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Video Self-Modelling as a Classroom Based Intervention to Reduce Off-Task  
Behaviour in Mainstream Students

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**Declaration**

I certify that the thesis entitled “Video Self-Modelling as a Classroom Based Intervention to Reduce Off-Task Behaviour in Mainstream Students” and submitted as part of the degree of Master of Educational Psychology is the result of my own work, except where otherwise acknowledged, and that this research paper (or part of the same) has not been submitted for any other degree to any other university or institution.

Signed \_\_\_\_\_

Date \_\_\_\_\_

### **Dedication**

I dedicate this thesis to a variety of people in my life who have helped me to get to this point. Firstly, I would like to thank my wife Tatty who has supported me over the years as I worked full-time and studied part-time. The many weekends I spent working must have seemed never ending to her. To my beautiful daughter Abby who has been such a special addition to my life. I have welcomed the many distractions from my study to be with her and the endless amount of joy she has brought to my life. I am looking forward to the second addition to our family early in 2013.

My mother Sue has been instrumental in providing me with a supportive environment and the expectation that I would always go to University. My brother Andrew for providing me with a role model to show me that show anything can be achieved with hard work. My Great Auntie Con who passed away before I could show her my final accomplishment. She always took a huge interest in my studies and encouraged me to do my best. I know she would have been proud of the results I have achieved over the past few years.

### **Abstract**

Video Self-Modelling (VSM) is an intervention which involves individuals observing images of themselves engaged in adaptive behaviour to increase the probability of adaptive behaviour occurring again. VSM has been used to improve academic success and/or promote positive change in a range of internalising and externalising behaviours such as mutism, social initiations, stuttering, aggressiveness, attending to task, and distractibility. Many of the current studies on the effects of VSM as a behaviour intervention have focused on students who have been referred for problem behaviour and/or been diagnosed with a disorder such as Attention Deficit Hyperactivity Disorder (ADHD), Selective Mutism, Autistic Spectrum Disorder (ASD), or Oppositional Defiant Disorder (ODD). There are few studies on the effects of VSM as a behaviour intervention for students in mainstream school who have not been referred for problem behaviour. The purpose of this research was to examine the effects of VSM on four, Year 7 students in a mainstream, intermediate school who engaged in three off-task behaviours (out of seat without permission, talking without permission, and making inappropriate noises/calling out). Prior to school each day each participant viewed themselves working on-task during literacy in an edited video clip for three weeks. The occurrence of off-task behaviour and the number of words written by participants in each 20 minute writing task was recorded during baseline, intervention, and post-intervention phases. Results indicated that students reduced in off-task behaviour and increased the number of words produced. Practical implications are discussed.

## Table of Contents

Title Page	i
Declaration	ii
Dedication	iii
Abstract	iv
Table of Contents	v
List of Figures	vii
List of Tables	viii
Introduction	1
Video Self-Modelling as an Intervention to Reduce Inappropriate Behaviour	3
Off-Task Behaviour	5
Increased Diagnosis	9
Video Self-Modelling	10
Research Question	17
Method	
Participants and Setting	18
Measures	19
Equipment	19
Procedure	20
Design	21
Inter-observer Reliability	23
Ethical Considerations	25

Results

Rex	26
Ruud	26
Tana	27
Mason	28
Table 1	29
Figure 1	30
Figure 2, Table 2	31
Figure 3, Figure 4	32

Discussion 34

Limitations	37
Practical Implications	39
Future Research	39
Conclusion	40

References 41

Appendix

A. Completed Observation Sheet	48
B. Student Consent	50
C. Parent Consent	52
D. Teacher Consent	54
E. Ethics Approval	56

## List of Figures

Participant's occurrences of off-task behaviour during baseline, intervention and post-intervention phases	30
Number of words written by participants	31
Mean rates of off-task behaviour at baseline, intervention, and post-intervention phases	32
Mean number of words written per 20 minute observation during baseline, intervention, and post-intervention phases	32

**List of Tables**

Participant's occurrences of off-task behaviour and number of words written per 20 minute observation during baseline, intervention, and post-intervention phases	29
Mean Scores for off-task behaviour and number of words written across the three phases with percentage of non-overlapping data (baseline to intervention and baseline to post-intervention)	31

## **Introduction**

In recent years, the prevention of problem behaviours in school settings has become a major focus with regular changes in educational policies across many countries (Cunningham, 2011). In 1989 the Education Act in New Zealand was amended so that all children and young adults, who had been placed in day units, were entitled to free enrolment and free education in any state school. This meant that students with special educational needs (whether because of a disability or otherwise) had the same rights to enrol and receive education in state schools as those without any disability (Ministry of Education, 1989). In 2000 the Ministry of Education (MoE) introduced the Special Education (SE) 2000 Policy. The aim of this policy was to promote inclusive education by meeting the learning and behavioural needs of a diverse range of students. A direct result of this change in policy was an increased pressure on teachers and schools to adapt current teaching practices to provide a more inclusive environment for students presenting with a broad range of academic and behavioural needs.

Teachers and schools need to produce programmes and curriculums which support and promote learning amongst all their students. Schools are increasingly held accountable for their efforts to improve academic and social behaviour of their students (Eber, Sugai, Smith, & Scott, 2002; Fairbanks, Sugai, Guardino, & Lathrop, 2007). Student attainment levels are measured using a variety of standardised (and non-standardised) tests and exams. In 2010 the New Zealand government introduced National Standards as a way to measure student attainment in Years 1–8. The major aim of this project is to provide learning goals for each student. One major hurdle to students' learning is disruptive behaviour in the classroom. Unacceptable behaviour in the classroom disrupts a student's learning and the learning of others. Segal (2005) suggests that misbehaviour in the classroom has a substantial association with educational attainment. Teachers and schools therefore need to have a range of easy-to-

implement, evidence based, cost effective strategies which aim to improve and maintain appropriate classroom behaviour. A common complaint from teachers about classroom management systems are that they are too complicated and time-consuming to be used effectively (Reitman, Murphy, Hupp, & O'Callaghan, 2004).

There are many types of management systems and behavioural interventions available to teachers which have been successful in addressing off-task behaviour in the classroom. Some of the more frequently used systems to address inappropriate behaviours are reinforcement-based strategies, extinction, removal of desirable stimuli, punishment, response-cost procedures, time-out procedures, positive reward systems, and presentation of aversive stimuli. An important consideration when choosing an intervention is the intervention's level of intrusiveness. Interventions considered the least intrusive should be considered first. Gast and Wolery (2000) write that if a choice of interventions is between procedures considered equally effective, then the least intrusive should be selected. Alberto and Troutman (2009) state that if the choice of intervention is between a less intrusive but ineffective procedure and a more effective and more intrusive procedure, then the more effective procedure should be selected. As an intervention to reduce the frequency of targeted behaviours in the classroom, Video Self-Modelling (VSM) is considered to have a low level of intrusiveness. Research indicates it to be an effective intervention which has been used with a range of behaviours across a range of settings (Cream, O'Brian, Onslow, Packman, & Menzies, 2009). VSM would therefore be considered a highly favourable intervention which could be used in schools and classrooms.

Video Self-Modelling is a cognitive-behavioural technique that provides participants with visual images of themselves performing target behaviour, such as on-task behaviour or appropriate interactions with peers. A video modelling intervention typically involves an individual watching a video demonstration of a model engaging in specific behaviour and

then imitating the behaviour in the video. Dowrick and Raeburn (1977) write that self-modelling video tapes need not be longer than 2 ½ to 3 minutes to gain desired affects. The model can be a parent, teacher, therapist, other adult, age level peer, or in the case of VSM, the model is the child him/herself (Bellini & Akullian, 2007; D'Ateno, Mangiapanello, & Taylor, 2003; Dowrick, Kim-Rupnow, & Power, 2006). The model is video-taped within a certain context (for example, the classroom or playground). The tape is then edited to remove all instances of inappropriate behaviour. The result is a video clip displaying the student behaving appropriately and displaying the desired, targeted behaviour.

### ***Video Self-Modelling as an Intervention to Reduce Inappropriate Behaviour***

Video Self-Modelling has been “periodically studied and used for more than 40 years with students with externalising disorders exhibiting disruptive classroom and social-setting behaviours” (Madaus & Ruberto, 2012, p.42). However, as an evidence-based intervention to promote positive student outcomes, VSM has been under-utilised (Collier-Meek, Fallon, Johnson, Sanetti, & Delcampo, 2012). The main contributing factors being the limited access to available technology, the costs involved with editing, and time restraints in order to produce the video clips and review the results. Despite these restraints there are many studies available to highlight the benefits of VSM. Coyle and Cole (2004) used VSM and self-monitoring to decrease off-task, classroom behaviour with three autistic students. Off-task behaviour (looking around, fiddling with objects, touching other students, and/or leaving their seats) reduced rapidly in each of the students. The results provide strong support for the connection between students viewing the self-modelling tapes and reducing off-task classroom behaviour. Graetz, Mastropieri, and Scruggs (2006) also used VSM with an autistic student to reduce inappropriate behaviour (hand-wringing, throwing objects, arm flailing and body rocking) in the classroom. Results indicated that the student’s inappropriate behaviours decreased at school and at home. Kehle, Clark, Jenson, and Wampold (1986) used

VSM with four boys, who were placed in self-contained special education classrooms, to reduce targeted inappropriate behaviours (touching, vocalising, being aggressive, playing, disorienting, making noise, getting out of their seats). Results showed that the disruptive behaviours in all four students “substantially reduced” due to the self-modelling intervention (Kehle et al., 1986).

There is a wealth of research detailing the many effects disruptive behaviour has on classroom environments. Disruptive behaviour in the classroom disrupts student learning and impacts on a teacher’s ability to teach. Many teachers, education psychologists (EPs), Resource Teachers of Learning and Behaviour (RTLB), special education workers, and schools constantly seek out evidence-based interventions to reduce inappropriate behaviour in the classroom. Video self-modelling is one such intervention which has proven to be an effective tool at reducing inappropriate behaviour within pre-school, primary, secondary, and special school settings. The barriers associated in the past with implementing a school-based application of VSM are in decline. Bugghey (2007) writes that in the past “editing and production of high quality videos was typically left to professionals.” Advances in technology have made video recording and editing more accessible to the general public (Collier-Meek, et al. (2012). The advance of mobile phones and laptop computers has meant video recording resources are highly accessible to the public. Furthermore, editing software capabilities on laptops, DVD camcorders and DVD players have improved the ease with which video editing can be done. The costs and time involved with editing are continuing to decrease with advances in software and hardware. As technology continues to advance, making hand held video recording devices more accessible to people, it will only be a matter of time before VSM is used directly in situations as they arise.

The purpose of this study will be to examine whether VSM can reduce three off-task behaviours (‘talking without permission’, ‘out of seat without permission’, and ‘making

inappropriate noise/calling out') during the completion of independent writing tasks in literacy. The target students will not have been diagnosed with a disorder or have been referred for outside agency support for behaviour or learning. The two objectives of this VSM intervention is to a) reduce the occurrence of off-task behaviour ('talking without permission', 'out of seat without permission', and 'making inappropriate noise/calling out') during independent, writing tasks in literacy, and b) to increase the 'number of words written' during independent, writing tasks in literacy. This study is important because it addresses several recent concerns of the MoE to provide teachers and schools with support mechanisms to meet a wider range of students' needs. Video Self-Modelling has been proven to be a worthwhile intervention to improve on-task behaviour in the classroom. The following sections will detail the literature on off-task behaviour in schools and VSM as a behaviour intervention used within school settings.

### ***Off-Task Behaviour***

There is a wide range of off-task, challenging behaviours which students engage in. Zaghlawan and Ostrosky (2010, p.441) define challenging behaviour as "any repeated pattern of behaviour, or perception of behaviour, that interferes with or is at risk of interfering with optimal learning or engagement in prosocial interactions with peers and adults." It is an important aspect within any classroom/school context as it presents with a variety of difficulties. The most obvious difficulty challenging behaviour creates is that it impedes the learning of the student/s engaging in the challenging behaviour as well as the learning of others within the context with which it occurs. Lewis, Roache, and Romi (2011, p.53) write that student behaviour in the classroom has "broad implications for student learning and welfare." Dubow, Boxer, and Huesmann (2009) discuss findings from researchers which have shown that behavioural problems impair a child's academic and intellectual development over time. Haydon and Hunter (2011, p.229) state that "behavioural and

academic problems exert reciprocal influences on one another, which, over time, can negatively affect the cognitive development of students in their classroom environments.” Not only is students’ learning interrupted with challenging behaviour but it also interferes with the overall climate of the classroom and teacher instruction (Anataya-Moore, 2008). One example is the overuse of reprimands and redirections as a method to control student behaviour as it creates a noisy, disorganised, classroom environment (Haydon & Hunter, 2011).

The effect of challenging behaviour can be widespread in that other students, school staff, and the wider community can be affected. Bushaw and McNee (2009, as cited in Lewis, Roache & Romi, 2011) state that a survey conducted in the U.S. identified a lack of school discipline as a parents’ second highest concern about schooling, after funding. In addition, a 2009 OECD study on Teaching and Learning, which surveyed principals and teachers across 24 countries, identified “classroom disciplinary practice as a key factor in developing effective learning environments and highlighted its importance in relation to teachers’ self-efficacy” (Lewis, Roache, & Romi, 2011, p. 53). Classroom management skills are a significant aspect of professional teaching practice as a lack of classroom management has many implications. Atici (2007, p.15) writes that “classroom management and especially management of behaviour problems appear to be the most difficult tasks for both experienced and newly qualified teachers.” In 1986 a study involving 400 teachers indicated pupil discipline as one of four categories leading to teacher stress (Blase, 1986). Another study revealed that class management anxiety ranked second and was significantly higher than pedagogical anxiety (Morton, Vesco, Williams, & Awender, 1997). Segal (2008, p.784) writes that “a substantial research effort has been invested in understanding youth delinquent and antisocial behaviour and on how to prevent it.” It is a vital aspect of education to

understand challenging behaviour and to provide students, teachers and schools with appropriate support, in the form of interventions, to address behavioural concerns.

Many studies indicate the negative effects challenging behaviour has on academic achievement. New Zealand has a highly rated education system although the gap between high and low achievers is growing. Low educational attainment at school can be linked to a variety of outcomes in a person's future. There is a higher risk for individuals who leave school early, or who leave with little or no qualifications, to be unemployed, become drug/alcohol dependent, and become involved in crime. There is also a high correlation between expulsion from high school and incarceration later in life (New Zealand Howard League for Penal Reform, 2011). Stowe (2000) reviewed a series of longitudinal studies focusing on pre-schoolers' behaviours and found that at least 50% of pre-school children continued to display conduct problems during subsequent school years. Petit, Yu, Dodge, and Bates (2009) go on to discuss that there are many instances with which low educational attainment at school is transferred within families across generations. The impact of challenging behaviours on children's learning and cognitive development has resulted in a number of intervention and prevention programmes being sought after and implemented within schools and classrooms.

Over the past decade within New Zealand's education system, there has been a shift in paradigms from the deficit (or medical) model, which viewed problems located within the student. The more inclusive, ecological model has been adopted where student strengths are considered as well as how they function in certain contexts such as the classroom and playground. Noell, Witt, Slider, Connell, Gatti, Williams, and...Duhon (2005, p.87) write that "the dominant psychological treatment strategies for children's social, emotional, behavioural, and academic concerns can be described as environmentally based or behavioural." Behaviour and learning support services in New Zealand such as the Resource

Teachers of Learning and Behaviour (RTLB) Service, Educational Psychologists, and the Ministry of Education, Special Education (MOESE) work from an ecological model. Clonan, Chafouleas, McDougal and Riley-Tillman (2004, p.101) discuss the shift in psychology from focusing on “repairing weaknesses to the enhancement of positive qualities.” Interventions are implemented to support environments which foster individual strengths and positive youth development. The environment and context are important to consider as all behaviour is embedded within a context. Teacher instructions and the social interactions occurring in the classroom and school have significant influence over behaviour. Guerra, Williams, and Sadek (2011) found that a negative school context (e.g non-support for social relationships, norms for high aggression) predicts a child’s bullying behaviour. Just as a negative context can have negative effects on students the same can be said for the positive influences a positive context can have on students. It is, therefore, imperative to consider the context of a student’s behaviour when implementing interventions to address problem behaviour.

There has been a growing interest in classroom, behaviour management systems and interventions to promote student learning and behaviour. One reason for this growing interest is the introduction of various education policies around the world to increase the inclusion of students presenting with a broad range of educational needs. Furthermore, the need has arisen because of the increasing number of students entering mainstream schooling with learning and/or behavioural needs, or with a diagnosis of a disorder. There is an increase in the frequency of inappropriate behaviour and the severity of some behaviour. As the number of students entering mainstream schools with a diagnosed disorder such as ADHD, ASD, and Conduct Disorder increases, so too does the need for schools to implement interventions and programmes to cater for a broad range of student needs. Schools are under pressure to support all students while promoting and maintaining an inclusive school climate.

*Increased diagnosis*

In New Zealand the number of prescriptions for ADHD has increased from 60 000 in 2001 to over 100 000 in 2011 (Brennan-Tupara, 2012). This indicates an increase in the number of students, usually in mainstream classrooms and schools, presenting with behaviour which could disrupt student learning. It highlights the ever-increasing need for teachers to implement interventions and strategies to meet a growing number of students with diverse needs. Lassen, Steele, and Sailor (2006) write that it is estimated that 10 per cent of children and adolescents in the United States suffer from some form of mental illness. Antaya-Moore (2008) writes that studies show approximately 5 to 15 per cent of students chronically do not meet expectations and are at risk of developing severe behavioural disabilities and that 1 to 7 per cent of students have behaviour disabilities severe enough that they do not meet behavioural expectations without intensive, individualised interventions. In New Zealand the number of stand-downs, suspensions, exclusions, and expulsions has remained fairly static. There was a 2.2% increase in stand-downs from 2000-2009 with 'continual disobedience' making up 23.3% of all stand-downs (Education Counts, 2009). The number of exclusions and expulsions between 2001 and 2009 rose 0.13% and 0.04% respectively. 'Continual disobedience' made up 40.1% of exclusions and 25.3% of expulsions (Education Counts, 2009). The New Zealand government have attempted to reduce exclusion and suspension rates over the past decade with little success. The negative impact of stand-downs, suspensions, exclusions, and expulsions on students' learning is obvious. Washington (2011) writes that stand-downs should be kept to a minimum due to their inherent disruption to the student's education. Dubow, Boxer, & Huesmann (2009) state that behavioural problems affects a child's opportunity to learn because these students are the ones who are punished for their behaviour which may lead to conflictual relationships with teachers, thus leading to negative attitudes towards school. Quite often the students who are most at risk of being

stood-down, suspended, or expelled from school are the children who need the most support with their learning and/or behaviour. It is an on-going issue in many education systems around the world to find interventions to support these students with their behaviour, and/or learning in order to minimise the risk of them being excluded from school and the detrimental factors which can impact on their future lives as well as the lives of others.

There is no doubt that literacy is an important part of an individual's education. Literacy skills are vital components of nearly all subjects at school. Dowrick, Kim-Rupnow, & Power (2006) write that "literacy is fundamental to all education in most schools." There are a wide range of ecological, evidence based interventions which have proven to be successful at reducing challenging behaviour and improving academic outcomes within school contexts. One such intervention which has been used frequently in school contexts, to address inappropriate behaviour, is VSM.

### ***Video Self-Modelling***

Video Self Modelling is a technique where individuals view themselves performing a desired behaviour on video in order to increase the occurrence of that behaviour or behaviours. Participants view their own positive behaviour on video clips where all evidence of inappropriate and maladaptive behaviour is edited out. Bandura's (1977a) social cognitive learning theory provided one of the theoretical bases for VSM. His view of learning emphasised the ability to learn through observation. Gul and Vuran (2010) write that the theory suggests individuals gain knowledge and skills by observing behaviours which are displayed. The main advantage of this type of learning is that it provides the learner with clear information on how best to perform the skill. Bandura (1977a) identifies four steps in the process of learning through modelling: (1) the individual must attend to the events being modelled, (2) modelled behaviour must be retained, (3) symbolic representation of the

behaviour is converted into appropriate actions similar to the originally modelled behaviour, and (4) the individual must be motivated to replicate the modelled behaviour. Bandura (1977a) goes on to explain that the success of the model being observed depends largely on the similarities between the observer and the model. The higher the number of similarities, the higher the success of the observer engaging in desired behaviour. Gul and Vulcan (2010) conclude that video modelling interventions, where participants took part as the model themselves, resulted in participants acquiring target skills in a shorter time compared to participants who were not the model. VSM maximises its chance of success by using the observer as the model of the desired behaviour. Gelbar, Anderson, McCarthy (2012, p.16) write that VSM may be successful as an intervention because “people learn best from models that closely resemble themselves, and that having oneself as the model optimises this factor.”

Buggey (2007) writes that the concept of self-efficacy is at the heart of VSM. Furthermore, VSM helps to promote self-efficacy by providing participants with visual evidence that they can succeed or achieve. Bandura (1977b) describes self-efficacy as a belief in one’s capabilities to achieve desired goals or to succeed in specific situations. He describes modelling as an important aspect in promoting self-efficacy. Furthermore, Bandura (1977b) states the most effective way to improve self-efficacy is by changing behaviour. Individual’s observing themselves as a model of desired behaviour and then continually practicing the behaviour, increases self-efficacy. Self-efficacy helps individuals to modify future behaviour and thought processes, which influence future behaviour. Davison and Neale (1990) discuss the reciprocity of cognition and behaviour in terms of each continually influencing each other.

Creer and Miklich (1970) were the first to report VSM in an educational application. They presented a case study with a 10-year-old boy who was considered aggressive and exhibited age-inappropriate behaviours. The aim of the intervention was to reduce the frequency of the boy’s negative behaviours. The boy was video recorded during a role

playing session where he was asked to display both appropriate and inappropriate behaviours. Two weeks after the recording, the boy watched the 5 minute video, with only the appropriate behaviours, every day, for 2 weeks. The result was a marked reduction in inappropriate behaviour. The boy then watched the video with the inappropriate behaviours for the following 2 weeks. His inappropriate behaviour returned to almost baseline levels. He then watched the video with appropriate behaviours again and this led to an improvement, which was maintained for over 6 months.

Madaus and Ruberto (2012) write that VSM has been used for over 40 years with students exhibiting a range of problematic, externalising behaviours, such as fighting, inappropriate responses to teacher requests, inappropriate social interactions with peers/adults, touching, vocalising, aggression, and making noise. VSM has also been used to increase verbal communications, reduce aggressive behaviours, improve written language, teach cooking skills, and reduce fidgeting distractibility (Victor, Little, & Akin-Little, 2010). Buggie and Ogle (2012) write that VSM seems to be a very resilient technique which has produced positive results across an array of behaviours, disability types, and ages. However, some studies have shown there are limits to the effectiveness of VSM, dependent on age. Buggie (2011) found in his study that immediate gains, which were maintained for several months, occurred with the 4 year olds but no changes were seen with the 3 year old. Buggie noted that there may be an “efficacy barrier” between the ages of 3 and 4, although the results may have been specific to the skill of social initiation. Further study needs to be carried out with other behaviours in order to make a more decisive conclusion. The effectiveness of VSM will vary according to the severity of the individual’s disability and the complexity of their behaviour. Research to date generally indicates VSM to be an effective technique which can be used with anyone who can attend to a video (Buggie & Ogle, 2012). They go on to

state that the VSM seems a safe technique which has “great promise for children and adults with and without disabilities” (Buggey & Ogle, 2012, p.67).

Many of the available studies around VSM have included students who have a diagnosis of Autism Spectrum Disorder (ASD) or Attention Deficit Hyperactivity Disorder (ADHD). In these studies VSM has been used as an intervention to modify and teach behaviour. Dowrick, Kim-Rupnow, and Power (2006) write that many studies involving VSM have involved school-age children, often in special education and related services, with limited focus on academic performance. Hitchcock, Dowrick, and Prater (2003) draw attention to the growth in studies on VSM throughout the 1990s in school-based settings involving students at risk of school failure due to low academic achievement and/or disruptive behaviour. A review involving studies, where VSM was applied in school-based settings, was carried out by Hitchcock, Dowrick, and Prater (2003). In this review 18 studies met the criteria for selection. One hundred and twenty nine participants (51 girls and 78 boys), who ranged in age from 3 to 17 years, were included in the 18 studies. Fifty-eight participants were identified as having a disability and 71 were identified as being at risk due to low academic achievement. Fourteen of the studies included one to six participants. One study included data on 48 children, one included data on 18 children and two studies reported data on 10 children each. Outcomes from all 18 studies “provided clear evidence of positive outcomes related to the intervention” (Hitchcock, Dowrick, & Prater, 2003, p.41). This review highlights the success of VSM as a technique to improve behavioural and functional skills of students with disabilities and students at risk in school-based settings. Hitchcock, Dowrick, and Prater (2003, p.41) write that outcomes from the studies indicate VSM can be used to successfully support “students’ communication, behaviour, and academic performance in educational settings.”

Other benefits of VSM, as an intervention in school-based settings, are that it is cost and time effective due to its immediate effects; it increases the frequency of desired behaviour and improves academic performance; it can be used to teach functional skills to students with moderate or severe cognitive disabilities; and it has been associated with increased student motivation (Hitchcock, Dowrick, & Prader, 2003). There is strong evidence to suggest VSM is a successful intervention to improve outcomes for students with a range of cognitive abilities who display varying degrees of inappropriate, disruptive behaviour. Academic performance may also be impacted on positively using VSM, although, there are only four studies available which have reported these outcomes. The large majority of studies have focused on VSM as an intervention to modify or improve targeted behaviour/s.

A review on studies involving VSM as an intervention to teach social skills was carried out by Gul and Vuran (2010). In this review electronic databases (EBSCO-Host, Google, Centre of National Dissertations) were scanned looking for studies involving VSM to teach social skills. Twenty-one studies were found which met the criteria for inclusion in the review. Eighty participants (67 male and 13 female) were involved in the 21 studies. Participants' ages ranged from 3 to 15 years. All participants had a diagnosis of autism (60 participants), mental deficiency (7 participants), Asperger's syndrome (4 participants), high functioning autism (3 participants), autism or mental retardation (6 participants). All reviewed studies implemented VSM in schools, medical centres, rehabilitation centres (16 studies), or at the subject's home (5 studies). A range of social skills were being taught in the reviewed studies. Four studies focused on conversation/dialogue skills, two on understanding emotions and responding appropriately, four on initiating communication skills, four on teaching social and interactive play skills, four on social interaction skills, and three on reducing inappropriate behaviours. Gul and Vulcan (2010) found many of the reviewed studies deemed VSM an effective intervention. Social validity data collected from seven

studies demonstrated VSM to be an acceptable intervention to support the teaching of social skills with diagnosed children and teenagers. However, some studies presented different teaching methods alongside the video model so it is questionable whether some of the positive effects were due to video modelling or as a result of the other methods used in conjunction with video modelling.

Dowrick (1999) and Hitchcock, Dowrick and Prater (2003) write that self-modelling can be divided into two categories, feedforward or positive self-review (PSR). Feedforward self-modelling (in contrast to feedback self-modelling) presents the observer with images of future mastery. One method is for participants to perform desired behaviour through role-play. Individuals are prompted to perform desired behaviours, which currently lie outside their skill set. These behaviours are recorded with the images shown back to the individuals. The behaviour/s performed in one setting, during prompting, may then be transferred to other settings through video or audio feedforward (Dowrick, Kim-Rupnow & Power, 2006). Hitchcock, Dowrick, and Prater (2003) state that feedforward is an intervention where images of a skill are produced at a level not previously attained. Feedforward promotes the observer's self-belief they can behave in a desired manner because they see themselves carrying out the desired behaviour. This form of intervention is best used when helping individual's to acquire new skills. Feedforward is supported by Vygotsky's theory of learning which states that optimal learning occurs within an individual's zone of proximal development. The second category of self-modelling is PSR. PSR is used to increase the frequency of an adaptive behaviour. Dowrick (1999, as cited in Dowrick, Kim-Rupnow & Power, 2006) writes that PSR is used for mood-based disorders, which relies on transferring role play behaviours to the real world and for the engagement of disused or low-frequency skills. Walker (2011, p.28) writes that one application of PSR is to support individuals with "recalling seldom-used skills." Dowrick (1991, as cited in Hitchcock, Dowrick, and Prater,

2003, p.37) states that “PSR is the procedure of revisiting the best examples of past performance.” Individuals view images of the best examples of behaviour they have actually displayed themselves. This study uses PSR to provide individuals with edited images of low frequency, desirable behaviour in literacy, in an attempt to increase the frequency thereof.

In summary, there is a plethora of research available documenting the implications of challenging behaviour and the effects it has on academic progress and success. The far-reaching effects it has on students, school staff, the wider community, and the future lives of those who consistently engage in challenging behaviour, are well detailed. It is an essential area to focus on due to the many implications it has on learning. Segal (2005) suggests that misbehaviour in the classroom has substantial association with educational attainment. He goes on to state that understanding misbehaviour and addressing it in the classroom, is beneficial for individuals and possibly society (Segal, 2008).

Buggey (2007) writes that VSM has been used successfully across many settings and behaviours. However, many studies available, detail the effectiveness of VSM as an intervention to reduce diagnosed students’ high frequency, severe behaviours in special school settings. Furthermore, many studies detail the positive effects of VSM interventions, which have been in used in conjunction with other interventions, such as positive reinforcement, task specific praise, and self-reflection.

The main aim of this present study is to determine whether VSM alone could be used to reduce the occurrence of off-task behaviour (talking without permission, leaving seat without permission, and making inappropriate noises/calling out) with mainstream school students. It is hoped that the reduction in off-task behaviour will lead to an increase in the number of words written during independent, writing tasks in literacy.

***Research Question***

The research question investigated in this study was whether the use of Video Self-Modelling with four, intermediate school students, who had been identified as engaging in frequent, off-task behaviour, would reduce the occurrences of three off-task behaviours ('talking without permission', 'out of seat without permission', and 'making inappropriate noises/calling out') and increase the number of words written during independent writing tasks in literacy.

## **Method**

### ***Participants and Setting***

The school used in this study was a Decile 4, intermediate school (Years 7 and 8). A mid-range, decile-ranked school was considered a fairer representation of the general school population as compared to a low or high, decile-ranked school. The principal was approached prior to research being carried out in order to ascertain which students would be most suitable to participate in the research. Three classrooms were identified by the principal as having three or four students who regularly engaged in off-task behaviour. After further discussions with all three teachers, a class was chosen. The teacher was comfortable with the amount of time required to be spent in the classroom videoing students and carrying out observations. Four possible, male students were identified by the teacher who she thought would be suitable for the study. The students were in a Year 7 class and ranged in age from 11 years, 1 month to 11 years, 11 months. Two students were Samoan, one was Maori, and one was Tongan. All four students were born in New Zealand and spoke English as their first language. The teacher identified three off-task behaviours which they regularly engaged in during independent writing tasks in literacy. These behaviours were identified as ‘talking without permission’, ‘out of seat without permission’, and ‘making inappropriate noises/calling out.’ As a result, there were frequent incidents of little, or no, work being completed in Literacy. The teacher was concerned about their lack of engagement in writing. Prior to collecting baseline data, two observations were carried out in order to assess the types of behaviours the identified students engaged in. Both observations supported the teacher’s view. According to school based assessments completed at the beginning of the year, three students were below average, and one student was of average ability in writing.

### ***Measures***

Three types of off-task behaviour (talking without permission, out-of-seat without permission, and making inappropriate noises/calling out) were observed using Momentary Time Sampling (Appendix A). The occurrence of the behaviour was recorded for each student in 10 second intervals. 'Talking without permission' was defined as one or more words spoken aloud to either themselves or someone seated within their group. 'Out of seat without permission' was defined as any occurrence when the student was not sitting with his bottom on his chair, at his desk. 'Making inappropriate noises/calling out' was defined as tapping the desk with a hand or item such as a pen or pencil, any audible sound (such as laughing), speaking aloud to students who were not seated at their group of desks, or calling out questions/words/comments to the teacher without raising their hand and waiting to be spoken to. Students were observed in rotation every 10 seconds (with 5 seconds at the end of each 10 second interval to record occurrences of off-task behaviours) (see Appendix A). The frequency of the behaviour within each 10 second interval was not recorded. Thus, each student was observed for 10 seconds, every minute, for a total of 20 minutes during independent writing activities in literacy. At the completion of each 20 minute observation a small 'dot' was marked under the last word written in each student's book. This ensured any words written by students, while the observer was counting the number of words written by other students, were not included in the word count.

### ***Equipment***

Prior to baseline observations each participant was individually videotaped once using a Sony Handycam DCR-DVD610 digital video camera recorder. A tripod was used to maintain stability. The tripod was placed on top of a desk situated at the front of the classroom in order to create an appropriate angle with which to record participants writing in

literacy and to ensure other students in the class were not ‘accidentally’ recorded. Video footage was copied from the Sony Handycam on to Sony DVD-RW, 30 minute discs. Each of the four videos was then transferred from the discs to the hard drive of a Panasonic DMR-EH68 DVD recorder for editing. Edited footage was then transferred from the Panasonic DVD recorder hard drive back on to Samsung DVD + R digital recordable discs. Each disc with the edited video clip was played back to participants using a Hewlett Packard 6730b laptop.

### *Procedure*

Each participant was recorded for approximately 30 minutes whilst completing independent writing activities in literacy. The footage was edited to remove all instances of off-task behaviour. Edited footage for each student ranged from 1 minute, 45 seconds to 2 minutes, 9 seconds. Each participant’s edited footage displayed images of themselves writing without engaging in any off-task behaviour.

Once baseline was established (five or six observations for each student), the video self-modelling intervention was implemented. Each student viewed their DVD prior to school in a room located in the main school office block. The room was located in a quiet area of the school office which did not allow student access. The sound on the laptop used for viewing the DVDs was muted and there was no discussion about the DVDs between the researcher and participants. The researcher remained in the room with each participant to ensure they attended to the DVD, as suggested by Bugghey (2007). Each student watched their DVD for 12 consecutive sessions. Two days after the first student started his viewing sessions (intervention phase) the second student started his 12 sessions followed by the third student two days later and the fourth student three days after him. Apart from the weekends, all four students watched their videos on 12 consecutive sessions (Monday through to Friday).

None of the students were absent during this period. Ruud, however, was absent for three intervention observations due to school commitments although he was available to view his video clip on 12 consecutive sessions during the intervention phase.

All observations, recording off-task behaviour and the number of words written, were completed during independent writing tasks. Momentary Time Sampling was used to record occurrences of off-task behaviour (see Appendix A). Each minute was divided into four, 10 second intervals. Students were observed for 10 seconds, with occurrences of off-task behaviour recorded for the following five seconds. The next student was observed straight after the first student, following the same procedure. This was repeated for the third and fourth students. After a minute, the first student was observed again following the same the procedure. This was repeated for all students, until a total of 20 minutes was reached. All observations consisted of each student being observed for 20, 10 second intervals. A total of 19 observations were conducted on randomly selected days of the week (Monday, Tuesday, Wednesday, and Friday) for 10 weeks. However, due to absences, the total number of observations for each student ranged between 16 and 19. All students were observed a minimum of five times across each phase (baseline, intervention and post-intervention). All observations occurred at the start of Term 3 (July 16<sup>th</sup>, 2012 through to September 20<sup>th</sup>, 2012) to ensure there were no disruptions with school holidays. Post-intervention observations occurred two weeks or more after the completion of the intervention phase (dependent on when the student completed their intervention phase).

### *Design*

A multiple-baseline-across-individuals design was used for this study with four participants. This type of design is appropriate when implementing an intervention with more than one student exhibiting the same behaviour in a single setting (Alberto & Troutman,

2009). The independent variable was the presence or absence of video self-modelling. The dependent variables were the occurrence of off-task behaviours per 10 second interval, and the number of words written in each 20 minute, independent, writing activity.

Data was analysed using percentage of non-overlapping data (PND). Percentage of non-overlapping data is determined by calculating the percentage of intervention and post-intervention data points which did not overlap the lowest baseline data point for off-task behaviour and overlap the highest baseline data point for the number of words written. Data points represent the total number of 10 second intervals per student where the occurrences of a specific off-task behaviour (i.e. talking without permission) occurred during each 20 minute observation. Data points for the number of words written represent the total number of words each student wrote during each 20 minute observation. For example, in order to calculate Rex's PND for 'talking without permission', the lowest number of intervals (data point) where 'talking without permission' was recorded in any one observation during baseline was calculated. In this case Rex's lowest number of intervals (data point) was 8. In this example Rex had three observations with data points lower than 8 (4, 4, and 6). The number of data points lower than 8 (3) was divided by the number of times Rex was observed during intervention (5 observations). Therefore,  $3/5 \times 100 = 60$ . The PND for Rex's 'talking without permission' during intervention is 60%. This was repeated for all students for all three off-task behaviours during intervention and post-intervention phases. The PND for 'number of words written' was calculated in the same way except using the highest data point during baseline. For example, Tana's highest data point for number of words written during all baseline observations was 114. Three data points during post-intervention were higher than this (120, 134, and 179). Tana was observed 6 times during post-intervention. Therefore,  $3/6 \times 100 = 50$ . Tana's PND for number of words written during post-intervention was 50%.

Two reasons for the use of PND in synthesizing single-subject research are proposed by Scruggs and Mastropieri (2001). Firstly, conventional effect size computations are derived theoretically from procedures used in inferential statistics. This causes problems using data from single-subject research as it is non-independent. This therefore violates the primary assumption of inferential statistics, independence. The second reason is that many single-subject studies include relatively few data points which can inflate effect size. Scores above 90% demonstrate very effective interventions, 70%-90% effective interventions, 50%-70% questionable effectiveness, and scores below 50% as ineffective (Scruggs & Mastropieri, 2001).

### ***Inter-observer Reliability***

All of the 19, 20 minute observations were conducted by the researcher. An educational psychologist carried out 4 observations, alongside the researcher, in order to collect interobserver reliability data (21% of total observations carried out over baseline, intervention, and post-intervention phases). A practice observation was conducted together in order to familiarise her with the observation technique being used. She observed alongside the researcher during observations 3, 8, 13, and 18. The same observation format was used throughout all observations using a 20 minute timeframe (80, 10 second intervals). At the completion of each observation both observers counted the number of words written by each student. During all four inter-observer observations the agreement on the total number of words written by each student was 100%. Inter-observer reliability for off-task behaviour was calculated by counting each of the corresponding intervals within both observations where both observers recorded the same number of occurrences and non-occurrences of off-task behaviour. The number of intervals where both observers recorded the same number of occurrences, or non-occurrences was divided by 80 (the total number of 10 second intervals per 20 minute observation) and multiplied by 100 to give a percentage. For example, if both

observers recorded the same number of occurrences, or non-occurrences, of off-task behaviours within the same 67 intervals, the equation would be  $\frac{67}{80} \times 100 = 84\%$ . The coefficient of interobserver reliability for the four observations was 84%, 89%, 95%, and 95%. The overall mean coefficient interobserver reliability was 91%. This demonstrated a high reliability for the recording of off-task behaviour during interobserver observation.

Occurrence and non-occurrence reliability was also calculated in addition to interobserver reliability. This form of reliability calculation provides a more rigorous determination of reliability because it eliminates the amount of agreement on the more frequently occurring behaviour just by error. If off-task behaviour occurred in more than 75% of the intervals, non-occurrence reliability was calculated. If off-task behaviour occurred in less than 75% of the intervals, occurrence reliability was calculated. One interobserver observation recorded off-task behaviour in more than 75% of intervals (observation 3) and three recorded off-task behaviour in less than 75% of intervals (observations 8, 13, and 18). The coefficients were calculated using the formula  $(\text{agreements}/[\text{agreements} + \text{disagreements}] \times 100)$ , except only intervals which the behaviour occurred (or did not occur) were used in the calculation. For example, if the total number of intervals where either observer recorded an occurrence of off-task behaviour was 63, and of these 63 intervals both observers recorded the same occurrences of off-task behaviours within the same 50 intervals, the equation would be  $\frac{50}{50+13} \times 100 = 79\%$  (occurrence reliability). Occurrence and non-occurrence reliability for the four interobserver observations was 74%, 79%, 90%, and 85%. The mean occurrence/non-occurrence reliability for the four observations was 82%. This demonstrated a high reliability for the recording off-task behaviours during interobserver observations.

***Ethical Considerations***

Informed consent was obtained from all four students (Appendix B), at least one parent of each student (Appendix C) and teacher (Appendix D). The students' names have been changed to protect their identities. A Maori cultural advisor and Pacific Island cultural advisor were consulted prior to any data being collected to ensure the researcher carried out the research in a culturally appropriate and sensitive manner. Data was stored in a locked cabinet located on the school grounds and all video footage was destroyed on completion of the research. The research has been considered by the Massey University Human Ethics Committee: Northern and was approved on 11<sup>th</sup> June 2012, MUHECN 12/018 (Appendix E).

## Results

Table 1, Figure 1, and Figure 2 detail the occurrences of off-task behaviour and number of words written before, during and after the VSM intervention. Table 2, Figure 3, and Figure 4 displays mean scores for off-task behaviour and number of words written, and the percentage of non-overlapping data (PND). Percentage of non-overlapping data is used to calculate effect size of the VSM intervention.

### *Rex*

As can be seen in Table 1 and Figure 1, off-task behaviour and number of words written were fairly erratic over baseline observations. ‘Out of seat without permission’ had the largest variability (range 3-17). Baseline mean scores for ‘talking without permission’ (12.4) and ‘out of seat without permission’ (9.8) decreased during intervention to 7.4 and 4.6 respectively (see Table 2 and Figure 3). Baseline mean scores for ‘talking without permission’ (12.4), ‘out of seat without permission’ (9.8), and ‘making inappropriate noises/calling out’ (4.6) declined during post-intervention to (6.9, 1.4 and 2.4) respectively (see Table 2 and Figure 3). The mean ‘number of words written’ increased from baseline (40.8) to more than double during post-intervention (96) (see Table 2 and Figure 4). The PND for all three off-task behaviours from baseline to intervention and two out of three off-task behaviours (‘talking without permission’ and ‘making inappropriate noises/calling out’) from baseline to post-intervention ranged from 0% to 63% (see Table 2). The PND score for ‘out of seat without permission’ was 88%. The PND for number of words written from baseline to intervention was 20% and from baseline to post-intervention 50% (see Table 2). The PND scores indicated the intervention was ineffective and had questionable effectiveness at reducing off-task behaviour and increasing the number of words written during both

intervention and post-intervention. The exception was 'out of seat without permission' PND score (88%) which indicated VSM was effective at reducing this behaviour.

### ***Ruud***

The results displayed in Table 1 and Figure 1 demonstrates fairly erratic baseline scores for the three off-task behaviours. 'Making inappropriate noises/calling out' recorded the largest variability (range 2-14). The 'number of words written' during baseline also demonstrated a large degree of variability (range 0-83) (see Table 1 and Figure 2). Two out of three off-task mean scores decreased during intervention. All three mean, off-task behaviour scores reduced from baseline to post-intervention (see Table 2 and Figure 3). Mean score decreases in 'out of seat without permission' (4.5 down to 0.6) and making inappropriate noises/calling out' (8.8 down to 4.4) were notable. Mean 'number of words written' at baseline (25.3) almost doubled at post-intervention (48.8) (see Table 2 and Figure 4). PND scores for all off task behaviour and 'number of words written' (baseline to intervention and baseline to post-intervention) ranged from 0% to 60% (see Table 2). These scores fell within the range of ineffective (0%-50%) to questionably effective (50%-70%).

### ***Tana***

Table 1 and Figure 1 illustrate fairly inconsistent off-task behaviour scores across baseline. 'Out of seat without permission' showed the greatest variability (range 1-20). A large variability in 'number of words written' during baseline was also recorded (range 4-114) (see Table 1 and Figure 2). All three mean, off-task behaviour scores reduced from baseline to intervention and baseline to post-intervention (see Table 2 and Figure 3). The greatest reduction observed was baseline to post-intervention 'out of seat without permission' (5.8 down to 0.3) and 'making inappropriate noises/calling out' (8.5 down to 4.7). The 'number of words written' increased from baseline (40.3) to more than double 85.8 (see Table 2 and

Figure 4). The PND scores for off-task behaviour and ‘number of words written’ at baseline to intervention phases ranged from 14% to 57% (see Table 2). These scores fell into ineffective to questionably effective categories. Apart from ‘out of seat without permission’ (baseline to post-intervention), PND scores for baseline to intervention and baseline to post-intervention ranged from 17% to 50%. These scores indicated VSM was ineffective at reducing off-task behaviour and increasing ‘number of words written.’ Percentage of non-overlapping data for ‘out of seat without permission’ (baseline to post-intervention) was 83% falling into the ‘effective’ category.

### ***Mason***

Varying scores for off-task behaviour during baseline were recorded (see Table 1 and Figure 1). The greatest recorded variability was ‘out of seat without permission’ (0-20). ‘Number of words written’ scores were also fairly variable with scores ranging between 0 and 23 (see Table 1 and Figure 2). Apart from ‘talking without permission’ over both phases (which increased), mean scores for off-task behaviour decreased from baseline to intervention and baseline to post-intervention (see Table 2 and Figure 3). The greatest decrease was in the mean score for ‘out of seat without permission’ which decreased from 8.2 (baseline) down to 0.3 (post-intervention). Mean ‘number of words written’ doubled from baseline (9.2) to post-intervention (26.8) (see Table 2 and Figure 4). All PND for off-task behaviour and ‘number of words written’ (baseline to intervention and baseline to post-intervention) fell into the category of ‘ineffective’ (0%-40%) (see Table 3).

Running Head: VSM to Reduce Off-Task Behaviour

Table 1: Participant's occurrences of off-task behaviour and number of words written per 20 minute observation during baseline, intervention, and post-intervention phases

Talks without Permission																			
Observation Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Baseline					Intervention					Post Intervention								
Rex	9	13	16	16	8	6	13	4	10	4	9	1	15	12	5	6	6	1	A
	Baseline					Intervention					Post Intervention								
Ruud	14	13	9	15	11	10	11	12	13	7	A	A	A	11	12	2	10	5	6
	Baseline					Intervention					Post Intervention								
Tana	12	7	8	13	13	6	6	14	5	2	13	1	0	8	10	0	8	3	11
	Baseline					Intervention					Post Intervention								
Mason	4	13	7	6	A	A	3	9	4	6	12	11	9	5	14	15	13	10	7
Out of Seat without Permission																			
Observation Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Baseline					Intervention					Post Intervention								
Rex	4	17	3	17	8	15	5	1	0	2	0	2	1	4	2	2	0	0	A
	Baseline					Intervention					Post Intervention								
Ruud	1	10	2	5	5	4	17	0	3	4	A	A	A	0	2	1	0	0	0
	Baseline					Intervention					Post Intervention								
Tana	1	20	1	6	2	5	11	2	0	7	2	0	0	2	0	0	0	0	0
	Baseline					Intervention					Post Intervention								
Mason	2	19	20	8	A	A	0	0	1	0	0	2	1	1	0	1	0	0	0
Inappropriate Noises/Calling Out																			
Observation Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Baseline					Intervention					Post Intervention								
Rex	0	6	1	6	10	9	6	2	4	7	3	1	3	10	0	1	1	0	A
	Baseline					Intervention					Post Intervention								
Ruud	5	7	2	11	14	14	4	9	5	11	A	A	A	9	3	5	3	1	10
	Baseline					Intervention					Post Intervention								
Tana	9	3	2	9	15	13	10	6	5	6	7	0	0	8	2	4	4	1	9
	Baseline					Intervention					Post Intervention								
Mason	4	13	7	6	A	A	2	3	4	4	7	4	3	1	3	8	1	3	2
Number of Words Written per 20 minute Observation																			
Observation Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Baseline					Intervention					Post Intervention								
Rex	66	17	40	13	68	4	32	115	51	0	27	127	0	30	67	99	116	302	A
	Baseline					Intervention					Post Intervention								
Ruud	83	24	40	0	0	5	19	44	54	15	A	A	A	0	11	1	86	146	0
	Baseline					Intervention					Post Intervention								
Tana	41	4	53	26	4	114	28	28	38	0	8	161	90	0	120	134	82	179	0
	Baseline					Intervention					Post Intervention								
Msaon	12	0	18	0	A	A	23	2	54	16	13	23	0	29	25	13	21	54	21

(A = Student absent during observation)

Running Head: VSM to Reduce Off-Task Behaviour

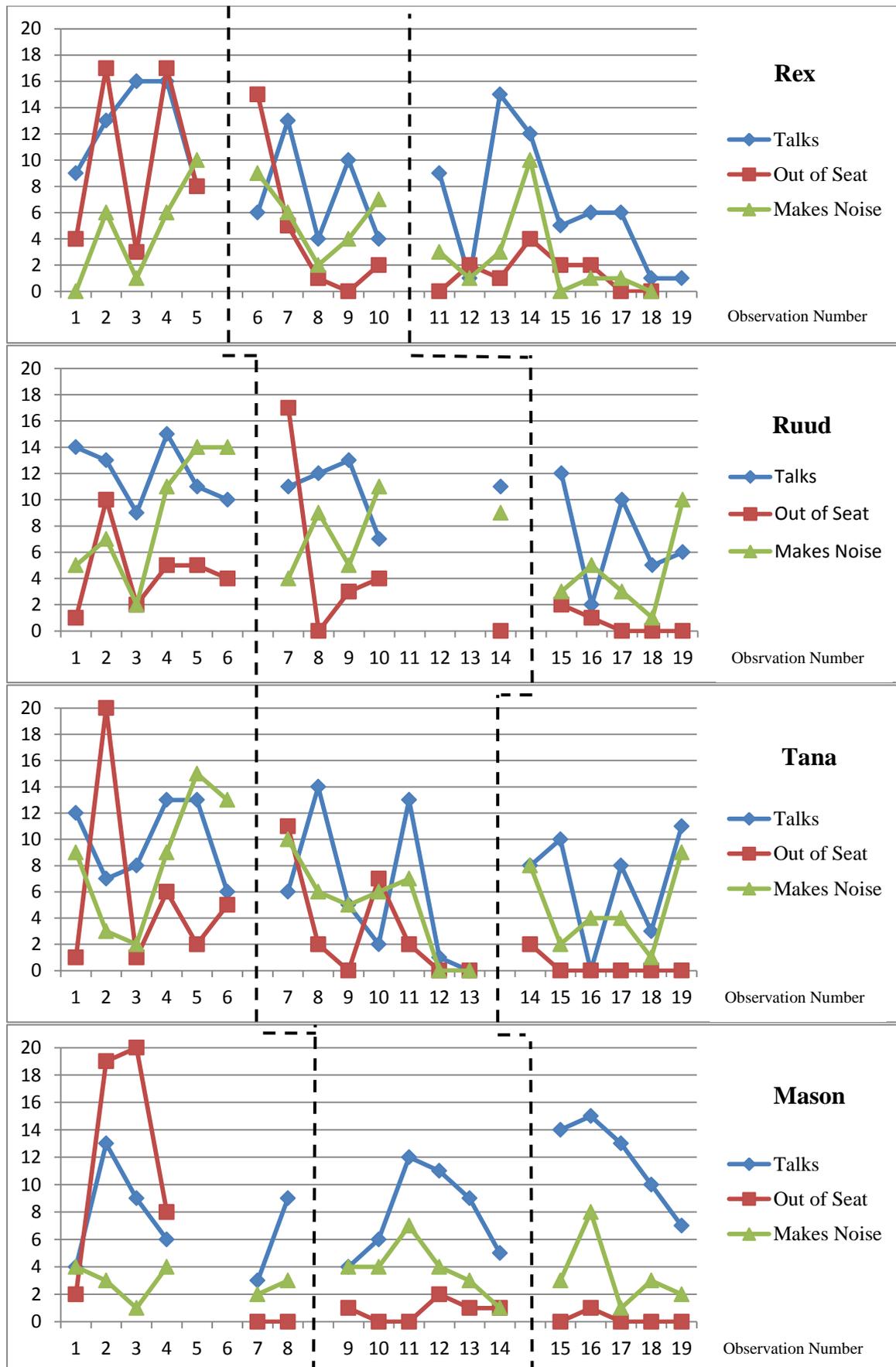


Figure 1: Participant's occurrences of off-task behaviour during baseline intervention, and post-intervention phases

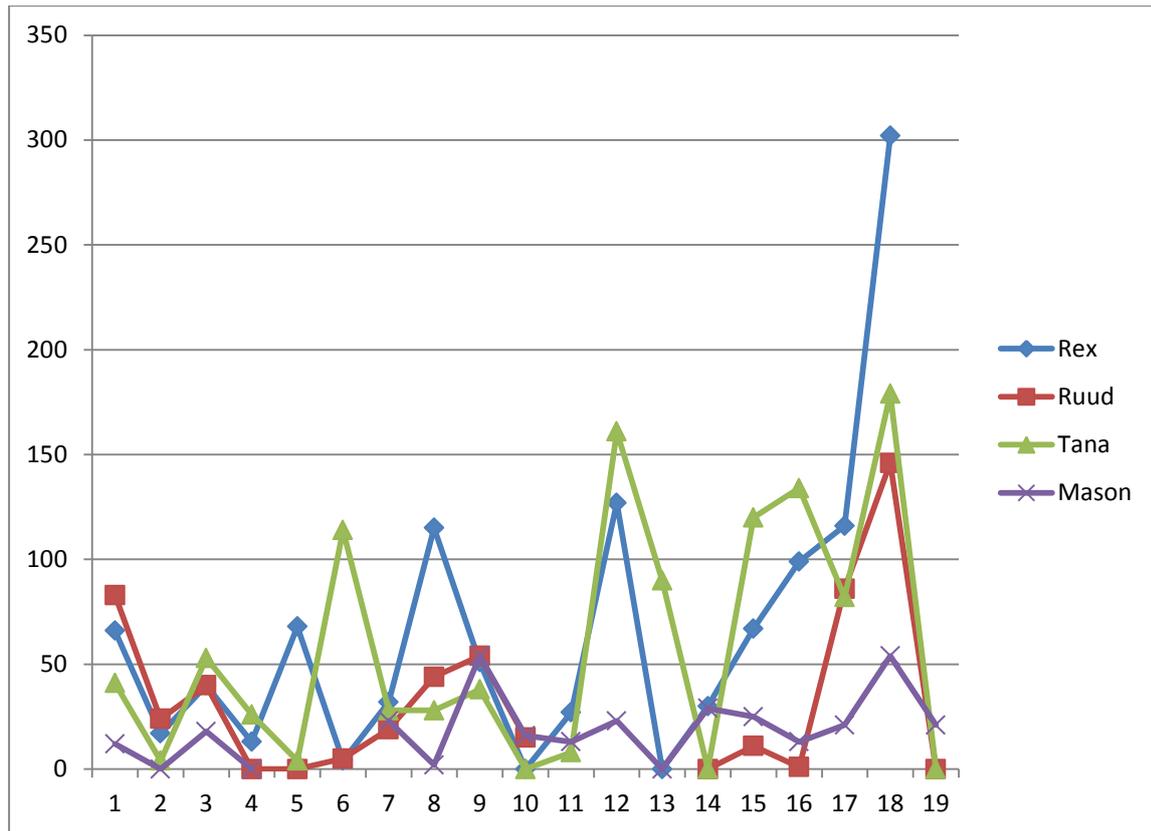


Figure 2: Number of words written by participants

Table 2: Mean scores and percentage of non-overlapping data (PND) for off-task behaviour and number of words written during baseline, intervention, and post-intervention phases

Student		Baseline (mean)	Baseline to Intervention (PND)	Intervention (mean)	Baseline to Post Intervention (PND)	Post Intervention (mean)
<b>Rex</b>	Talks	12.4	60%	7.4	63%	6.9
	Out of Seat	9.8	60%	4.6	88%	1.4
	Makes Noise	4.6	0%	5.6	25%	2.4
	No. of Words	40.8	20%	40.4	50%	96
<b>Ruud</b>	Talks	12	20%	10.8	60%	6.6
	Out of Seat	4.5	40%	4.8	60%	0.6
	Makes Noise	8.8	0%	7.6	20%	4.4
	No. of Words	25.3	0%	26.4	40%	48.8
<b>Tana</b>	Talks	9.8	57%	5.9	33%	6.7
	Out of Seat	5.8	43%	3.1	83%	0.3
	Makes Noise	8.5	29%	4.9	17%	4.7
	No. of Words	40.3	14%	50.4	50%	85.8
<b>Mason</b>	Talks	7	0%	7.8	0%	11.8
	Out of Seat	8.2	0%	0.8	0%	0.2
	Makes Noise	5.8	17%	3.8	20%	3.4
	No. of Words	9.2	33%	22.5	40%	26.8

## Running Head: VSM to Reduce Off-Task Behaviour

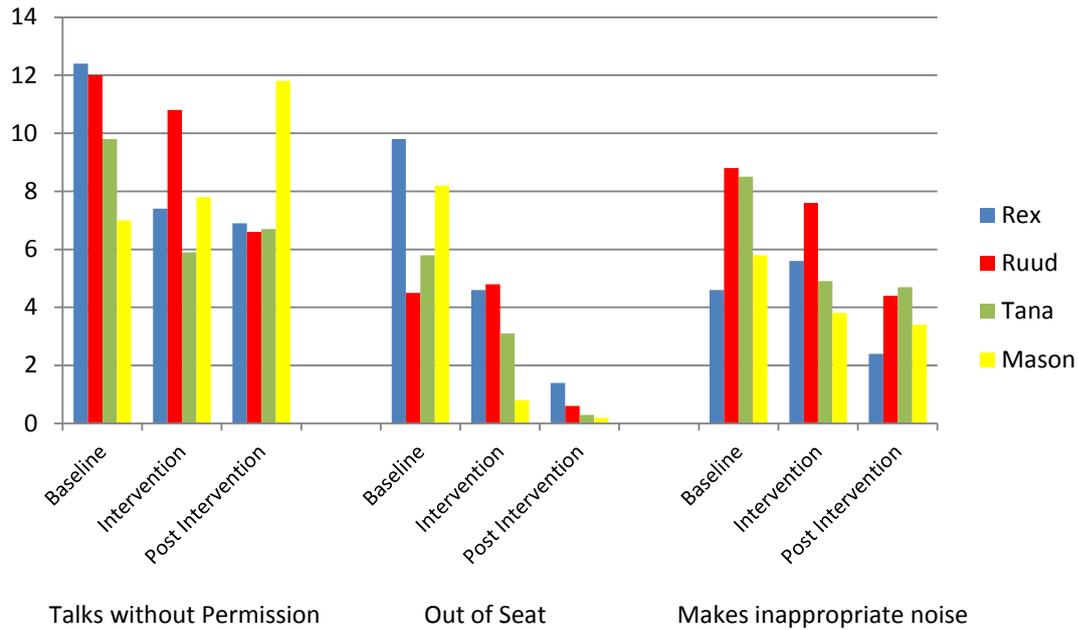


Figure 3: Mean rates of off-task behaviour at baseline, intervention, and post-intervention phases

NB: PND scores <50% = ineffective intervention, 50%-70% = questionable effect, 70%-90% effective intervention, and >90% = very effective intervention

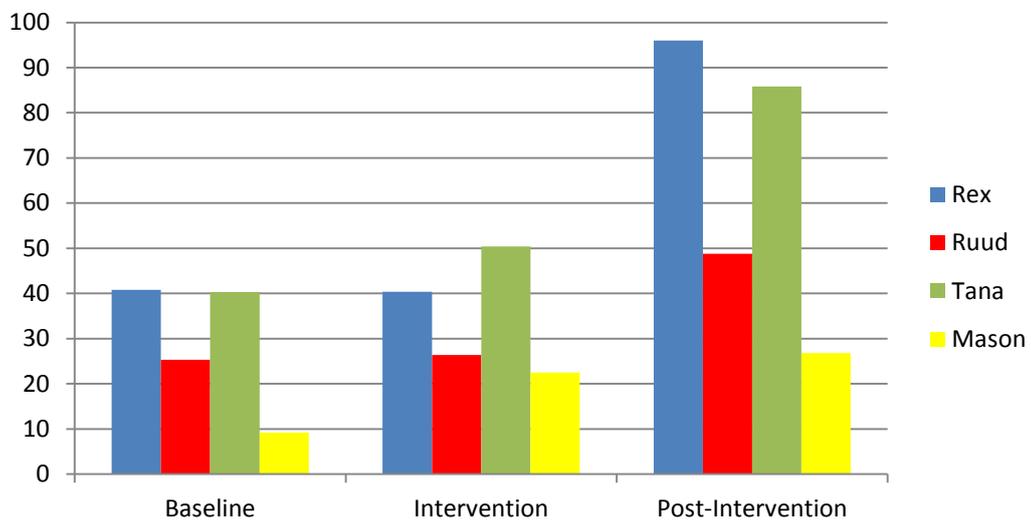


Figure 4: Mean number of words written per 20 minute observation during baseline, intervention, and post-intervention phases

Percentages of non-overlapping data for almost all the results indicated the VSM intervention had questionable effect, or no effect, at reducing off-task behaviour and increasing the number of words written. 'Out of seat without permission' (baseline to post-intervention) for two students recorded PND scores of 83% and 88% which indicated VSM was effective at decreasing this off-task behaviour. Overall mean scores for all off-task behaviour post-intervention (apart from Mason's 'talking without permission') reduced compared to baseline scores. The 'number of words' written also increased post-intervention compared to baseline. While PND scores indicated VSM had little or no effect at reducing off-task behaviour and increasing 'the number of words written', it is difficult to ignore the high number of improvements to mean, off-task behaviour scores and mean scores for 'number of words written.' Possible explanations for these contradictory results are explored.

## Discussion

All four students in this study seemed to be highly enthusiastic about participating in the intervention, although Tana's enthusiasm waned towards the end of his intervention phase. In the last week of viewing his video clip he frequently asked me when his last session would be. However, he was still attentive to his video clip and was the only student who reduced all three off-task behaviours during intervention. One possible explanation for this reduced interest towards the end of his intervention phase may have been attributed to an improvement in self-efficacy or a perception that he could not learn any more by viewing his video. It could be possible that he reached a level where he felt he no longer needed to continue viewing himself engaged in the desired behaviour. All off-task behaviour for Tana reduced during post-intervention, which could indicate that his possible improvement in self-efficacy was maintained after the removal of VSM. The 'number of words written' steadily increased from baseline to intervention, to post-intervention, which lends support to the notion that VSM was effective for Tana.

The ability to attend to a video has been emphasised as one of the four steps crucial in learning through modelling (Bandura, 1977a). Other studies have also identified the success of VSM with students who had good attending skills (Shukla-Mehta, 2010; Victor, Little, & Akin-Little, 2010; Madaus & Ruberto, 2012). This study supports these findings. The four participants were able to attend to their videos without prompting or refocusing during intervention. In Bandura's work on observational learning, he identified the key element to modelling was that there must be sufficient motivation to perform the modelled behaviour. The participants in this study seemed motivated to perform the desired behaviour. Ruud commented, "I didn't know I could do so much work" after he saw his video for the second time. The notable improvements to all 'number of words written' mean scores during post-intervention support the notion that students in the study were motivated to engage in the

desired behaviour. These results also indicate that students remained motivated to engage in the desired behaviour weeks after they had viewed their videos of exemplary behaviour. These results support literature on VSM which highlight the benefits which contribute towards behaviour being maintained over time (Bellini & Akullian, 2007; Buggey, 2007).

The motivation to perform a desired behaviour in order to improve performance has been explained by Dowrick (1999), based on Bandura's (1977a) social-cognitive theory of self-efficacy outlined earlier. Self-efficacy of an individual is enhanced through the viewing of oneself performing targeted behaviour/s, which increases self-belief that one can perform the behaviour. Improved self-efficacy improves the possibility that the target behaviour will be performed more frequently. Results from this study support this view. It could be argued that many students who engage in inappropriate behaviour in the classroom are caught in a cycle, in which they have low motivation and an overall negative attitude towards school work and an assumption of failure. Video self-modelling is a behaviour technique which can be used to address these internal issues while impacting on inappropriate, externalising behaviours in the classroom, such as making inappropriate noises, calling out, and out of seat behaviour (Madaus & Ruberto, 2012). Greenberg, Buggey, and Bond (2002) write that self-confidence and self-perception can be greatly improved with the use of self-modelling. Results from a range of studies indicate that showing participants videos of exemplary behaviours was most effective at increasing desirable behaviours (Creer & Micklich, 1970). The students in this study were identified as engaging in frequent off-task behaviour prior to the implementation of VSM. According to the teacher, all four students seemed to have low motivation to engage in independent writing tasks. Reductions observed to mean, off-task behaviour and improvements to mean, 'number of words written' in this study support the assumption that VSM can be used to improve desirable behaviour.

A variety of factors should be considered when interpreting the successfulness of the VSM intervention in this study. As mentioned earlier, PND scores and overall mean scores seemed to contradict each other in terms of demonstrating the effectiveness of VSM. Many off-task behaviours, mean scores showed improvements through intervention with almost all showing continued improvement through to post-intervention. The exception being ‘talking without permission’ for one student (Mason) who demonstrated a steady increase from baseline through to post-intervention. A possible explanation as to why VSM had no effect at reducing this off-task behaviour for this particular student could be linked to the location of his desk. Mason was seated at the back of the classroom in a position where he could engage in many off-task behaviours undetected. During observations, other students in the classroom seemed to favour sitting at this group of desks when seats were vacant. This constantly changed the group dynamics which impacted on students’ behaviour. Other students frequently engaged in conversations with Mason when they walked to the back of the classroom to retrieve items from their school bags, to sharpen pencils, or to throw rubbish in the bin.

Baseline, mean scores for off-task behaviour and ‘number of words written’ in most instances was fairly unstable with broad variability. Intervention and post-intervention scores also contained a degree of variability. The variability in these scores affected PND scores which made it difficult to draw solid conclusions about the effectiveness of VSM on reducing off-task behaviour. It would have been preferable to have had a more stable baseline prior to implementing the VSM intervention in order to have gained a clearer indication of the impact VSM had. One major influencing factor on the variability in scores may have been attributed to the inconsistencies in teacher expectations. It seemed, during observations, that student behaviour deemed unacceptable on one day was accepted on another day. Therefore, levels of engagement in both off-task behaviour and curriculum tasks for the students involved in

the study varied on any given day. This may have been a major influencing factor on the low PND scores for almost all off-task behaviour and ‘number of words written.’

One student decreased all three mean, off-task behaviour scores and three students decreased two out of three mean, off-task behaviour scores during intervention. Coupled with the improvements to all mean, off-task behaviours (apart from ‘talking without permission’ for one student) from baseline to post-intervention, there is plenty of evidence to suggest VSM was an effective intervention for reducing off-task behaviour in this study. Furthermore, mean ‘number of words written’ for all students increased markedly (between 1.9 and 2.9 times) from baseline to post-intervention, which further supports the notion that VSM was effective at improving desirable behaviour. Three of the four students in this study were identified by the teacher as being below average ability. All four had been identified as having low motivation to complete writing tasks. The improvements to ‘number of words written’ for these students further highlights the significance of the improvements observed in this study. As discussed earlier, the improvements in off-task behaviour and ‘number of words written’ during intervention and post-intervention is supported by the majority of literature available on VSM. Many studies have highlighted the effectiveness of VSM interventions at maintaining targeted behaviour over time and across settings (Bray & Kehle, 1996; Bellini & Akullian, 2007; Bugghey, 2007; Gelbar, Andreson, McCarthy, 2012). Possible explanations as to some of the discrepancies in results (i.e. increase in ‘talking without permission’ for one student and low PND scores) have been examined.

### ***Limitations***

Due to the small sample size ( $n = 4$ ), the results should be interpreted cautiously. The students were all males, in the same class, within the same school, so it would be difficult to generalise results to other students in other classes, or students in different schools. The

students were all of similar age so it would also be difficult to generalise results to younger or older students.

Another limitation was the variability in many of the students' off-task behaviour during baseline data collection. This variability made it difficult to draw solid conclusions about the effectiveness of VSM on reducing off-task behaviour using percentage of non-overlapping data scores. Data collection within a classroom setting is prone to variability and in many circumstances is unavoidable. As mentioned earlier, it seemed that inconsistency in teacher expectations around student behaviour contributed to the broad variability in data. Due to time restraints it would have been difficult to eliminate this variability in order to have established a more stable baseline.

There are some limitations with regard to using 'number of words written' as a measure for work output. The type of task impacted on the number of words a student wrote. An activity involving an additional text meant that students used some of their independent writing time to read through text. This impacted on the amount of written work they could complete in the 20 minute time frame. Tasks where students were expected to write a story, or write about an event, usually provided a higher number of words written. However, as observations were random, it was hoped that a good range of writing genres would be included in each of the three phases (baseline, intervention and post-intervention). Specific data around the type of writing activities was not collected as part of this study.

Finally, the content of the written work produced was not examined. Students were aware that the number of words they wrote would be counted at the end of each observation. Therefore, students may have focused on writing as many words as possible without paying much attention to the actual content of what they were writing. The purpose of the VSM intervention was to decrease off-task behaviour, while increasing on-task behaviour (writing).

It was decided a good measure of this behaviour would be to record the number of words written.

### ***Practical Implications***

The use of VSM in mainstream schools, to support student behaviour has many implications for teachers and schools. Firstly, the VSM intervention in this study was successful at reducing off-task behaviour, while improving work output ('number of words written') for four students without a diagnosis and who had not been referred for outside agency, behavioural support. Using the school's camcorder to record students meant that the costs associated with implementing VSM were minimal. Editing the clips was easy to do and time effective. Due to the short nature of the edited video clips (between 1 minute, 45 seconds and 2 minutes, 9 seconds), the process of showing the students their edited video clips was time effective. These viewings took place before school started which ensured there was not any disruption to their learning. The versatility of VSM, at being able to address both behaviour and learning, make it a highly beneficial, school-based intervention to support students who present with a range of needs in a range of settings. Buggiey, Toombes, Gardener, & Cervetti (1999) write that VSM is a positive practice which produces beneficial results quickly.

### ***Future Research***

More research needs to be completed on the effects of VSM on improving participant work output. This study has touched on how VSM can be an effective tool in decreasing off-task behaviour, while improving work output (number of words written) for students in school. There are limited studies on the benefits to student achievement, with much of the literature focusing on behaviour. It would be interesting to investigate whether VSM could benefit larger groups of students (i.e. whole classes) who engage in inappropriate behaviour.

Many available studies have investigated the use and effectiveness of VSM with students who have a disorder such ASD, Selective Mutism, ADHD, Oppositional Defiance Disorder, etc. More research needs to be continued in mainstream, school settings. With greater accessibility in schools to hand-held, recording devices such as iPads, camcorders, and Smart Phones, there is a need to research how these devices could be used in conjunction with VSM to support changes in student behaviour and learning.

### **Conclusion**

The discrepancies in results between mean scores and PND scores have been examined with possible causes discussed. The overwhelming improvements to mean off-task behaviour scores and ‘number of words written’ during intervention and post-intervention support the notion that VSM was an effective tool in this study to support behaviour change. The four students in this study were identified as engaging in off-task behaviour and having low motivation for completing writing tasks. This would suggest that improvements to work output (‘number of words written’) may have been resistant to change. The fact that many decreases in off-task behaviour and increases in ‘number of words written’ immediately after the implementation of VSM could indicate an improved self-belief. The possible improved self-belief led to an enhancement of task engagement (independent writing), which led to decreased engagement in off-task behaviour and an increased rate in the ‘number of words written.’ The numerous improvements in off-task behaviour and ‘number of words written’ during post-intervention also support the notion that newly learnt behaviour can be maintained over a period of time, once viewing of self-modelling video clips has ceased. As a school-based intervention to promote specific student behaviour in this study, VSM was an overall success.

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Running Head: VSM to Reduce Off-Task Behaviour

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# Appendix A

# Appendix B

# Appendix C

# Appendix D

# Appendix E

# Video Self-Modelling as a Classroom Based Intervention to Reduce Off-Task Behaviour in Mainstream Students

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## PARTICIPANT CONSENT FORM (Student)

I have read the Information Sheet and I know what the study is about. I know that I can ask questions at any time during the study.

I know that I am going to be video recorded doing my work in literacy. I am OK with being recorded \_\_\_\_\_(name).

I know that the number of words I write in literacy will be recorded. I am OK with having the number of words I write recorded \_\_\_\_\_(name).

I \_\_\_\_\_(name) would like to take part in this study.

**Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Full Name - printed**



# **Video Self-Modelling as a Classroom Based Intervention to Reduce Off-Task Behaviour in Mainstream Students**

## **PARTICIPANT CONSENT FORM (parent)**

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree/do not agree to my son \_\_\_\_\_ (name) image being recorded.

I agree that the amount of work (number of words) my son \_\_\_\_\_ (name) completes in literacy is allowed to be counted and recorded by the researcher.

I agree for \_\_\_\_\_ (name of son) to participate in this study under the conditions set out in the Information Sheet.

**Signature:** .....

**Date:** .....

**Full Name - printed** .....

# **Video Self-Modelling as a Classroom Based Intervention to Reduce Off-Task Behaviour in Mainstream Students**

## **PARTICIPANT CONSENT FORM (teacher)**

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree/do not agree for \_\_\_\_\_ (name of student) image to be recorded in the classroom.

I agree that the amount of work (number of words) \_\_\_\_\_ (name of student) completes in literacy is allowed to be counted and recorded by the researcher.

I agree for \_\_\_\_\_ (name of student) to participate in this study under the conditions set out in the Information Sheet.

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Full Name - printed** \_\_\_\_\_



**MASSEY UNIVERSITY**  
**ALBANY**

11 June 2012

David Livermore  
c/- Associate-Professor S Little  
College of Education  
Massey University  
Albany

Dear David

**HUMAN ETHICS APPROVAL APPLICATION – MUHECN 12/018**

**Video Self-Modelling as a Classroom-Based Intervention to Reduce Off-Task Behaviour in Mainstream Students**

Thank you for your application. It has been fully considered, and approved by the Massey University Human Ethics Committee: Northern.

Approval is for three years. If this project has not been completed within three years from the date of this letter, a reapproval must be requested.

If the nature, content, location, procedures or personnel of your approved application change, please advise the Secretary of the Committee.

Yours sincerely

Dr Ralph Bathurst  
Chair  
Human Ethics Committee: Northern

cc: Associate-Professor S Little  
College of Education