participants of this project, but also the wider education community. The increased compliance will allow the student to learn better in classrooms. An increase in on-task behaviour is a likely beneficial, concomitant effect of increased compliance. With increased student's compliance, teachers will also be less distressed and spend more of their time on instructional tasks rather than behaviour management. The knowledge gained from this project will contribute to our knowledge base regarding noncompliant behaviours of students.

There are no foreseeable risks to the participants, although the participants may experience minor inconvenience. There will be minimal disruption to normal classroom activities as the project will be conducted entirely in the school and scheduling will be adapted to suit the class schedule. Observations will also be conducted in an unobtrusive manner. Participating student may miss small portions of academic activity due to the training sessions. The teacher may feel inconvenienced by the initial planning sessions (e.g., interviews, scheduling matters).

Confidentiality

Identifying information will be kept confidential at all times. Names of the participants and participating schools will be replaced with codes or pseudonyms (fake names) in order to protect the confidentiality of the participants. Whenever data is reported in subsequent reports, presentations, or publications, neither the participants nor the school will be identifiable.

Storage of data

Data will be stored in adherence to the University of Waikato Regulations. All information will be kept securely on university premises for the 5-year period. Only the researchers will have access to it. Electronic data will be kept on a University password protected computer. Only the researchers will have access to the data. At the end of the storage period, data will be destroyed through shredding or deletion of electronic files.

Results

Results will be presented within a Master thesis. They may also be presented in the form of a research report or journal article. A summary report will be prepared and given to the school and

interested parents.

Complaints

Should you have any concerns or complaints about the conduct of the project, you are welcome to contact the convenor of the Psychology Research and Ethics Committee (Professor Nicola Starkey, phone 07 837 9230, email: nicola.starkey@waikato.ac.nz)

Questions or concerns

If you would like further information regarding any aspect of this project, you are encouraged to contact the student researcher, Sarah Veitch. If she is unable to address your questions or concerns to your satisfaction, she will address these matters with her supervisor.

Thank you,
Associate Professor Angelika Anderson and Sarah Veitch

Appendix B: Information sheet for teacher

School of Psychology

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

INFORMATION SHEET
For Teacher

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

Research Project: Increasing compliant with teacher instruction within the classroom using variable interval tactile prompting in a Self-Management intervention

Associate Professor Angelika Anderson
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You are invited to take part in a research project conducted by Sarah Veitch under the supervision of Associate Professor Angelika Anderson from the School of Psychology, University of Waikato. This project forms part of the requirement for completing the Master of Applied Psychology (Behavioural Analysis). Please read this Explanatory Statement in full before deciding whether or not to participate in this research. If you would like further information regarding any aspect of this project, you are encouraged to contact the researchers via the phone numbers or email addresses listed above.

What does the research involve?

The aim of the research project is to implement a self-management intervention package to increase compliance in 5 to 10-year old students that partakes in a group teacher led learning environment (i.e. classroom). Following teachers' instructions is a very important skill for all children, in particular in a school environment. Children need to be able to follow instruction in order to engage in learning activities and to allow teachers to create a positive and safe classroom environment.

Who we are looking for

This project aims to recruit

- One to four 5 to 10-year old students who the teachers report exhibit low rates of compliance with teacher instructions.
- The teacher of the student.

Teacher involvement

The following outlines what will be asked of you if you choose to participate:

1. You will be asked to identify potential participants and provide the parents/guardians with the appropriate information sheets.
2. You will be invited to a 30-40-minute interview with the researchers to understand more about the behaviour of the student. You will also complete a 10-minute rating scale as pre-intervention measure.
3. Towards the end of the project, you will be invited to complete a 10-minute rating scale as post-intervention measure.
4. Throughout this project, the researchers will engage in regular, unobtrusive observations in the classroom and record behaviour. The time and duration of the observations will be negotiated between you, the school, and the researcher.
5. The focus of the observations will be mostly on the consenting student. You will be provided with a notice to give to the parents / guardians of non-participating students to inform them of the research and the researchers' presence in your classroom.
6. The intervention is intended to be unobtrusive and minimally disruptive to teaching and learning processes. The project is likely to be completed within 1 school term.

Consenting to participate in the project and withdrawing from the research

Participating in this project is voluntary and you are under no obligation to consent to participate. Consent is given through signing and returning the consent/assent forms to the researchers. Even after consent is given, you can withdraw their participation in this project at any point of time, without explanation. You also have the right to ask that any data collected to that point be destroyed.

Possible benefits and risks to participants

The project could potentially benefit not only the participants of this project, but also the wider education community. Increased compliance will allow the student to learn better in classrooms. An increase in on-task behaviour is a likely beneficial, concomitant effect of increased compliance. With increased student's compliance, teachers will also be less distressed and spend more of their time on instructional tasks rather than behaviour management. The knowledge gained from this project will contribute to our knowledge base regarding noncompliant behaviours of students.

There are no foreseeable risks to you the participating teacher, although you may experience minor inconvenience, such as scheduling of interviews and sessions, interviews, and observation sessions. Scheduling will be done to suit the class schedule so as to minimize disruption to normal classroom activities, teaching and learning processes. Observations will also be conducted in an unobtrusive manner.

Participating students may miss small portions of academic activity due to the training sessions. However, the training times will be decided collaborative with you to ensure that there is minimal disruption to the student's learning. If any concerns are raised or if any adverse outcome should arise during the course, you are encouraged to inform a member of the research team immediately. If necessary, the student researcher will assist in obtaining further assistance if required.

Confidentiality

Identifying information will be kept confidential at all times. Names of the participants and participating schools will be replaced with codes or pseudonyms (fake names) in order to protect the confidentiality of the participants. Whenever data is reported in subsequent reports, presentations, or publications, neither the participants nor the school will be identifiable.

Storage of data

Data will be stored in adherence to the University of Waikato Regulations. All information will be kept securely on university premises for the 5-year period. Only the researchers will have access to it. Electronic data will be kept on a University password protected computer. Only the researchers will have access to the data. At the end of the storage period, data will be destroyed through shredding or deletion of electronic files.

Results

Results will be presented within a Master thesis. They may also be presented in the form of a research report or journal article. A summary report will be prepared and given to the school and interested parents.

Complaints

Should you have any concerns or complaints about the conduct of the project, you are welcome to contact the convenor of the Psychology Research and Ethics Committee (Professor Nicola Starkey, phone 07 837 9230, email: nicola.starkey@waikato.ac.nz)

Questions or concerns

If you would like further information regarding any aspect of this project, you are encouraged to contact the student researcher, Sarah Veitch. If she is unable to address your questions or concerns to your satisfaction, she will address these matters with her supervisor.

Thank you,

Associate Professor Angelika Anderson and Sarah Veitch

Appendix C: Information sheet for parents / guardians

School of Psychology

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

INFORMATION SHEET
For Parents / Guardians

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

Research Project: Increasing compliance with teacher instruction within the classroom using variable interval tactile prompting in a Self-Management intervention

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What does the research involve?

The aim of the research project is to implement a self-management intervention package to increase compliance in 5 to 10-year old students that partakes in a group teacher led learning environment (i.e. classroom). Following teachers' instructions is a very important skill for all children, in particular in a school environment. Children need to be able to follow instruction in order to engage in learning activities and to allow teachers to create a positive and safe classroom environment.

The researchers are looking to recruit one to four 5 to 10-year old students who the teachers report have low rates of compliance. The teacher has observed that your child has some difficulties following instructions in class. The school and classroom teacher of your child are willing to participate in this study to help your child better follow teacher's instructions in the classroom.

As part of this study, your child will participate in a self-management intervention during school hours. The following outlines what your child will experience after if you choose to participate in this study.

1. Once consent from you the parents/ guardians for the child to participate in the study has been obtained, assent will be gained directly from the child.
2. Prior to the start of the intervention, your child will be invited to complete a 5-minute rating scale as pre-intervention measure.
3. Your child will then participate in 2 or 3 training sessions (30 minutes each) where he/she will be taught strategies to manage his/her behaviour in class and how to use the tactile prompt. The strategies are likely to include components of monitoring his/her own behaviours, understanding the appropriate and inappropriate behaviours, and setting own behavioural goals.
4. Once trained, your child will be instructed to use these strategies. These strategies are intended to be unobtrusive and minimally disruptive to the teaching and learning processes.
5. Throughout this project, the researchers will engage in regular, unobtrusive observations in the classroom and record behaviour.
6. Towards the end of the project, the child will be invited to complete a 5-minute rating scale as post-intervention measure.
7. The project is expected to be completed within 1 school term.

Parent / Guardian involvement

If you are interested in this study, please contact the researchers for a brief interview (around 10 min) to determine the suitability of your child for this study. If your child is a suitable candidate for this study, please sign and return the consent form to the researchers.

Consenting to participate in the project and withdrawing from the research

Participating in this project is voluntary and you are under no obligation to give consent for you or your child to participate. Even after consent is given, you can withdraw their participation in this project at any point of time, without explanation. You also have the right to ask that any data collected to that point be destroyed. If your child no longer wishes to participate in this research at any point of time, he/she will be allowed to stop. If the teacher for any reason withdraws consent then your child will have to stop participating in the research.

Consent is given through signing and returning the consent/assent forms to the researchers. By checking the relevant boxes on the consent form and signing the consent form, you are giving consent to your child's school and teacher to disclose relevant information about your child (e.g., age, classroom behaviour).

Possible benefits and risks to participants

The project could potentially benefit not only the participants of this project, but also the wider education community. Increased compliance will allow the student to learn better in classrooms. An increase in on-task behaviour is a likely beneficial, concomitant effect of increased compliance. With increased student's compliance, teachers will also be less distressed and spend more of their time on instructional tasks rather than behaviour management. The knowledge gained

from this project will contribute to our knowledge base regarding noncompliant behaviours of students.

There are no foreseeable risks to the participating student. There will be minimal disruption to normal classroom activities as project will be conducted entirely in the school and scheduling will be adapted to suit the class schedule. Observations will also be conducted in an unobtrusive manner. Participating student may miss small portions of academic activity due to the training sessions. Scheduling of training sessions will be done in collaboration with the teacher to minimize the disruption to the student's learning.

If any concerns are raised or if any adverse outcome should arise during the course, you are encouraged to inform a member of the research team immediately. If necessary, the student researcher will assist in obtaining further assistance if required.

Confidentiality

Identifying information will be kept confidential at all times. Names of the participants and participating schools will be replaced with codes or pseudonyms (fake names) in order to protect the confidentiality of the participants. Whenever data is reported in subsequent reports, presentations, or publications, neither the participants nor the school will be identifiable.

Storage of data

Data will be stored in adherence to the University of Waikato Regulations. All information will be kept securely on university premises for the 5-year period. Only the researchers will have access to it. Electronic data will be kept on a University password protected computer. Only the researchers will have access to the data. At the end of the storage period, data will be destroyed through shredding or deletion of electronic files.

Results

Results will be presented within a Master thesis. They may also be presented in the form of a research report or journal article. A summary report will be prepared and given to the school and interested parents.

Complaints

Should you have any concerns or complaints about the conduct of the project, you are welcome to contact the convenor of the Psychology Research and Ethics Committee (Professor Nicola Starkey, phone 07 837 9230, email: nicola.starkey@waikato.ac.nz)

Questions or concerns

If you would like further information regarding any aspect of this project, you are encouraged to contact the student researcher, Sarah Veitch. If she is unable to address your questions or concerns to your satisfaction, she will address these matters with her supervisor.

Thank you,

Associate Professor Angelika Anderson and Sarah Veitch

Appendix D: Information sheet for students

Ψ School of Psychology

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

Project Information for Students

My name is Sarah Veitch, and I am from the University of Waikato. I would like you to join in a research project in your school. Here is information about it. Just ask if you do not understand something!

What is this project about?

We want to find out how children can learn to act/behave better in class by watching and taking note of their own behaviour - this is called self-management. With self-management, we can learn to change the way we behave.

Why be involved?

Learning how to manage your own behaviour may help you learn better in class and to get along even better with your teacher and your friends. It is important for children at school to be able to follow the instructions of teachers. That way you can get the most out of learning activities and help teachers to create a positive classroom environment. If you join in, you will learn how to change the way you act yourself. You will also help me to learn how to help other children like you as well.

What will happen during the project?

1. I will first talk to your parents/guardians and teacher about you.
2. I will ask you some questions about you.
3. I will teach you how to keep an eye on your behaviour and change the way you behave in 2-3 half hour sessions.
4. I will watch you in class during the project and record behaviour.
5. I will ask you some questions about what you think at the end of the project.

Who will know about this project?

Anything I find out about you will be kept locked up safely. When I write about you, I will never use your real name and school so that no one knows it's about you. If you want to know what I have learnt at the end of the project, you can ask your dad or mum, and I will send them my reports. You can also ask me and I will tell you about it.

Being involved

Your parents/guardians have said its ok for you to be in this project if you would like to. It is your choice: you do not have to join, even though your parents said "yes". Take your time to think about it. Remember, joining this project is entirely up to you. No one will be upset or mad if you don't want to take part. You can say yes now and change your mind later on if you like – up until 2 weeks after participation is completed- all you have to do is tell your teacher, parents/guardians or me that you want to stop. If your

teacher changes their mind and wants to stop for any reason it will mean that you too have to stop.

Who can I talk to about this project?

If you have any questions, you can ask your teacher, parents/guardians, or me. We will be happy to answer your questions.

☺ **Thank you!** ☺

Appendix E: Consent form for teacher

School of Psychology

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

CONSENT FORM
For Teacher

Research Project: Increasing compliance with teacher instruction within the classroom using variable interval tactile prompting in a Self-Management intervention

Please complete the following checklist. Tick (✓) the appropriate box for each point.	**YES**	**NO**
I have read the Participant Information Sheet (or it has been read to me) and I understand it.		
I am satisfied with the answers I have been given regarding the study and I have a copy of this consent form and information sheet		
I have been given sufficient time to consider whether or not to participate in this study		
I consent to participating in an interview at the start of the study		
I consent to completing a rating scale at the start of the study as a pre-intervention measure, allowing researchers to observe the class at agreed times, and completing a rating scale towards the end of the study as a post-intervention measure		
I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without penalty up until 2 weeks after participation is completed		
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 understand that my participation in this study is confidential and that no material, which could identify me personally, will be used in any reports on this study.		
I wish to receive a copy of the findings		
I wish to view the summary report of my interview		

I agree to participate in this research project and I understand that I may withdraw at any time. If I have any concerns about this project, I may contact the convenor of the Psychology Research and Ethics Committee (Professor Nicola Starkey, phone 07 837 9230, email: nicola.starkey@waikato.ac.nz)

Participant's name (Please print): _____

Signature: _____ Date: _____

Declaration by member of research team:
I have given a verbal explanation of the research project to the participant, and have answered the participant's questions about it. I believe that the participant understands the study and has given informed consent to participate.

Researcher's name (Please print): _____

Signature: _____ Date: _____

Appendix F: Consent form for parents / guardians

School of Psychology

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

CONSENT FORM
For Parents/Guardians

Research Project: Increasing compliance with teacher instruction within the classroom using variable interval tactile prompting in a Self-Management intervention

Please complete the following checklist. Tick (✓) the appropriate box for each point.	**YES**	**NO**
I have read the Participant Information Sheet (or it has been read to me), I understand it, I am satisfied with the answers I have been given regarding the study and I have a copy of this consent form and information sheet.		
I have been given sufficient time to consider whether or not to participate in this study		
I consent to participating in an interview at the start of the study		
Relevant information about my child (i.e., age, sex, diagnosis, education, classroom behaviour, intervention, management approaches) being disclosed by his/her teacher to the researchers		
I consent to my child completing a rating scale at the start of the study as a pre-intervention measure, allowing researchers to observe my child in the school, participating in 2-3 training sessions on self-management, partaking in the self-management intervention within the classroom, and completing a rating scale towards the end of the study as a post-intervention measure.		
I understand that if my child does not wish to participate, they will be allowed to withdraw from this study up until 2 weeks after participation is completed.		
I understand that I should contact the researchers listed above if I have any general questions, queries or concerns regarding this project.		
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		
I wish to view the summary report of my interview		

Declaration by participant:
I agree to participate in this research project and I understand that I may withdraw at any time. If I have any concerns about this project, I may contact the convenor of the Psychology Research and Ethics Committee (Professor Nicola Starkey, phone 07 837 9230, email: nicola.starkey@waikato.ac.nz)

Participant's name (Please print): _____

Signature: _____ Date: _____

Declaration by member of research team:
I have given a verbal explanation of the research project to the participant, and have answered the participant's questions about it. I believe that the participant understands the study and has given informed consent to participate.

Researcher's name (Please print): _____

Signature: _____ Date: _____

Appendix G: Assent form for student

School of Psychology

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

ASSENT FORM
For Student

Research Project: Increasing compliance with teacher instruction within the classroom using variable interval tactile prompting in a Self-Management intervention

Sarah Veitch asked me to join in this University of Waikato Study. She explained what it is about and what will happen in this study. I, _____(student name) also had a chance to ask questions about this project. I know this project is about helping me with my behaviour in class, and I would like to join in. I know that my parents / guardians have already said it is okay for me to do this.

Please complete the following checklist. Tick (✓) the appropriate box for each point.	**YES**	**NO**
I am happy with the answers I have been given regarding the study and I have a copy of this assent form and information sheet		
I agree to let my teacher talk to the researcher about my behaviour in class		
I agree to join in 2-3 sessions where I learn how to better manage my behavioiur		
I agree to allow researchers to watch me in class		
I agree to complete a rating scale at the start and end of the study- answering questions about what I think of the project and my behaviour		
I know that taking part in this project is my choice and that I may stop at any time without penalty up until 2 weeks after participation is completed		
I know I have the right to choose not to do any part of the project		
I know that if I have any questions, I should ask my teacher, parents, or the researcher		
I know that the information from this project could be used in academic publications.		
I know that no material, which could identify me personally, will be used in any reports on this study.		

Declaration by participant:
I agree to join in this research project and I understand that I can stop at any time. If I have any concerns about this project, can talk to my parents, the teacher, or the researcher. They may contact the convenor of the Psychology Research and Ethics Committee on my behalf (Professor Nicola Starkey, phone 07 837 9230, email: nicola.starkey@waikato.ac.nz)

Participant's name (Please print): _____

Signature: _____ Date: _____

Declaration by member of research team:
I have given a verbal explanation of the research project to the participant, and have answered the participant's questions about it. I believe that the participant understands the study and has given informed consent to participate.

Researcher's name (Please print): _____

Signature: _____ Date: _____

Appendix H: Criteria checklist

CRITERIA CHECKLIST

For Researchers' Use

This checklist will be used when parents contact the student researcher. The following questions will be asked to determine the eligibility of the student for the study.

Name of parent:
Name of child:
Name of school:
Date of contact:

☐ Is your child attending a teacher led group-learning environment i.e. classroom?

☐ What age is your child in in 2019? (Child must be between 5-10 years of age)

☐ Does your child speak English?

☐ Has the school/institution told you that the teachers have difficulty getting your child to follow their instructions (reported low levels of compliance)?

Could you please briefly describe what has been told to you?

The child is deemed to be eligible if all boxes are ticked.

Appendix I: Functional Assessment Interview (FAI)

FUNCTIONAL ASSESSMENT INTERVIEW (FAI)

Student:_____ Age:_____ Sex: M F

Date of Interview: _____ Interviewer: _____

Respondents: _____

A. <u>DESCRIBE:</u>

1. **The behaviour that is causing the most concern**

2. **The frequency of the behaviour (how often it occurs)**

3. **The duration (how long it lasts)**

4. **The intensity (how severe)**

5. **The nature of the tasks or activities that are usually present when the behaviour occurs (task duration, preferred or non-preferred, difficult or easy, novel or familiar, boring or stimulating)**

6. **The situations or times when the behaviour does not occur**

B. DEFINE SETTING EVENTS THAT PREDICT OR SET UP THE PROBLEM BEHAVIOURS.

What medical or *physical conditions (if any)* does the student experience that may affect his or her behaviour (e.g., asthma, allergies, rashes, sinus infections, seizures)?

C. DEFINE SPECIFIC IMMEDIATE ANTECEDENT EVENTS THAT PREDICT WHEN THE BEHAVIOURS ARE *LIKELY* AND *NOT LIKELY* TO OCCUR.

1. *Times of Day: When* **are the behaviours most and least likely to happen?**

Most likely: **Least likely:**

2. *Settings: Where* **are the behaviours most and least likely to happen?**

Most likely: **Least likely:**

3. *People: With whom* **are the behaviours most and least likely to occur?**

Most likely: **Least likely:**

4. *Activity: What activities* **are most and least likely to produce the behaviours?**

Most likely: **Least likely:**

5. **Are there particular or idiosyncratic situations or events not listed above that sometimes seem to "set off" the behaviours, such as particular demands, noises, lights, clothing, or people?**

6. **What** *one thing* **could you do that would most likely make the undesirable behaviours occur?**

D. <u>WHAT ARE THE PRIMARY WAYS THE STUDENT COMMUNICATES WITH OTHER PEOPLE?</u>

1. What are the general expressive communication strategies used by or available to the student?

2. With regard to the student's receptive communication or ability to understand other persons...

a. **Does the student understand requests or instructions (how many, simple, complex)?**

b. **During the behavioural event, is the student able to understand requests or instructions at the same level?**

E. <u>WHAT ARE THINGS YOU</u> *<u>SHOULD DO</u>* **<u>AND THINGS YOU</u>** *<u>SHOULD AVOID</u>* **<u>IN WORKING WITH AND SUPPORTING THE STUDENT?</u>**

1. What things can you do to improve the likelihood that a teaching session or other activity will go well with the student?

2. What things should you avoid that might interfere with or disrupt a teaching session or activity with the student?

3. On the following chart, indicate the behaviours the student uses to achieve the communicative outcomes listed:

Communicative Functions	Complex speech / Signing	Multiple-word phrases	One-word utterances	Single signs	Echolalia	Other vocalizing	Increased rate of speech	Pointing	Leading	Shakes Head	Grabs/reaches	Gives objects	Increased movement/agitation	Moves close to you	Moves away or leaves	Fixed gaze	Facial expression	Aggression	Self-Injury	Shouting (increased volume)	Swears	Other
Request Attention																						
Request help																						
Request preferred food/objects activities																						
Request break																						
Show you something or some place																						
Indicate physical pain (headache, illness)																						
Indicate confusion																						
Indicate unhappiness																						
Indicate frustration																						
Indicate anger																						
Indicate excitement/happiness																						

F. <u>WHAT ARE THINGS THE STUDENT LIKES AND ARE REINFORCING FOR HIM OR HER?</u>

1. *Food items; objects; activities; other*

Appendix J: Event recording form for compliance

Event Recording Form for Compliance

Date:

Teacher:

Activity:

Start Time:

Activity:

Definitions

Teacher's requests

- Undirected requests – Requests that are addressed to the whole class and are not specific to the individual (e.g., Take out your book)
- Directed requests – Requests that are directed to the student, as indicated by the teacher directing eye contact to the individual when making the instruction, or the teacher touching the student when making the instruction, or when the teacher includes the student's name in the instruction (e.g., X, take out your book).

Compliance is defined as initiating the required response within 10 seconds following the teacher's request

Note the qualitative nature of the request i.e. record the instruction given

	Teacher requests (circle)	**Compliance**
1	☐ Directed ☐ Undirected ☐ Routine	☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No
2	☐ Directed ☐ Undirected ☐ Routine	☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No
3	☐ Directed ☐ Undirected ☐ Routine	☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No

Appendix K: Momentary time sampling recording for on-task behaviour

Momentary Time Sampling Record Form for On-Task Behaviour

Date: **Teacher:**

Activity: **Start Time:**

Target Behaviour

On-task behaviour - Behaviour that is relevant to the assigned task. Includes: Sitting appropriately, or physically being in the appropriate place at the right time (where they should be), and paying attention to or actively working on the task at hand.

Length of each interval: _____

At the end of each interval, mark

- **+** if the target student is engaging in task-relevant behaviour
- **-** if the child is not engaging in task-relevant behaviour

	1	2	3	4	5	6	7	8	9	10
Target										
Peer X										
Peer Y										

	11	12	13	14	15	16	17	18	19	20
Target										
Peer X										
Peer Y										

	21	22	23	24	25	26	27	28	29	30
Target										
Peer X										
Peer Y										

	31	32	33	34	35	36	37	38	39	40
Target										
Peer X										
Peer Y										

Appendix L: Story about following instructions, and role play situations

Following Instructions- story example

Teachers often give out instructions.

Instructions are about things that the teachers want me to do.

My classmates follow instructions.

I follow instructions too.

When I follow instructions, it makes me learn better.

It also makes my teachers and parents happy.

When my teachers and parents are happy, I am happy too.

List of Situations to Role Play

No	Teacher's Request	Compliant behaviour	Noncompliant behaviour
1	Go back to your seat."	Goes back to seat promptly.	Walks around, goes to bag, hangs around the front of classroom
2	"Go back to your seat."	Goes back to seat promptly.	Goes to computer kiosk, and sits there.
3	"Write the date on your worksheet."	Copies date on worksheet.	Ignores.
4	"Take out your book."	Takes out book.	Takes out toy
5	"Take out your book."	Takes out book.	Ignores; Pretends not to hear instruction.
6	"Let's do some writing."	Prepares pencil and book.	"My handwriting is not right."
7	"Let's do some writing."	Prepares pencil and book.	Walks around the room.
8	"Let's do some writing."	Prepares pencil and book.	Throws book on the floor.
9	"Do the worksheet."	Prepares pencil and book.	Cries "I don't want!"
10	"Do the worksheet."	Prepares pencil and book.	Ignores
11	"Do the worksheet."	Prepares pencil and book.	Talks to friend.
12	"Sit on the floor."	Sits on floor.	Sits on the chair.
13	"Sit on your bottoms. Legs crossed."	Sits on floor.	Walks around the room.
14	"Come nearer to the front so that you can see."	Moves to the front.	Ignores.
15	"Let's tidy up the table."	Tidies up table.	Walks away from table. Walks around the room.
16	"Children, let's give them a clap."	Claps.	Ignores.
17	"I want everyone to look this way."	Looks in the direction indicated by the teacher.	Looks somewhere else.

No	Teacher's Request	Compliant behaviour	Noncompliant behaviour
18	"Don't play with your toy."	Stops playing with the toy.	Continues to play with the toy.
19	"Put your books away."	Stops writing and puts book away.	Continues to flip through book.
20	"Come here."	Goes to teacher.	Walks away.

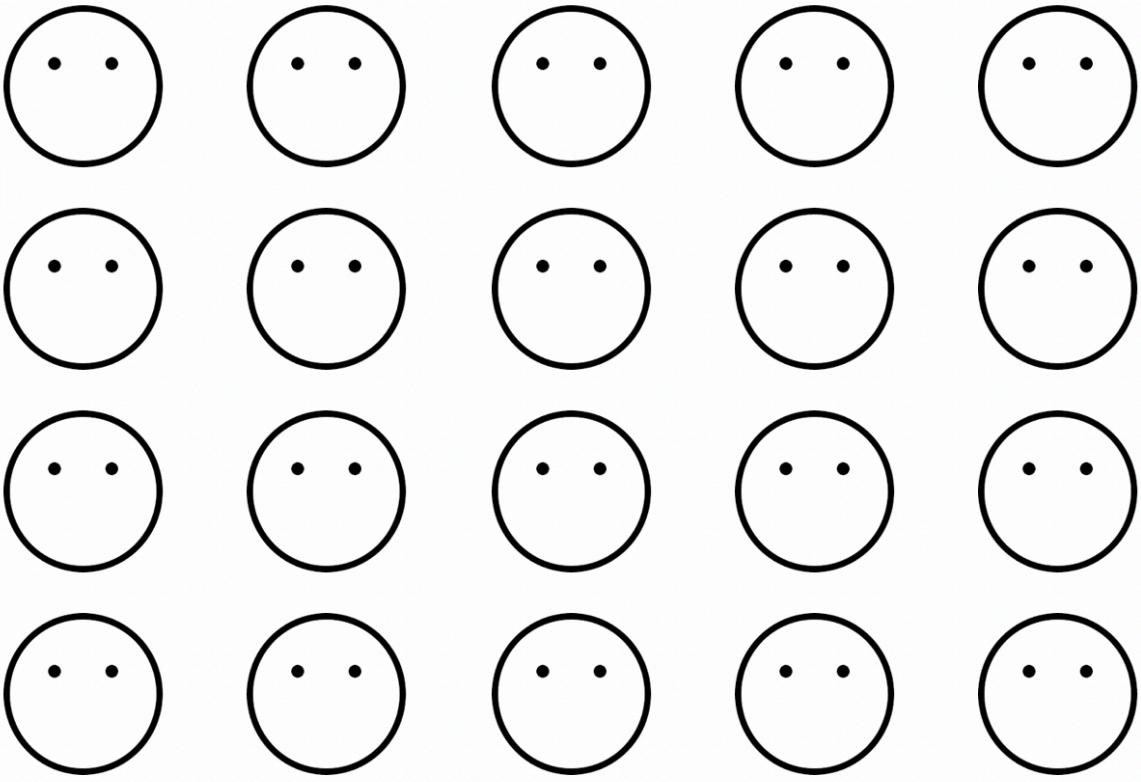
Appendix M: Self-monitoring form-paper, self-monitoring for-app on electronic device, and tactile prompt explanation

Self-Monitoring Form

Date:

My goal for today is _____smiley faces.

Am I doing what the teacher asks me to do?



If I reach my goal, I will get:

_____.

Self-Monitoring App

StickerPOP!

The StickerPOP! App would be presented on an ipod touch screen device or phone which has all other functions locked so the student can only use the app purposed for this project.

StickerPOP! is a virtual sticker chart used to record compliant behaviour. The student will select a sticker to place on the virtual chart when they are “doing what the teacher asked them to”.

Below are screenshots of the app that can be easily adapted to suit the purpose of this project. In ‘Create’ the task and goal are identified prior to each session with the student. The student uses the ‘Track’ component in a similar way as the paper format- adding predetermined stickers to represent compliant behaviour.

Tactile Prompt

The tactile prompt device used for this project will be a device such as the Motivaider clipped to the child's clothing or Watchminder on the wrist. These devices can be set to vibrate at a variable interval as a discreet tactile prompt for self-recording compliant behaviour.

- **It Vibrates!** – Because a beeping reminder can be disruptive in the classroom or workplace, the WatchMinder was designed with a unique vibration system which allows the watch to discreetly cue the user with a light vibration on the wrist.
- **Interval Training Mode!** – In addition to allowing the user to program set reminders throughout one's day, the WatchMinder can be concurrently programmed to discreetly cue the user on set time intervals. For example: "PAT ATTN" every 15 minutes throughout the school day.
- **It's Simple and Programmable!** – Unlike many high-tech watches and PDA's which require a computer to program, the WatchMinder features simple on-screen programming. **The WatchMinder is appropriate for all ages and can be worn discreetly in the classroom.**

Appendix N: Treatment fidelity checklist

INTERVENTION FIDELITY CHECKLIST

	Components of intervention	**YES**	**NO**
1	Before the start of the intervention, make sure that the student has a clipboard with the self-recording sheet and a pen or the StickerPOP! App, and the tactile prompt device.		
2	Inform the student that the self-management intervention is going to take place by saying *"We are going to start our (happy-face or StickerPOP!) game".*		
3	Inform the student the goal and reward. *"We need to have at least (target number) happy faces in order to get (reward)."*		
4	For each given instruction in the session, if the child did not self-record within 5 seconds after the completion of the action, prompt them to do so.		
5	Review the student's self-recording sheet and deliver reward accordingly.		

Appendix O: Behaviour Intervention Rating Scale (BIRS)

BEHAVIOUR INTERVENTION RATING SCALE

Pre-measure

After sharing with you a potential intervention to help the student to be more compliant in the class, please evaluate the intervention by circling the number which best describes agreement or disagreement with each statement.
You *must* answer each question:

		Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1.	This would be an acceptable intervention for the child's problem behaviour.	1	2	3	4	5	6
2.	Most teachers would find this intervention appropriate for behaviour problems in addition to the one described.	1	2	3	4	5	6
3.	The intervention should prove effective in changing the child's problem behaviour.	1	2	3	4	5	6
4.	I would suggest the use of this intervention to other teachers.	1	2	3	4	5	6
5.	The child's behaviour problem is severe enough to warrant use of this intervention.	1	2	3	4	5	6
6.	Most teachers would find this intervention suitable for the behaviour problem described.	1	2	3	4	5	6
7.	I would be willing to use this in the classroom setting.	1	2	3	4	5	6
8.	The intervention would *not* result in negative side-effects for the child.	1	2	3	4	5	6
9.	The intervention would be appropriate intervention for a variety of children.	1	2	3	4	5	6
10.	The intervention is consistent with those I have used in classroom settings.	1	2	3	4	5	6
11.	The intervention was a fair way to handle the child's problem behaviour.	1	2	3	4	5	6
12.	The intervention is reasonable for the behaviour problem described.	1	2	3	4	5	6
13.	I like the procedures used in the intervention.	1	2	3	4	5	6
14.	This intervention was a good way to handle this child's behaviour problem.	1	2	3	4	5	6
15.	Overall, the intervention would be beneficial for the child.	1	2	3	4	5	6

		Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
16.	The intervention would quickly improve the child's behaviour.	1	2	3	4	5	6
17.	The intervention would produce a lasting improvement in the child's behaviour.	1	2	3	4	5	6
18.	The intervention would improve the child's behaviour to the point that it would not noticeably deviate from other classmates' behaviour.	1	2	3	4	5	6
19.	Soon after using the intervention, the teacher would notice a positive change in the problem behaviour.	1	2	3	4	5	6
20.	The child's behaviour will remain at an improved level even after the intervention is discontinued.	1	2	3	4	5	6
21.	Using the intervention should not only improve the child's behaviour in the classroom, but also in other settings (e.g., other classrooms, home).	1	2	3	4	5	6
22.	When comparing this child with a well-behaved peer before and after use of the intervention, the child's and the peer's behaviour would be more alike after using the intervention.	1	2	3	4	5	6
23.	The intervention should produce enough improvement in the child's behaviour so the behaviour no longer is a problem in the classroom.	1	2	3	4	5	6
24.	Other behaviours related to the problem behaviour also are likely to be improved by the intervention.	1	2	3	4	5	6

Source:

Elliott, S. N., & Treuting, M. V. B. (1991). The behavior intervention rating scale: Development and validation of a pretreatment acceptability and effectiveness measure. *Journal of School Psychology, 29*(1), 43-51. doi:http://dx.doi.org/10.1016/0022-4405(91)90014-I

BEHAVIOUR INTERVENTION RATING SCALE

Post-measure

After experiencing the effects of the self-management intervention, please evaluate the intervention by circling the number which best describes agreement or disagreement with each statement. You *must* answer each question.

		Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1.	This would be an acceptable intervention for the child's problem behaviour.	1	2	3	4	5	6
2.	Most teachers would find this intervention appropriate for behaviour problems in addition to the one described.	1	2	3	4	5	6
3.	The intervention should prove effective in changing the child's problem behaviour.	1	2	3	4	5	6
4.	I would suggest the use of this intervention to other teachers.	1	2	3	4	5	6
5.	The child's behaviour problem is severe enough to warrant use of this intervention.	1	2	3	4	5	6
6.	Most teachers would find this intervention suitable for the behaviour problem described.	1	2	3	4	5	6
7.	I would be willing to use this in the classroom setting.	1	2	3	4	5	6
8.	The intervention would *not* result in negative side-effects for the child.	1	2	3	4	5	6
9.	The intervention would be appropriate intervention for a variety of children.	1	2	3	4	5	6
10.	The intervention is consistent with those I have used in classroom settings.	1	2	3	4	5	6
11.	The intervention was a fair way to handle the child's problem behaviour.	1	2	3	4	5	6
12.	The intervention is reasonable for the behaviour problem described.	1	2	3	4	5	6
13.	I like the procedures used in the intervention.	1	2	3	4	5	6
14.	This intervention was a good way to handle this child's behaviour problem.	1	2	3	4	5	6
15.	Overall, the intervention would be beneficial for the child.	1	2	3	4	5	6

		Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
16.	The intervention would quickly improve the child's behaviour.	1	2	3	4	5	6
17.	The intervention would produce a lasting improvement in the child's behaviour.	1	2	3	4	5	6
18.	The intervention would improve the child's behaviour to the point that it would not noticeably deviate from other classmates' behaviour.	1	2	3	4	5	6
19.	Soon after using the intervention, the teacher would notice a positive change in the problem behaviour.	1	2	3	4	5	6
20.	The child's behaviour will remain at an improved level even after the intervention is discontinued.	1	2	3	4	5	6
21.	Using the intervention should not only improve the child's behaviour in the classroom, but also in other settings (e.g., other classrooms, home).	1	2	3	4	5	6
22.	When comparing this child with a well-behaved peer before and after use of the intervention, the child's and the peer's behaviour would be more alike after using the intervention.	1	2	3	4	5	6
23.	The intervention should produce enough improvement in the child's behaviour so the behaviour no longer is a problem in the classroom.	1	2	3	4	5	6
24.	Other behaviours related to the problem behaviour also are likely to be improved by the intervention.	1	2	3	4	5	6

Source:

Elliott, S. N., & Treuting, M. V. B. (1991). The behavior intervention rating scale: Development and validation of a pretreatment acceptability and effectiveness measure. *Journal of School Psychology, 29*(1), 43-51. doi:http://dx.doi.org/10.1016/0022-4405(91)90014-I

Appendix P: Children's Intervention Rating Profile – Adapted (CIRP-A)

Pre-measure

Note to researcher: Items must be read to the student to ensure comprehension. Instruct the student to circle the face that corresponds to their answer

		I do not agree					I agree
1.	The method that the researcher described to me to help me with my behaviour seems fair.						
2.	The method is too hard on me.						
3.	The method will cause me some problems with my friends.						
4.	There are better ways to help with my behaviour than the one described here.						
5.	The method will help other children too.						
6.	I like the method that the researcher just shared with me.						
7.	I think the method will help me do better in school.						

Post-measure

Note to researcher: Items must be read to the student to ensure comprehension. Instruct the student to circle the face that corresponds to their answer

		I do not agree					I agree
1.	The method that the researcher described to me to help me with my behaviour seems fair.						
2.	The method is too hard on me.						
3.	The method will cause me some problems with my friends.						
4.	There are better ways to help with my behaviour than the one described here.						
5.	The method will help other children too.						
6.	I like the method that the researcher just shared with me.						
7.	I think the method will help me do better in school.						

Appendix Q: Reinforcement survey schedule

(NB: this is an example only- a schedule of appropriate rewards appropriate to the participant will be made and approved by the teacher)

Reinforcement Menu

Student Name: _____ Date: _____

Check off 4 or more things that you would like as a reward:

- ○ Blow bubbles
- ○ Colouring/drawing
- ○ Extra recess time
- ○ Puzzles
- ○ Stickers
- ○ Listen to music
- ○ Free time on the computer
- ○ Good note home
- ○ Line leader for the day
- ○ Messenger for the day
- ○ Puzzle time
- ○ Extra reading time
- ○ Other: _____

Appendix R: Poster

School of Psychology

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

Participants Wanted!

Increasing compliance with teacher instruction within the classroom.

I am looking for primary school students aged between 5 and 10 years old to take part in a project in which I will implement a self-management intervention package to increase *compliance* and *on-task behaviour*.

What is self-management?

- Evidence-based practise which uses techniques such as goal setting and self-evaulation to improve desirable behaviour or decrease problem behaviour.
- Encourages student independence, self-reliance, and the development of other life skills

Who can participate?

A child can participate if:

- If they are between 5 and 10 years old
- If they exhibit low rates of compliance with teacher instruction

Teacher Involvement?

- 30-40 minute interview with researcher about the behaviour of the student
- Completing a 10-minute rating scale as a pre and post-intervention measure
- This project will take approximately one term to complete (up to 10 weeks)

What will the students participation involve?

- This project will take approximately one term to complete (up to 10 weeks)
- Completing a 5-minute rating scale as a pre-intervention measure
- Participating in 2-3 teaching sessions (30 minutes each) to:
  - Learn strategies to manage in-class behaviour
  - Understand appropriate and inappropriate behaviours
  - Learn self-monitoring and prompting components
  - Setting behavioural goals
- Self-recording compliant behaviour for approximately 3-8 weeks during classtime
- Completing a 5-minute rating scale as a post-intervention measure

Researcher: Sarah Veitch
This is my Master's thesis research and is supervised by Associate Professor Angelika Anderson.

If you are interested in your child participating in this study, please read the information sheet attached and contact me for more details via phone (0211567279) or email (sjv18@students.waikato.ac.nz)

This research has been approved by the Human Research Ethics Committee (Health) of the University of Waikato. Any questions about the ethical conduct of this research can be addressed to the chair of the committee (humanethics@waikato.ac.nz).

Appendix S: Passive consent letter/form

School of Psychology

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

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

Research being conducted within your child's classroom

Following teachers' instructions is a very important skill for all children, in particular in a school environment. Children need to be able to follow instruction in order to engage in learning activities and to allow teachers to create a positive and safe classroom environment.

This is to inform you that a research project conducted by Sarah Veitch under the supervision of Associate Professor Angelika Anderson from the School of Psychology, University of Waikato will be undertaken in the classroom of your child. This project is the thesis Sarah Veitch is conducting as part of the requirement for completing the Master of Applied Psychology (Behavioural Analysis) programme and training to be a psychologist. The school and classroom teacher are willing to participate in this study aiming to increase compliance with teacher instruction in some children in your child's class. The study mainly involves direct observation of classroom behaviour. There will be minimal disruption to normal classroom activities and your child's learning.

While your child is not directly a participant within the study, he / she may be observed occasionally, and data recorded anonymously, to assess the average levels of compliance in the classroom. On some occasions between 2 and 4 children will be selected randomly and the number of times they comply with teacher instructions will be recorded.. No identifying information will be recorded for these children, not even their names. All observations will occur during class time where teachers and students engage in their usual programmed activities.

All data will be kept confidential and secure at all times in adherence to the University of Waikato Regulations. No names, including the name of the school, will be mentioned in the thesis. Only the researchers will have access to the data. Results will be presented within a Master thesis, and a summary report will be prepared and given to the school and interested parents.

If you would like further information regarding any aspect of this project, please contact the student researcher, Sarah Veitch.

If you do not want your child to be observed, then please complete the attached form and return to the class teacher by _____

If you are happy for your child to be observed you do not need to do anything and I thank you for your support.

Thank you, **Associate Professor Angelika Anderson and Sarah Veitch**

Associate Professor Angelika Anderson
School of Psychology
Phone: 07 8569209
email: Angelika.Anderson@waikato.ac.nz

Sarah Veitch
Phone: 0211567279
Email: sjv18@students.waikato.ac.nz

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

Research being conducted within your child's classroom

I _____ the parent of _____do not consent to my child being observed or data on my child being anonymously recorded.

I understand that the research will still go ahead in the classroom but that no data on my child will be recorded, and my child will not be observed.

Signature_____
Date_____