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## **DOCTOR OF PHILOSOPHY**

**From small acorns: The positive impact of adopting simple teacher classroom management strategies on global classroom behaviour and teacher-pupil relationships.**

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**From Small Acorns: The Positive Impact of Adopting Simple  
Teacher Classroom Management Strategies on Global Classroom  
Behaviour and Teacher-Pupil Relationships.**

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Thesis submitted to Bangor University in fulfilment of the requirements of the Degree  
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## Reflective commentary

I had never intended to undertake a PhD. In fact I was surprised to find myself accepted onto the Psychology undergraduate course after a particularly intense but enjoyable Access course. I did quite well in school but during my undergraduate course, my MSc, and then my PhD, 'imposter phenomenon' journal articles certainly struck a chord with me! I spent my time furtively glancing over my shoulder for fear that someone in the Academic Registry would realise they had mistakenly let a fraud into their venerable establishment. This was partly because the path that led to my PhD was not a traditional one. As a mature student my life experience ranged from nursing, to welding, to being a coastguard, and to co-running a fishing boat, but I feel my eclectic work-history and my maturity (in years, not necessarily in behaviour) has helped more than hindered me during the course of my research.

When I started my 1+3 (MSc then PhD), there was so much to do and so many people to see in order to set up the research - challenges that often saw me out of my comfort zone - but I enjoyed the process. The 'imposter phenomenon' was alive and well though, especially when dealing with senior officials in Gwynedd Local Education Authority (LEA). During my time as a nurse and research assistant I had no problem dealing with people of all kinds of social standing because my 'job' was to make them comfortable. When it came to dealing with senior LEA officials I suddenly found myself in the strange situation of having to present a capable persona, one worthy of their respect. This was at odds with my 'down to earth' default mode and a persona I was not comfortable with.

My default mode caused a particular situation to arise that I was unprepared for that was about as big a challenge as I'd ever faced in career terms. Thankfully, the situation slowly improved over a period of a year or so, but it served to make me

stronger and more aware of the need to be as clear as possible in my communications. Happily the person in question has become a huge support whom I admire greatly, and I feel we both grew as a result of our 'false start'.

The initial visits to schools to discuss the research were carried out during the final week of my MSc, which made for an intense but enjoyable conclusion to that course. Pressure served to motivate me to work to tight deadlines, something I'd also found as an undergraduate. It wasn't particularly good for the nerves, but it seemed to work. I have even enjoyed the final few months, weeks and even days, of this PhD due to the pressure (which admittedly is a bit strange!).

During the course of my PhD, Glenn (my now husband, then fiancée) was working as a contractor, which saw him relocated to locations all over the UK. This was tough on both of us, emotionally, financially (diesel costs were astronomical!) and physically, as we both travelled a lot as a result, which at times entailed a whole day's travelling to or from wherever he happened to be working at the time. During my final PhD year Glenn gained a permanent post locally, and the distraction of long-distance driving was a memory, but I had discovered that I could fit in small chunks of work whenever I had the opportunity (no longer was I slave to the 'I need more than two hours to get some work done' school of thought), and slowly but surely everything was taking shape.

Sadly Glenn suffered a devastating and unexpected family bereavement at the beginning of my second year and my thesis took a back seat. It was difficult to refocus my efforts but refocusing wasn't an option, it was a necessity, so later in that year when I found myself struggling with academic journal-style writing (I'd never experienced this with narrative writing) I worked hard to try and improve and found that my work was something I could happily lose myself in.

I had a busy year in 2008: I attended two conferences (one in Dublin, and one in Chicago), my PhD laptop gave up the ghost several times before finally losing the will and giving up (thankfully I was supplied with a teaching provision one in order to complete my writing), and in September I got married. My wedding day was wonderful, my honeymoon was equally so, but when I returned, the new semester had begun and my research funding had come to an end. I learned to juggle my paid work (a combination of lecturing and observation team coding) with my writing, and although there were times I thought I would never be able to complete the thesis in time (imposter phenomenon still alive and well) and how I may not be cut out for any of this, I discovered that I was quite single minded with my work when there was occasion to be.

While I loved carrying out research from the data collection perspective as a research assistant I was always perplexed as to how on earth anyone could enjoy academic research itself; surely all that analysis and writing must be the bane of their lives?! How surprised am I, when I say just how much I have enjoyed the process of carrying out this PhD research – the data collection, the data analysis (there's something quite exciting about seeing a pattern emerging, I seriously never thought I'd ever say *those* words), and even the scientific writing.

Carrying out this PhD has been a privilege. We often forget just how lucky we are in academia, but my work as an observation team coder and my own background serve to remind me that not everyone is as fortunate as I have been over the past four years. I've learned a lot about myself, I've even learned a little about research (!), and I feel I've certainly grown as a result. I never set out to do this, but I am very, very glad I did.



## Summary

Behavioural, emotional and social difficulties (BESD) can develop early in a child's life, and the earlier the onset the poorer the prognosis. Classroom-based interventions have been effective in reducing and preventing these problems, but many do not possess a robust evidence-base. One series of programmes that has a tradition of scientific evaluation is the Incredible Years (IY) series; the IY Teacher Classroom Management (TCM) programme is the focus of this research.

This thesis contributes to current research in the following ways: Firstly, by developing and refining a new classroom observation measure (Chapter 4), the Teacher-Pupil Observation Tool (T-POT); a relatively flexible measure of teacher, classroom and individual pupil behaviours and interactions.

Secondly, study two (Chapter 5) utilised the T-POT – in combination with questionnaire measures – in order to evaluate the IY TCM programme. The contribution of this study was that the IY TCM programme had never been previously evaluated independent of other IY programmes. The TCM programme successfully increased positive teacher behaviour and decreased negative teacher behaviour to the classroom, and to children with behaviour problems in particular. Pupil compliance significantly increased as a result of TCM training, while non-compliance, deviance (especially in children rated as problematic by the teacher), negative behaviours aimed at the teacher, and off-task behaviour showed significant reductions in intervention classrooms, post-classroom management training.

Thirdly, the final study (Chapter 6) contributed to current research by investigating mechanisms of intervention-related change. This study examined barriers to positive outcome and investigated factors that facilitated implementation of TCM skills and principles. Teacher experience, job-share status, and teacher stress level, predicted multiple variables.

Broad implications of the findings are discussed in the final chapter (Chapter 7) and suggestions relevant to future research are made.

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## **CHAPTER 1**

# **Introduction to Child Behavioural, Emotional and Social Difficulties**

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*Thesis structure*

The core of this thesis comprises three papers: one methodology paper and two empirical studies. Preceding these papers are three introductory chapters: a review of childhood behavioural, emotional and social difficulties (BESD; Chapter 1), followed by a review of these problems in the classroom (Chapter 2). Both chapters discuss risk factors and the importance of evidence-based classroom interventions, concluding with a brief overview of the Incredible Years (IY) Teacher Classroom Management (TCM) Programme. The third chapter reports on the practicalities of implementing and setting up the evaluation study, and the research timeline. The first paper discusses the development and testing of a classroom observation measure (Chapter 4). The second paper (Chapter 5) describes a study that utilised the observation measure to evaluate the IY TCM programme in reception classrooms in Gwynedd primary schools. The third paper examines predictors of outcome (Chapter 6) and whether particular teacher and child characteristics predict positive intervention-related change. The final chapter is a discussion of the thesis in its entirety (Chapter 7) addressing clinical implications and future research directions.

*Overview of Chapter*

This chapter provides an overview of childhood behavioural, emotional and social difficulties (BESD) in preschool children (0-5 years of age). It begins with a discussion of these problems, and difficulties associated with their early-onset in pre-school and early school years. Risk factors for development of BESD are outlined, and some protective components are discussed. The chapter concludes with a section on mostly home-based and/or parent-focussed treatments and interventions to reduce severity or prevent development of BESD symptoms and associated problems.

*Atypical development in preschool children*

While many children grow up to be well-adjusted adults there is a sub-population of children that do not (Hutchings & Bywater, 2009; Moffitt, 1993; Piquero, Farrington, & Blumstein, 2003). This sub-population may display developmental and temperamental difficulties and/or maladaptive behaviour patterns during the first few years of life (Cater, Briggs, Gowan, Jones, & Little, 2003), thereby increasing the potential for development of BESD. By approximately three years of age externalising symptoms and maladaptive behaviours in early childhood manifest themselves as aggression, significant noncompliance, difficulties with self-regulation, and a high activity level (Campbell, Shaw, & Gilliom, 2000). Such behaviours occur naturally in preschoolers. Aggression, for example, may begin as early as 12 months of age, but ordinarily declines after three years of age (Alink et al, 2006; Tremblay et al, 2004). This decline is thought to be due to the development of self-regulation of aggressive behaviour (Tremblay et al, 2004). A failure to self-regulate leads to high risk of significant aggression and violence throughout adolescence and adulthood (DeWein, & Miller, 2009). Put simply “just as capacities

to regulate emotions and behaviours develop during the preschool period, so do dysfunctions in multiple systems” (Egger & Angold, 2006, p. 327).

### *Conduct problems*

Conduct Disorder (CD) is theorised to have two separate courses: early-onset (American Psychiatric Association [APA], 2000) - also known as life-course-persistent - and late-onset (APA, 2000) or adolescence-limited (Moffitt, 1993). Early-onset CD is more prevalent in boys than girls, and is associated with neuropsychological deficits, co-morbid Attention Deficit Hyperactivity Disorder (ADHD) and academic underachievement (Moffitt & Caspi, 2001) as well as family psychopathology; symptoms evident across cultures (Hinshaw & Lee, 2003).

Distribution of males to females in late-onset CD is more balanced. Late-onset CD is often characterised by problems that tend not to persist into adulthood (Moffitt, Caspi, Dickson, Silva, & Stanton, 1996), although Moffitt and colleagues (2002) found that adolescence-limited children still displayed problems with drugs, crime, mental health and impulsivity at 26 years of age (Moffitt, Caspi, Harrington, & Milne, 2002).

Children diagnosed with CD often display antisocial behaviours such as bullying and criminality (World Health Organisation [WHO], 1992). These children are more likely to misread vague social cues as provocative and necessitating an aggressive reaction (Dishion, Patterson, Stoolmiller, & Skinner, 2001). Children diagnosed with CD have persistent problems with developing and adopting social and emotional skills, both of which are “now known to be as important as intellectual skills in shaping personal, educational and career success” (Weare, 2008, p.48).

Research suggests that social and emotional skills are mainly shaped by the child’s environment, even at the level of the neural pathway (Denham & Weissberg, 2004).

However, there are some barriers to developing effective social skills that are an interaction of environmental, genetic and congenital factors. These factors include prematurity; difficulties during infancy with feeding, temperament and sleeping; low birth weight (Indredavik et al, 2004); reading and problem-solving problems, low IQ, and delayed language development (Hutchings & Bywater, 2009).

### *Costs of maladaptive behaviour and atypical development*

Disruptive and aggressive externalising behaviours in early childhood - and maladaptive behaviour patterns in general - regularly extend into later childhood (Pierce, Ewing, & Campbell, 1999; Snyder, Prichard, Schrepferman, Patrick, & Stoolmiller, 2004). Children displaying symptoms of BEDS are often excluded from school and, in adulthood are likely to experience high levels of unemployment, social adjustment problems (Sugai, Sprague, Horner, & Walker, 2000), criminality (Piquero, Farrington, & Blumstein, 2003), substance abuse, and, for girls, early pregnancy.

Early externalising behaviours quickly become stable and highly resistant to change (Williford & Shelton, 2008). The more severe the problems, the more areas of the child's life will become affected (Loeber & Farrington, 2001; Majdanzic & van den Boom, 2007) and the more enduring these problems will be (Bennett et al, 1999; Carter, Briggs-Gowan, & Davis, 2004; Loeber, 1991; Moffitt, 1990, 1993; Satcher, 2001). Often, the disorder has become fixed by the time the problem is diagnosed (Hinshaw, 1994; Kazdin, 1993), and without intervention these maladaptive behaviours and accompanying problems are likely to persist (Bennet et al, 1999). Such problems have a significant negative impact on academic achievement, employment, and adult relationships (Campbell et al, 2006; Fite et al, 2007; Moffitt, 1993). The financial implications of such problems are also great: it is estimated that

by 28 years of age, a 10 year old child displaying a high level of anti-social behaviour living in London will have incurred societal, legal and medical costs 10 times greater (on average) than children without such problems, and sometimes considerably more (Scott, Knapp, Henderson, & Maughan, 2001).

Preschoolers exhibiting similar behaviour patterns to older behaviour-disordered children are at risk of marked impairments in developmental functioning (Wakschlag & Kennan, 2001), as behaviour disorder symptoms in preschoolers are often accompanied by social-cognitive deficits (Coy, Speltz, DeKlyen, & Jones, 2001) and problems with inhibitory control (Sonuga-Barke, Dalen, Daley, & Remington, 2002). Furthermore, as they get older, children displaying marked disruptive behaviour tend to form antisocial peer groups, further reinforcing their maladaptive behaviour (Taylor & Biglan, 1998). If a child and his/her friends are moderately disruptive at 11 years of age, there is a strong likelihood that they will have performed criminal acts by 13 years of age (Vitaro, Tremblay, Kerr, Pagani-Kurts, & Bulowski, 1997b). In the case of children displaying severe anti-social behaviour, even at seven years of age, these children were found to be 20 times more likely to have been involved in criminality by 26 years of age than less antisocial peers (Fergusson, Horwood, & Ridder, 2005).

### *Risk factors*

Early-onset of BESD is one of the most significant risk factors for continuing problems (Martin-Storey, Serbin, Stack, & Schwartzman, 2009; Richman, Stevenson & Graham, 1975, 1982; Satcher, 2001). Early aggression, for example, predicts aggression in later life (Koot & Verhulst, 1992; Verhulst, Koot, & Berden, 1990). Unfortunately, risk factors tend to have a cumulative effect (Bynner, 2003) thus

increasing the likely severity of outcome (Hutchings & Bywater, 2009; Plomin, DeFries, McClearn, & Rutter, 1997; Rutter, 2001).

Research reveals significant effects of risk factors on outcome. Feinstein and Sabates' (2006) long-term research demonstrated that outcomes such as unemployment, violence, and drug use could be predicted for 87% of 30 year-old adults, based on whether they had two or more risk factors for BSED development at 10 years of age. In the U.S. the Adverse Childhood Experiences study found a strong relationship between household dysfunction during childhood and multiple risk factors for several leading causes of death in adults (Felitti et al, 1998). Similarly, the UK Cabinet Office Social Exclusion Taskforce (2007) report estimated that 140,000 families were struggling with five or more risk factors, while Feinstein and Sabates estimated that a possible 5,000 families in the U.K. were experiencing seven or more serious risk factors for significant negative outcomes in adulthood.

### *Genetic and Environmental influences on development of childhood disorders*

There is disagreement as to the role of genetic influence in the development and duration of problem behaviours. Some studies conclude that genetic influences are more important in early youth (Schmitz, Fulker, & Mrazek, 1995), whereas others maintain that environment - in the form of familial, peer and media influences - become increasingly more important during this period (Dishion, Patterson, Stoolmiller, & Skinner, 1991; Farrington, 1998; Vitaro, Tremblay, Kerr, Pagani-Kurtz, & Bukowski, 1997a; Tremblay, 2000). Congenital influences such as high levels of maternal anxiety at 32 weeks' pregnancy, lead to children being twice as likely to develop emotional or behavioural problems (Glover & Connor, 2002). Similarly, high levels of anxiety throughout the third trimester predicted an increase



in ADHD symptoms in boys, and behavioural problems in both boys and girls (Glover & Connor, 2002; Webster-Stratton, 1998). In addition, parental stress and anxiety can exacerbate existing BESD (Brannan & Heflinger, 2001). Poor maternal mental health in particular is associated with persistent child emotional disorders (Leung & Slep, 2006; Meltzer, Gatward, Corbin, Goodman, & Ford, 2003) and is predictive of long-term behavioural problems (Chronis et al, 2007), even after controlling for socioeconomic and household factors (Meltzer et al, 2003).

Other factors such as mothers who smoke during pregnancy increase the risk of BESD in their children (Brennan, Grekin, & Mednick, 1999), whereas consuming alcohol during pregnancy has been found to increase the risk of behavioural problems, in particular ADHD (Mick, Biederman, Faraone, Saye, & Kleinman, 2000). Child personality characteristics such as negative mood, explosive temper, and oppositionality have also been implicated (along with parental/rearing factors) in risk of future externalizing problems (Caspi, Henry, McGee, Moffitt, & Silva, 1995; Lahey, Waldman, & McBurnett, 1999; Moffitt, Caspi, Dickson, Silva, & Stanton, 1996).

Environmental and genetic factors appear to interact to increase the possibility of early-onset externalising problems and long-term negative outcomes. No longer is it a clear-cut argument of nature versus nurture (Rutter, 1997, 2001) “but one about the complex mechanisms that link genetic predispositions with specific child rearing and other social experiences” (Campbell, Shaw, & Gilliom, 2000, p. 472). Rutter (2002) poses a similar argument and claims that development is continuously shaped by both internal and external influences, for example, parents who pass on increased risks to their children through genetics are also more likely to provide a less optimal environment for their children’s development (Rutter, 2002).

The risk of raising a child who will become a chronic offender is increased three-fold for teenage parents when compared with older parents in their twenties (Conseur, Rivara, Barnoski, & Emanuel, 1997; Webster-Stratton, 1998), compounded by a history of physical abuse in the parental relationship (Moffitt & the E-Risk Study Team, 2002). Social, economic and community factors, and less financial and emotional support from a young partner, appear to exacerbate risks (Conseur et al, 1997), leading to a higher probability of emotional and behavioural problems similar to those of their parents'. There is also an increased likelihood that they themselves will become teenage parents (Botting, Rosato, & Wood, 1998), resulting in inter-generational transmission of ineffective parenting competencies and problem behaviours.

#### *Effect of parenting on development of disorders*

Patterson & Forgatch (1995) suggest that risk factors for BEDS in themselves are not the biggest issue; the real issue appears to be the way risk factors affect and/or moderate parenting. Parenting is consistently identified as one of the most important determinants of whether problem behaviour becomes established or not (Patterson & Forgatch, 1995). There is a large body of evidence that identifies ineffective and inconsistent parenting as causal of enduring and serious childhood problems (Belsky, Woodworth, & Crnic, 1996; Campbell, Pierce, Moore, Marakovitz, & Newby, 1996). Acker and O'Leary's (1996) manipulation study found that requesting mothers to react inconsistently to their own child's behaviour by alternating between positive and negative responses caused typically developing preschoolers to become significantly more demanding and negative.

Inconsistent and/or overly harsh parenting is often prevalent in highly stressed, depressed, or dysfunctional families (Campbell et al, 1996; McLoyd, 1998); leading to a higher likelihood of teen delinquency, parenting a child while a teenager, and probability of rearing a child who eventually becomes involved in criminality (Capaldi, Dishion, Stolmiller, & Yoerger, 2001). In the Camberwell longitudinal study, Farrington and Welsh (2007) discovered that paternal criminality before a boy had reached ten years of age predicted an equally delinquent son. Likewise, lax parenting has far reaching consequences: Farrington (2002, 2003) found that lax parenting predicted chronic offending and anti-social personality at age 32. Parental dysfunction was also a predictor of the adolescent perpetrating physical assault (Woodward & Fergusson, 2000). Ineffective and inconsistent parenting frequently results in a cycle of coercion (Snyder, 1991): maladaptive strategies such as bribing or threatening children in order to gain the required response. Ineffective and inconsistent parenting even predicted aggression in young couples for children who had received such parenting (Capaldi & Clark, 1998; Capaldi, Dishion, Stoolmiller, & Yoerger, 2001; Simons, Wu, Johnson, & Conger, 1995).

### *The role of poverty*

Disadvantaged parents in particular are more likely to use inconsistent discipline, physical punishment, and shouting (Webster-Stratton & Hammond, 1998). Parents living in poverty with very young children cite their child's externalising behaviours as their biggest problem (Thompson, 2005). Disadvantaged parents also tend to be less positive, calm and rational, when assisting their child with problem-solving tasks (Webster-Stratton & Hammond, 1998). The UK is more disadvantaged than any other Western developed country (UNICEF, 2007). Disadvantage does not

solely involve low income, but an interaction with intra- and extra-familial factors, denoted by higher antisocial attitudes and behaviours in high-risk neighbourhoods (Wilson, 1996). Economic disadvantage in the form of low-income backgrounds and deprived neighbourhoods, is a risk factor for development of BESD (Reid, Patterson, & Snyder, 2002; Rutter, 1978). Disadvantage in general impacts negatively on intelligence scores (Wicks-Nelson, & Israel, 2003) and can be responsible for diminishing promising beginnings: children from impoverished backgrounds who “performed well in tests at age two are, by age six or seven, overtaken in the rankings by previously less able children from higher income families” (Major, 2008, p.68). This pattern has remained stable for the last thirty years (The Sutton Trust, 2008).

### *Protective factors*

Although antisocial adults were probably antisocial children, not all children displaying behavioural, emotional and social problems will continue to display these problems in adulthood (Robins, 1978). Sutton, Utting & Farrington (2004) report that only half of those children displaying antisocial behaviour at age eight were still classified as such in adolescence; similar to Robins and colleagues’ studies (1966, 1978).

Factors that protect against the development of BESD in early childhood, regardless of risk factors, are being a first-born child, being able to give and receive affection easily, and being brought up in a small family (Werner & Smith, 1992). Having ‘controlling’ mothers predicts better outcomes in middle childhood and adolescence; controlling mothers often report more cooperation and higher reading achievements for their child than less controlling mothers (Zaslow et al, 2006).

Positive parenting can play a protective role, even in high-risk groups such as children diagnosed with ADHD (Chronis et al, 2007).

As a child, forming attachments with typically developing children can also protect against BESD symptoms (Malecki & Elliott, 2002). Interventions which encourage forming positive attachments, based on problem-solving and social skills have been successful in not only protecting against development of problems, but also in reducing problems severity (Walker et al, 2005). Nevertheless, the most critical protective factor appears to be the absence of difficulties (be they behavioural, emotional and/or social) early in a child's life (Moffit, Caspi, Dickson, Silva, & Stanton, 1996) therefore it is imperative that steps are taken to assist children in early life in order that problems are resolved early on.

#### *The problem of detecting and diagnosing BESD in preschoolers (0-5 years of age)*

Some researchers and clinicians believe that preschoolers should not be diagnosed with psychiatric disorders for fear of misdiagnosing due to maturational factors and the danger of labelling a child and the self-fulfilling prophecy that often accompanies this (Emde, 2001). Others believe that preschool age is a time of far too rapid change to reliably diagnose problems. Individual differences at this time are said to make it too difficult to identify psychiatric symptoms or disorders given the current measurements of these disorders (Carter, Briggs-Gowan, & Davis, 2004), namely the Diagnostic and Statistical Manual of Mental Disorders (DSM IV-TR; American Psychiatric Association, 2007) and the International Classification of Diseases Classification of Mental and Behavioural Disorders (ICD 10; World Health Organisation, 1992). Nevertheless, it is becoming increasingly clear that psychological and psychopathological problems do exist in this age group and they do

warrant detection and intervention (Angold & Egger, 2004; Wakschlag, Bennett, Leventhal, & Thomas, In Press,). Campbell (1990) suggested that one method of differentiating normal behaviour in very young children from those at risk of externalising behaviours was to identify children with co-occurring problems that were frequent and severe, that present in multiple environments with a variety of people; this enables effective intervention to be targeted at those at greatest risk.

### *Psychopharmacological treatments*

Even at preschool age, guidelines recommend pharmaceutical intervention as treatment for childhood disorders such as ADHD in those with severe and stable symptoms (National Institute for Health and Clinical Excellence [NICE], 2009). The use of pharmacological treatment with preschool-age children (aged 0-5 years) is rapidly on the increase throughout the Western world (Barbaresi, 2003; Egger & Angold, 2006; Patel, Crimson, Hoagwood & Johnsrud, 2005; Rey, Walter, & Hazell, 2000; Zito et al, 2009) with a trend for medicating preschool children with more than one psychotropic drug concurrently (Rappley et al, 1999). This is particularly worrying given current classification problems and our limited knowledge of preschoolers' mental health problems (Angold & Egger, 2004; Jensen, Vitiello, Lenoard, Laughren, 1994; Zito et al, 2009), as well as the growing number of studies illustrating the adverse effects of medication, particularly for this young age-group (McGoey, Eckert, & Dupaul, 2002; Sonuga-Barke, Thompson, Abikoff, Klein, & Brontman, 2006; Wigal et al, 2006).

Part of the reason for the increase in psychopharmacological therapy is that physicians have been faced with a growing number of preschool children with severe symptoms who have not responded to psychosocial treatments (Rey, Walter, &

Hazell, 2000) due to a lack of evidence-based interventions (EBIs). Nevertheless, the literature is mixed as to pharmacological efficacy (Greenhill et al, 2006), and psychosocial interventions for young children are becoming increasingly more effective and more scientifically robust (Hutchings, Bywater, & Daley, 2007; Sonuga-Barke, Daley, Thompson, Weeks, & Laver-Bradbury, 2001).

### *Importance of Community-Based Participatory and Translational Research*

Although many advances were made in the 1990s in research into both causes and aggravators of childhood problems, and in treatments that positively altered children's trajectories and outcomes (Kazdin, 1993, 1997), both disciplines (research and treatment/intervention) have by and large evolved independently of each other (Hoagwood & Olin, 2002; Hutchings & Bywater, 2009). In answer to this apparent paradox, the National Institute of Mental Health (NIMH) set up guidelines in the U.S. to encourage community-based participatory research (CBPR) and translational research (National Advisory Mental Health Council, 1999). NIMH also launched a Clinical and Translational Science Award programme in 2006 (Woolf, 2008; Zerhouni, & Alving, 2006), in order to bring about increased emphasis on taking scientific evidence of effectiveness (type 1 translational research) and translating them into effective treatments in the community (type 2 translational research; O'Fallon & Derry, 2002; Roy-Byrne et al, 2003; Wallerstein, & Duran, 2006). These advances ensure that scientific findings are translated into accessible evidence-based front-line services (Kerner, 2006).

Although CBPR and translational research are on the increase, many community-based interventions continue to have little research evidence (Poher, Neuhauser, & Poher, 2001; U.S. Department of Health and Human Services, 2004).

Furthermore, many children and families do not have access to EBIs (Conroy & Brown, 2004), and some interventions continue to have problems in ensuring delivery of effective programmes in a service setting, due to a lack of fidelity tools and inadequately reported methodologies making implementation replication difficult (Mihalic, Fagan, Irwin, Ballard, & Elliot, 2002; Williford & Shelton, 2008).

### *Preventive programmes and interventions*

While more progress needs to be made with development of evidence-based interventions in general, meta-analytic reviews have demonstrated significant benefits of prevention programmes – in particular behaviourally-based programmes - in reducing future potential behavioural, emotional, academic and social problems (Durlak & Wells, 1997; 1998; Garland, Hurlburt, & Hawley, 2006; Weisz, Sandler, Durlak, & Anton, 2005). Early intervention is most effective (Gardner, 2008; Kazdin, 1997), because changing child behaviour (and therefore outcome) becomes more difficult after eight years of age when behaviour-patterns become more stable (NICE, 2006). Early intervention is also more cost-effective (Kennan & Shaw, 1994; Reynolds, Temple, Robertson, & Mann, 2009), due to intervention-related change eliminating negative prior risk factors (Walker et al, 2005) and reducing subsequent antisocial behaviour (Scott, 1998).

Parent-training (PT) is the most widely adopted and successful intervention for BEDS symptoms (Brestan & Eyber, 1998). Well-structured parenting interventions not only reduce child problem behaviour, they can also improve maternal mental health (Barlow, Coren, & Stewart-Brown, 2002; Farrinton, Sutton, & Utting, 2004; Hutchings, Bywater, Daley et al 2007). Piquero & colleagues' (2008) meta-analysis of 55 early family/parent training studies concluded that these



interventions were effective in preventing or significantly reducing behaviour problems, delinquency and antisocial behaviour in preschool years, and the emotional and social difficulties that invariably accompany such problems. PT has also been shown to reduce child problem behaviour and improve parenting practices in families living in disadvantaged areas, two to four years post-intervention (Hutchings, Bywater, Daley et al, 2007; Bywater et al, 2009).

Despite the advantages of evidence-based PT, some parents cannot or choose not to participate in such programmes. In many cases the earliest opportunity for intervention is when the child enters the school environment (Webster-Stratton & Reid, 2005). Under these circumstances school-based interventions have proved useful, and have been effective in reducing BESD and improving child social and emotional skills (Webster-Stratton & Reid, 2005).

### *Chapter Summary*

This chapter gave an overview of BESD in preschool aged children (0-5 years of age), presenting risk factors for BESD development, and interventions to prevent occurrence of problems or reduce their severity. It concluded with a discussion of the most widely implemented intervention: PT. The next chapter will elaborate upon findings from this chapter with a focus on BESD in the context of the classroom.

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**CHAPTER 2**

**Introduction to Child Behavioural, Emotional and Social  
Difficulties in the Classroom**

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*Overview of Chapter*

This chapter provides a review of BESD's impact upon the classroom. It begins with a short discussion of generalisation of externalising behaviours from the home to the school environment and vice versa, followed by a review of how parental factors can influence schooling, and the importance of school bonding and development of social and emotional skills in reducing negative effects of BESD in the school environment. This chapter will investigate the role of school-based factors, teaching style and classroom discipline/management in reducing negative outcomes such as truancy and early school dropout, and negative outcomes in adulthood. This chapter concludes with a review of evidence for classroom-based interventions, in particular the Incredible Years (IY) Teacher Classroom Management (TCM) programme.

*Early school years*

PT may reduce BESD symptoms in the home but reductions in maladaptive behaviours do not consistently generalise to the school environment (Barkley et al, 2000; Webster-Stratton, 2003c). Similarly, BESD symptoms may be partially and occasionally wholly the result of school or classroom factors (Forehand, Long, Brody, & Fauber, 1986; Taylor, Schachar, Thorley, & Wieselberg, 1986) and therefore a school-based programme could reduce externalising behaviour symptoms. Early school years may be the "last critical window of opportunity for change" (Gross, 2008, p.18), so it follows that preventive measures implemented during these early years have proved to be the most successful in reducing BESD (Gardner, 2008).

*Parental influence on academic achievement*

Just as parental and familial factors impact on child behaviour in the home, these factors can also influence behaviour and achievement in the classroom. Familial factors such as stress and critical parenting predict continuing problems for the child on entering the school environment (Campbell, Shaw, & Gilliom, 2000), whereas parental factors such as effective rule-setting, warmth and cognitive stimulation can motivate academic achievement above and beyond the child's natural abilities (Alexander et al, 1997; Desforges & Abouchar, 2003; Pagani, Boulerice, & Tremblay, 1997). Part of the mechanism for this may be enhancements in language development, linguistic competence, and emotional literacy skills due to sensitive and supportive parenting (Bercow, 2008). As early as 22 months of age, measures of child development strongly predict academic qualifications at 26 years of age (Feinstein, 2003) therefore any mechanism that improves preschoolers' development can have far-reaching consequences.

*BESD symptoms' impact on schooling*

“Primary school is where life chances are forged or lost” (Leslie, 2008, p.75), and academic difficulties can often be traced back to underachievement and lack of engagement with both school and peers during these early years (Anderson et al, 2001; Belsky & MacKinnon, 1994). BESD symptoms that are consistently observed during preschool years predict attendance problems, disruptive classroom behaviour, poor peer relationships and ultimately academic failure (Department for Children, Schools & Families, 2004).

Currently, 40% of children are leaving primary school in the UK, without gaining the expected level of academic achievement (Leslie, 2008). Over 70% of

pupils who reached level four – the level expected of an average ability child - in key stage two (7-11 years of age) tests in 1998 obtained five good GCSEs in 2003. In contrast, only 14% of pupils who did not reach level four by the end of primary school gained the same level of GCSEs by the end of secondary school (Leslie, 2008). Similarly, in a longitudinal follow-up study, over half of children displaying mild to moderate externalising behaviour left school with no qualifications (Colman et al, 2009), making long-term unemployment far more likely for them than for their peers (Begum, 2004).

Many children with BESD have significant reading problems, compounding other academic difficulties (Pickles, Hagell, Rutter, & Yule, 2006). Studies have shown that a third of BESD children are likely to be dyslexic, with reading ability two standard deviations below the mean even after controlling for IQ (Rutter & Yule, 1970; Sturge, 1982). BESD's negative effect on academic development is the cause of significant stress for both the teacher and other pupils (Guglielmi & Tatrow, 1998). Persistent antisocial behaviour correlates strongly with poor academic skills and peer rejection (Dishion, 1990; Wells, Barlow, & Stewart-Brown, 2003), impacting negatively upon the development of arguably the most important components of school success: academic, social and emotional skills (Repie, 2005). It is now recognised that social and emotional skills are as crucial as academic and intellectual skills (Weare, 2008); a lack of social and emotional skills is significantly associated with problems with peer relations (Dunn, & Cutting, 1999), lack of empathy (Zahn-Waxler et al, 1992), lack of understanding pertaining to socially appropriate behaviour (Harris, 1994; Jackson, Henriksen, Dickinson, & Levine, 1997) and academic difficulties (Moos, 1991, Nelson, Johnson, & Marchand-Martella, 1996), suggesting that each component has a significant impact on the others.

In the UK, a statement of Special Educational Needs (SEN) is often granted for children displaying externalising or BESD symptoms (Education and Skills Committee, 2006). Children with SEN statements are sometimes placed in special classes (Cairns, Cairns, & Neckerman, 1989), despite the fact that a combination of an SEN statement and attending special classes strongly predict long-term problems in adulthood (Meltzer, Gatward, Corbin, Goodman, & Ford, 2003; Vitaro, Brendgen, & Tremblay, 1999).

### *Forming bonds at school*

There are factors that protect against long-term problems: in particular, forming a bond with the school, teachers and peers can reduce risk of future problems such as early school dropout, substance abuse, developing significant behaviour problems and teen pregnancy (Abbott et al, 1998; Hawkins, Guo, Hill, Battin-Pearson, & Abbott, 2001; Manguin & Loeber, 1996; Resnick, Bearman, & Udry, 1997), and can even protect against familial and environmental risk-factors (Malecki & Elliott, 2002; Najaka, Gattfredson, & Wilson, 2001).

There is an interaction between the environment shaping the child, and the child shaping their environment, therefore not only does the behaviour of others affect the child, the child also influences the behaviour of those around them (Herring & Wahler, 2003; Rutter, 1997). The nature of the teacher-pupil relationship is consistently associated with academic adjustment and social skills (Birch & Ladd, 1998; Moos, 1991). Hamre and Pianta's (2001) research examined the extent to which preschool teachers' perception of their relationship with pupils predicted a range of school outcomes eight years later. For example, they discovered that negative teacher-pupil relationships at nursery/kindergarten were strongly related to

academic and behavioural problems at twelve to fourteen years of age. Similarly, teachers are more likely to rate children with a negative view of the classroom as difficult, especially if the child's home environment is chaotic (Oliver, Pike, & Plomin, 2008).

Children exhibiting high levels of aggression and Oppositional Defiant Disorder (ODD) often have difficulties bonding with both their teacher and their peers (Leff, Power, Manz, Costigan, & Nabos, 2001). These are arguably the two most important social and behavioural connections for a schoolchild, and failure to bond leads to intense problems (Walker et al, 2005). Having failed to bond with their teacher and peers, these children will gravitate towards similar, possibly older children who have also been ostracised by their peers for persistent aggression (Kupersmidt, Coie, & Dodge, 1990), thus forming an antisocial peer-group. The consequences are often truancy and early school dropout (Battin-Pearson et al, 2000).

### *Truancy, early school dropout and exclusion*

It is clear that disruptive behaviour is one of the main predictors of academic problems, truancy, and ultimately early school dropout (Alexander, Entwisle, & Horsey, 1997; Battin-Pearson et al, 2000; Fields & Ogles, 2002; Henry, Moffitt, Robins, Earls, & Silva, 1993; Janosz, Le-Blanc, Boulerice, & Tremblay, 2000; Maughan, Rowe, Messer, Goodman, & Meltzer, 2004; Vitaro, Laroque, Janosz, & Tremblay, 2001; Vitaro, Tremblay, Brendgen, & Larose, 2005), even after taking poverty and IQ into account (Rumberger, 1995; Vitaro et al, 2001). Early school dropout can lead to considerable negative consequences (Cohen, 1998) such as unemployment (Rumberger, 1987) and a higher likelihood of bringing up a child that will also drop out of school early (Serbin & Stack, 1998).

In the UK, 31% of all permanent exclusions are due to persistent disruptive behaviour (Department for Children, Schools and Families [DCSF], 2009). In a British government funded three year follow-up study, 18% of young adults with persistent mental health problems and 11% who had developed a disorder since the survey began, had been excluded from school. By contrast, of the young adults in the study rated as having no mental health problems, only 1% had been excluded from school (Meltzer, Gatward, Corbin, Goodman, & Ford, 2003). BESD has been found not only to lead to difficulties and exclusion in childhood, but also to lead to exclusion from community and work environments as an adult (Sugai, Sprague, Horner, & Walker, 2000).

#### *The impact of teaching style and the teacher-pupil relationship*

Teaching is said to be “a complex, cognitive ability that is not innate but can be both learned and improved upon” (Saroyan, & Amundsen, 2001, p.344). Fifty years of research demonstrates that teacher instructional style is particularly important to a child’s learning (Wang, Haertel, & Walber, 1993), yet only half of actual classroom time involves instruction; the other half is spent dealing with discipline problems (Cotton, 1990). Teachers feel ill-equipped by their training for the full experience of teaching, especially classroom management issues (Latham, 1997; Rigden, 1996). Even special-needs teachers (teachers who are trained to give one to one teaching or take special classes for children displaying BESD symptoms) have difficulties dealing with problem behaviour: Baum and colleagues (1988) report that only 25% of special-needs teachers felt prepared for dealing with challenging behaviour in the classroom; 56% did not feel prepared enough, and 18% felt completely unprepared.



Teacher behaviours can positively affect academic performance in children displaying BESD (Mastropieri, Emerick, & Scruggs, 1988; Nelson, Johnson, & Marchand-Martella, 1996). Schooling and positive teaching practices can ensure that 'poor performers' at age five become 'high performers' by the age of ten; these improvements ensure that the less academically successful five year olds go on to become equally as successful as their higher performing peers, as adults (Gross, 2008).

To compound the problems that poverty can bring, teaching and instructional quality is reduced in schools with high numbers of pupils living in poverty (Pianta et al, 2002). In the UK, Key Stage 1 (KS1) pupils (4-7 years of age) in schools with high proportions of free school meals for example, do not perform as well as schools with lower numbers of free school meal entitlements (Strand, 1997). Additionally, the negative effects of socio-economic disadvantage become more marked as a child progresses through school (Haezwindt, 2004; Leslie, 2008; Strand, 1997). Crucially, and most worryingly, for the past thirty years in schools throughout the UK, children from low-income backgrounds who excel developmentally at age two are overtaken by their more privileged peers by the age of six or seven years (The Sutton Trust, 2008; Major, 2008).

Teaching style can impact on child attitude to schooling, and therefore upon future academic development, regardless of socio-economic status (SES; Birch & Ladd, 1998; Hamre & Pianta, 2001). Autonomous child-centred teaching style at nursery/kindergarten predicted child positive attitudes towards school, whereas a highly directive teaching style fostered teacher-student conflict and poor performance in secondary school (Di Lalla, Marcus, & Wright-Phillips, 2004; Stipek & Byler, 2004). Adopting strategies such as increasing praise or approval statements (Latham,

1992, 1997; Nafpaktitis, Mayet & Butterworth, 1985; Shores, Gunter & Jack, 1993), non-intimidating teaching style with clear boundaries (Kazdin, 1993), constructive discipline, explaining lesson goals and reviewing past work at the beginning of lessons (Rosenshine, 1997) appear to protect against developing BESD symptoms and improve behaviour throughout the class, regardless of presence of risk factors (Gardner & Burton, 2003).

### *School and classroom discipline policies*

It could be argued that some coercion-based disciplinary approaches and exclusionary procedures are out-dated procedures based on teaching strategies over a century old; deriving from a time when academic skills were regarded as the only skills worth attaining (Nelson, Gonzalez, Martella, & Marchand-Martella, 2005, p.440). Prohibitive school rules and severe punishments can have negative long-term effects for pupils (Nelson, Gonzalez, Martella, & Marchand-Martella, 2005), whereas well-organised schools with clear rules, consistently applied, can have a protective influence that has been demonstrated to be a positive and supportive element in pupil development (Anderson et al, 2001; Goodenow, 1993; Nelson, Gonzales, Martella, & Marchand-Martella, 2005). Walberg, Fraser and Welch (1986) found that both school and classroom environment were strong predictors of future success and attitudes, even after co-varying for other factors. A poor classroom environment was associated with increased emotional and behavioural problems (Somersalo, Solantaus, & Almqvist, 2002; Walberg, Fraser & Welch, 1986), but positive classroom climate acted as a buffer against familial and environmental risk factors, reduced pupil and teacher stress (Kyriacou, 2001) and improved performance outcomes (Fraser, 1994; 1998; Wang, Haertel, & Walberg, 1993).

*School-based interventions*

Schools often serve a similar purpose for children as primary care physicians do for adults: they identify mental health problems (Reddy & Newman, 2009). Some schools are becoming more eager to find funding for EBIs as a result of translational and community-based research being more readily available (Horner, Sugai, Lewis-Palmer, & Todd, 2001; NIMH, 1999; Wallerstein & Duran, 2006). Hawkins and colleagues' 12-year longitudinal study (1999) found that early school intervention protected against serious negative outcomes in late-adolescence and appeared to succeed by fostering bonding and attachment to schooling, which in turn was a very powerful buffer against later health risk behaviours. A 15-year follow up of children from low-income families demonstrated that an early childhood intervention developed to foster educational achievement and reduce the chances of juvenile arrest showed significantly better educational and social outcomes than their peers who did not receive the intervention, even at 20 years of age (Reynolds, Temple, Robertson, & Mann, 2009). Preschool intervention programmes generally improve early academic performance and school readiness (Karoly et al, 1998; Ramey & Ramey, 1998), increase the number of academic qualifications (Campbell, Ramey, Pungello, Sparling & Miller-Johnson, 2002), and reduce problematic behaviour (Garces, Thomas & Currie, 2002).

Unfortunately, agencies and local authorities often fail to invest in evidence-based programmes. This may be due to lack of knowledge regarding evidence or preference for funding a number of popular programmes that are well received but ineffective in practice (Gross, 2008), as was seen during the implementation of the On Track initiative (Ghate, Asmussen, Tian, & Hauari, 2008). The On Track initiative was a Home Office plan whereby £400,000 a year was allocated to local areas

between 1999 and 2006 to implement preventive interventions. As there did not appear to be any significant co-ordination between agencies, a huge number of local and popular programmes were implemented that, for example, parents and/or teachers liked, but had very little impact on child behaviour such as offending, truancy, academic performance and antisocial behaviour (Ghate et al, 2008). Yet evidence-based classroom-based interventions are highly efficacious and cost-effective (Denize, & McGuiggan, 2005; Shernoff & Kratochwill, 2007).

Most school-based EBIs target externalizing and/or disruptive behaviour problems, as these have the biggest negative impact on academic performance (Reddy, 2009), but classroom interventions have also successfully increased positive outcome and decreased negative outcome in areas other than academic performance. Wilson, Gottfredson, & Najaka, (2001) evaluated EBIs implemented in schools, and found programmes were effective in substance-abuse prevention and reduction of early school drop-out, both of which have negative life trajectories (Hawkins et al, 1999; Meltzer, Gatward, Corbin, Goodman, & Ford, 2003). Similarly, Berthet & Jacobs' (2002) review of school-based EBIs targeting aggression and anti-social behaviour reported significant reductions in both behaviours, especially in the most problematic children, regardless of whether the programme was school-wide or targeted. It is important that all children – regardless of presence of BESD – receive preventive programmes in order to stop potential problems before they begin and reduce problem severity or duration where problems already exist (Rutter, Hagel & Giller, 1998; Weare, 2008).

*The Incredible Years (IY) Series*

The Incredible Years (IY) series incorporates parent, teacher and child programmes. The first to be developed was a parenting programme for parents of children referred to child and adolescent mental health services for behavioural problems (Webster-Stratton, 1981). Two thirds of the children whose parents attended the programme saw significant improvements, but a third of children needed additional help, therefore a more in-depth PT programme was developed and researched, followed by a programme developed to equip parents with skills to support their child's education and school experience. Next came the Dino Dinosaur school (Webster-Stratton, 2003c) and finally the TCM (Webster-Stratton, 2003a).

There are now therapeutic and global child-focussed programmes such as the Dino Dinosaur School (Webster-Stratton, 2003c) to promote social and emotional competence in children, parent-focussed programmes for parents of referred and non-referred children - including PT to enhance children's school readiness, and infant and toddler programmes – and the TCM programme. The programmes have been rigorously researched in Randomized Controlled Trials (RCTs) for the past 25 years through independent evaluation and the programme developer's own research (Baker-Henningham, Walker, Powell, & Gardner, 2009; Brezinka, 2006; Bywater et al, 2009; Bywater, Williams, Shakespeare, & Whitaker, 2009; Hutchings, Daley, Jones, Martin, & Gwyn, 2007; Larsson et al, 2009; Raver et al, 2008; Reid, Webster-Stratton, & Hammond, 2003; Shernoff, & Kraatochwill, 2007; Webster-Stratton, Reid, & Stoolmiller, 2008). Positive outcomes of the PT programmes in particular have been replicated a number of times (Hutchings et al, 2007; Webster-Stratton, Reid, & Hammon, 2001).

*Theoretical bases of the IY approach – Learning Theory*

In order to facilitate parents' and teachers' behaviour management skills, IY programmes employ operant conditioning principles: reinforcement, punishment and extinction, but mainly promote reinforcement (Webster-Stratton & Hancock, 1998; Sanders, 1999). These principles enable behaviours to be modified: in order to increase desirable behaviour, praise, rewards, and positive reinforcement in particular are utilised, whereas undesirable behaviours are extinguished. Often parents and teachers inadvertently reinforce negative behaviours simply by attending to them, but the IY approach coaches them in how to reinforce appropriate behaviours.

Punishment is thought of as a 'last resort', and is never critical or violent (violent punishment has been known to model violence in the child; Scott, 1999). Clear limit setting, predictable structured routines, praising a child behaving appropriately (proximal praise) and the use of specific, clear language is employed in order to reduce the need for punishments such as Time-Out.

Social Learning Theory (SLT; Bandura, 1977) principles are at the centre of the IY approach. The use of reinforcement and punishment - in particular modelling positive behaviours - form the cornerstone of the IY programmes. Parents and teachers are taught the importance of observational learning and the need to model positive behaviours to assist children/pupils in acquiring good social skills and morals (Scott, 1999).

Patterson's Coercion Theory (PCT; Patterson, 1982) also has a strong influence on the IY approach. This theory identifies a negative cycle of coercion due to learning mechanisms whereby the bi-directional nature of the adult-child relationship inadvertently results in aggression and dysfunction. Examples of this coercive cycle are withdrawing a command because the child throws a tantrum,

‘explosive parenting’ or chronic nagging, serving to increase mutually aversive behaviour (Patterson, 1982). Patterson showed that positive attention, play and effective limit settings, as well as consistent discipline, could break this coercive cycle and reinforce positive bonds between parent and child (or in the case of the TCM, teacher and pupil).

*The IY Teacher Classroom Management (TCM) Programme.*

The IY Teacher Classroom Management (TCM) programme (Webster-Stratton, 2003a, 2003b) was developed as a response to teachers requesting a teacher-focussed programme to bolster the effectiveness of the child- and parent-focussed IY programmes. The TCM programme is derived from research into effective classroom management and instruction (Good & Brophy, 2003; Latham, 1992, 1997), and as is the case with all the other IY programmes, is based on learning theory, in particular SLT (Bandura, 1977) and PCT (Patterson, 1982). The programme is designed for teachers of three to ten year old children, utilising principles such as modelling and reinforcement (Patterson, Reid, & Dishion, 1992). Videotapes of classroom situations and role-play combine to assist teachers with identification of key skills and rehearsal of appropriate behaviour. The group leaders model positive behaviours and serve to demystify the concept of ‘perfect teaching’ (Webster-Stratton, 2000). The TCM is a five or six day programme delivered at monthly intervals (see Appendix A for five day summary).

The IY TCM programme promotes child school readiness skills and child pro-sociality, strengthens classroom management skills, reduces negative classroom behaviours, and encourages teacher collaboration with parents (Webster-Stratton, Reid, & Hammond, 2001). The TCM programme has been researched alongside

other IY programmes, where it has demonstrated itself to be effective in adding to the positive effects of the PT and/or child-focussed programme (Webster-Stratton, Reid, & Hammond, 2001). Researchers have also taken components of the IY TCM and implemented these or modified them (e.g. Baker-Henningham, Walker, Powell, & Gardner, 2009; Shernoff & Kratochwill, 2007; Williford & Shelton, 2008) but the TCM programme has never previously been researched in its entirety as an independent programme (Williford & Shelton, 2008).

### *Chapter Summary*

This chapter illustrated how school experience can either reduce or increase the risk of BESD, and how this impacts on the child experiencing BESD, their peers, and the teacher. The role of teacher characteristics and schooling were discussed, culminating in interventions that encourage effective teacher classroom management principles, in particular the IY TCM programme. The following chapter will illustrate the steps involved in setting up an evaluation study of the IY programme in Gwynedd primary schools, and will lead into the three papers that form the core of this research.



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## **CHAPTER 3**

### **Research Procedure**

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### *Background*

In 2005, Gwynedd Local Education Authority (LEA) introduced a series of classroom-based interventions to all its 102 primary schools in a three-year plan. Reception class teachers were initially to be trained in the IY TCM programme (Webster-Stratton, 2003a; 2003b), and the following year they would be trained to deliver the IY Dinosaur School curriculum (a child-directed social-skills and problem solving programme; Webster-Stratton, 2003c). While the reception class teacher was being trained in the Dino programme, the teacher in charge of the next oldest classroom would be trained in the TCM programme. This cycle would continue until the entire teaching staff in each school had been trained in TCM skills (the end of the 2007-08 school year). In larger schools the reception class teacher taught reception age children only (4-5 year olds), but in smaller schools the teacher taught a range of ages within the key stage one (KS1) age-group (4-7 year olds), and sometimes including nursery age (3-4 years of age).

What had convinced Gwynedd LEA to implement the IY TCM programme? The IY Dino Programme was piloted in two infant schools in a relatively high-risk area of Bangor, North Wales, in 2001 and a small evaluation study was undertaken in one school. The programme was well received by both teaching staff and children. Additionally, the school inspection report included positive comments regarding the programme's effect on children's classroom behaviour. As a result Gwynedd LEA delivered the IY TCM programme the following year in four more primary schools in Gwynedd, and after yet more positive feedback, and having by then 16 schools involved in the project, the LEA decided it would be beneficial to implement the TCM programme throughout the remaining 90 primary schools over a three-year period.

*Setting up the evaluation*

Gwynedd LEA were keen to run the IY TCM programme in all its schools, but wanted to rigorously evaluate the programme in order to build an evidence base for the IY TCM. Funding was obtained as part of an Economic and Social Research Council (ESRC) Case award (ESRC and LEA funding) for the current research. My second supervisor and I were members of the research steering group, along with LEA managers and education officers. This group was set up in order to plan the evaluation study. The group met fortnightly during the planning phase of the research, decreasing to monthly meetings, then bimonthly, as the research got underway. My second supervisor was responsible for providing TCM training to intervention group teachers, assisted by a primary school head-teacher who had been seconded to co-ordinate the implementation of the IY TCM programme.

Planning the evaluation research commenced during the year preceding my PhD as part of my MSc. The MSc involved creating, developing and piloting an observation measure – The Teacher-Pupil Observation Tool (T-POT; see Study 1, Chapter 4) – to be utilised in the main evaluation study. Two fellow postgraduate students were trained in the measure to undertake classroom observations with me. Twenty-one classrooms in three schools were observed. These three schools were some of the 18 schools that had participated in the early LEA TCM roll-out. Although all three schools had trained TCM teachers, not all staff were trained in the programme, and the observation team were blind as to condition (TCM training or no TCM training). The T-POT observation measure successfully discriminated the 10 TCM trained teachers by their increased frequencies of specific (not vague) commands, more opportunity for children to comply with these commands, less child non-compliance and more positive child behaviours in TCM classrooms (Martin,

2005). The pilot study enabled changes to be made to the T-POT and categories to be clarified and simplified, in preparation for the main evaluation study. Results from the study were included in an article that also reported on teacher satisfaction (Hutchings, Daley, Jones et al, 2007).

Because the observation measure's validity was to be tested using the teacher version of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997 – see Chapter 4) it was decided that both the teacher and parent version of the SDQ would be utilised for the evaluation study, along with a measure of teacher stress; the Teacher Stress Inventory (TSI; Boyle, Borg, Falzon, & Baglioni, 1995). A semi-structured interview measure of Expressed Emotion (EE), called the Preschool Five Minute Speech Sample (PFMSS; Daley, Sonuga-Barke, & Thompson, 2003) was also carried out with the teachers in order to compare observed behaviour with interview data. All the aforementioned measures would be completed at each time point, but only the teacher version of the SDQ at T1 and components of the TSI have been investigated in this research. Teacher SDQs at T2, teacher PFMSS at T1 and T2, and parent SDQs at T1 and T2 have not been analysed in the timescale of this doctorate, but findings relating to these will form the basis of additional journal articles.

### *Recruitment*

My second supervisor and I presented the planned research at the annual Gwynedd primary school head-teacher meeting. Interested parties were requested to contact the research team (or approach us on that day) for information pertaining to the study or to register their interest. While there was a lot of interest in the study, only two schools registered their intent to participate. Meetings were set up with the

IY TCM co-ordinator whereby potential research schools could be identified and plans made regarding recruitment.

Gwynedd LEA had formulated a timetable according to which catchment areas would receive TCM training in the first, second and third year (30 schools each year) in order to complete the roll-out of the programme across the county, and the research timetable had to run concurrent with this. Because baseline measures had to be completed during October/November 2005, schools in areas receiving TCM training in 2005-2006 were not to be included in the study as they were unlikely to participate if there was a possibility that they would be allocated to the control group and therefore receive TCM training later than the rest of their catchment area. Schools scheduled for training during the second or third year would either receive the training in the planned year or possibly a year earlier than their allocated time, dependant upon which condition they were randomly allocated into.

The IY TCM co-ordinator obtained permission for the research team to contact 13 schools to discuss the study further; one more school than had been planned. An appointment was scheduled for the final week of September 2005, at which time the head-teacher of each school, the reception class teacher, and myself could ascertain whether the study was feasible in each case.

#### *Amendments to the original schedule*

Following the phone appointments, the LEA made changes to the TCM training timetable that resulted in a potential research school's catchment area being scheduled for the first wave of training (2005-2006). Nevertheless, it was agreed that the school would be visited as planned, and informed that if randomly allocated to the

control group they would receive TCM training a year after the rest of their catchment area.

Additionally, an unexpected issue was raised by the head-teacher of a potential research school during the week after the phone appointments. The head-teacher was concerned because she was led to believe during a teachers' meeting that schools had already been allocated into condition. It is important to point out that schools had not yet been allocated to groups *in preparation* of randomisation at this stage, therefore a letter was quickly circulated to all potential research schools to clarify the process and ensure that this unfounded rumour did not jeopardise the study (see Appendix B).

### *Initial visits*

During the final week of September, packs comprising teacher information letter and consent form and teacher questionnaire measures (see Appendix C, D, E & F), were assembled to take to all potential research schools. Schools were visited and every effort was made to illustrate what the research would involve (questionnaires, liaising with parents to elicit consent and so on). Teachers agreed that this was an acceptable level of additional work so they and their head teacher signed a consent form and were given the packs. Teachers were requested to return the packs within a week in order to identify nine target children (see Study 1, Chapter 4 for details) and to gain parental consent by the second week of November 2005. This was in order to ensure that baseline measures were all collected prior to TCM training. Three schools disclosed that they taught children with special needs; one school chose to include these children in the questionnaire measures, the other two schools chose not to.

*Adaptations and issues arising from initial visits*

One school had such a large intake of reception age children that the nine oldest children were attending the year one classroom (to abide by the legislation pertaining to a maximum of 30 pupils in a class) therefore the year one classroom was also included in the study and consent obtained from teachers and parents. This was especially useful in hindsight as some schools could not participate in the study and this 'extra' classroom became the twelfth research classroom. Because consent was given and measures were completed a week or so later for the twelfth class than for the other classrooms, consent could only be obtained for eight Index children before baseline observations commenced. Additionally, the class teacher was about to take maternity leave and was being replaced by a temporary contract teacher.

Three research schools appointed a new class teacher (two to cover maternity leave – one of which is mentioned in the previous paragraph - and one because the original teacher was taking up a teaching post in another school). In each case the departing teacher initially completed baseline teacher questionnaires pertaining to child behaviour in order to identify the nine Index children. The newly appointed teacher completed the same measures six weeks later (at which time baseline observations had commenced) so as to ensure that newly appointed teachers had been given ample time to get to know the children in their care. Both the 'old' and new teachers' SDQ measures were compared and found to be equivalent; consequently the newly appointed teacher's measures were employed as baseline measures of child behaviour so as to ensure that follow-up measures were the response of the same teacher in each case.

Some potential problems pertaining to one school's lesson structure resulted in extra consultation with that school to remedy the situation. Reception class teachers

job-shared (one worked two days a week, the other three days a week) and while one teacher taught reception and nursery age children, the other taught reception up to year two age, but taught nursery age children one day per week. Both teachers shared teaching duties with a different assistant in different classrooms on different days. After liaising with the head-teacher and both class teachers, an arrangement was made whereby observations were possible – there was a timeframe which enabled the observation team to attend the classroom while each teacher was teaching reception age, respectively - and the school was included in the research study.

Two of the potential thirteen research schools declined to take part in the study. One was the aforementioned school whose catchment area training had been moved forward by the LEA; the head-teacher preferred to complete TCM training with the rest of their catchment area. The second school revealed staffing issues due to maternity cover problems; a newly qualified supply teacher and a permanent teacher were to teach the reception class intermittently thus the class would be divided and taught with different age groups at different times. The head-teacher was uncertain as to when these issues would be resolved and reluctantly agreed that participation in the research was not feasible at that time for their school. This resulted in twelve research schools (see Table 1 for demographic information).

#### *Distribution and collection of baseline questionnaire measures*

Teachers were asked to ensure that parent consent forms and measures (see Appendix G, H, I & J) were returned to the school by the third week of October 2005 (the fourth week was half-term). This would enable the research team to begin observations in mid-November 2005, in accordance with the research timetable, as the intervention group TCM training was commencing in January 2006. Returning the



packs any later than mid-November ran the risk of not being able to complete observations prior to the TCM group starting.

One school mislaid baseline parent measures (they discovered them some weeks later and delivered them to the research team). My second supervisor and I were asked to visit Index child parents in said school to oversee the second collection of parent measures. Parents had already been briefed by the head-teacher. Parental measures collected at this point were used as baseline measures for these children (not the original 'mislaid' measures) as they were a better representation of the child's behaviour immediately prior to the observations (and were similar to the first set of measures in most cases).

### *Randomisation*

A single -blind stratified randomised controlled trial design (RCT) was adopted, whereby classrooms were paired according to school size, classroom size, and locality (rural/town; see table 1). Classrooms were then randomly allocated into the intervention group by an independent researcher, using a manual random number generator. In each case the paired classroom was allocated into the control group.

### *Observation visits - Time 1 (baseline)*

Appointment phone-calls were made during the first two weeks of November, and thank you letters were sent to parents with a small gift for taking the time to complete the measures and for their consent (a £5 gift voucher). The coding team conducted reliability sessions during this time using DVDs of classroom and teacher interactions in preparation for the evaluation study. Although pilot study observations lasted thirty minutes in each case, fifteen minutes observation per Index child was

deemed ample time for the evaluation study. The plan had originally been to carry out thirty minutes of observation on each Index child, but this was deemed unworkable due to timetabling issues.

*Table 1*  
*Research classrooms demographics*

Class	Total no. of school pupils	No of reception age pupils	% free school meals	Job-share teacher	Temporary teacher	Multi-age classroom	Rural, semi-rural or urban	Condition (Int or Cntrl)
1	180	23	10	No	No	No	Semi-rural	Int
2	29	18	27	Yes	No	Yes	Rural	Int
3	175	30	17	No	Yes	No	Urban	Int
4	63	24	4	Yes	No	Yes	Rural	Int
5	85	19	8	No	No	No	Urban	Cntrl
6	64	23	10	No	No	Yes	Rural	Cntrl
7	44	18	4	Yes	Yes	Yes	Rural	Cntrl
8	146	23	10	No	No	No	Semi-rural	Cntrl
9	92	17	24	No	No	No	Urban	Int
10	220	30	10	No	No	No	Urban	Cntrl
11	180	8	10	No	No	Yes	Semi-rural	Int
12	77	13	6	Yes	No	Yes	Urban	Cntrl

Intervention teachers were scheduled to receive TCM training at the end of January, so observations were to take place at the end of November (as soon as Index children measures had been collected), and throughout January. Performing observations during December was not feasible due to school holidays and the nature of classroom activities leading up to the holidays (concerts, trips out, games and so on). Baseline observations took 92 hours. Repeat visits were carried out when an

Index child was absent on the original observation date, until all Index children had been observed. The deadline was tight, but Index children had all been observed by the commencement of TCM training. Teacher interviews (conducted over the phone) took an additional nine hours, during the last two weeks of January. Many were carried out during the evening as some teachers preferred to be interviewed in their home, while a small minority preferred the more formal setting of the school for their interview. Letters to thank the teachers and parents for their co-operation were sent out at this point (see Appendix K & L), with a small gift token for their time and effort, along with a letter to advise schools of the randomisation process (see Appendix M) followed by a letter advising each school about their group allocation (see Appendix N & O).

Baseline data was inputted immediately following data collection, and preliminary analyses carried out for the methodology study (Study 1, described in Chapter 4). An independent member of the research team not involved in observations ensured that names were concealed on each child measure and only participant numbers were supplied. This also ensured that I was blind to condition too. Three pairs of teachers job-shared - one teacher taught for two days while the other teacher taught for three days in each case. Data pertaining to the teacher that taught for three days only was included in Study 1 therefore a new database (separate from the main evaluation study database) was created for Study 1. The reason for only including the job-share teacher who taught the most days (out of both teachers) was that this teacher would have had more experience of and more contact with each child by the time observation measures were carried out.

*Evaluation data– Time 2 (Follow-up)*

Follow-up appointments were scheduled to commence the week after the final intervention group TCM session. Teacher and parent measures were distributed in late May 2006; classroom observations took place throughout June, and teacher interviews throughout July. A small gift was sent to parents and teachers in appreciation of their assistance (see Appendix P & Q). Follow-up observations took 75 hours; this was due to less Index child absenteeism and therefore less re-visits in comparison to baseline observations. Follow-up data (T2 – time 2) was inputted throughout October and November (see Study 2, Chapter 5). Scores were transformed to z scores and analysis began on these for the main evaluation study. Z-scoring was initially carried out in order to standardise the variables so that one category would not be over-represented, but after running both transformed and raw data analysis, significant results were the same according to composite categories, therefore un-standardised ‘real’/raw scores were retained. This was simply a case of raw scores being easier to interpret and more accessible to a wide range of people; un-standardised scores were easier to translate and improved clarity, therefore they were utilised in Study 2 (Chapter 5).

We also discussed taking outliers out of our dataset. Taking outliers out of a dataset ensures that no one person influences other participants’ data due to their score on a particular variable being significantly different to everybody else. Eventually we decided not to transform the data as the studies in question were translational research and therefore each study had been carried out in the environment that the intervention was designed for, as in not in a university or a clinic, and real change taking into account all participants was of paramount interest to the research.

To reduce the number of observed behaviour categories under investigation, T-POT composites were created (see Study 1 and 2, Chapters 4 and 5, for details). After running the analyses and investigating correlation data, it became clear that some behaviours were represented in multiple categories, therefore re-compositing and re-analysing was needed. As this potential confound was discovered while carrying out Study 2 data analysis, data from Study 1 (baseline data with one teacher per school) was also re-composited and reanalysed.

### *Additional data collection – Time 3*

Control group TCM training began in September 2006, concluding in February 2007. Time 3 (T3) observations and measures could only be collected from teachers still teaching the same children as those observed at T1 and T2, consequently six single-age classrooms could not be re-visited for T3 measures as the pupils were no longer being taught by the same teacher/the teacher was now teaching different children. Additionally, two temporary contract research teachers who had been covering maternity leave during T1 and T2, had left by T3, and another two teachers were also vacating their teaching posts: one was leaving for health reasons, the other left for a new teaching post. We observed both teachers' job-share colleagues at T3, and managed to observe the teacher who had obtained a new post, just prior to them leaving to take up the post. Two more teachers had left between T2 and T3 to take maternity leave (one was job-sharing and we were scheduled to observe her teaching partner at T3). This potentially culminated in a total of six teachers' classroom data to be analysed at T3.

Observation appointments were made and measures sent out to the six remaining research teachers during May 2007. Immediately prior to observation

visits a job-share teacher whose colleague had taken maternity leave called to advise us that she had been planning on taking maternity leave after our observation visits but unfortunately she was being made redundant and therefore requested that we did not carry out observations. Parent and teacher questionnaire measures were completed for Index children in this classroom, but T3 observation data was not collected.

Five teachers were therefore available for observations at T3. It transpired that four were control group teachers, and one was an intervention group teacher, but the intervention group teacher had since been paired with a job-share teacher whom had not undertaken the TCM programme as yet; we were unsure as to what effect this may have had on the intervention teacher's classroom behaviour. Teachers were visited at the end of May, and throughout June 2007, for T3 observation data collection (see Appendix R). Observations took 14 hours in this case. Letters of thanks and a small gift were sent to both parents and teachers at the conclusion of T3 measures (see Appendix S & T).

### *Chapter summary*

Steps to implementing the evaluation study were reviewed in this chapter, with details of the research set-up, recruitment, and data collection. Some of the measures utilised for this study and the data collected will be examined and analysed in the following three chapters, concluding with a discussion of the findings in relation to current literature regarding classroom-based interventions and preschool BESD.

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## CHAPTER 4

### **The Teacher-Pupil Observation Tool (T-POT): Development and Testing of a New Classroom Observation Measure<sup>1</sup>**

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<sup>1</sup> This study formed the basis of a paper accepted for publication. Martin, P.A., Daley, D., Hutchings, J., Jones, K., Eames, C., & Whitaker, C. (in press). The Teacher-Pupil Observation Tool (T-POT): Development and testing of a new classroom observation measure. *School Psychology International*.

### Abstract

*Background:* The teacher-pupil relationship does not solely impact upon children's academic development; it also influences emotional and behavioural development. Positive teacher-pupil relationships reduce maladaptive behaviour, but negative relationships can lead to increased academic, social and behavioural difficulties. Identifying and measuring teacher-pupil relationships through classroom behaviours and interactions and the nature of the classroom dynamic, is therefore important as an index of classroom-based influences on child outcome.

*Aims:* This paper illustrates the development and testing of a classroom observation measure – the Teacher-Pupil Observation Tool (T-POT) – in a small-scale study of 12 teachers and 107 children in 12 reception classrooms.

*Method:* To assess validity and reliability, observed behaviours on the T-POT were correlated with each other (internal validity), and with teacher rated reports of pupil behaviour (discriminant and concurrent validity). Observer agreement was also assessed (inter-rater reliability).

*Results:* The T-POT showed promising psychometric properties in all cases.



Teacher-pupil relationships are an important influence on pupil behavioural and emotional development (Hamre & Pianta, 2001; Hill, 2002; Hughes, Cavell & Willson, 2001). Good classroom management – often a factor in this relationship - can have a positive effect on child academic performance (Fraser, 1994; Moos, 1991; Nafpaktitis, Mayer, & Butterworth, 1985; Nelson, Johnson, & Marchand-Martella, 1996), improve social skills (Walker et al, 2005), reduce academic difficulties (Meltzer, Gatward, Corbin, Goodman, & Ford, 2003; Sugai, Sprague, Horner, & Walker, 2000; Wakschlag & Kennan, 2001) and decrease maladaptive behaviour (Anderson et al, 2001; Brook, Nomura, & Cohen, 1989; Fraser, 1998; Goodenow, 1993). Conversely, ineffective classroom management can aggravate and maintain disruptive behaviour (Kellam, Ling, Merisca, Brown, & Ialongo, 1998), leading to increased teacher and pupil stress (Guglielmi & Tatrow, 1998; Lowenstein, 1991). The identification and measurement of classroom behaviour is therefore of great importance in order to ascertain classroom-based influences on child outcome.

There are numerous approaches to the assessment of classroom behaviour, such as teacher/child completed questionnaires and interview, but observation in particular is fundamental to classroom research (Friesen, Pullmann, Koroloff, & Rea, 2005; Wakschlag et al, 2005). Observational methods have an advantage over self-report measures in that they provide a real-time measure of behaviour without reliance on participant report (Craig, Pepler, & Atlas, 2000; McKenzie, 1991; Simons-Morton & Baranowski, 1991; Van der Kolk, McFarlane, & Weiseath, 1996).

Methods used to code observed classroom behaviours vary (Kelly-Vance & Ryalls, 2005), mainly consisting of brief rating scales; checklists, and/or time-sampling techniques (Stipek & Byler, 2004). Checklist measures have a tendency to overestimate moderately occurring behaviours whilst underestimating infrequent

behaviours and are prone to subjectivity and bias (Altmann, 1974; Widiger & Trull, 1997). There are also problems inherent to global rating scales: previous research demonstrated how teachers - documenting levels of child distractibility on a global rating scale - failed to recognise reductions until distractibility was reduced from 75% to 25%. Conversely, teachers using a continuous time-sampling method immediately recognised (and reported) the reduction (Wahler & Leske, 1973).

Research suggests teachers' ability to recognise appropriate behaviour is crucial to positive teacher-pupil relationships. In a longitudinal study 90% of appropriate pupil behaviours were not recognised by the teacher yet misbehaviour was two to five times more likely to be attended to (Latham, 1997). For children with behaviour disorders the ratio was even more disparate and biased towards inappropriate behaviour or misbehaviour (Shores, Gunter & Jack, 1993). Recognition and approval of appropriate conduct fosters more on-task behaviour (Nafpaktitis et al, 1985), while increasing the ratio of statements of approval to disapproval can decrease the probability of early school dropout, truancy, placement in 'special' educational classes (Latham, 1992) and the negative consequences associated with such placements (Horner, Sugai, Lewis-Palmer, & Todd, 2001; Schiff & BarGil, 2004). Positive appropriate teacher and child behaviours (and conversely, negative behaviours) need to be identified and their frequencies noted in order to better understand the mechanisms involved in maintaining a positive teacher-pupil relationship.

When comparisons of frequency, duration of behaviour, or situations where infrequent behaviours may occur are studied, continuous time-sampling is preferable (Altmann, 1974). This method not only provides a comprehensive account of behaviour (Saudargas & Zanolli, 1990) but also generates more data in a shorter

timescale than other methods (Gardner, 2000). Continuous counts involve more complex decoding and analysis than other coding methods (Mann, Have, Plunkett, & Meisels, 1991; Tacha, Vohs, & Iverson, 1985) and lengthy training periods may be needed (Olson & Foster, 1991), therefore a simple continuous time-sampling coding measure would be beneficial. This would allow researchers and educators who often have neither the budget nor the time for lengthy training and complex data analysis, to analyse classroom behaviours, simply and quickly.

The Teacher-Pupil Observation Tool (T-POT) was developed to address some of the limitations of existing classroom observation measures whilst utilising some of the more effective components from both classroom and parent/child measures. Components from measures such as the Dyadic Parent-Child Interaction Coding System (DPICS; Robinson & Eyberg, 1981), and the Multiple Option Observation System for Experimental Studies (MOOSES; Tapp, Wehby, & Ellis, 2000) have been integrated and/or adapted for the classroom setting. Continuous time-sampling – a process employed in the T-POT - provides a detailed picture of interactions, including child-child interaction and off-task behaviour, so as to enable assessment of peer problems and hyperactivity for instance. The measure also contains categories pertaining to positive statements (child and teacher) and teacher encouragement (based on research such as Horner et al, 2001; Latham, 1992; 1997; Nafpaktitis et al, 1993; Shores, Gunter, & Jack, 1993).

Given that teacher-, specific child-, and peer/classroom-behaviours can all be noted, the T-POT is a flexible classroom-based measure – for example, teacher behaviours can be coded in isolation – and a manual has been developed for coder training purposes (Martin, 2009). The aim of this paper is to report the psychometric properties of the T-POT.

## Method

### *Participants*

A pilot study was initially carried out in three Gwynedd primary schools in North Wales, with twenty-one teachers and their pupils (children aged 3-11 years of age) in order to develop the measure and to obtain primary reliability and validity data. Results showed good discriminant validity (between teacher classroom management trained and untrained teachers), internal consistency and inter-rater reliability (Hutchings, Daley, Jones et al, 2007; Martin, 2005).

For the current study, one hundred and seven reception and year one schoolchildren (between 4-6 years of age) - 58 males, 49 females - and 12 teachers from 12 classes in 11 Gwynedd Education Authority primary schools participated. Lessons were carried out in Welsh. Nine children were recruited from each class, with the exception of one school where it was only possible to recruit eight. Class sizes ranged from 24 to 30 pupils. Eight classrooms were multi-year in that they consisted of reception age children along with older (age 5-6) and/or younger children (age 3-4 years); the remaining four classes consisted solely of reception age children (age 4-5 years).

All teachers in this study were female, with a mean age of 36 (range 21-53 years) and mean teaching experience of 5 years (range 2-30). Eight teachers were job-share teachers. In each case one teacher taught three days a week; the other taught for the remaining two. The mean percentage of pupils entitled to free meals was 12% (range of 4 to 27%) reflecting the diverse socioeconomic status of schools' catchment areas. Participating schools, teachers, parents and children received small gifts for their contribution to the study.

### *Design*

Nine children from each classroom (eight in one class) were recruited – referred to as the Index child in each case - on the basis of teacher-completed questionnaires and comprised the three children with the highest scores for child behavioural, emotional, and social problems in each class, the three children with the lowest scores, and three children whose scores clustered around the mean. This enabled coders to observe pupils with a wide range of behavioural competencies without the time-consuming task of observing each individual in the classroom. In order to assure unbiased observation, researchers were blind to individual child scores on the teacher-completed questionnaire measure.

### *Measures*

#### *The Teacher-Pupil Observation Tool (T-POT; Martin, 2005; in press)*

The T-POT (see Appendix C) can be utilised for ‘live’ or pre-recorded coding, developed so as to identify components of a stable and efficient classroom (or conversely a difficult and less well-disciplined one). T-POT categories include teacher commands and child compliance/non-compliance to commands, off-task behaviours, child responses to teacher and peer behaviours, and positive and negative teacher-pupil interactions.

The T-POT contains 75 behaviour categories in total (see Table 2); approximately half involve child behaviours, while the other half involves teacher behaviour. Teacher and specific pupil interactions (teacher-Index), teacher-classroom, and pupil- pupil interactions are also coded.

Table 2

*T-POT variables prior to compositing.*

<b>T-POT VARIABLE</b>	<b>EXAMPLES OF BEHAVIOURS</b>
Teacher Acknowledge	Affirmations such as “uh-huh”, nodding, reflecting back something the child just said, describing the child’s actions as they perform them. Ensures the child knows that they are being noticed and valued.
Teacher Negative	Criticism, physical redirection, intruding on the child’s activity, negatively phrased commands.
Teacher Positive	Smiling, patting the child’s head, encouragement.
Positive Response to Teacher Negative or Teacher Positive	Includes continuing the current activity if this is what the teacher requests (does not include where the child continues the activity in a bid to ignore the teacher); smiling, leaning against the teacher, being complimentary or showing gratitude.
Negative Response to Teacher Negative or Teacher Positive	Frowning, ignoring the teacher, walking away (double code Off-Task), sulking, being recalcitrant. If response is being cheeky to the teacher double code negative response and aggression to teacher.
Teacher Labelled Praise	Specific praise, e.g. “your drawing skills are fantastic!”. Child is left in no doubt as to why they are being praised.
Teacher Unlabelled Praise	Non-specific praise, e.g. “Good lad”
Teacher Problem Solving	Helping the child to work through problems, fostering problem solving skills
Teacher Ignore	Ignoring minor irritating behaviour that is not threatening another’s safety or wellbeing
Time-Out Warning	A three-strikes and out warning as a consequence of unacceptable behaviour
Teacher Command (Direct)	A clear command with less room for the child to be confused as to what is expected of them

Teacher Command (Indirect)	Vague command, room for confusion as to what the child is expected to do
No Opportunity	Child is not given ample opportunity to complete the command. This can be due to the teacher repeating the command within 5 seconds of the first command, or completing the task himself or herself.
Compliance	Complying with the command within a 5 second time-frame
Non-Compliance	Failing to comply with the command within 5 seconds
Teacher Question	A basic question, not asking the child to do anything other than think, answer or offer an opinion
Compliance	Answering or attempting to answer the question, regardless of whether answer is correct or not
Non-Compliance	No attempt at answering the question
Verbal Aggression to Peer	Teasing, name-calling, tongue-pulling: behaviour which threatens or degrades another child
Physical Aggression to Peer	Behaviour that is aimed at jeopardising another child's physical wellbeing, stealing, snatching, throwing objects at another child
Aggression to Teacher	Verbal or physical aggression aimed at the teacher
Disruptive Behaviour	Shouting loudly, whining, crying loudly for attention, disrupting the teacher from the task at hand.
Destructive Behaviour	Self-injurious behaviour; destroying property such as books, throwing items on the floor in order to break them etc.
Initiation to Peer	A fairly neutral approach by a child, such as asking for a crayon
Positive Response	Any response that is not outwardly negative, e.g. giving the other child the crayon they requested.

Negative Response	Ignoring the child's initiation, being outwardly hostile (double code verbal/physical aggression), refusing to comply to a reasonable request.
Child Positive	Outwardly friendly and pro-social behaviour: smiling, caring for another child, hugging, saying thank you, being complimentary about another child/the teacher.
Off-Task Behaviour	Not concentrating on the task at hand, i.e. what the teacher has asked the child to do

### *Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997)*

The SDQ (see Appendix C) facilitated the analysis of the T-POT's concurrent validity by offering the opportunity to compare SDQ categories with observed T-POT behaviours. Teachers completed the Teacher version of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) for each child in their care in order to identify Index children (see procedure section for details). The SDQ is an established 25-item inventory that screens for symptoms of hyperactivity, peer-, emotional-, and conduct-problems, along with markers of pro-sociality. A total problems score – Total Difficulties (TD) - comprises hyperactivity, peer- emotional-, and conduct-problems scores.

Teachers respond in one of three ways to a statement about the child: “Not true”, “Somewhat true” and “Certainly true”. Examples of statements include “restless, overactive, cannot stay still for long” (measures hyperactivity); “Rather solitary, tends to play alone” (peer problems); “often lies or cheats” (conduct problems); “many worries, often seems worried” (emotional problems); “kind to younger children” (pro-sociality). The SDQ displays good internal consistency ( $r = .73$ ); re-test stability after 4-6 months ( $r = .62$ ), and good discriminant validity



demonstrated by high problems scores being associated with increased psychiatric risk (Goodman, 2001; Goodman & Scott, 1999).

### *Procedure*

A Gwynedd (North Wales) Education Authority official recruited schools for the study. The first author subsequently visited each reception class teacher and head-teacher, in order that a SDQ was completed for each pupil in the teacher's care. A member of the research team (not involved in observations) calculated a total problem score for each child. Teachers contacted parents of the three lowest, highest, and middle scoring children on the SDQ TD scale in each class to obtain their consent (the observation team were blind to child scores). When parents did not consent (11 parents declined to take part), another child with the same (or closest) problems score from the same class was recruited.

### *Data Coding*

Initially, children were recruited on the basis of SDQ TD score. Dividing TD scores into sets of three ensured a range of behaviours throughout each classroom and eradicated the time consuming task of observing each member of the classroom individually. For data analysis purposes and to increase power, child scores were split into two groups according to TD score: 79 children in the low problems group (score of 0-11), 28 in the high problems group (score over 12 – 'borderline' and above according to SDQ guidelines; Goodman, 1997). The high problem group comprised 17 children who scored above the point of clinical concern (score > 15). Forty of the low problems group were male, 39 female, while in the high problems score group the distribution was 18 and 10 respectively.

Three postgraduates with previous experience of similar observation measures conducted observations. Training comprised studying the T-POT manual, observing and coding video footage, and comparing frequency counts. Observers were considered fully competent in the measure when they consistently reached 70% (or above) agreement with the primary coder - a figure generally regarded as indicative of high inter-rater reliability (Aspland & Gardner, 2003). Seventy percent agreement was achieved in less than 23 hours' training. Without previous experience of similar measures it is envisaged that 30 hours of training would be needed, similar to that required for the DPICS (Olson & Foster, 1991). Top-up training sessions of 30 to 60 minutes were held weekly in order to prevent coder drift and to discuss questions arising from recent classroom visits.

Each Index child was observed for 15 minutes. Teachers were advised that observers would strive to be as unobtrusive as possible and would seldom interact with the children so as not to affect the classroom dynamic. Index children were observed along with their peers so as to also gather general classroom data for each 15-minute observation period. Teachers were given the choice of how many observers attended their classroom: ten teachers requested three observers; the two remaining teachers requested two. Observations took approximately two hours per classroom.

Observation data was restricted to the vicinity of the Index child and the teacher. The teacher would attend to significantly negative classroom behaviour regardless of where that behaviour occurred, and the teacher visited pupils or pupils visited the teacher in order to have their work inspected; this ensured that significantly negative or positive classroom behaviour would be coded regardless of whether it occurred in the immediate vicinity of the teacher and Index.

All T-POT behaviours were noted by means of a frequency count for each observed occurrence. In the case of two behaviours occurring at once, for example off task and disruptive, both behaviours were coded. Structured lessons were required to ensure that the general classroom situation was the same for all observations. Eleven teachers carried out structured lessons in the morning, while one teacher taught formal lessons in the afternoon, therefore the former were observed in the morning; the latter in the afternoon.

## Results

### *Analysis Strategy/Data Preparation*

Factor analysis of the data was not possible as the ratio of participants to variables was less than the minimum necessary (Field, 2005). The 75 T-POT items were therefore reduced to form eight categories. Two involve teacher behaviours: 1) teacher positives (includes acknowledgement, problem solving, unlabelled and labelled praise, and positives), and 2) teacher negatives (consists of one category: teacher negatives). Seven composites relate to child behaviour: 1) negative to teacher (includes aggression to teacher; destructive; disruptive; negative response to teacher negative, and negative response to teacher positive); 2) compliance (child compliance to teacher direct and indirect commands); 3) non-compliance (non-compliance to direct and indirect commands, behaviours eliciting a time-out warning, and non-compliance to time-out), 4) pro-social behaviour (child positives – non specific recipient – and positive response to peer initiation), 5) off-task (consists of off-task only), 6) child deviance (all behaviours from negatives to teacher, negative responses, verbal aggression to peer and physical aggression to peer).

A Kolmogorov-Smirnov test confirmed that the T-POT 'composite scores' violated the assumptions of normality. Further investigation revealed that the data was positively skewed for negative items (low frequencies of negative behaviours) and negatively skewed for positive items (high frequencies of positive behaviours) therefore non-parametric analysis was performed.

### *Inter-Rater Reliability*

Inter-rater reliability was performed on all T-POT items (75 behaviour categories). Agreement was established using the following formula: total agreed

/(total disagreed + total agreed). This gave a percentage agreement and assisted in tracking coder team progress. Intra-class correlations were subsequently calculated for each T-POT variable individually (the 75 variables that make up the composites). Analysis revealed high total inter-rater reliability of  $r=.78$  for all 75 behaviour categories on the T-POT in total; a range of  $r=.59$  (Index non-compliance to direct commands) to  $r=.99$  (teacher positives to Index and Index compliance to direct commands).

### *Validity*

#### *Association between variables*

In order to assess the internal validity of the measure – that negative behaviours correlated with each other for example – Spearman's correlations were conducted in preference to Pearson's as the data was non-parametric. Carrying out multiple analyses on one data set increases the risk of Type I error (concluding that there are significant differences when there are none). To account for this the significance level was reduced to 0.01 in preference to Bonferroni corrections or the Holm method, both of which have been criticised due to their tendency to increase Type II error (suppressing significant differences; Aickin, 1999; Jennions and Møller, 2003; Perneger, 1998).

#### *Classroom measures*

An examination of the associations between classroom (Index child and peers) and teacher variables displayed in Table 3 demonstrated that pupils complied more with positive teachers. Positive teachers also experienced less deviance in their classrooms and less negative behaviours directed at them by their pupils. Challenging

behaviours in general were less likely to be observed in compliant pupils and more likely in children that behaved negatively towards the teacher. Moreover, non-compliant pupils were more likely to be off-task.

*Table 3*

*Classroom T-POT composite behaviour categories' correlations.*

	2	3	4	5	6	7	8
(1) Teacher Positives to Class	.066	*.566	.126	*-.347	*-.533	*-.450	-.065
(2) Teacher Negatives to Class		*.355	.114	-.081	.069	-.025	.092
(3) Class Compliance			.154	*-.262	*-.479	*-.352	-.031
(4) Class Non-Compliance				-.042	-.092	-.044	*.777
(5) Class Negatives to Teacher					*.406	*.824	.078
(6) Class Pro-Social Behaviour						*.578	.078
(7) Class Deviance							-.019
(8) Class Off-Task behaviour							

*Note. \*p<.01*

Teacher negatives correlated positively with compliance, but not as strongly as with teacher positives, suggesting that both negative and positive teacher behaviours were associated with compliance, but positive teacher behaviours were more successful in gaining that compliance.

Pro-social classroom behaviour (Index child and peers) correlated negatively with teacher positives and with class compliance, and positively with negatives to teacher and deviance (see Table 3). These associations suggest that in this sample at

least, positive/pro-social children may be less compliant, more negative to the teacher, display more deviance and receive fewer positives from the teacher.

*Index Child Behaviour (Index child only, not the Index child's peers)*

With regard to internal consistency within Index categories (see Table 4), Teacher negatives were significantly correlated with Index child compliance, but this was a markedly weaker correlation than compliance with teacher positives, as was the case with classroom observations. This finding again suggests that children do comply with more 'negative' teachers (teachers displaying high frequencies of criticism, physical redirection or unwarranted disapproval for example), but positive teacher behaviour (such as smiling, encouragement and problem solving with the child) is more successful in gaining compliance.

*Table 4*

*SDQ TD score correlated with T-POT Index composite categories.*

	2	3	4	5	6	7	8	9
(1) TSDQ Total Difficulties	*.150	*.336	.225	*.303	.288	-.159	.140	*.266
(2) Teacher Positives to Index		*.336	*.807	.190	-.015	*-.277	-.179	-.016
(3) Teacher Negatives to Index			*.425	.217	.131	-.092	.083	.063
(4) Index Compliance				*.269	.011	*-.326	-.145	.066
(5) Index Non-Compliance					.007	-.171	-.096	*.854
(6) Index Negatives to Teacher						.109	*.622	.044
(7) Index Pro-Social Behaviour							*.401	-.075
(8) Index Deviance								-.106
(9) Index Off-Task behaviour								

*Note. \*p<.01*

Non-compliant Index children were often off-task (see Table 4). Similarly, there was a strong relationship between negative behaviour directed at the teacher and Index deviance. Pro-social behaviour correlated moderately with Index deviance and teacher positives, and correlated negatively with Index compliance (identical to classroom correlations). Analysis of teacher and Index behaviours further revealed an association between teacher positives and teacher negatives and Index compliance and non-compliance.

Pro-social Index child behaviours' negative relationship with compliance and teacher positives, and its positive relationship with negatives to teacher and child deviance was further investigated due to the possibility that this may have been an artefact of frequency counts; for example pro-social pupils may show less compliance because they receive fewer commands. A correlation confirmed that this was the case ( $r = -.315, p = .001$ ). Correlations also confirmed that teachers communicated less with pro-social children ( $r = -.323, p = .001$ ); pro-social children received fewer positive interactions because they received fewer interactions in total. Some behaviour is dependent upon opportunity, and the T-POT's data collection method ensures that both frequencies of behaviour and ratios of behaviour can be studied. Therefore to further assess the link between pro-social behaviour frequency and negative behaviour, proportional data was calculated. In order to obtain a ratio of positive behaviours to negative behaviours, positive behaviour was divided by positive plus negative behaviour to establish a percentage ratio of both behaviours:  $\text{positive behaviour} / (\text{positive behaviour} + \text{negative behaviour})$ . If there were 15 incidents of positives, and three negative, this would result in a proportion of  $15 / (15 + 3) = .83$ , therefore 83% positive behaviour, 17% negative.



Correlating ratios of total positive to total negative behaviours for children who displayed a high frequency of pro-social behaviours was marginally significant ( $r = .185, p = .056$ ): pro-social children exhibited a higher frequency of positive behaviours for each negative behaviour than less pro-social children. Furthermore, number of teacher communications was correlated with ratio of compliance versus non-compliance therefore the more teacher communications, the more compliance, due to more opportunities available to comply ( $r = .92, p < .001$ ). It also seems sensible to assume that the more communications the more opportunities for non-compliance, albeit that this correlation was markedly smaller ( $r = .26, p = .006$ ).

#### *Concurrent validity*

Associations between T-POT Index scores and SDQ TD score tested concurrent validity. Analysis of TD score and T-POT Index composites (see Analysis strategy/data preparation section) revealed that a high TD score elicited more positive teacher behaviour. A weaker but nevertheless significant positive correlation existed between TD score and negative teacher behaviour. Additionally, more non-compliance, negatives to teacher, and off-task behaviour were observed in children with high TD scores.

#### *Discriminant validity*

Mann-Whitney U tests assessed discriminant validity by comparing differences in observed behaviour between children with high TD scores and children with low TD scores (see Table 5). High scorers displayed significantly more off-task behaviour than their peers, more non-compliance to commands, more negative behaviours towards the teacher, and significantly more deviance in general.

Similarly, teachers displayed significantly more negative behaviour towards children rated as problematic than children rated as non-problematic.

Analysis also revealed that children with high TD scores appeared to be more compliant than those with low TD scores, albeit that this was not a significant finding. Ratio data (as explained in the previous section) revealed that this result was an artefact of frequency, and that high TD scoring children complied three times for each episode of non-compliance (75% compliance for 25% non-compliance) whereas low TD scoring children complied more often for every episode of non-compliance: 83% compliance for 17% non-compliance. A Mann-Whitney test revealed this to be significantly different according to problems score,  $U = 816.00$ ,  $p = .03$ ,  $r = -.21$ .

*Table 5*

*Comparisons of mean frequency of observed behaviours on the T-POT for low or high scoring children on SDQ Total Difficulties scale (standard deviations in brackets).*

	Total Difficulties		U Value	Effect Size
	Low Problem Score N=79	High Problem Score N=28		
Teacher Positives	15.32 (14.65)	15.14 (14.08)	1089.50	.011
Teacher Negatives	.73 (2.53)	1.46 (2.30)	808.00*	.232*
Index Compliance	8.00 (8.23)	9.21 (7.47)	972.00	.092
Index Non-Compliance	.92 (2.37)	2.18 (3.39)	753.50*	.273*
Index Negatives to Teacher	.28 (.97)	.86 (1.38)	770.00*	.332*
Index Off-Task	.58 (1.31)	1.82 (3.23)	796.00*	.263*
Index Pro-Social Behaviour	10.24 (8.08)	8.64 (6.38)	1004.50	.070
Index Deviance	1.11 (2.19)	2.61 (5.25)	804.50*	.231*

*Note. \*p<.01*

To further strengthen the T-POT's discriminant validity, a binary logistic regression (Enter method) demonstrated that number of observed teacher negative behaviours to Index children could successfully identify 91% of low TD score children and 37% of high TD scorers. Similarly, frequency of episodes of non-compliance predicted 99% of those below borderline for TD score, and 17% above. Off-task behaviour (on the T-POT measure) identified 95% low scorers and 30% high scorers. The Index negatives to teacher category predicted 95% low TD score children and 20% of high TD scorers. These are relatively high figures given the small dataset, indicating the T-POT's high levels of sensitivity and specificity.

## Discussion

The purpose of this study was to evaluate the T-POT's psychometric properties and results are promising. The T-POT displayed good inter-rater reliability, good internal consistency and good discriminant and concurrent validity.

Whilst the relevant T-POT composite categories correlated well with each other (positives with positives and negatives with negatives) there were some exceptions such as the T-POT pro-social behaviours composite. Children displaying high frequencies of pro-social behaviour (on the T-POT) being less compliant and receiving fewer positives from the teacher was initially puzzling. One possible reason for this apparent disparity may be that behaving pro-socially is not necessarily a prerequisite of compliance to teacher commands in the classroom (which the category of compliance is based upon). Another is the issue of opportunity – children displaying higher frequencies of pro-social behaviour in the classroom may not have as many opportunities to be as positive as their less pro-social peers. This issue would benefit from further study so as to understand some of the mechanisms behind this apparent inconsistency.

Even though we cannot explain the 'pro-social behaviour' issue, the measure does have a major advantage in that it facilitates the investigation of ratios of behaviour - for example positive versus negative interactions, or compliance versus non-compliance – due to the method of data collection. Given that behaviour is often conditional upon opportunity, merely counting frequencies may lead to misrepresentation, as more communicative children will show higher frequencies of behaviour in general. The opportunity to investigate ratios of behaviour gives a more accurate depiction of classroom behaviours because opportunity to perform these behaviours is taken into account.

Another advantage of this measure is that it can be adapted to different classroom situations. The current study coded classroom, teacher, and specific child (Index) behaviour, but the T-POT can focus on one or more of these according to the needs of the researcher. For example the measure has previously been employed as a teacher and classroom instrument (there were no Index children therefore Index child behaviours were not coded, see Hutchings, Daley, Jones et al, 2007; Martin, 2005). Observing a particular child in isolation (not noting teacher or peer behaviours save for responses to that particular child) is also an option, in order to assess interactions with teacher and/or peers to examine the nature of a child's problems. Teacher behaviours can be coded in isolation (not coding child behaviours save for responses to the teacher), for research into teaching methods or styles. Pupil interactions (coding whole classroom behaviour) can also be measured independently to assess possible peer problems within the class or examine the mechanisms of child social skills and classroom dynamics (minus teacher behaviour).

### *Limitations of the study*

This study's results are only specific to the environment in which the study was conducted. Conclusions in this current research are based on data drawn from a narrow age-range (between four and six years of age) albeit that an earlier pilot-study assessed all primary-school age groups (Hutchings, Daley, Jones et al, 2007; Martin, 2005). All participants were native to North Wales, and schooled in the Welsh language. North Wales is not a highly populated area, and although some schools were based in large towns the results may not be representative of city schools, other countries, or different ethnic groups for example. Additionally, composite categories

may have removed some of the fine-detail from the research findings; a study with a different focus may require alternative composites.

### *Future studies*

The validity and reliability of the measure would benefit from further testing with different participants, for example a different and/or broader age range or a different language. The measure has already been tested and found valid and reliable across all primary school ages, in a small-scale pilot-study (Hutchings, Daley, Jones et al, 2007; Martin, 2005), but would benefit from a similar but larger-scale study, or one that studies older age groups such as secondary school age. Observations in different environments (such as inner city schools or different countries), over a longer time period, with larger sample sizes would further test the T-POT's reliability and validity. A larger sample size would allow grouping according to the SDQ definition of low, medium and high TD (not simply above and below borderline as in the current study). Furthermore, an investigation into the effect of teacher characteristics' impact on teacher-pupil interaction; characteristics such as age, training, highest academic position (for example deputy head of school), and number of years teaching, would further benefit school psychology literature.

It is hoped that the T-POT can be employed to examine the mechanisms of classroom-based interventions aimed at enhancing teacher-pupil relationships. Numerous interventions coach teachers in classroom management techniques (for example Webster-Stratton, 2003c); techniques such as increasing praise, ignoring minor inappropriate behaviour, and the importance of giving clear commands. The T-POT can be utilised to study the benefits of classroom management training by assessing pre- and post-intervention levels of teacher and child behaviour.

The T-POT could also be utilised to compare teacher-pupil emotional relationships (self-report) and teacher-pupil (observed) interactions using measures such as the Five Minute Speech Sample (FMSS; Magana et al, 1986) and the Preschool version (PFMSS; Daley, Sonuga-Barke, & Thompson, 2003). Daley and colleagues (2005) demonstrated that teachers displayed high Expressed Emotion (EE) – characterised by high criticism, low warmth and negative relationship – towards children previously rated as highly disruptive. Further study of this relationship - utilising the T-POT – would assess some of the mechanisms behind these findings.

A long-term study could investigate whether teaching style changes as a function of the child's age, curriculum changes, and/or some of the processes involved in teaching multi-year classrooms. Given recent developments where 10% of each teacher's time is devoted to Preparation, Planning and Assessment (PPA), it is now commonplace for teachers to teach multiple age-groups, if only for short periods. The T-POT could analyse potential change in teaching style as a function of this added duty of care.

Additionally, teachers are frequently peer-assessed. Newly qualified teachers in particular are regularly mentored and assessed during their first year as a qualified teacher and beyond. The T-POT could be employed for both peer-assessment and for mentoring purposes. The measure could also assess the effectiveness of classroom management training as part of the teacher-training curriculum, and be useful in measuring and evaluating teacher acquisition of classroom management techniques.

To analyse intervention efficacy, the T-POT should be utilised alongside methods such as interviews and/or questionnaires, to create a more robust experimental design (Wakschlag et al, 2005). The T-POT is currently an outcome measure (combined with questionnaires) in a large-scale evaluation of a combination

of TCM, parenting, and child programmes in Clondalkin, Ireland. It is also the primary outcome measure in an evaluation of a TCM programme (combined with questionnaire and interview) during the programme's three-year implementation by Gwynedd Education Authority in North Wales (Martin et al, 2009). Similarly, it is the primary outcome measure in an evaluation of a child-focussed pull-out classroom intervention in North Wales (Hutchings & Martin, 2009).



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**CHAPTER 5**

**Evaluation of the Incredible Years (IY) Teacher Classroom  
Management (TCM) programme in  
North Wales primary schools**

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### Abstract

*Background:* BESDs are often detected at preschool age and are relatively stable over time. Prognosis is poor without intervention, leading to social adjustment problems, criminality and substance abuse in adulthood. School-based interventions have proved effective at preventing such serious outcomes in late-adolescence and adulthood, and the nature of the teacher-pupil relationship has also been demonstrated to have a protective role in preventing future negative outcome.

*Aims:* The study evaluates the efficacy of the IY TCM programme, in order to assess whether adopting TCM principles improves teacher behaviour, and whether improvement impacts on pupil behaviour classroom-wide, as well as children at risk of developing BESD.

*Method:* Sixteen reception class teachers and their pupils were recruited for this study. Teachers and pupils were observed using the T-POT (Martin et al, in press) on measures such as off-task behaviour, aggression, compliance, and positive behaviours. Teachers were subsequently randomly allocated to intervention (n = 8) or waiting list control (n = 8). Observation measures were conducted before and after intervention by coders blind to condition.

*Results:* Analysis of Covariance assessed differences at time two (T2), while controlling for differences at time one (T1). Findings demonstrate that the intervention significantly reduced negative teacher behaviour and increased positive teacher behaviour. Classroom behaviour also became more positive and less negative post-TCM training, regardless of child difficulties score.

***Conclusions:*** The results of this study demonstrate the impact of a simple universal teacher classroom management intervention on both teacher and pupil behaviour.

Between 25 and 50% of behaviour-disordered young children experience additional significant emotional and social problems (Keenan, Shaw, Walsh, Delliquadri, & Giovanelli, 1997; Lavigne et al, 1996; Thomas & Guskin, 2001). These problems are often first detected in early childhood (Wakschlag, Bennett, Leventhal, & Thomas, in press) and manifest themselves in bullying; lack of empathy; stealing or destroying others' property; seeming disengaged from the task at hand; fidgeting and impulsivity, and generally having problems regulating behaviour (APA, 2000; WHO, 1992).

Without timely intervention early-onset problems are particularly resistant to change (Frick & Loney, 1999; Koot & Verhulst, 1992; Martin-Storey, Serbin, Stack, & Schwartzman, 2009) and these children display high co-morbidity rates for a number of other difficulties. For example estimates for co-morbidity of conduct problems and hyperactivity range from 30-70% (Jones, Daley, Hutchings, Bywater, & Eames, 2008), and co-morbidity causes greater impairment than single disorders (Kessler et al, 2005). Frequently, problems persist into adulthood (Bennet et al, 1999; Farrington & Welsh, 2006; Verhulst, Koot, & Berden, 1990) resulting in difficulties obtaining and remaining in employment, criminality, drug abuse, teenage pregnancy and social problems (Stevenson & Goodman, 2001; Sugai, Sprague, Horner, & Walker, 2000) with significant associated costs to public services (Scott, Knapp, Henderson, & Maughan, 2001).

### *BESD in the classroom*

BESD impact on academic achievement (Bennet et al, 1999; Rutter & Yule, 1970). As early as 22 months of age, a child's development can strongly predict academic qualifications at 26 years of age (Feinstein, 2003), therefore the earlier a

problem is identified, the sooner it can be remedied. Resolving academic difficulties is all the more important since these difficulties can also lead to truancy and early school drop-out, invariably without academic qualifications (McGee, Prior, Williams, Smart, & Sanson, 2002). Furthermore, recent UK government figures revealed that people without qualifications were twice as likely to be long-term unemployed than those who had left school with one or more qualification (Department for Innovation, Universities and Skills [DIUS], 2008).

Children experiencing significant difficulties in the classroom regularly receive SEN statements (Education and Skills Committee, 2006). In 2008, 1-2% of children in state funded primary schools throughout the UK were granted SEN statements, 10-21% of which were due to behaviour, emotional and social difficulties (Department for Children, Schools and Families [DCSF], 2008; “Schools in Wales General Statistics 2008”, n.d; Scottish Government, 2009). SEN statements and placement in special classes are in themselves strong predictors of long-term negative outcomes (Cairns, Cairns, & Neckerman, 1989; Meltzer, Gatward, Corbin, Goodman, & Ford, 2003; Rumberger, 1995; Vitaro, Brendgen, & Tremblay, 1999).

### *Evidence-based solutions*

Although school is an important influence on child development, parents have traditionally been the main focus of prevention research. PT intervention has provided many successful outcomes and has been the most widely disseminated, successfully treating symptoms of early childhood behaviour problems and children at risk of developing CD (Hutchings, Bywater, Daley et al, 2007) and ADHD (Jones et al, 2008). Cognitive-behavioural PT has been particularly effective (Hutchings, & Lane, 2005; Scott, Spender, Doolan, Jacobs, & Aspland, 2001). Research reports

mixed findings as to whether the positive effects of PT extend to the classroom, possibly due to parenting and classroom processes having independent contributions to childhood adjustment and self-regulation (Brody, Dorsey, Forehand, & Armistead, 2002). Nevertheless, some studies have found that positive PT effects do translate to the classroom (Dykeman, 2003;) while others state PT effects do not carry to the classroom (Barkley et al, 2000). Results are also mixed pertaining to classroom intervention effects translating to the home: some studies have found positive change in the classroom is also seen at home (DeWein, & Miller, 2009; Froelich, Doepfner, & Lehmkuhl, 2002), while other studies have found no change (Williford & Shelton, 2008). Additionally, Ialongo and colleagues' study (2001) found that classroom intervention was more effective at reducing conduct problems prevalence than a parent-focussed programme.

Child BESD may start at home and be transported to the school: problems that the parents may not recognise as problems or feel they are problematic, therefore early-onset BESDs may remain undetected until the child enters the school environment (Williams & Holmes, 2004). In such cases the parent may have unintentionally encouraged negative behaviour patterns through modelling and reinforcement, and they do not recognise the child's behaviours as maladaptive (Delaney, & Engels-Scianna, 2007; Webster-Stratton, 1990). On entering the school environment these maladaptive behaviours become evident in the child's teacher and peer interactions and an inability to complete tasks. In such cases, the parent may not see problems emerging and therefore does not consider their child to be at risk of developing more significant difficulties, nor in need of intervention.

As mentioned previously, PT is the most widely disseminated intervention for addressing childhood conduct problems (Beauchaine, Webster-Stratton & Reid, 2005;

Brestan & Eyberg, 1998; Kazdin, 1997), but over 75% of child mental health services in the UK are delivered within or in collaboration with schools, which makes classroom-based interventions a natural venue for prevention programmes and interventions (Hoagwood & Erwin, 1997, Nelson, Gonzales, Martella & Marchand-Martella, 2005). *Early* school-based intervention in particular, is especially effective (Keenan & Shaw, 1994). For example a 12-year longitudinal study found that an early school-based intervention protected against negative outcomes in late adolescence such as violence; teenage pregnancy; promiscuity; sexually transmitted infections; substance abuse, and academic failure (Hawkins, Catalano, Kosterman, Abbott, & Hill, 1999).

#### *Impact of schooling on child development*

Positive teacher-pupil relationships are crucial for effective, successful school-based interventions, in that a positive relationship motivates academic progress (Turner et al, 2002; Wang, Haertel, & Walberg, 1993) and encourages social and emotional development (Hamre & Pianta, 2001). In contrast, a negative teacher-pupil relationship can be established in kindergarten, which predicts both academic and social problems eight years later (Hamre & Pianta, 2001).

Effective classroom management in the form of consistent discipline can facilitate social and emotional development (Nelson, Gonzales, Martella, & Marchand-Martella, 2005), while ineffectual classroom management can aggravate and maintain emotional and behaviour problems (Kellam, Ling, Merisca, Brown, & Ialongo, 1998; Somersalo, Solantaus, & Almqvist, 2002). Developing social and emotional skills is fundamental in ensuring children form attachments at school; a factor which can in itself protect against the development of behavioural problems

(Malecki, & Elliott, 2002; Najaka, Gottfredson, & Wilson, 2001). Simply increasing the ratio of positive approval statements to disapproval statements (often utilised in school-based interventions) can decrease the probability of future problems such as early school drop-out (Horner, Sugai, Lewis-Palmer, & Todd, 2001; Latham, 1992), and can also foster significantly more on-task behaviour (Nafpaktitis, Mayer, & Butterworth, 1985).

### *The IY TCM Programme*

Research demonstrating effective interventions - especially early intervention - has put service providers under increasing pressure to identify and utilise high-quality Evidence Based Interventions (EBIs). The IY series is a suite of such programmes (Webster-Stratton, 1989; 2003b; 2003c), consisting of a parent programme, child focussed therapeutic and classroom-based programmes, and a TCM programme.

The IY series has demonstrated efficacy and effectiveness through high-quality randomised controlled trials (RCT), and is one of 11 Blueprints for Violence Prevention Model Programmes (Webster-Stratton et al, 2001). The designation as a Blueprint programme - undertaken by the Centre for Violence Prevention at the University of Colorado - requires high standards of scientific evidence; evaluation with multiple populations; sustained treatment effects; strong RCT research evidence, and tools for effective replication (Centre for the Study and Prevention of Violence [CSPV], n.d.; Mihalic, Fagan, Irwin, Ballard, & Elliot, 2002). To date, of 600 programmes reviewed by the centre, only 11 have received this designation. Previous research has investigated the efficacy of the IY TCM programme when implemented concurrently with therapeutic or classroom-focussed programmes and/or parenting



programmes and has found that it has an additive quality in that it bolsters positive results (Webster-Stratton, Reid, & Hammond, 2001).

### *Rationale for the present study*

The IY TCM programme has not previously been researched independently of other IY programmes (Williford & Shelton, 2008), albeit that some studies have investigated components of, or adaptations to the programme (see Baker-Henningham, Walker, Powell, & Gardner, 2009; Shernoff & Kartochoy, 2007; Williford & Shelton, 2008). This study evaluates the programme as a stand-alone intervention in order to assess whether it reduces negative teacher and pupil behaviours and increases positive behaviours. As the teacher is interacting with the entire class this study also investigates whether the programme benefits all pupils, irrespective of presence of BESDs.

## Method

### *Participants*

Twelve classes from 11 primary schools participated in the study. Eight of the twelve classrooms were multi-year consisting of reception age children (4 to 5 years of age) with older and/or younger children (years one, two and/or nursery age); four classrooms were single-age reception classes. Class sizes ranged from 24 to 30 pupils, and lessons were predominantly in Welsh.

Sixteen teachers participated in total; six shared teaching duties with another teacher (job-share). All teachers were female, with a mean age of 34 years (range 21-53 years) and an average of nine years teaching experience (range 2-30 years). Three teachers held temporary contracts for twelve months (covering maternity leave), while the remaining teachers held permanent posts. Schools were based in both rural and urban areas in the county of Gwynedd in North Wales. The percentage of pupils entitled to free school meals ranged from 4 to 27% (mean of 13%, see Table 1) - the national average for Wales in 2005/06 (when this study commenced) was 17% (National Statistics, 2006). Although the mean percentage of free school meals was slightly below the national average the current sample's range was wide, reflecting the diverse SES of school catchment areas. Each participating school, teacher, parent and child was given a small gift (£5 gift voucher) for taking part in the study.

One hundred and seven children – 58 girls and 49 boys - were recruited on the basis of their score on a teacher-completed questionnaire - the teacher version of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997); job-share teachers collaborated on this task. These children are referred to as Index children. Nine Index children were recruited from each class, with the exception of one classroom where it was only possible to recruit eight. The latter classroom was recruited later

than the others consequently only eight parents had consented to their child being observed individually by commencement of TCM training. Index children comprised the three highest scoring children, the three lowest scorers, and three children whose scores clustered around the mean, for teacher rated BESD on the SDQ Total Difficulties (TD) scale. See figure 1 for the flow of participants through the trial.

### *Measures*

Teacher and child behaviours were assessed by means of questionnaires and direct behavioural observation on two separate occasions: T1 and T2. The initial time point (T1) was at baseline – pre-intervention – and the second time point (T2) was six months later, after intervention group teachers had been trained in TCM methods.

#### *Screening Measure: Teacher version of the Strengths and Difficulties Questionnaire (T-SDQ; Goodman, 1997)*

The SDQ (see Appendix C) is an established 25-item inventory in which teachers are asked to rate whether a statement is “Not true”, “Somewhat true” or “Certainly true” of the child in question. The measure screens for hyperactivity problems; peer-problems; emotional-problems, and conduct-problems, along with indicators of pro-sociality. Examples of statements to be rated are “constantly fidgeting or squirming” (hyperactivity); “generally liked by other children” (peer-problems); “many fears, easily scared” (emotional-problems); “often lies or cheats” (conduct problems), and “considerate of other people’s feelings” (pro-sociality). The four problem subscales’ scores are combined to produce a Total Difficulties (TD) score. The SDQ displays good internal consistency ( $r = .73$ ); re-test stability after 4-6

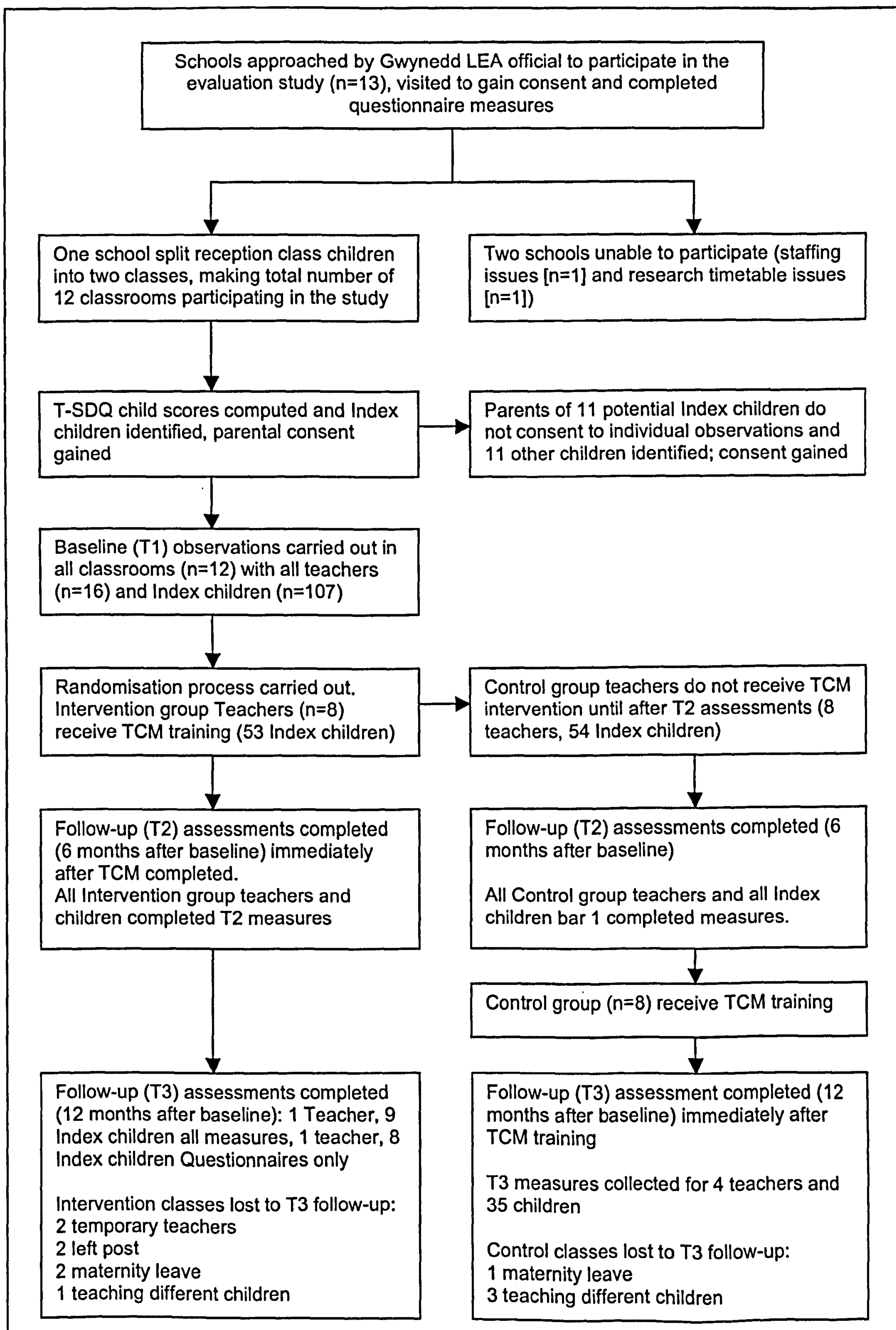


Figure 1: CONSORT flow-chart.

months ( $r = .62$ ), and good discriminant validity with high problems scores strongly correlated with increased psychiatric risk (Goodman, 2001; Goodman & Scott, 1999).

*Outcome Measure: The Teacher-Pupil Observation Tool (T-POT; Martin et al, in press)*

The T-POT (Martin et al, in press, see Chapter 4) is a 75-item measure of teacher and child behaviours and interactions (see Appendix U for T-POT measure and Appendix V for coding manual), roughly half of which are devoted to child interactions or responses (with or to the teacher or peer(s)) the other half to teacher interactions (with the Index child or with other pupils in the class). The T-POT displays good inter-rater agreement,  $r = .78$ ; moderate internal consistency,  $r = .49$ ; moderate concurrent validity with SDQ categories,  $r = .41$ , and good discriminant validity, with high scores on negative categories strongly associated with increased behavioural, social, and emotional problems, and high scores on positive categories strongly associated with high pro-sociality (Martin et al, in press). The 75 T-POT items were reduced to form eight composite categories (see Table 6).

### *Procedure*

A Gwynedd Local Education Authority (LEA) official initially recruited teachers. Gwynedd LEA were in the process of implementing the programme in all 102 of its primary schools. An incentive to participate in the research was granted by the LEA by offering the training either earlier or at the same time as other schools in the same catchment area and paying supply teacher costs to cover teachers attending the TCM training.

*Table 6: Raw T-POT behaviour categories amalgamated into composites.*

T-POT Composite Categories	T-POT behaviour categories included in the composite category
Teacher Positives	Acknowledgement Teacher Positive Problem Solving Labelled Praise Unlabelled Praise
Teacher Negatives	Teacher Negatives
Negative to Teacher	Aggression to Teacher Disruptive behaviour Destructive behaviour Negative Response to Teacher Positive Negative Response to Teacher Negative
Compliance	Compliance to Direct Command Compliance to Indirect Command
Non-Compliance	Non-Compliance to Direct Command Non-Compliance to Indirect Command Time-Out Warning Non-Compliance to Time-Out Warning
Off-Task	Off-Task
Pro-Social Behaviour	Child Positives (non-specific recipient) Child Positive Response to Peer Initiation
Child Deviance	Aggression to Teacher Disruptive Destructive Negative Response to Teacher Positive Negative Response to Teacher Negative Negative Response to Peer Initiation Verbal Aggression to Peer Physical Aggression to Peer

Teachers completed a SDQ for each pupil in their care. An independent researcher scored each SDQ so as to ensure the coding team would remain blind to child scores. Teachers subsequently contacted each potential Index child's parents.

Eleven parents did not consent for their child to be individually observed so in each case the child with the closest score in that class was recruited. An independent researcher paired classrooms according to school size, classroom size, and locality (town/rural), ensuring that the coding team were blind to condition at T2. Schools were subsequently randomly allocated to the intervention group using a random number generator; the paired school was automatically allocated to the control group in each case.

IY TCM training was delivered to teachers over the course of five months - one full day's session each month. Two trained leaders ran the course; one was a certified programme leader and a mentor in the programme. Both had previously delivered several courses. Teachers and leaders collaborated to identify key principles of classroom management, from discussion or from video footage of classroom situations, and teachers participated in role-play. Teachers practiced principles during the month following each session. Principles included using specific praise for appropriate behaviour (for example, "Well done for keeping your books when I asked"), problem solving with pupils, the importance of clear commands, and ignoring minor inappropriate behaviour. Session one in particular relates to relationship building with challenging and/or those children that Professor Webster-Stratton, the programme developer, refers to as 'invisible' children (children who do not require constant attention as they are busily and quietly working, and therefore do not receive a lot of attention from the teacher); a key principle on which

to build all other TCM principles (See Webster-Stratton, 2003a, for more details of TCM content).

### *T-POT Observations*

Observations were conducted over approximately two hours during structured lessons such as maths/numbers or reading/writing – all but one teacher delivered structured lessons in the morning, the remaining teacher was observed in the afternoon. Each Index child was observed for fifteen minutes and teachers were requested to have some interaction with that child. This did not entail interacting exclusively with that child as observers were also coding teacher interactions with the classroom as a whole. Observers remained as unobtrusive as possible, keeping interactions to a minimum so as not to affect the classroom dynamic.

Observation data was collected from the immediate vicinity of the teacher and Index child. If significantly negative or positive behaviour occurred in another area of the classroom the teacher would invariably attend to it. Additionally, pupils approached the teacher to have their work inspected or to request assistance, thereby ensuring that both significantly negative and positive classroom behaviours were recorded on the observation measure.

Observers maintained high inter-rater reliability between time-points by coding videotapes of classroom interactions,  $r=.86$ . Observations in the classroom were double-coded (two or more observers) for 25% of observations. Coders were blind to Index child's SDQ score, and to teachers' group allocation at follow-up (intervention or control; follow-up as teachers had not been allocated to group at baseline).



## Results

### *Attrition and Attendance*

All 107 children were observed and teacher measures collected at baseline (T1). One child had left the area by follow-up therefore 106 children were observed at T2 (six months later). All teachers were retained for the duration of the study. Seven of the eight intervention teachers attended all five training sessions; the remaining teacher attended four sessions.

### *SDQ groupings*

Index children represented the three most challenging, three least challenging, and three typical children in each classroom. For data analysis purposes Index children were divided into two groups according to SDQ guidelines: 79 low problem/normal range children (with a TD score of 0-11) and 28 high problem children (TD score over 12 – SDQ ‘borderline’ and above). The latter group included 17 children who scored above the point of clinical concern ( $> 15$ ). Forty boys and 39 girls displayed low/normal range behaviour problems scores while 18 boys and 10 girls displayed high problems scores.

### *Baseline comparison of condition*

No significant differences were found at baseline regarding distribution of TD scores between the intervention and control groups, but significant differences existed in frequencies of observed behaviours on the T-POT (see Table 7): a one-way ANOVA demonstrated that intervention teachers were significantly more negative than control teachers,  $F(1, 141) = 5.95, p = .016$ , in their interactions with the classroom at baseline. Furthermore, classroom pro-social behaviours were observed

significantly more often in control classrooms than intervention classrooms, at baseline,  $F(1, 141) = 5.95, p = .016$ .

Children in intervention classrooms not only displayed both lower frequencies of positive behaviours and higher frequencies of negative behaviours than control classrooms; negative behaviours directed at the teacher,  $F(1, 141) = 9.40, p = .003$ , and general classroom deviance,  $F(1, 141) = 8.32, p = .005$ , were also significantly higher (see Table 7). Remaining T-POT behaviours were not significantly different, but intervention group teachers and pupils were generally more negative and less positive than the control group at baseline.

*Table 7*

*Mean frequency of observed teacher and classroom behaviours in Intervention and Control classrooms at baseline*

	Intervention Classrooms n=8 m (sd)	Control Classrooms n=8 m (sd)
Teacher Positives to class	78.31 (3.44)	84.37 (34.51)
Teacher Negatives to class	10.24 (9.45)	6.72 (7.71)
Classroom Compliance	39.28 (18.73)	43.76 (20.57)
Classroom Non-Compliance	2.94 (4.21)	1.90 (2.58)
Class Negatives to Teacher	1.99 (3.27)	3.74 (3.55)
Classroom Pro-Social Behaviour	24.99 (15.72)	32.04 (18.72)
Classroom Deviance	4.55 (5.57)	7.99 (8.38)
Classroom Off-Task Behaviour	1.79 (3.44)	1.26 (2.38)

*Preliminary analyses*

An intention to treat analysis was conducted with baseline data carried forward to replace missing values at T2 (for the one child that was lost to follow-up); this is a strict criterion assuming no change since baseline. Analysis of co-variance (ANCOVA) compared intervention and control teachers' behaviours towards Index children at T2 to assess the effect of intervention. Children with low difficulties versus children rated as problematic (and their interactions with peers and teacher) were also compared in order to evaluate whether the intervention was truly global. Further analyses were conducted and an exploration of ratios of positive versus negative teacher and Index behaviours was carried out. The study concluded with analysis of teacher and classroom behaviours (Index children and their peers).

A Kolmogorov Smirnov test was performed on T-POT categories – Index and Classroom – at baseline, and was found to be significant for all but three: teacher positives to class,  $D(143) = .56, p = .91$ ; class compliance,  $D(143) = .93, p = .35$  and classroom pro-social behaviour,  $D(143) = 1.27, p = .08$ , suggesting that the assumption of normality had been violated: positive skew in the case of negative behaviour data (generally low frequencies) and negative skew in the case of positive behaviour data (generally high frequencies). Despite this, ANCOVA is robust to such violations in moderate to large sample sizes, with greater than 15 cases per cell (Green, Salkind & Akey, 2003), and would control for differences in baseline scores. Partial eta squared values denoted effect size (small effect size 0.01, medium 0.06, and large 0.14 (Cohen 1988)).

*Effect of Intervention on Teacher and Index child interactions*

At follow-up ANCOVA revealed that control teachers were significantly more negative (see Table 8) towards Index children than intervention teachers at T2,  $\eta_p^2 = .092$ . In turn, control group Index children – irrespective of TD score – were more negative towards their teachers,  $\eta_p^2 = .051$ . Control classroom Index children were also significantly more off-task,  $\eta_p^2 = .066$ , and marginally more non-compliant, than intervention group Index children,  $\eta_p^2 = .033$ .

Intervention and control teachers did not differ significantly in frequency of positives to Index children at T2. Similarly, control and intervention Index children were equally compliant and pro-social. Control group Index children were more negative (in the form of disruptive, destructive and non-compliant behaviour and the like) than intervention group Index children but this failed to reach significance.

*Interaction between condition and TD score.*

ANCOVA revealed a significant interaction between condition (intervention or control) and TD score (low or high) in off-task behaviour frequency (see Table 8). In Intervention classrooms off-task behaviour at T2 was almost identical regardless of TD score, whereas high TD Index children in control classrooms displayed almost three times more off-task behaviour than control group low TD Index children,  $\eta_p^2 = .053$  and over three times as many episodes of off-task behaviour than intervention group Index children.

Control group teacher frequencies of teacher negatives to low TD Index children were similar to Intervention group teacher frequencies to low TD Index children. Control group teachers however, were over three times more negative to

high TD Index children than to low TD Index children - twice as negative as Intervention teachers were to high TD children; this was marginally significant,  $\eta_p^2 = .034$ . All other interactions were non-significant.

### *Further analyses*

Further analysis revealed a finding which went some way to explaining the higher frequencies of child compliance in high TD children (see Table 9): high TD children received double the number of commands received by low TD children,  $F(1, 102) = 16.35, p < .001, \eta_p^2 = .138$ . The observed higher frequencies of compliance may have been an artefact of opportunity in that high TD children received more commands therefore they had more opportunity to comply.

Paradoxically, the elevated number of commands to high TD children (see Table 9) was partly due to teachers' tendency to give repeated commands and therefore allow the child less time to comply, significantly more often to these children,  $F(1, 102) = 19.18, p < .001, \eta_p^2 = .158$ . In this situation a teacher would repeat the command within seconds of giving it.

**Table 8**  
*Mean frequency of behaviours per 15-minute Index child observation, according to condition and TD score, at baseline and follow-up.*

	Intervention Group						Control Group						F value p value	
	Low TD (n=40)		High TD (n=13)		Low TD (n=39)		High TD (n=15)		Condition: Control/ Intervention		Condition/ TD Interaction			
	M (sd)	T2	M (sd)	T1	M (sd)	T2	M (sd)	T1	M (sd)	T2	M (sd)	T2	M (sd)	T2
Teacher Positives to Index	17.90 (16.68)	10.30 (10.62)	17.46 (11.07)	22.62 (16.09)	13.23 (11.33)	12.69 (11.68)	12.53 (16.78)	18.73 (15.92)	18.73 (15.92)	.008 .929	1.32 .252			
Teacher Negatives to Index	1.08 (3.49)	.50 (1.77)	2.15 (2.88)	.92 (1.32)	.38 (.67)	.64 (.93)	.87 (1.51)	1.93 (2.58)	10.38 .002	3.54 .063				
Index Compliance	8.27 (9.18)	6.63 (6.98)	10.46 (7.07)	10.69 (7.88)	8.51 (6.91)	7.72 (6.83)	7.73 (8.19)	14.73 (11.02)	2.52 .115	.92 .340				
Index Non- Compliance	.63 (2.84)	.13 (.40)	.62 (.96)	.15 (.38)	.08 (.27)	.26 (1.29)	.13 (.35)	.80 (1.15)	3.48 .065	1.55 .216				
Index Negatives to Teacher	.05 (.32)	.18 (.50)	.92 (1.44)	.23 (.60)	.26 (.60)	.38 (1.14)	.87 (1.36)	1.07 (1.67)	5.54 .021	2.09 .152				
Index Pro-social Behaviour	9.50 (7.51)	7.23 (4.54)	8.46 (6.73)	7.08 (6.87)	10.33 (8.33)	10.56 (9.81)	9.67 (6.69)	8.13 (5.95)	1.79 .183	.50 .482				
Index Deviance	.65 (1.77)	.62 (1.03)	2.00 (2.77)	.54 (1.05)	1.03 (1.66)	1.00 (2.81)	3.47 (6.67)	1.53 (2.80)	2.23 .138	.47 .494				
Index Off-Task Behaviour	.40 (.93)	.45 (.93)	2.69 (4.27)	.46 (.97)	.72 (1.49)	.56 (1.21)	1.53 (2.13)	1.53 (1.46)	7.24 .008	5.38 .019				

Lastly, teachers generally communicated more often (see Table 9) with high TD children than with low TD children,  $F(1, 102) = 15.52, p < .001, \eta_p^2 = .132$ , which may explain how high TD children received more positives as well as negatives than low TD children.

### *Ratios of Index child behaviour*

Calculating ratios of specific positive to negative behaviours reduces the effect of opportunity by producing a percentage of positive behaviour in relation to negative behaviour for each teacher or Index child. To achieve this, positive behaviour is divided by the positive plus negative behaviour, for example twenty positives and five negatives would be calculated thus:  $20/(20+5) = .80$ , therefore 80% of the total of both the positive and negative behaviour is positive, 20% is negative. In this respect a child who rarely communicates (6 positives and 1 negative) will have the same ratio of positive to negative behaviour as a more communicative peer (36 positives to 6 negatives): 86% positives.

Utilising this method illustrated how low TD children in both conditions (intervention and control) were compliant to 80% of teacher commands, and non-compliant to 20% at T2, whereas high TD children for all conditions were compliant to 96% of the teacher's commands and non-compliant to 4% at T2; this finding was marginally significant,  $F(1,102) = 3.57, p = .06, \eta_p^2 = .034$ . There were no significant differences according to condition (intervention or control).

Table 9

*Frequencies of additional T-POT behaviours, further analyses.*

	Intervention Group				Control Group			
	Low TD (n=40)		High TD (n=13)		Low TD (n=39)		High TD (n=15)	
	T1 M (sd)	T2 M (sd)	T1 M (sd)	T2 M (sd)	T1 M (sd)	T2 M (sd)	T1 M (sd)	T2 M (sd)
Commands	10.91 (11.57)	7.95 (8.46)	15.13 (11.27)	13.69 (8.26)	10.78 (10.51)	10.28 (8.79)	9.94 (10.63)	22.13 (15.43)
No Opportunity (for child to comply with command)	3.42 (3.84)	1.20 (2.51)	4.06 (4.19)	2.85 (2.51)	3.11 (4.52)	2.51 (2.95)	2.67 (3.38)	6.60 (5.01)
Total Teacher Communications	26.36 (25.43)	18.70 (18.63)	32.75 (20.85)	37.00 (22.90)	23.00 (21.15)	23.62 (20.42)	21.61 (25.42)	42.80 (29.84)

*Note:* Commands at T2, No opportunity at T2 and Total teacher communications at T2, significantly different at  $p < .001$  according to TD score. Number of commands at T1 significantly different at  $p = .048$ , No opportunity at T2 significantly different at  $p = .002$  according to Condition



Although it appears that high TD children are more compliant at T2, these children displayed a significantly lower ratio of positive behaviours to each negative behaviour (73% positives to 27% negatives) than low problems children (88% positives to 12% negatives),  $F(1, 106) = 6.60, p = .01, \eta_p^2 = .061$ , but again there were no significant differences of condition at follow-up.

Ratios of teacher positives to negatives aimed at the Index child were not significantly different according to the child's TD score nor according to condition.

#### *Effect of Intervention on overall Classroom Behaviour (Index child and peers)*

In order to identify the presence of differential behaviour – whether the teacher behaved positively or differently towards Index children as a function of their knowledge of Index child identity and of being directly observed – ANCOVA was carried out on teacher-classroom data, that is not only Index interactions and behaviours, but also the Index's peers.

There was a significantly higher frequency of teacher positives towards the classroom (therefore Index children and their peers) in intervention classrooms at T2 (see Table 10) than control,  $F(1, 139) = 11.18, p < .001, \eta_p^2 = .074$ . This was a significant difference in the case of classroom interaction whereas the previous analysis of teacher and Index alone (without the rest of the classroom) did not prove to be significantly different.

Non-compliance increased significantly in control group teacher-classrooms,  $F(1, 139) = 11.85, p = .001, \eta_p^2 = .079$  (again this was only marginally significant when analysing the previous section (teacher and Index child only) observation data; see Table 10).

Conclusions pertaining to negative behaviours aimed at the teacher were also strengthened by adding the Index's peers' data, i.e. the rest of the class,  $F(1, 139) = 7.27, p = .008, \eta_p^2 = .050$ , as was the case with classroom off-task behaviour,  $F(1, 139) = 7.98, p = .005, \eta_p^2 = .054$  (see Table 10). All three aforementioned findings were in the same direction as teacher-Index results at T2 (teacher interactions with the Index child only, not including the Index child's peers, see Table 8) – occurring more often in control classrooms – but demonstrated increased significance in the case of teacher-classroom data.

Compliance was not significantly different in teacher-Index data, but teacher-classroom data revealed marginal significance,  $F(1, 139) = 3.544, p = .06, \eta_p^2 = .025$ , with compliance observed more often in intervention classrooms at T2 (see Table 10).

Frequency of teacher negatives was significantly different in teacher-Index data but was not significantly different in teacher-classroom data, although TCM training did appear to reduce the disproportionately high levels of intervention teacher negatives at T1, whereas frequencies marginally increased in control group teachers.

*Table 10:*

*Mean number of T-POT behaviours per two hour observation period, in Intervention and Control classrooms at baseline and follow-up.*

	Intervention Classrooms N = 8		Control Classrooms N = 8	
	T1 M (SD)	T2 M (SD)	T1 M (SD)	T2 M (SD)
Teacher Positives*	78.31 (26.32)	98.07 (28.42)	84.37 (34.51)	82.39 (30.92)
Teacher Negatives	10.24 (9.45)	7.23 (6.77)	6.72 (7.71)	7.61 (6.92)
Classroom Compliance**	39.28 (18.73)	51.66 (16.98)	43.76 (20.57)	47.14 (18.26)
Classroom Non-Compliance*	2.94 (4.21)	1.31 (1.62)	1.90 (2.58)	2.62 (3.54)
Classroom Negatives to Teacher*	1.99 (3.27)	1.14 (2.62)	3.74 (3.55)	2.62 (3.54)
Classroom Pro-Social Behaviour	24.99 (15.72)	23.68 (11.02)	32.04 (18.72)	27.80 (15.88)
Classroom Deviance	4.55 (5.57)	3.38 (5.95)	7.99 (8.38)	4.86 (6.17)
Classroom Off-Task Behaviour*	1.79 (3.44)	0.61 (1.21)	1.26 (2.38)	1.30 (2.06)

*Note: \*p<.01, \*\*p=.06.*

## Discussion

This study evaluated the IY TCM programme as a stand-alone intervention; a programme previously evaluated alongside other programmes in the IY series. Results suggest that the intervention increased positive teacher and child behaviours whilst reducing negative behaviours, and improvements appeared to extend to all children in the class regardless of extent of child behaviour problems. These results are particularly encouraging since at baseline, intervention group teachers and children were generally more negative and less positive than their control group peers.

Index child behaviour was examined in order to assess whether the intervention benefited both high and low risk children (high and low TD score). Teacher negatives were reduced towards both high and low TD scoring Index children in intervention classrooms at T2, but not in control classrooms, where frequencies of teacher negatives increased regardless of child TD score. The same pattern was observed for non-compliance, Index negatives to teacher, Index deviance and Index off-task behaviour.

The findings suggest that the intervention significantly increased positive teacher behaviours towards the whole classroom and to high TD Index children in particular. In addition, the intervention decreased negative teacher behaviour both to the Index children and to the classroom. Subsequently, intervention-related change in teacher behaviour appears to promote positive classroom behaviours in line with previous research findings (Latham, 1992; Nafpaktitis et al, 1985, Williford, & Shelton, 2008). Increasing pro-social behaviour in the classroom has been found to predict higher academic grades and a reduction in early school dropout (Caprara, Barbaranelli, Partorelli, Bandura, & Zimbardo, 2000; Di Lalla, Marcus, & Wright-Phillips, 2004). Compliance increased significantly in intervention classrooms while

non-compliance significantly decreased. Previous studies have found that compliance is strongly associated with pro-sociality (Herring & Wahler, 2003) therefore increasing child pro-sociality may have resulted in the increase in pupil compliance; on the other hand the increase in compliance may have resulted in an increase in pro-social behaviour, but ultimately both scenarios are positive. Off-task behaviour and negative child behaviours towards the teacher were also reduced as a function of the TCM.

### *Strengths*

This research utilised both teacher report and the more objective blind independent observation – referred to as the gold standard of research (Altmann, 1974; Aspland & Gardner, 2003; Evertson & Burry, 1989; Jacob, Tennebaum, Bargiel, & Seilhammer, 1995; Margolin et al, 1998; Reich & Bickman, 2005), thereby providing objective observation data that corroborated teacher report (SDQ and PFMSS measures), thus giving more confidence in the results.

Results showed that the intervention was effective with different school sizes, class compositions, and with temporary and job-share teachers, suggesting that this is a useful piece of translational research. Random allocation ensured that all teachers had an equal chance of being in the intervention group and thus minimised bias. The intervention group were significantly more negative and less positive than their control group peers at baseline, yet the intervention appears to have significantly increased teacher and child positives and reduced teacher and child negatives in the more negative and less positive cohort (the intervention group) that had received the intervention by T2.

*Addressing study limitations*

While results are promising there are a number of limitations. First, the sample size was relatively small in this study. Second, child age range was narrow – 4 years 11 days of age to 6 years 9 days of age – due to Gwynedd LEA initially implementing the TCM programme in reception classrooms. Third, all lessons were conducted in Welsh. The aforementioned issues may suggest generalisation problems. Furthermore, we cannot state whether positive changes in the TCM group were maintained long-term due to the study design (we cannot follow-up children who are moving to another classroom for example).

This study was carried out in North Wales, in primarily Welsh language primary school classrooms, but there is considerable evidence that the TCM, and other IY programmes are effective for a variety of families and children from varying economic and cultural backgrounds (Williford, & Shelton, 2008). Individual programmes in the IY series (PT, TCM – components of TCM programme or adaptations to the TCM programme - Dino, and combined studies) have been successfully evaluated in other countries with other languages with positive results (Jamaica: Baker-Henningham, Walker, Powell, & Gardner, 2009; Germany: Brezinka, 2006; United States: Reid, Webster-Stratton, & Hammond, 2003; Norway: Larsson et al, 2009; New Zealand: Fergusson, Stanley, & Horwood, 2009) and with a wide-range of child age-groups (2-17 years of age: Bywater et al, 2009; 8-16 years of age: Hutchings, Bywater, Williams, Shakeapeare & Whitaker, 2009), justifying their status as Blueprint programmes. The TCM specifically (alongside other IY programmes) may have received less research than the other IY programmes (Webster-Stratton & Reid, 2006) but it has been successfully evaluated (alongside other IY programmes or adaptations of or modules of the TCM programme) in

different countries and with different ages, ranging from pre-school to 11 years of age (Preschool: Raver et al, 2008; Baker-Henningham et al, 2009; Shernoff, & Kraatochwill, 2007; early school-age: Webster-Stratton, Reid, & Stoolmiller, 2008; all primary school ages: Brezinka, 2006; Hutchings, Daley, Jones, Martin, & Gwyn, 2007).

### *Future directions*

The intervention has produced positive changes in child behaviour in the classroom, but it is unclear whether these changes extend to other environments such as the home, where risk factors for BESD could persist. Future research can investigate whether parental report of child behaviour problems change as a result of the TCM.

Similarly, it would be valuable to assess whether these positive changes extend to the less structured playground situation, where the class teacher may not be supervising. The intervention is based on SLT (Bandura, 1977). Modelling - a component of SLT - is one of the active components in this intervention (teachers model positive behaviours) as well as behaviour reinforcement for appropriate behaviour. A study could assess whether the modelling component has been successful by observing children when the teacher is not present, for example the playground, and so cannot directly influence the children at that time by modelling appropriate behaviours nor reinforcing these behaviours. Additionally a study could assess how playground supervision varied between teachers according to their ability to reinforce appropriate behaviour.

There was significantly more on-task behaviour in intervention classrooms post-intervention, which may predict academic improvements over time. Impact over

time of both observed and teacher reported child behaviour could be assessed and compared with academic grades pre and post-TCM training. Additionally, utilising other clinical measures of inattention and hyperactivity such as the Conners teacher and/or parent rating scale (Conners, Sitarenios, Parker, & Epstein, 1998) and Kendall Self Control Rating Scale (Kendall & Wilcox, 1979), would enable assessment of whether the TCM programme is also an effective intervention for these difficulties as was established in Jones and colleagues' study of IY PT with children at risk of developing ADHD (2008).

Teachers completed SDQs for every child in their class in order to identify Index children. Administering the SDQ at follow-up to both control and intervention teachers could highlight changes in teacher ratings over time. Observed positive changes in the SDQ would possibly reflect TCM training effects. Additionally, a study could investigate whether a teacher-report measure of the teacher's relationship with the child correlates with teacher and child observed interactions and teacher questionnaire ratings for that child (for example the Preschool Five Minute Speech Sample [PFMSS]: Daley, Sonuga-Barke, & Thompson, 2003).

Teaching is recognised as a stressful career (Kokkinos, 2007). Due to the high levels of stress affecting the quality of teacher instruction (Klusmann, Kunter, Trautwein, Ludtke, & Baumert, 2008), it may be prudent to explore whether teacher stress changes as a function of IY TCM training as teachers begin to feel that they are managing the classroom more effectively. Change in teacher stress levels may also reflect an increase in observed positive behaviour in the classroom, thereby alleviating teacher stress. High stress levels may predict less effective instruction, thereby exacerbating off-task and possibly negative classroom behaviour, as previous research has demonstrated (Klusmann et al, 2008).



Positive changes were observed in both intervention teacher and classroom behaviour, therefore it would be interesting to explore whether teacher or pupil variables predicted these changes. For example, teachers with permanent teaching contracts may apply intervention principles more effectively than teachers with temporary teaching contracts. Similarly, teachers that teach multi-age classrooms may find it more difficult to adopt the TCM principles than single-age classroom teachers due to the different challenges that arise from teaching different age groups. It may also be prudent to examine whether number of years teaching experience predicts more or less positive behaviour change. This could inform teaching practices in diverse settings, for example cities and rural, where there are many younger less experienced teachers in the former, and older more experienced teachers in the latter (Chester & Beaudin, 1996; Jimenez & Paqueo, 1996; Ingersoll, 2001). Additionally, child variables (for example child age, child behaviour problems or child gender) could be investigated further in order to assess their role in intervention-related change. Exploring teacher ability to engage with the IY TCM training and therefore implementing the principles effectively could inform programme delivery and facilitate more effective implementation replication, and permit assessment of whom the intervention works best, and why.

### *Conclusion*

It is of particular importance that this teacher-focussed intervention had a positive impact on child behaviours, even though the children themselves did not directly receive any intervention. Furthermore, improvements in teacher behaviours extended to the whole class, implying that teachers did not behave differently or preferably towards the Index children than the rest of the children in the class, as a

function of their knowing the identity of Index children. Teachers had gained parental consent for individual observation of these children and had to ensure that observers were aware of each Index child's identity (but not the child's SDQ TD score).

Consequently, improvements in child behaviour at follow-up were observed throughout the classroom and in a range of behaviours. The intervention's ability to reduce both teacher and child negative behaviours appears to be its most important benefit as this then enables children to benefit from the learning environment of the classroom without the added distraction of disruptive behaviours nor negative teacher interactions.

A great deal of research has investigated mechanisms of change in the classroom – and it is clear that negative child behaviour in the classroom does influence teacher responses (Rimm-Kaufman et al, 2002). This study suggests that teacher behaviour is a key mechanism for change in the classroom, thereby effectively changing pupil behaviour for the better.

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**CHAPTER 6**

**Predictors of Outcome**

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### Abstract

*Background:* Whilst the previous chapter illustrated how the IY TCM programme is effective in that TCM training can increase positive teacher and child behaviours while decreasing negative behaviours, there have been few studies that have investigated for whom it works best and why.

*Aims:* The current study aims to explore intervention-related change in terms of teacher and child factors that may influence effective implementation of the IY TCM as a stand-alone intervention.

*Method:* Teacher, Index child and classroom data from the intervention group only was examined in order to assess whether particular teacher and pupil characteristics predicted more successful implementation of TCM principles.

*Results:* More experienced and less stressed teachers consistently implemented TCM principles more successfully than their peers to elicit positive classroom behaviours.

*Conclusions:* An understanding of the factors that foster effective mechanisms of change has implications for both programme developers and policy-makers alike. This allows the development of TCM strategies to address factors associated with poorer outcomes so that interventions can be delivered successfully and cost-effectively.

Identifying and applying effective EBIs is crucial in both psychological and educational practice (Chambers, Ringeisen, & Hickman, 2005; Piquero, Farrington, Welsh, Tremblay, & Jennings, 2008; Schoenwald & Hoagwood, 2001; Weisz, Sandler, Durlak, & Anton, 2005). Additionally, programme developers and practitioners need to ensure that interventions are implemented correctly in terms of treatment adherence and delivery, to the population most in need of those interventions (Woolf, 2008). In order to inform prevention and education policy, programmes need to be evaluated in the environment for which they were designed (Gardner, Hutchings, Bywater, & Whitaker, 2009; Weisz, Sandler, Durlak & Anton, 2005). Nevertheless evaluations continue to be conducted in controlled settings such as universities or clinics (Shernoff & Kratochwill, 2007), leading to interventions that may be ineffective in practice (Kavale & Froness, 1999; Storch & Crisp, 2004; Kratochwill et al, 2008). Evaluating a school-based intervention in a school setting can ascertain i) whether the intervention is effective in practice, ii) the mechanisms of the intervention, and iii) who benefits most from the intervention, in order to target those that need the intervention most.

### *What predicts outcome?*

Even the most effective interventions can produce better results in some populations than others (Jones et al, 2009). Effectiveness trials examining predictors of outcome can help assess why this is the case (Nock, 2003; Weersing & Weisz, 2002). In education, both policy-makers and practitioners gain from knowing which teachers and children benefit from school-based interventions. Moreover, examining predictors of outcome allow programme-developers to modify interventions and manipulate factors to improve the programme, by developing a classroom-wide

version of a targeted intervention for example. Additionally, predictors of outcome in one study may give clues regarding programme participation or outcomes in another (Reynolds, Ou, & Topitzes, 2004).

Traditionally, higher levels of adversity such as low SES, maternal depression, and single parenthood predict poorer outcomes for parenting interventions such as PT (Lundahl, Risser, & Lovejoy, 2006; Reyno & McGrath, 2006). Research into the IY PT on the other hand, has found that disadvantaged families benefit at least as much as families with fewer barriers to success (Baydar, Reid, & Webster-Stratton, 2003; Gardner et al, 2009), sometimes even more so (Beauchaine, Webster-Stratton, & Reid, 2005). In the IY PT intervention, factors such as low SES “become less important in predicting treatment success or failure” (Hartmann, Stage, & Webster-Stratton, 2003, p.396) as parents acquire more positive parenting skills.

There is a paucity of research investigating particular teacher characteristics and intervention outcome within the school psychology literature. While researchers have examined teacher qualifications (Connor, Son, Hindman, & Morrison, 2005; Howes, Whitebook, & Phillips, 1992) and teacher stress levels (Klusmann, Kunter, Trautwein, Ludtke, & Baumert, 2008) in relation to intervention efficacy, characteristics such as age, experience, and job-sharing status do not appear to have received such widespread investigation. The current research attempts to add to the predictors of intervention outcome literature, and is based on the Martin et al (2009) study; the first to evaluate the IY Teacher Classroom Management (TCM) programme as a stand-alone intervention. The current study explores whether particular teacher and child characteristics facilitate successful uptake of IY TCM programme skills and principles, and whether these characteristics predict positive outcome, independent of

the additive benefits of other IY programmes (Webster-Stratton, Reid, & Hammond, 2001).

### *Teacher characteristics*

Research results are mixed as to whether number of years teaching predicts outcome: some studies have found teaching experience to be predictive of positive outcomes (Aydin & Hoy, 2005; Pianta et al, 2005), others have found no effect of number of years teaching (Bryant, Burchinal, Lau, & Sparling, 1994; Cantrell, Yound, & Moore, 2003), while some have found that teaching practices become less effective with number of years' experience (Ghaith & Yaghi, 1997). Similarly, studies pertaining to the influence of teacher age on teaching style or intervention outcomes are inconclusive: some research has established that older teachers are equally as receptive to new intervention implementation (Kallestad & Olweus, 2003), while others suggest that younger teachers are more anxious to adopt TCM strategies (Jones, 2006). Furthermore, younger teachers with less teaching experience have arguably less additional teaching responsibility therefore older more experienced teachers may have added problems due to work-induced overload and the resultant stress (Hargreaves, 2000).

Evidence concerning the effect of job-sharing on classroom learning in a primary school setting is scarce. In further education settings, Eagan & Jaeger (2008) demonstrated that part-time teaching and job-sharing led to negative learning outcomes due to job-sharing part-time faculty being less engaged and therefore less available, as well as less satisfied with their post; (features of previous research by Eagan, 2007; Levin, Kater, & Wagoner, 2006, and Umbach, 2007). Evidence also exists as to temporary teaching contracts' detrimental effects (Darling-Hammond,

2000). In England, Ofsted's 2000-2001 annual school inspection report stated that temporary teaching-staff performed below standard (Ofsted, 2001) while the 2007-08 annual report declared that the quality of temporary teachers "fell short of current requirements" (Ofsted, 2009, p.28).

Developmental theories (see Bandura, 1977; Piaget, 1972; 1990; Vygotsky, 1980; 1986) illustrate the importance of interactions. Some practitioners believe such interactions are more readily available in multi-age classrooms (Yates, n.d.). In multi-age classrooms, younger pupils are exposed to higher-level tasks and are said to gain from this exposure, while older children have opportunities to develop their nurturing roles towards younger peers (Banks, 1997). These two skills encourage social and emotional skills development, needed for academic success. Research demonstrates that pro-social behaviours increase and aggression decreases in multi-age classrooms (Pavan, 1993; Schrankler, 1976), but many teachers prefer the less complex structure of a single-age classroom (Aubrey, 2004).

The IY TCM programme training builds on current positive teaching practice and introduces new strategies to replace less positive habitual behaviour. Level of stress has been demonstrated to negatively affect the quality of teaching instruction (Klusmann, Kunter, Trautwein, Ludtke, & Baumert, 2008), the ability to learn new material (Newcomer et al, 1999), and leads to an increase of habitual behaviour (Schwabe, & Wolf, 2009). From a TCM perspective this may suggest that high levels of teacher stress will make it more difficult to implement newly acquired TCM principles.



*Pupil/Child-specific variables*

Atypical development is witnessed more often in boys than girls (Bee & Boyd, 2004) with boys generally displaying higher levels of behavioural, social and emotional difficulties (Lavigne et al, 1996). Academically, girls tend to perform better than boys (Schagen, 1994; Thomas, 1995). Even from a school-wide perspective, schools with a higher proportion of girls to boys perform better academically than those with lower proportions of girls (Strand, 1997), therefore implementing TCM strategies may exert more influence on girls than boys.

Child age range is relatively narrow in this sample – four years of age up to six years – but there are many developmental changes that take place during this time (Egger & Angold, 2006). Oppositional symptoms and problematic behaviours in general increase at age three, followed by a decline in typically developing children (Lavigne et al, 1996; Tremblay, 2004). Additionally, younger children in the sample may not have attended school prior to the time of the study, consequently classroom rules, regulations and structure, and possibly even mixing with other children, may be a new experience to them. This suggests managing child behaviour for younger children may be more problematic than managing older children's behaviour, yet studies have found that parent training (PT) is most effective for younger children (Daley, 2006; Ruma, Burke, & Thompson, 1996). Furthermore, investigating teacher ability to utilise TCM skills according to age group, and for reception class versus year one children, may aid understanding relating to TCM efficacy.

Severity of behaviour problems predict negative intervention outcome in many studies (Ackerman, Brown & Izard, 2004; Shaw, Winslow, Owens, & Hood, 1998). Nevertheless, IY PT studies have demonstrated equally effective outcomes for both genders and for those children with more severe behaviour problems (Gardner,

Hutchings, Bywater, & Whitaker, 2009; Jones et al, 2009). Assessing intervention-related change will identify whether this is also the case with the IY TCM programme.

### *Background to the study*

Gwynedd Local Education Authority (LEA) had plans to implement the IY TCM programme throughout its 102 primary schools. Twelve classrooms in 11 schools participated in a study to evaluate the TCM programme. Sixteen teachers took part in the original study (three pairs job-shared) and 107 individual children's behaviours were assessed by means of questionnaire and observation measures; whole classroom observation measures (the specific children along with all their peers) were also taken concurrently. The main RCT (Martin et al, 2009) using the observation measures, demonstrated significant increases in positive teacher behaviours; significant decreases in negative teacher behaviours; increased child compliance; decreased non-compliance; decreased child negative behaviours aimed at the teacher, and decreased off-task behaviour in the intervention group, post-TCM training.

### *Present study*

The current study builds upon the findings from the original evaluation of the IY TCM programme as a stand-alone intervention by exploring potential predictors of change in both teachers and pupils. Analyses are performed on intervention group data only as the study's main aim is to examine mechanisms of intervention-related change.

## Method

### *Participants*

Participants are a subgroup of the original evaluation study (Martin et al, 2009). Schools were randomised into one of two conditions: intervention (TCM training after baseline observation) and waiting list control (TCM training six months later, after follow up visit). This study reports solely on the intervention group, which consists of six classes from five primary schools, taught by eight female teachers. Mean teacher age was 36 years (range 21-51 years). Number of years teaching ranged from two to 16 years (mean of 8 years). Two pairs of teachers job-shared; in each case one worked two days a week and the other worked three days. Two teachers were covering maternity leave for twelve months and therefore held temporary contracts; the remaining teachers held permanent posts. Three classrooms consisted solely of reception age children (4-5 year olds); the remainder were multi-year classrooms comprising reception age children along with older and/or younger children.

In order to specifically observe children with a range of behaviour in each classroom, 107 children were originally recruited on the basis of teacher-rated problems on the teacher version of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997); these children are referred to as Index children (see measures section for details). The subgroup examined in the current study consists of 53 Index children (27 girls and 26 boys) from the Intervention classes. Five classrooms consisted of nine Index children in each; time constraints led to only eight Index children participating in the remaining classroom (see Research Procedure section for explanation). Classroom observation data (Index child and peer data) was also collected and analysed.

### *Measures*

Questionnaire and direct observation measures were taken at T1 and T2 (six months later) after intervention teachers had undergone TCM training.

*Observation of teacher, classroom and specific child interaction: The T-POT (Martin et al, in press).*

Teacher, classroom, and Index child behaviour were assessed by means of the T-POT (Martin et al, in press; see Appendix U). The T-POT consists of 75 teacher and child behaviour categories. Approximately half of these pertain to child behaviours and/or interactions (with peers or with the teacher), and the other half to teacher behaviours and/or interactions (with the Index child or the class as a whole). The T-POT reports moderate internal consistency ( $r=.49$ ); moderate, concurrent validity (with SDQ categories;  $r=.41$ ); good inter-rater agreement ( $r=.78$ ), and good discriminant validity, with high scores on negative categories strongly correlated with increased behavioural, social, and emotional problems, and high scores on positive categories strongly correlated with high pro-sociality (Martin et al, in press). T-POT items were summarised to form three teacher composite categories and six child composite categories (see Table 5 for full description of categories included in each composite).

*SDQ – Teacher version (Goodman, 1997).*

This questionnaire was used as a screening measure at T1 to identify Index children (see Appendix C). Teachers rated pupil behaviours on a series of 25 statements to assess emotional, conduct, and peer problems, hyperactivity, and pro-sociality. The four former ‘problems’ scores combine to produce a Total Difficulties

(TD) score; this score identified children with high, low and medium behavioural, emotional, and social problems (the Index children). SDQ data was only analysed for T1 in order to identify BESD; change in SDQ score was not investigated in the current study.

The SDQ is an established measure with good discriminant validity to identify children at increased psychiatric risk. The SDQ also displays good internal consistency ( $r=.73$ ) and re-test stability after 6 months ( $r=.62$ ).

*Modified version of the Teacher Stress Inventory (TSI; Boyle, Borg, Falzon, & Baglioni, 1995).*

The Teacher Stress Inventory (TSI; Boyle, Borg, Falzon, & Baglioni, 1995) is a 20-item scale that determines level of teacher stress (see Appendix D). Teachers completed this measure at T1, prior to TCM training, and at T2 post TCM training (the latter is not included in this analysis). The TSI investigates the impact of stressors such as lack of teaching equipment, funding problems, stress due to colleagues or head-teacher issues, inspection and administrative stressors, and stress resulting from behaviour problems in the classroom. Classroom stressors only were included in the analysis; a total of six questions (see highlighted questions on measure in Appendix D). Responses range from “No stress” to “Extreme Stress” on a five-point Likert scale. Teachers were asked to rate, “how great a source of stress” the following factors were: difficult class; noisy pupils; pupils’ poor attitude to work; maintaining class discipline, and pupils’ impolite behaviour or cheek. The higher the stress score, the more stressed the teacher in relation to classroom behaviour stressors.

*Procedure*

Observations were conducted over two hours in the morning as teachers taught structured lessons at this time. The observation team made an effort to reduce interactions with pupils in order not to disrupt the normal classroom dynamic. Each Index child was observed specifically for fifteen minutes. Teacher and classroom measures were also recorded during this period. Teachers were aware of Index child identity and were requested to have some interaction with the Index child, but not to solely engage in Index child interaction during the fifteen minute observation period as this would be to the detriment of classroom data.

*The intervention*

The IY TCM programme promotes classroom management; pro-social behaviour and school readiness, and utilises reinforcement and modelling in order to reduce disruptive behaviour (Webster-Stratton, Reid, & Hammond, 2001). The programme is designed for use with children between 3 and 10 years of age. During IY TCM trainings sessions, collaboration between programme leaders and between leaders and teachers is vital in order to identify key classroom management principles, assess and discuss video clips of classroom situations, take part in role-play, and rehearsal of key principles. These principles are the foundation for teacher 'homework' over the month following each session. Five topics are covered: 1) establishing positive relationships with pupils; 2) effective use of praise; 3) using incentives to encourage appropriate behaviours; 4) decreasing inappropriate behaviour and prevention of behaviour problems, and 5) working with parents (Webster-Stratton, 2003). Teachers attend five sessions – one full day a month over five months.

*Treatment Integrity*

Two highly experienced leaders trained teachers in the IY TCM programme. One leader was a certified programme leader and mentor; the other leader had run several training groups and was in the process of obtaining certification. Both participated in monthly supervision, recognised as essential to maintaining fidelity (Robbins & Armstrong, 2005). Integrity was addressed by means of a series of checklists as identified by the programme manual (Webster-Stratton, 2003c) to ensure evidence-based implementation.

## Results

### *Attrition and attendance*

All teachers and Index children were observed and questionnaire measures administered at both T1 and T2. All teachers bar one attended all five TCM training sessions; the remaining teacher attended four.

### *Data preparation*

T-POT category data was transformed due to violation of linearity. Square rooting the variables ensured better linearity. One-way Analysis of Variance (ANOVA) was conducted on T2 observation data with teacher as factor, to ascertain whether there were any differences between intervention teacher and pupil behaviours. Regressions were conducted on variables where significant differences existed between teacher and/or child behaviour at T2 (see Table 11 for observed Index variables and Table 12 for observed Classroom variables). Non-significant ANOVAs illustrated a category/variable that did not predict change. ANOVA demonstrated that all T-POT observation measure categories were significantly different for teacher-classroom (teacher, Index and peer) measures at T2. Teacher-Index (not including peer measures) T-POT categories at T2 were significantly different in the following behaviours: Teacher Positives; Compliance; Index Pro-Social behaviour, and off-task behaviour. Regressions were therefore only conducted on these categories for teacher-Index data.



Table 11

Mean frequency of observed Intervention group teachers and Index behaviour with Anova information regarding which variables/behaviours differed significantly between teachers

	Teacher 1	Teacher 2	Teacher 3	Teacher 4	Teacher 5	Teacher 6	Teacher 7	Teacher 8	Anova
	M	M	M	M	M	M	M	M	F value
	(sd)	(sd)	(sd)	(sd)	(sd)	(sd)	(sd)	(sd)	p
Teacher Positives to Index	26.89 (16.71)	8.67 (5.45)	11.78 (12.29)	14.89 (17.06)	6.33 (9.10)	3.78 (3.80)	7.33 (7.89)	16.13 (6.90)	4.02 .001
Teacher Negatives to Index	.33 (.50)	1.33 (1.50)	1.11 (1.27)	.11 (.33)	.00 (0)	.11 (.33)	1.56 (3.58)	.25 (.46)	1.60 .153
No Opportunity to Index	1.44 (2.92)	1.22 (1.30)	1.11 (1.54)	2.44 (3.32)	.56 (.88)	.78 (.97)	1.67 (2.18)	2.38 (1.92)	.98 .456
Index Compliance	12.78 (9.08)	3.67 (1.94)	5.33 (4.72)	7.56 (8.03)	4.44 (6.58)	1.89 (2.09)	5.00 (5.57)	12.88 (6.01)	4.06 .001
Index Non-Compliance	.11 (.33)	.22 (.44)	.00 (0)	.33 (.71)	.00 (0)	.00 (0)	.11 (.33)	.00 (0)	1.20 .317
Index Negatives to Teacher	.00 (0)	.22 (.67)	.00 (0)	.44 (.73)	.22 (.67)	.00 (0)	.00 (0)	.25 (.46)	1.23 .30
Index Pro-Social Behaviour	10.89 (5.60)	3.33 (2.35)	4.11 (3.06)	10.44 (4.69)	5.33 (4.30)	10.44 (5.79)	6.00 (4.24)	7.13 (5.51)	3.94 .001
Index Deviance	.11 (.33)	.67 (1.19)	.00 (0)	.78 (1.30)	.44 (.73)	.33 (1.00)	.44 (.73)	1.25 (1.49)	1.49 .186
Index Off-Task	.11 (.33)	.00 (0)	.22 (.44)	.44 (.73)	.00 (0)	.22 (.44)	1.56 (1.33)	.63 (1.18)	4.363 .001

Table 12

Mean frequency of observed Intervention group teachers and Classroom behaviour with Anova information regarding which variables/behaviours differed significantly between teachers

	Teacher 1	Teacher 2	Teacher 3	Teacher 4	Teacher 5	Teacher 6	Teacher 7	Teacher 8	Anova
	M	M	M	M	M	M	M	M	F value
	(sd)	(sd)	(sd)	(sd)	(sd)	(sd)	(sd)	(sd)	p
Teacher Positives to Class	117.11 (24.10)	81.33 (16.44)	131.22 (19.80)	106.00 (36.29)	76.44 (22.96)	71.00 (13.57)	96.67 (14.65)	105.63 (12.71)	8.54 .000
Teacher Negatives to Class	1.33 (.71)	13.44 (8.23)	7.89 (1.62)	2.89 (1.54)	5.44 (4.07)	.89 (.60)	16.56 (3.47)	9.63 (6.97)	15.97 .000
No Opportunity to Class	8.78 (5.76)	25.56 (9.40)	12.23 (6.95)	24.33 (8.92)	14.78 (7.98)	12.44 (7.55)	14.56 (7.62)	16.25 (4.74)	5.49 .000
Class Compliance	46.56 (15.25)	37.44 (7.62)	53.22 (4.92)	55.22 (18.49)	51.11 (9.79)	42.22 (16.31)	51.67 (12.49)	78.88 (16.31)	7.13 .000
Class Non-Compliance	.44 (.53)	1.33 (1.22)	2.00 (1.73)	2.00 (1.73)	.11 (.33)	.56 (1.33)	2.44 (2.07)	1.63 (1.92)	3.00 .009
Class Negatives to Teacher	.22 (.44)	3.78 (5.17)	.00 (0)	2.78 (3.07)	.44 (.73)	.22 (.67)	.00 (0)	1.75 (2.66)	3.43 .004
Class Pro-Social Behaviour	29.11 (8.37)	16.44 (7.81)	13.67 (8.08)	30.67 (12.71)	21.22 (10.85)	32.11 (8.61)	25.78 (9.88)	20.00 (7.64)	4.70 .000
Class Deviance	.78 (.83)	6.44 (7.32)	.44 (.73)	6.89 (7.56)	1.67 (1.50)	1.78 (1.64)	1.44 (1.42)	8.13 (11.51)	2.86 .012
Class Off-Task	.11 (.33)	.00 (0)	.33 (.71)	1.00 (1.32)	.11 (.33)	.33 (.71)	1.78 (1.72)	1.25 (2.05)	3.06 .008

Cook's Distance analyses (performed while computing regressions), demonstrated that no categories resulted in a Cook's Distance  $r = 1$  or above (the highest variable came to  $r = .7$ , variables averaged  $r = .4$ ), therefore no significant outliers were distorting analysis distribution and outcome data.

Predictor variables were entered into a Spearman's correlation in order to ascertain the relationship between those variables (see Table 13). Positive, statistically significant relationships existed between jobshare status and multiyear or single year classroom and teacher age, whereas negative relationships existed between jobshare status and highest teaching post (for example class teacher, acting head, head of infants school) and teacher stress score. Additionally, teacher stress score was positively and significantly correlated with permanent or temporary contract and whether the teacher taught a multi or single year classroom, the latter being positively and significantly related to the teacher's highest position in teaching. The nature of the teacher's contract of employment was not only associated with stress levels but also with their highest academic position. The latter was positively related to the age of the children in the class, and teacher and child age were also positively related.

T1 and T2 T-POT composite categories were entered into a linear regression (Enter method) and residuals saved. Residuals denoted all other factors that affected behaviour at T2, apart from the effect of that behaviour at T1. T-POT residuals were consequently entered as the dependent variable, against the predictor variables in a stepwise linear regression.

Subsequently, another two sets of regressions were conducted (stepwise method): the first examined the impact of teacher and Index child characteristics on teacher-Index behaviours and interaction; the second examined the impact of teacher characteristics

Table 13

Correlation table demonstrating the relationship between predictor variables.

	Teacher Age	No of yrs teaching	Permanent/Temp contract	Single or multi yr class	Highest teaching post	Average age of children	Gender ratio of classroom	Teacher Stress Score
Jobshare or sole teacher	*.236	.130	.148	*-.682	*-.374	.066	-.035	*-.447
Teacher Age		*.761	.074	.116	-.001	*.275	.120	-.033
No of yrs teaching			-.127	.064	.166	.159	.097	*.088
Permanent/Temp contract				-.032	*-.402	-.029	-.056	*.216
Single or multi yr class					*.577	*.238	.021	*.440
Highest teaching post						*.356	.072	.182
Average age of children							.064	.026
Gender ratio of classroom								.011
Teacher Stress Score								

\* p &lt; .01

on teacher-classroom (Index and peers) behaviour and interaction. Child characteristics were not entered into classroom regressions as specific child characteristics and behaviours cannot be mapped onto whole classroom behaviour, for example a child's age will not correspond to or cause the rest of the classroom's behaviour during a specific 15 minute observation period.

*Predictors of behaviour change.*

Teacher-Index results are examined, (teacher behaviour then Index child behaviour and responses), followed by teacher-classroom behaviour analyses (teacher behaviour, followed by classroom behaviour and responses – Index child and peer measures).

*Teacher-Index data: Teacher behaviour*

High frequencies of children with high conduct problems score (per classroom) on the teacher version of the SDQ predicted higher rates of positive teacher behaviours (see Table 14), explaining 22.3% of the variance between teachers. This suggests that teachers with higher numbers of pupils with higher conduct problems scores in their classroom utilised IY TCM principles more effectively than teachers with lower scoring children on the SDQ conduct problems subscale.

*Teacher-Index data: Index child behaviour*

Teacher age and high frequencies of high SDQ conduct problem score Index children predicted higher levels of Index child compliance (see Table 14), accounting for 23.1% variance. Older teachers with pupils with higher conduct problems score

were more successful at adopting TCM strategies to gain compliance, post-intervention.

Low baseline levels of teacher stress predicted high levels of observed Index child pro-sociality accounting for 9.3% variance (see Table 14). High levels of teacher stress appeared to impede teachers' ability to model and/or encourage/reinforce pro-sociality, skills taught during IY TCM training.

Index child off-task behaviour occurred more often in classrooms taught by older teachers with sole control of the classroom (those teachers that did not job-share), after TCM training (see Table 14). Number of years teaching experience and job-share status together accounted for 18% of variance in this behaviour.

Table 14

*Teacher-Index data: Observed Teacher and Index child behaviours and predictors of post-TCM intervention change in those behaviours: stepwise multiple regression analysis.*

Outcome variable	Predictor(s)	Standardised Beta	R	R squared	Adjusted R square	F value	P value
Teacher Positives	TSDQ Conduct Score	.484	.484	.234	.223	21.114	< .001
Compliance	Teacher Age	.336	.382	.146	.134	11.813	.001
	TSDQ Conduct Score	.329	.503	.253	.231	11.487	< .001
Pro-Social behaviour	Teacher Stress Score	-.326	.326	.106	.093	8.214	.006
Off-Task	Job-share status	.328	.355	.126	.113	9.961	.002
	No. of years teaching	.280	.451	.204	.180	8.700	< .001

*Teacher-Classroom data: Teacher behaviour*

In teacher-classroom observations (Index and peers) more positive teacher behaviours were observed in those teachers with sole responsibility for teaching the class (non-job-share). This factor accounted for 9.4% variance in this teacher positive behaviour between teachers (see Table 15). Teachers in full-time contact with the pupils throughout the school week adopted positive principles more effectively than their job-sharing peers, after TCM training.

High levels of teacher stress and teaching a classroom consisting solely of reception age children predicted increased frequencies of negative teacher behaviour (see Table 15), accounting for 29.5% variance. Teachers with lower levels of stress who taught multi-age classrooms appeared to reduce negative behaviours towards their pupils more effectively than their colleagues, as a function of the TCM programme.

Less experienced teachers appeared to give less opportunity for children to comply with commands; this characteristic accounted for 13% of variance in 'no opportunity' behaviour (see Table 15). No opportunity behaviour is characterised by repeating the command before the child has an opportunity to comply, and/or carrying out the command on the pupil's behalf. More experienced teachers increased their awareness to allow pupils ample time to comply, as a function of the TCM intervention.



Table 15

*Teacher Behaviours in Teacher-Classroom data: Observed teacher behaviours and predictors of post-TCM intervention change in those behaviours: stepwise multiple regression analysis.*

Outcome Variable	Predictor	Standardised Beta	R	R squared	Adjusted R square	F value	P value
Teacher Positives	Job-share status	.327	.327	.107	.094	8.251	.005
	Teacher Stress Score	.922	.381	.145	.132	11.687	.001
Teacher Negatives	Multi-Year Classroom	-.681	.561	.315	.295	15.652	<.001
	No Opportunity		.377	.142	.130	11.453	.001

*Teacher-Classroom data: Child behaviour*

Rates of classroom compliance increased as a function of IY TCM training for temporary contract, older teachers, who job-shared (see Table 16). These predictors together explained 30.3% of the variance in classroom compliance. Younger teachers in sole charge of the classroom with a permanent contract were not as effective at utilising TCM principles in order to gain classroom compliance.

Negative classroom behaviours aimed at the teacher were observed more frequently in less experienced teachers' classrooms (see Table 16). Number of years teaching experience explained 36.3% variance in negative behaviours towards the teacher. More experienced teachers' classroom management style evoked less negative reactions from the classroom post-TCM training.

Observed classroom pro-social behaviour was predicted by baseline level of teacher stress (reflecting Index child and teacher findings); the lower the teacher stress score the higher the frequency of observed pro-social child behaviours (see Table 16), after teachers were trained in TCM skills. Baseline teacher stress score explained 17.3% variance between classrooms.

Extent of negative classroom behaviour (see Table 16) was predicted by teaching experience, which explained 24.7% variance. Less experienced teachers seemed less efficient than their more experienced peers at adopting TCM principles to lower negative, challenging behaviour.

Off-task behaviour was observed more often in classrooms where teachers had sole responsibility for the class (see Table 16). Job-share teachers appeared to adopt TCM principles more readily and encouraged more on-task behaviour. Job-share status explained 13.5% variance in this behaviour post-intervention.

Table 16

*Child behaviours in Teacher-Classroom data: Observed classroom behaviours and predictors of post-TCM intervention change in those behaviours: stepwise multiple regression analysis.*

Outcome variable	Predictor(s)	Standardised Beta	R	R squared	Adjusted R square	F value	P value
Compliance	Permanent/Temp Contract	.724	.410	.168	.156	13.972	< .001
	Teacher Age	.613	.518	.268	.246	12.438	< .001
	Job-share or non-job-share	-.476	.577	.333	.303	11.163	< .001
Negatives to Teacher	No. of years teaching	-.610	.610	.373	.363	40.970	< .001
Pro-Social behaviour	Teacher Stress Score	-.430	.430	.185	.173	15.619	< .001
Deviance	No. of years teaching	-.508	.508	.258	.247	23.981	< .001
Off-Task	Job-share status	.383	.383	.147	.135	11.881	.001

Classroom non-compliance could not be predicted by any teacher factor suggesting that non-compliance is not influenced by these particular teacher and child characteristics and that the TCM training is equally effective for all, regardless of characteristics.

### Discussion

The current study explored predictive effects of teacher and pupil characteristics in order to establish which of these promote positive intervention outcomes within this sample.

On the whole, number of years teaching experience was a predictor of positive outcomes, akin to Aydin, and Hoy (2005) and Pianta and colleagues' (2005) findings. More experienced teachers generally implemented TCM strategies more effectively than their less experienced peers in that they gave more opportunity for pupils to comply to commands – an important principle in the IY TCM programme – and reduced teacher negative behaviours, as well as child deviance, to a greater degree than their less experienced peers. The only negative finding was that experience, added to job-share status, predicted more off-task behaviour from the Index child, but experience only added 7% to the model.

Job-share status predicted variance in four outcome measures. Job-sharing teachers were more adept at utilising skills learned during TCM training in order to foster on-task behaviour, in both teacher-Index and teacher-classroom data, and appeared to be more proficient at utilising IY TCM skills to gain classroom compliance, but this factor only predicted 5% variance and therefore adds very little to the model. The fact that job-sharing teachers saw increased frequencies of on-task behaviour may be akin to parenting literature, where the parent that spends less time

with the child receives higher frequencies of compliance from the child, and are more likely to collaborate in tasks with the child during the time they spend together (Ambert, 1982; Patterson, 1980). Conversely, job-share teachers were not as successful at increasing their own positive behaviour to the class as a function of TCM training, than full-time teaching colleagues. This suggests that teachers in sole charge of the classroom who spend more time teaching their pupils during the school week may have facilitated the increase in their own positive behaviour with their class, but given the small number of participants in this study this cannot be stated with any confidence.

High baseline levels of teacher stress predicted negative outcomes in each case: decreased level of pro-social child behaviour in both teacher-Index and teacher-classroom data and increased frequency of teacher negatives towards the classroom. As the IY TCM programme is based on SLT principles (Bandura, 1977) this finding lends strength to the modelling and reinforcement principles in that stressed teachers model and reinforce negative behaviour more effectively than they do positive behaviour. High levels of stress may also have compromised the teachers' ability to learn new principles and increase the likelihood of reverting to less positive habits (Newcomer et al, 1999; Schwabe & Wolf, 2009).

An increase in teacher age predicted increased compliance in both teacher-Index and teacher-classroom data. In the latter, teacher age added 9% variance to the model, whereas in the former, it was the main predictor, accounting for 15% variance. In both cases, older teachers utilised TCM strategies more effectively than their younger colleagues. Older teachers tend to interact more responsively than their younger colleagues (Connor, Son, Hindman, & Morrison, 2005), and this

responsiveness may have played a part in utilising TCM strategies in order to gain more compliance.

The more children in the classroom that teachers had rated as high in conduct problems on the SDQ, the more positive teacher behaviour and child compliance was witnessed post-intervention (as demonstrated in Martin et al, 2009). Differences (between classrooms) existed between the number of Index children who scored over borderline on the SDQ conduct problems subscale in each class – one classroom's teachers (job-share teachers) had rated all nine of their Index children as below SDQ conduct problems subscale threshold score.

Increased teacher praise (a component of teacher positives) increases positive pupil behaviour, especially in children with BESD (Beauchaine, Webster-Stratton, & Reid, 2005; Latham, 1992, 1997). Traditionally, IY programmes have been equally as effective or more effective with children displaying high levels of behaviour problems; in this sample too it appears that teachers adopt IY TCM strategies more effectively the higher the level of conduct problems in their classroom; it could be argued that this is where such strategies are needed most. Being more positive and emotionally supportive resulted in more compliance with high conduct problems score Index children. This may be an expression of the better adjusted more positive relationship between pupil and teacher. If so, this factor alone could significantly reduce the risk of future behavioural adjustment problems (Sutherland & Oswald, 2005) and lead to better social and emotional adjustment for the child, with both teacher and peers (Buyse, Verschueren, Doumen, Van Damme, & Maes, 2008).

Teaching children of a single year - in this case reception age (4-5 years) - was predictive of more negative behaviour by the teacher, but only when added to high

teacher stress levels; teaching a single year classroom accounted for 16% variance in the model.

Nature of the teachers' contract similarly only predicted one behaviour, in that temporary contract teachers were more successful at gaining compliance in the classroom (16% of the variance in this model and the primary predictor). One reason might be that temporary contract teachers may need to teach a number of classrooms in a year as supply teachers, and they do not have the same sense of stability as permanent contract teachers (Umbach, 2007), therefore temporary contract teachers need to be more prepared for a variety of behaviours in a short space of time; they arguably need a larger TCM skill-base to deal with such situations. In the current sample, temporary contract teachers were covering maternity leave for a year, and each temporary teacher had taught in 6 schools; the highest number of schools taught for all sixteen teachers in the original sample. This may suggest that it may be of greater urgency for temporary teachers to ensure that classroom behaviour is controlled as soon as possible so they have to absorb and apply TCM principles more readily than teachers with a permanent contract as a result.

#### *Variables that could not be predicted*

Teacher and child variables could not predict classroom frequencies of non-compliance. This suggests that all teachers in this sample were equally as effective at lowering non-compliance as a result of TCM training (see Martin et al (2009) for detailed findings on non-compliance reductions), regardless of teacher stress or child problems. It appears in this sample at least, that non-compliance can be successfully reduced by implementing TCM principles such as praise for appropriate behaviour and problem solving with pupils.

*Factors and characteristics that did not predict behaviours*

The only teacher characteristic that failed to predict any variable at all was that of teaching rank. Added responsibility such as being acting head or head of infant school, did not predict any more eagerness to adopt TCM principles, or at least did not elicit any significant differences in teacher nor child observed behaviour as a function of TCM training. This is slightly unexpected, given that extra responsibility might suggest higher levels of conscientiousness and therefore more willingness to adopt TCM skills in order to encourage a more positive classroom environment. There may be a myriad of reasons for this, power for example: there was only one teacher that was head of infant school, three were acting head of the whole school, while four teachers had no added responsibility on top of their class teacher duties. Additionally, added teaching duties may be due to staffing issues such as was the case in one small research school with a full quota of staff of one head teacher and two class teachers. In this case, when the head teacher was away both teachers would take on the responsibility of acting head. Similarly the added responsibility may not be by request of the teacher and therefore conscientiousness may not be a factor.

Regarding child problems scores on the SDQ, the only category that predicted difference between intervention teachers, classrooms or Index children behaviour, was the SDQ conduct scale. This suggests that conduct problem symptoms are more problematic to the teacher in that they are either more eager to adopt - or feel they are more in need of adopting - TCM principles with children rated as high in conduct problems, possibly because these problems impact more on the classroom environment in a more obvious way. Paradoxically, the SDQ impact score (the higher the score the more the teacher believes the child's maladaptive behaviour is having a negative impact on the classroom, other pupils, and the teacher's ability to teach)



should have predicted differences if the reason teachers implemented TCM skills was due to the impact conduct problems have on the classroom. Impact score in fact did not predict any differences between teachers or pupil behaviour.

Highest teaching position (teacher rank), child gender, SDQ peer problems score, SDQ emotional problems score, SDQ hyperactivity score, SDQ impact score, and age of child did not predict any outcome variable. The TCM therefore appears to be equally as effective regardless of these factors; some of which have traditionally been shown to lead to poorer outcome (boys, high problems, younger children). Therefore teachers of varying ranks can be trained to effectively manage classrooms and problem behaviour across different types of schools and classroom structure, with different levels of child problems across different ages.

### *Limitations*

The current study has a number of limitations. First, and possibly crucially, studying mediators and moderators of outcome was not possible due to power issues caused by the small sample size. The current research examined intervention-related change, consequently only the intervention group (and therefore half the original sample) could be analysed (see general discussion for further explanation). Nevertheless the findings are worthy of investigation, and allude to similar findings in other studies (Gardner et al, 2009).

Second, Gwynedd LEA initially implemented the IY TCM programme in reception classrooms, therefore Index child age range in the current study is narrow - approx two years - from four years of age up to six years of age. However, multi-year classroom observations were based on children from nursery age to year two pupils

(children of three years of age up to seven years of age), increasing the age range to four years.

Research demonstrates that teacher qualifications have an effect on teaching practice, in that higher qualifications equal more competent teaching practices (Connor et al, 2005; Howes, Whitebook, & Phillips, 1992). As the primary aim of the current study was to add to the classroom-based intervention literature, teacher qualifications were not considered at data collection and subsequent analysis. Less established characteristics were investigated in order to assess their role in intervention-related change. Additionally, all teachers in the current study had at least an undergraduate degree, and qualifications vary less between class teachers in British classrooms than in the US, where city school class teachers especially do not need to possess formal teaching qualifications (Ingersoll, 1999).

There is evidence to suggest that larger classrooms elicit more positive peer relations but also more off-task behaviour (Blatchford, Edwards, & Martin, 2003), but given that all classes in the current sample consisted of between 25 and 30 pupils, classroom size was not explored as a predictor. Furthermore, smaller schools tended to have multi-age classes in order to make up the numbers, so this factor (multi-age classrooms) would have possibly confused the issue (because the cause of differences may have been due to differences in school size). Original randomisation saw schools stratified according to school size, so previous findings were robust, but size of classroom was not taken into account in this study.

The current study was exploratory and therefore teacher and child characteristics were investigated by means of stepwise regressions. In stepwise regressions, the data analysis package (SPSS) 'chooses' the variable that best fits the model, takes this variable out of the equation, runs the analysis again, then chooses

the next best fit until there are no more. Enter or forward regressions are more scientific a method, as these enable the researcher to choose the variables' ranking in line with current theories for example. These methods allow us to test a specific model and gauge how well the data in the current study fit that model.

Although control group teachers also received TCM training after the intervention group, T3 data for the control group could not be added to the current study data, and was not analysed for the current thesis. There were multiple reasons for this, the main one being that the control group received TCM training from one leader only – the intervention group received TCM training from a group mentor and a certified group leader, the control group received their training from the same certified group leader only, but not the mentor. The training may have been performed differently therefore and results obtained from control teachers may have been partly due to this, so it would not be possible to confidently state that both the intervention and control groups received the exact same intervention training, and therefore adding control classroom data to the predictors of outcome analysis would not have been viable. Additionally, only four control group teachers remained at T3 as the other four were either on maternity leave (n=1) or were teaching different children (n=3), and these teachers had an advantage of having become accustomed with the children for an extra six months more than the intervention teachers.

However, it is important to remember that all teachers within every primary school in Gwynedd were planned for TCM training, therefore it is reasonable to think that in future the children throughout the school will have similar input from those teachers as from the intervention teachers and therefore benefits should be maintained.

*Clinical Implications*

As stated previously, identifying which variables are responsible for intervention-related change can inform policy-makers and intervention developers alike. This and previous research suggests that the IY TCM programme is an effective intervention for both targeted children (the Index) and the rest of the class (globally). The IY TCM demonstrates global improvements for children of various ages, regardless of gender or presence of BESD. Additionally, the IY TCM is equally effective for a range of different teachers and demonstrates universal improvements for children of varying ages with differing degrees of BESD, including children without BESD symptoms. Additionally the TCM is equally effective implemented by a range of teachers and can be successfully and relatively easily disseminated across an entire LEA (if funding is secured for supply teacher cover in each case).

The current study highlights the impact of teacher stress upon TCM practices, and on implementation of new strategies and skills. It also demonstrates the key factors which can enhance successful implementation and guide policymakers to utilise evidence-based interventions in the most cost-effective way, for example adopting methods of lowering teacher stress at the beginning of an intervention utilising mindfulness-based stress reduction (MBSR) or Courage to Teach (CTT; Zabat-Zinn, 1990), so that teachers take in more of the intervention principles and adopt them more effectively. MBSR and CTT has been found to reduce stress and enhance wellbeing for a range of professionals (Kabat-Zinn, 1990). Having a foundation of Mindfulness meditation practices encourages the principle of being in the here and now, and bringing awareness to the everyday. This aids the reduction of stress by drawing attention to how the body reacts to stress. By attending to the present in such a way teachers may be more effective in both attending to the IY TCM

principles and adopting and implementing them more effectively, by staying in the present with their work and their interactions with their pupils. The current study did not investigate teacher stress levels at T2, but analysis of teacher stress and the effect of intervention on stress will form the basis of a future journal article.

### *Future studies*

The current study has reported interesting results that deserve further investigation. A larger sample size with larger Index child age-range would enable more definitive answers regarding for whom the intervention works best and whether there are further potential barriers to effective implementation with a wider age-range.

Comparing teachers that held temporary contracts with supply teachers and permanent contract teachers, who have been exposed to TCM training may provide different behavioural outcomes as a result of teacher attitudes and their experience of implementing new techniques. Maybe there are different personality factors or lifestyle issues at play between supply, temporary and permanent teachers that affect ability for implementation of newly acquired TCM skills.

Exploring intervention effects across the age range for which the IY TCM programme was developed (three to 10 years of age) would enable investigation as to whether different variables or characteristics predict more successful implementation in different age groups. A study could track children through primary school in order to investigate this, using a cross-sectional and longitudinal design whereby one cohort would be tracked, and all 3-10 year olds could also be studied in order to ascertain whether the 3 year olds at 10 years of age had the same predictors, even though seven years would have gone by since baseline by that stage.

A replication of the original evaluation study in inner city schools may yield different predictors of successful TCM principles intervention. Teachers in inner city schools may exhibit different levels of stress to teachers in rural areas, and teacher age and teaching contract may feature more as predictors of differences. But, inner city schools are more likely to have single age classrooms and more likely to have double or triple entry primary schools and therefore other teachers in the same school teaching the same age group. This may help alleviate stress to a certain extent due to peer support.

There is currently a large-scale evaluation of the IY TCM, IY PT, and IY Dino Dinosaur School being performed in Ireland. The T-POT is the main outcome measure in the TCM study, therefore it would be of interest to explore predictors of outcome in the Irish study to assess whether predictors are universal in both populations, and if not, what accounts for this change.

In conclusion, the current study demonstrates that the IY TCM programme encourages positive teacher and classroom behaviour change, regardless of traditional risk factors that are considered barriers to intervention related change. Results should be treated with caution however due to power issues, but they warrant further investigation nonetheless.

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**CHAPTER 7**

**General Discussion**

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### *Overview*

Managing a classroom is not an innate skill. Effective classroom management can be learned, and although it may be based on relatively simple principles these principles need to be adopted in an array of situations with a diverse population: the pupils. Each pupil brings their own unique characteristics into the classroom situation, as does the teacher, and the relationship forged between them can have long-lasting (positive or negative) consequences. This discussion will summarise the literature pertaining to preschoolers' BESD (Chapter 1), how these problems manifest themselves in the classroom, their impact on the teacher-pupil relationship, and impact on the social and emotional wellbeing of the child (Chapter 2). The methodology paper (Study 1, Chapter 4) will be discussed, followed by a summary of the empirical studies' findings (Studies 2 and 3, Chapters 5 and 6 respectively). This discussion culminates in a review of the thesis as a whole, addressing the implications of the findings, and how this research can be developed and modified in order to help facilitate understanding of the complex nature and lasting influence of teacher and classroom relationships.

### *Summary of research findings*

Preschool age children (0-5 years olds) can develop significant problems of a behavioural, emotional and/or social nature, which have long-term repercussions for the individual in question and society as a whole. Risk factors appear to be a complex mixture of genetic and environmental influences, and the impact of these on parenting in particular (Patterson & Forgatch, 1995; Rutter 1997, 2001). While risk factors combine to increase risk and severity of BESD, there are particular characteristics that act to protect the child from developing significant difficulties, even when risk factors



are present. Chapter 1 discussed some of these issues and introduced some effective measures for reducing or preventing BESD symptoms.

Chapter 2 continued along the same theme but described the manifestation of BESD in preschool aged children and their impact on classroom behaviour and interactions on entering school. The classroom is a complicated arena of interactions, and the relationship forged with both peers and the teacher has a crucial impact on mental health and wellbeing in young children. BESD often create difficulties with initiating and maintaining relationships, and difficulties bonding with fellow pupils and with the teacher can have a negative impact on academic, emotional and social wellbeing (Hawkins et al, 2001).

Chapter 2 concluded by discussing effective strategies – such as increasing praise for appropriate behaviour - and interventions that reduce BESD severity and/or protect against development of such problems in the classroom. As translational and community-based research become more publicised and encouraged, implementation of effective EBIs is on the increase (Kerner, 2006). IY programmes have a robust evidence-base, but the IY TCM programme has only been evaluated alongside other IY programmes, or individual components or modifications to the programme evaluated.

This research adds to current literature relating to the IY TCM and to classroom-based interventions in general, by being the first study to investigate the programme as a stand-alone intervention. Chapter 3 described the steps involved in setting up the evaluation, recruitment (school, teacher, parent and child), data collection and analysis, adaptations to the original plan, and the research timetable.

An observation measure was developed and tested in order to conduct observations in the classroom and evaluate the IY TCM programme during its

implementation. Chapter 4 (the methodology paper) described the psychometric properties of this measure: the T-POT. This chapter adds to current literature by developing a new valid and reliable observation measure, which has the potential to be utilised in a variety of ways. The development and refinement of the T-POT allowed us not only to evaluate the IY TCM, but also to investigate key behaviours and interactions crucial to a positive classroom environment, and conversely those behaviours that produce a less positive classroom environment.

The first empirical paper of two (Chapter 5) described the evaluation of the IY TCM programme in Gwynedd reception classrooms. This study illustrated how simple classroom management strategies such as clear commands, more positive teaching practices, and praise for appropriate behaviour, can elicit more positive responses to the teacher from pupils, increase on-task behaviour, and promote pro-sociality in pupil interactions. In addition the TCM appears to decrease negative teacher and child behaviour, and therefore improves not only the teacher-pupil relationship but also peer relationships within the classroom.

As this research was the first to evaluate the IY TCM independently of other IY programmes, the opportunity was taken to assess the mechanisms of the programme and take a more in-depth look at whom the programme works for and why, in order to add to current predictors of outcome literature (described in Chapter 6). Intervention group teachers and pupils only were included in this analysis in order to examine intervention-related change. Findings illustrated that number of years teaching experience, job-share status, and level of teacher stress, predicted a number of behaviours; generally more experienced and less stressed teachers implemented IY TCM principles more effectively than their peers, while job-sharing predicted a combination of both positive and negative outcomes.

The three papers (Chapters 4,5, and 6) will be discussed in more detail below, highlighting the strengths of each study in turn. This will be followed by a discussion of study limitations, methodological considerations, clinical implications, and future directions for research.

### *The T-POT*

The T-POT was developed to create a relatively simple measure of teacher and classroom behaviours and interactions. It was designed to code and measure classroom behaviours and thereby facilitate the investigation of classroom-based influences on child outcome. This was achieved by including behaviours that would denote potential difficulties. Off-task behaviour for example may identify symptoms of hyperactivity or risk of hyperactivity problems; positive and negative response to other children could highlight peer and social problems, and compliance, non-compliance, and numerous frequencies of positive and negative response to teacher communications would suggest potential risk of conduct, social or behavioural problems, as would the presence of aggression and destructive/disruptive behaviour directed at classmates or at the teacher.

Due to its response categories, the T-POT can highlight negative teacher-pupil relationships through high frequencies of negative teacher and child interactions and low positive teacher and child interactions. Identifying detrimental relationships could go some way to understanding how they are created, and to alleviating the problems that create or maintain them. Additionally, the T-POT can alert teachers to low frequencies of general communication with specific children who are quietly and consistently doing their work. Being aware of these children and ensuring that they are praised and valued reduces the risk of 'quiet and conscientious' children

developing challenging behaviours as a result of seeing disruptive children receiving more positive teacher interaction than they are (Bank, Patterson, & Reid, 1996; Webster-Stratton, 2003c).

High levels of teacher stress have been implicated in ineffective classroom management and/or negative relationships with pupils (Grayson & Alvarez, 2008; Klusmann et al, 2008). The T-POT can highlight total classroom negative behaviour and in turn possibly assess whether the teacher is at risk of high levels of stress, given the numerous studies that cite classroom misbehaviour as one of the main reasons for teacher stress and burnout (Brouwers & Tomic, 2000; Lewis, 1999).

Equally as important as being able to identify and quantify atypical or maladaptive child behaviour is the ability to identify and quantify appropriate, adaptive behaviours. For example, high frequencies of positive child behaviours indicate pro-sociality and effective social skills. Furthermore, compliance and positive responses to the teacher, along with an absence of non-compliance and deviance, would suggest that the teacher practices effective classroom management skills.

Effective components of existing observation measures were incorporated into the T-POT in order to examine classroom behaviour and interactions. Continuous frequency count is the most effective method of coding observation behaviour, and ensures that infrequent behaviours are noted while moderately occurring behaviour is not overestimated (a problem with interval, partial-interval and global sampling measures; Powell, 1984; Saudargas & Zanolli, 1990; Tacha, Vohs, & Iverson, 1985). The ability to identify infrequent behaviours is crucial in the case of classroom behaviour observation. The pilot and evaluation studies both demonstrated that negative behaviours – both teacher and pupil – were infrequent, but these negative

behaviours appeared to be highly salient, partly due to their infrequency; in one sense they had more impact because they did not occur often. Any other method of coding behaviour bar continuous frequency counts may not have recorded these crucial but infrequent behaviours (see Paper 2, Chapter 5). For example, research demonstrates that global rating scales do not distinguish positive changes in child behaviour until child negative behaviour (distractibility) is reduced by 50%, whereas a continuous time-sampling measure instantly recorded such changes (Wahler & Lesky, 1973).

The T-POT's continuous frequency count also enables measurement of ratios of behaviour. Ratios can be calculated for child responses, and child and teacher behaviour in general. Investigating ratios of behaviour reduces the possibility that the presence of certain behaviours were artefacts of opportunity. Some behaviour is dependent upon opportunity, response categories for example – a child can only respond if they have had the opportunity to respond, i.e. that another person has initiated a communication in need of a response. Furthermore, more gregarious children are generally more positive and negative simply because they demonstrate more behaviours in total than more reserved children. Utilising ratios can explain anomalies in results and can give a more complete picture of classroom interactions and behaviours.

The T-POT is a flexible, versatile measure that enables teacher observation only, specific child only (Index child), pupil/classroom interactions only, or a combination of all three. For instance, teacher and classroom data only (no Index child) were collected and analysed in the pilot study with a wide age-range (all classrooms within primary school age, therefore 3 year old to 11 year old children), whereas the methodology paper and the evaluation study investigated teacher, classroom and specific child behaviour (Index children). The T-POT is currently the

primary outcome measure in a study of the efficacy of the IY Dino Dinosaur School - a child-focussed classroom-based intervention - in North Wales. Additionally components of the measure are being utilised in order to study the effect of classroom behaviour on teacher stress levels in North Wales primary schools. The T-POT is also an outcome measure in a large-scale evaluation of IY PT and TCM in Ireland.

### *Evaluation of the IY TCM Programme*

The IY TCM programme has not been previously evaluated as an independent intervention, without the added effect of one or more other IY programmes. Studies have investigated components or adaptations of the IY TCM as stand alone interventions, but the IY TCM in its entirety has not previously been evaluated. Post-intervention, positive behaviour increased for intervention teachers and pupils, whilst negative behaviours decreased in intervention classrooms. This was the case with both high problems score children on the SDQ as well as low problems score. An increase in pro-sociality and on-task behaviour predicts academic success and reduction in probability of early school dropout and negative outcome (Caprara, Barbaranelli, Partorelli, Bandura, & Zimbardo, 2000; Di Lalla, Marcu, & Wright-Phillips, 2004), therefore the intervention may have long-term positive impact.

Two closely related issues are of note. Firstly, observation data frequencies of observed behaviour were skewed: negatively for positive behaviours (many incidences of high frequencies of positive behaviour), and positively for negative behaviours (many incidences of low frequencies of negative behaviour). This caused a 'floor and ceiling' effect in that there were many positive behaviours from both teacher and pupils and not many negative behaviours at T1. This led to some concern that the intervention would have to work twice as hard to show any effect, in fact T2

frequencies of observed behaviour may well have been a regression to the mean. In this case there would be natural drift towards less positive behaviours and more negative behaviours. Secondly, it so happened that the intervention group were more negative and less positive – both teachers and pupils – than their control group peers at baseline, therefore to show improvements in behaviour (reductions in negatives and increases in positives) the intervention group had ‘further to go’. These two issues demonstrate the strength of the current findings, in that not only did the intervention increase both teacher and pupil positive behaviour while reducing negative behaviour, the intervention achieved this with the less positive and more negative cohort.

The evaluation study also examined whether the IY TCM programme was a global intervention, that is, whether there would be a reduction in negative behaviours and an increase in positive behaviours for a range of children (in the intervention group) regardless of difficulties. Data analyses revealed that improvements were indeed classroom-wide, observed for pro-social children and children with low problems scores on the TD scale of the SDQ, as well as children with significant difficulties displaying improvements in behaviour. Additionally, the intervention seemed to be responsible for improving intervention teacher and pupil behaviour above and beyond that seen in control classrooms at T1, while control classroom behaviours became progressively less positive and more negative throughout the school year (natural drift).

The fact that the study utilised multiple forms of measurement is a particular strength of this evaluation, because we did not need to rely on solely self-report or observation data. Biases in the self-report measures (a widely documented problem, e.g. Griffin, Hesketh, & Grayson, 2004; Lydeard, 1991; Viswesvaran & Ones, 1999) were countered by the unbiased observations. Moreover, observations corroborated

teacher reports of child BESD, illustrating the importance and accuracy of teacher report in line with previous research findings (Larsson & Frisk, 1999; Webster-Stratton & Hammond, 1998).

The evaluation study was a single-blind design whereby the observation team were unaware of both child problems score, and classroom/teacher condition (intervention or control). Furthermore, T1 was a double blind design, as neither the observation team nor the teachers knew which condition they would be allocated to because random allocation took place after baseline observations. This adds strength to the findings as blinding reduced observer bias.

Finally, the intervention's effectiveness was demonstrated with a range of school sizes and classroom composition, with different teaching contracts (short-term, job-share), in a variety of localities (rural, semi-rural and urban) and with a range of socio-economic backgrounds as demonstrated by percentage of free school meals. This highlights the real world, applied nature of this research and demonstrates an EBI with strong scientific foundations that is effective in a community setting, thus adding to existing translational and community-based research literature.

### *Predictors of outcome study*

Given the number of different demographic characteristics – school, teacher and pupil – it was sensible to investigate the role of these characteristics in successful programme implementation. Of particular interest were those behaviours that could not be predicted, or characteristics that did not predict behaviour. Non-compliance could not be predicted although its opposite behaviour (compliance) could be predicted for both teacher-Index and teacher-classroom interactions. This suggests that non-compliance was lowered equally in intervention classrooms and that



candidate teacher and child characteristics at baseline do not affect the teacher's ability to decrease this behaviour by utilising TCM strategies; all teachers regardless of characteristics effectively reduced non-compliance post TCM training to all children.

Highest teaching position, child gender, SDQ peer problems score, SDQ emotional problems score, SDQ hyperactivity score, SDQ impact score, SDQ Total Difficulties score, and age of child did not predict any outcome variable. The TCM therefore appears to be equally as effective regardless of these factors., consequently we can confidently train teachers of varying positions to manage classrooms and problem behaviour across different types of schools. This finding suggests that training teachers of varying positions to manage multi-age classrooms, with a wide range of problem behaviour across different types of schools will result in successful implementation outcomes, regardless of presence of known risk factors for BESD development.

#### *Addressing study limitations*

Despite study strengths as highlighted above, there are a number of limitations that warrant discussion here. For example, eleven parents did not consent for their child to be individually observed, and in most cases (seven out of the 11) these were the parents of the highest scoring children for multiple problems, in each respective class. Of the four remaining, two were designated low scores, and two middle. The fact that some of the highest scoring children in the research were excluded from the research may have affected the results in that some of the more challenging children were not directly observed. However, those children were included in classroom measures albeit that we may not have notes of their individual behaviour in particular;

their effect on the teacher and the classroom, and their interactions with the teacher and Index child, will have been recorded and therefore their behaviours are represented in general classroom behaviour measures.

A second limitation was the amount of time allocated to each teacher-child observation. Given resource constraints each Index child was observed for 15 minutes only at each time point, generating approximately two hours of classroom observation data for each classroom. Ideally, the time would have been doubled so as to yield more frequencies of classroom behaviour. However, the pilot study – facilitating the development and revision of the T-POT - observed each teacher and classroom for a period of 30 minutes only, yet the measure was successful at identifying teachers who had undergone IY TCM training from various observed positive and negative child and teacher behaviours.

Thirdly, a potential limitation with all studies is power to detect differences and associations. Most IY research (Webster-Stratton & Hammond, 2001), yield large effect size differences, and an analysis using Cohen's Power Primer (Cohen, 1992) for the intervention trial using two group anova, an alpha level of .05, and a medium effect size, would require 64 participants per group to yield maximum power greater than .8 to detect differences between the groups. For a large effect size, 26 participants per group would have been required. In the predictors chapter's analysis, multiple regression with three predictors and an alpha level of .05, and a medium effect size, 76 participants would have been required for maximum power and for a large effect size, 34 participants. Therefore while power in this study may have been a limitation the study was adequately powered to detect large effect size differences and associations and sufficiently powered to detect some medium effect size differences and associations.

Because there were eight job-sharing teachers we returned to the classroom to observe the same children twice, but with different teachers. This brings up the problem of tied data where the same children are seen twice in some classrooms at each time-point. On the other hand, tied data may not be such an issue when real world factors are taken into account, for example, people behave differently with different people (Herring & Wahler, 2003; Hill, 2002) therefore the children in question would be observed on a different day, performing different activities, with a different teacher. This design reflects the 'real world' (pragmatic trial) nature of the study in that job-sharing is a common occurrence in schools (as well as other professions) therefore the results are representative of the current situation in schools.

An additional limitation is that observation alters behaviour, often referred to as 'reactivity' (De Amici, Kiersy, Ramajoli, Brustia, & Politi, 2000; Grufferman, 1999; Mangione-Smith, Elliott, McDonald, & McGlynn, 2002). For example, previous research has demonstrated that parents were more likely to play with their child, be more verbally positive and use more structure in their play when they were aware that they were being observed (Zegiob, Arnold, & Forehand, 1975). This is closely connected to social desirability and agreeableness (Furnham, 1986; Graziano, & Tobin, 2002) whereby participants behave in a way that they feel puts them in a positive light; this means that we as researchers see teachers and children at their best.

While it is true that intervention teachers were aware that we were testing the intervention, and therefore were aware of the principles of the intervention, the T-POT measure itself was not specifically designed to assess the IY principles per se, but to code behaviours that research had previously implicated in positive (and conversely negative) classroom environments. As the 'predictors of outcome' chapter demonstrates, the intervention teachers' awareness of intervention content was not a

guarantee of high frequencies of particular intervention-led positive behaviours. Furthermore, all teachers – regardless of whether they were in the intervention or control group – were aware of whom the Index children were, but classroom measures showed equal or higher levels of positive behaviours and equal or lower levels of negative behaviour, therefore the teachers' knowledge did not 'bias' their behaviour towards the Index children.

Although we cannot be certain about the exact degree of social desirability and reactivity effects, the nature of the observation reduced these effects: observations were conducted in the natural setting of the school, and lessons were carried out as usual (observers did not direct activities). Research has shown that there is less risk of observer reactivity under these circumstances than in less natural settings with artificial tasks (Gardner, 2000). Previous research into social desirability and observer reactivity has also revealed that comparison of overt and covert observation in a natural setting, and different levels of intrusiveness on the part of the observer, did not result in significant differences in behaviour during one observation more than the other, on the part of the participants (Bernal et al, 1971; Jacob et al, 1994; Johnson & Bolstad, 1975). Additionally, research suggests that habituation occurs as a result of multiple visits (Kier, 1996) whereby observed participants 'relax back' into their 'natural' behaviour, becoming less conscious of the observer. This habituation effect becomes more marked at the end of an observation and with increased number of observations, although its effect is very slight. Importantly, in the case of the current study, changes in teacher and child behaviour were demonstrated – positive behaviours increased and negative behaviours decreased – when the presence of the observation team over different time-points may have suggested a higher likelihood of

less positive and more negative behaviour due to familiarity, habituation, and therefore less social desirability effects (Furnham, 1986).

Methodological problems arose when coding teacher and child behaviour when the teacher and Index child were in different parts of the classroom. Coding behaviour in these circumstances led to reduced inter-rater reliability, but significantly positive and negative behaviours were attended to. Generally these were not missed by the observation team, in line with past research that suggests that observers are more likely to attend to and agree upon explicit positive and negative behaviour (Ledingham, Younger, Schwartzman, & Bergeron, 1982).

One teacher was observed in the afternoon, as this was when she carried out her formal structured lessons such as numbers, writing and so on. There may have been a question of differences between this teacher and all the other classrooms that taught their formal lessons in the morning, therefore analysis was conducted to identify whether significant differences did exist. Analysis demonstrated that this teacher and classroom's observed behaviours were not significantly different to the other research classrooms.

Long-term follow-up data could not be analysed for the whole sample, so we cannot say whether intervention effect was stable over time. This was due to a number of factors: pupils moved to another class in the case of single-year classrooms, and teachers with temporary contracts moved to their next teaching assignment. Of the eight remaining teachers who were still teaching the same children the following year, four of them took maternity leave and two left for other teaching posts, therefore follow-up measures could not be taken in these circumstances. Of the remaining teachers and Index children, T3 measures could only be collected for one intervention teacher and this teacher had (by T3) acquired a new

job-share partner who had not been trained in IY TCM, therefore any change in results could not have been attributed to natural drift.

Some teachers seemed hesitant to note on the SDQ that their pupils had any significant problems (see Appendix W), and/or that these problems impacted upon the classroom (the impact factor score was therefore 0). In one case, two job-share teachers' highest TD score was a score of 6 for two children, 5 for one other, and the rest were 2 or below). Maybe these teachers felt that by admitting to any problems they were either betraying their pupils' confidence or somehow casting a negative light on the classroom and therefore themselves. This resulted in two potential problems: firstly the study only had 17 children over the SDQ recommended borderline score (5 classrooms had no high scoring children on the SDQ TD scale, as rated by the teacher), so the solution was to include children in the borderline score category as high TD score children for the purposes of this study. This resulted in a less unbalanced number of 28 high difficulties children to 79 low difficulties children. Secondly, although power issues were now resolved to a certain extent, the category of high total difficulties score was less specifically 'high difficulties' as some of the children in this category were merely borderline according to the SDQ definition.

#### *Practical implications of the current research*

The T-POT has many potential applications in education, health and research domains. The measure could be utilised to assess classroom management skills in general, components of the measure could be examined to help teachers maintain classroom management skills, to improve teaching practices, as a standardised school inspection tool, or simply to elicit discussion of effective teaching practices (through videoing role play teaching sessions and coding teacher communications and

interactions). The measure also has applications as a measure of outcome (whether it be a child-focussed or teacher-focussed intervention). Child mental health services could utilise the T-POT in order to assess child behaviour in a setting other than home or clinic, for example there are childhood difficulties that can only be formally diagnosed if particular behaviours are present in two or more settings. Additionally classroom interactions and management skills of trainee or newly qualified teachers could be noted, for general maintenance of effective teaching practice, or pre and post classroom management programme, thereby enabling teachers to have a series of measures pertaining to their teaching skills.

#### *Future directions*

As research highlights the importance of early-intervention (Gardner, 2008), exploring the long-term effects of the intervention in a longitudinal study across a wider age range would address generalisability of the intervention across school years. Such research could explore the full age range of the programme (three to ten years of age), and could track child development throughout the school years, especially at different key stages (which can pose transition difficulties for children). The study could be conducted as a two-arm trial design, in that some schools would only implement the IY TCM in the early years, and others implement the TCM throughout all primary age classes. In comparing child development in the two treatment arms, evidence could not only demonstrate the effects of the IY TCM in comparison to typically developing children without intervention, but also demonstrate any added benefits of implementing the programme across all age groups. Long-term stability of the intervention could also be investigated so as to assess programme drift. This

would facilitate the timing of booster sessions or calculate the need for ongoing support.

Private schools generally have better resources and better academic outcomes (Statistics for Wales, 2009), but are academic outcomes purely the result of better resources, or to teaching skills within the schools? A comparison study using the T-POT could be conducted to investigate this, along with comparison studies of school size, SES, and rural versus city schools.

The IY TCM's final training session involves collaborating with parents and ensuring that parents feel more involved with their child's education and their academic progress (Webster-Stratton, 2003a). A study might investigate how teachers interact with parents whom the teacher views as challenging, using a modified version of the T-POT to see how effectively they utilise their IY TCM principles and skills with these parents.

### *Planned future research*

This research collected Index child SDQ measures from teachers and from parents for T1 and T2 (and T3 for some children), in fact teacher SDQs were collected for all children in the classroom at T1. Furthermore, teacher stress was measured at T1 and T2 for all teachers and at T3 for some. PFMSS teacher interviews were also carried out at T1 and T2. This thesis has only concerned itself with T1 teacher SDQ measures for Index children, in order to screen for BESD, and T1 TSI measures for the predictors study. This leaves so much potential for additional studies based only on these measures.

Firstly research is mixed as to how closely related teacher and parent report of child behaviour are, so a comparison of teacher and parent SDQ at baseline, along



with observed behaviour in both the classroom and at home, would ascertain whether the teacher appears to be more accurate when it comes to child BESD or whether the parent is more in tune with the child and therefore more correct. Additionally, an investigation of teacher SDQs at T2 could be compared with T1, along with observed change in classroom behaviour to examine whether SDQ problems scores were reduced at T2 in line with the reduction in negative behaviours observed within the classroom. Similarly, an investigation of parent SDQs could be conducted in order to see whether positive changes in the classroom generalise to the home. T3 measures could be investigated for control group teachers in order to assess whether similar positive changes are observed within the classroom as seen at T2 for intervention group classrooms. All baseline SDQs could also be investigated for a prevalence of BESD comparing baseline SDQs from North Wales with baseline measure for a large-scale study currently being conducted in Ireland (utilising the T-POT for IY TCM evaluation in primary school classrooms).

PFMSS could be compared at T1 and T2 to examine whether the increase in positive behaviours in the classroom are mirrored in the PFMSS (Daley, Sonuga-Barke, & Thompson, 2003). Does the observed change reflect a change in teacher perception of the relationship with the Index children? Previous research has found a relationship between behavioural difficulties and high criticism as indicated by high Expressed Emotion (EE; Daley, Renyard, & Sonuga-Barke, 2005).

*Conclusions*

The research as a whole attempted to answer the following questions:

1. Is it possible to design and develop a flexible teacher-classroom observation measure that is capable of evaluating an intervention in its implementation stages?
2. Does the IY TCM programme increase positive teacher behaviour while decreasing their negative behaviour?
3. Does the IY TCM programme increase classroom management in the form of less off-task behaviour, more positive pupil behaviour and less negative pupil behaviour? Does it also improve other classroom behaviour? If so, what are the mechanisms of this change?
4. If the programme is effective, does it work classroom-wide; are increases in positive behaviour and decreases in negative behaviour observed in children who have high levels of BESD?
5. For whom is the intervention most effective?

In answer to these questions, this thesis has provided strong evidence that indeed it is possible to design and develop a flexible observation measure of classroom behaviours while an intervention is being rolled out. The research within this thesis has also demonstrated that the IY TCM is an effective classroom-based intervention that increases positive teacher and pupil behaviour while decreasing negative behaviours, albeit there were high frequencies of positive behaviours and low frequencies of negative behaviours observed in the classrooms prior to intervention. Additionally, the IY TCM is effective for children with challenging behaviours and problems in multiple domains – social, emotional and behavioural – as well as for

children rated as pro-social and/or low in problems. Finally, The IY TCM appears to be equally as effective with a range of child ages, and for both boys and girls, and effectively implemented by teachers of differing job status, age, and experience. This being the case, the intervention may protect against increased risk of BESD in future years, thereby decreasing negative outcomes in adolescence and adulthood for a wide range of children. The benefits of decreasing such negative outcomes have a great impact financially, but an even greater impact for the child, their family, and for society as a whole, thereby making the IY TCM both effective and cost-effective.

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## Appendices

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Appendix A  
Summary of IY TCM five day training content  
Adapted from Webster-Stratton & Reid (2002).

## **Agenda – Session 1.**

- **Welcome.**
- **Introductions:** Getting to know each other.
- **Overview of Teacher Training Programme.**

The teacher training intervention is focused on strengthening teacher classroom management strategies, promoting children's pro-social behaviour and school readiness (reading skills), and reducing classroom aggression and noncooperation with peers and teachers.

Additionally the intervention focuses on ways teachers can effectively collaborate with parents to support their school involvement and promote consistency from home to school. The program can be useful for teachers, teacher aides, psychologists, school counsellors, and any school personnel working with young children.

The program comprises the following components:

**Teacher Program 1 - The Importance of Teacher Attention, Encouragement, Praise**

**Teacher Program 2 - Motivating Children Through Incentives**

**Teacher Program 3 - Preventing Behaviour Problems—the Proactive Teacher**

**Teacher Program 4 - Decreasing Students' Inappropriate Behaviours**

**Teacher Program 5 - Building Positive Relationships With Students, Problem Solving**

**Program materials include:**

Dina's Dinosaur's Wheel of Fortune  
Teaching Pyramid Poster

## Book for teachers - How To Promote Children's Social and Emotional Competence

### Extra materials include:

Self-administered manuals  
 Talking meter Poster  
 Calm Down Thermometer  
 Wally's Feeling Wheels  
 Wally's Problem Solving Detective books  
 Wally's Big Book for Solving Problems at School

### Supplemental Vignettes - some of the topics covered:

Talking about rules with students  
 Conducting circle times  
 Partnering with parents  
 Teacher as coach  
 Compliment circle time and songs  
 Individual and classroom incentives  
 Teaching students to use the ignore strategy  
 Explaining and practicing Time Out  
 Successful use of Time Out in the classroom  
 Helping students learn to self-regulate  
 Social and emotional coaching  
 Coaching self-regulation skills  
 Coaching problem solving

- **Ground Rules.**
- **Topic of Morning:** Building Relationships with Students.
- **Vignette/video clip:** Building Positive Relationships with Students

This component works on building up trust and a warm, positive relationship between teacher and student. Teachers are asked to brainstorm ways they can achieve this, especially for those students that teachers have developed a negative relationship with. Strategies are then suggested and teachers engage in role-plays.

- **Topic of Afternoon:** Proactive Teacher – Preventive Approaches.

Teachers are taught to recognise situations that may produce disruptive or disengaged behaviour and react less emotionally towards disruptive

behaviours, taking proactive steps to prevent problems. Creating schedules, routines, clear limit setting and so on are encouraged.

- **Vignette/video clip:** Promoting Positive Academic and Social Behaviours
- **Evaluation.**
- **Closing.**

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## Agenda – Session 2

- **Welcome.**
- **Topic of Morning:** Teacher Attention, Praise, and Encouragement.

The importance of praise, positive attention and encouragement are essential ingredients of this program. Attending to misbehaviour reinforces this behaviour and can lead to classroom-wide problems. Using attention to positively reinforce behaviour (and ignore minor inappropriate behaviour) brings on positive changes in pupil behaviour and leads to more self-confident pupils.

- **Vignette/video clip:** Attention, Encouragement, Coaching and Praise
- **Topic of Afternoon:** Teacher Coaching, Child-directed Play & Friendship Skills.

This component helps teachers foster student social skills, and allows pupils to direct play, making them feel valued and learning from teacher modelling.

- **Evaluation.**
- **Closing.**

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### Agenda – Session 3

- **Welcome.**
- **Topic of Morning: Motivating Students through Incentives.**

Sometimes praise and attention are not enough to help motivate certain behaviours, especially when those behaviours or actions are difficult for some students to adopt, e.g. reading, writing etc. Stickers, tokens, special rewards are considered concrete evidence of progress and can be more motivating for some students.

- **Vignette/video clip: Promoting Positive Academic & Social Behaviours**
- **Topic of Afternoon: Motivating Students continued.**
- **Evaluation.**
- **Closing.**

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### Agenda – Session 4

- **Welcome.**
- **Topic of Morning: Decreasing Inappropriate Behaviour.**  
Inappropriate behaviour can be successfully decreased by use of ignoring and redirection. This session deals with utilising both in the classroom in order to manage misbehaviour. Natural and logical consequences are discussed, and Time Out is encouraged when students are being particularly disruptive or destructive. The latter is only utilised for high intensity problems such as aggression and repeated non-compliance.
- **Vignette/video clip: Decreasing Inappropriate Behaviour**
- **Topic of Afternoon: Decreasing Inappropriate Behaviour continued.**
- **Evaluation.**



- **Closing.**

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### **Agenda – Session 5**

- **Welcome.**
- **Topic of Morning: Decreasing Inappropriate Behaviour.**
- **Vignette/video clip: Decreasing Inappropriate Behaviour**
- **Topic of Afternoon: Teaching Children to be Socially Competent continued.**
- **Evaluation.**
- **Closing.**

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### **Agenda – Session 6**

- **Welcome.**
- **Topic of Morning: Teaching Children to be Socially Competent.**
- **Vignette/video clip: Building Positive Relationships**
- **Topic of Afternoon: The Complete Teacher**
- **Vignette/video clip: Emotional Regulation & problem Solving**

Young children in particular may have difficulties in this area so teachers discuss methods in which they can help, thereby equipping children with tools for their future. Emotional regulation is discussed before problem solving as the former must be learned in order to perform the latter.

- **Evaluation**
- **Certificate Presentation and Closing**

**Appendix B**  
**Letter to research school-teachers and head-teachers to clarify  
the research process.**

Letter to head teachers and reception teachers

Dear

I am writing to introduce myself to you and to thank you and tell you a little more about the research that your Education Service is sponsoring and in which you have agreed to participate.

I am the clinical child psychologist who introduced the Incredible Years programmes into Wales and I will be delivering the classroom management programme with Rhian Gwyn as part of my primary care work. I also have a base in the University where I co-supervise Pam Martin, who is researching this programme for her PhD studies, with Dr. David Daley. Pam will be undertaking the direct observation in the classroom, sometimes with a colleague to check the reliability of her coding. It is important at all stages in your contact with Pam that she does not know whether you have undertaken the training as we do not want anything to influence her observations.

Twelve schools have agreed to take part in the study and we will be offering the programme to teachers of six reception classes during this academic year and six next year. For most schools this means that you will be getting the training earlier than you otherwise would under the Gwynedd scheme. The supply costs for your teachers will be paid by Gwynedd Education service. As a thank you for taking part Gwynedd have also agreed to fund supply teachers for your year one teachers, or another teacher from your school, to be trained the following year. From our research base at the University we will also be donating £25 to each participating school as a thank you.

What happens next?

You will be visited by Pam Martin who will bring Teacher Strengths and Difficulties Questionnaires (SDQ) for your reception class teacher to complete on each child. She will also leave parent SDQs and consent forms with you for later use. The teacher SDQs take about five minutes each to complete. You will then send those questionnaires to me. I will score them and advise you of which nine children we would like to observe in the classroom. We would then like you to seek permission from these nine parents for us to observe these children chosen as representative of the whole class. We would also like these parents to complete parent SDQs. If any parent does not consent we will supply you with the name of another child. We will be extremely grateful if you can encourage parents to allow their child to be observed. If you tell them about the course and your participation in the scheme and that their help is needed this would be very helpful.

We would then like you to send back the completed SDQs and parent consents to me so that classroom observations can begin. At this stage after receiving the questionnaires we will be able to tell you in which group your school has been

allocated. Hopefully this will be before half term giving you sufficient time to arrange supply cover.

The dates for the training for the coming year are as follows but remember there is only a 50/50 chance that you will be included this year:

Thursday 24th November  
Monday 9th January  
Monday 30th January  
Thursday 2nd March  
Thursday 30th March

The venue for the training will be decided once we know the exact locations of the schools selected for the first round of training. We hope very much that head teachers will be able to accompany your reception class teachers on the training although no supply cover can be funded for this and we know that in some cases you are one and the same person.

Thank you very much for agreeing to participate in this study and I look forward to meeting you. Apologies for not getting this letter out to you bilingually but I thought that it was important to get this information out as quickly as possible.

Yours sincerely

Dr. Judy Hutchings

Appendix C.  
**Letter to potential research school head-teachers  
(Consent form attached).**

Gwynedd Schools Teacher Classroom Management Research Programme

To Gwynedd Primary Head Teachers

Dear

Gwynedd Education Department are leading the way in introducing the Incredible Years teacher classroom management and Dinosaur School programmes in both Wales and the UK. This has resulted in an opportunity to research the effectiveness of the programme in Gwynedd. I met some of you at the Harlech conference last year and was pleased to learn that you are interested in taking part in our Classroom Management research programme. This research is being jointly funded by the University and Gwynedd Education Service as a PhD studentship, being undertaken by Pam Martin, who you may also have met. The research is looking at the effectiveness of the Classroom Management programme in Gwynedd.

I am writing now to let you know what is involved and to check if you and your reception class teacher are willing to take part in the research. This will involve having Pam, and at times a colleague, undertaking direct observations in your classroom over the 2005/6 academic year. These observations would be mainly in September and October before the classroom management training starts and again in the Summer term with possibly some additional observations during the training which will take place between November 05 and March 06.

You are one of the schools that we are approaching because you have expressed interest in participating in the research. Once we have your agreement we will pair the schools on the basis of size, rurality and social composition. Reception class teachers from one of each pair of schools will then be randomly selected to start the five day training programme in November 2005 and the remaining schools will be offered training in Autumn 2006. Under the present Gwynedd plan none of your schools are scheduled to receive training this academic year so five schools will be receiving the training a little sooner than they otherwise would have done and the remainder will be definitely included in the 06/07 training.

It is important that the schools involved in the research have, so far, had no teachers trained in either the Classroom Management or the Dinosaur School programme. I also need you to confirm that both yourself as head teacher and your reception class teacher are enthusiastic about taking part in this research. If you and your school are willing to take part please complete the attached questionnaire and return it to me at the above address as soon as possible in the envelope provided.

We hope that you as head teacher might also be able undertake the five day training in order to support your reception class teacher. The cost for the supply teachers to enable the reception class teacher to attend training will be covered by Gwynedd but there is no additional supply funding to enable head teachers to take part in the programme. We appreciate therefore that it might be difficult for some head teachers

to undertake the training and we would not wish to exclude your school if you were not able to attend the training. We are mainly concerned to find schools where the head teacher is supportive of the project whether or not they could attend the training.

Apart from attending the training your reception class teacher will also be asked to complete a short checklist on each child in the class, complete a phone interview relating to a small number of children in your class, and to approach parents to ask if they are willing for their child to be observed in the classroom.

Rest assured that your identity, the school's identity, and the identity of any children participating in this study, remains strictly confidential.

I look forward to hearing from you

Yours sincerely,

Dr. Judy Hutchings.  
Director, Incredible Years Wales

If you need to know any more about the study, you can call Pam on either 07719 750243 (day) or 01248 490714 (eves); email her at [p.martin@bangor.ac.uk](mailto:p.martin@bangor.ac.uk) or write to her at The Brigantia Building, University of Wales Bangor, Penrallt Road, Bangor, Gwynedd, LL57 2AS.

In the case of any complaints about the conduct of this study, please contact either: Dr. Dave Daley, on 01248 388067, Dr. Judy Hutchings on 01248 383625, or write to Professor Richard Hastings, Acting Head of School, School of Psychology, University of Wales, Bangor, Gwynedd, LL57 2DG.

Thank you for taking the time to read this.

Name of school: .....

Address: .....

.....

..... Postcode: .....

Telephone: .....

E-mail: .....

Fax: .....

Name of Head teacher: .....

Name of Reception class teacher: .....

Total number of pupils in school: .....

Average reception class intake: .....

Any other information about the school that you think might be of interest to us:

.....

.....

.....

.....

I confirm that I am willing to participate in the teacher classroom management research programme. I understand that this will involve a small amount of paperwork in terms of completing questionnaires on each reception class child and also that there will be one or two observers in the classroom on a number of occasions. These observational visits will, in all circumstances, be by prior arrangement

Signature of head Teacher

\_\_\_\_\_

Signature of class teacher

\_\_\_\_\_

In the case of any complaints about the conduct of this study, please contact either: Dr. Dave Daley, on 01248 388067, Dr. Judy Hutchings on 01248 383625, or write to Professor Richard Hastings, Acting Head of School, School of Psychology, University of Wales, Bangor, Gwynedd, LL57 2DG.

Thank you for your time.

## Appendix D Teacher Version of the Strengths and Difficulties Questionnaire

### Strengths and Difficulties Questionnaire

**T-16**

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of the child's behaviour over the last six months or this school year.

Child's Name .....

Male/Female

Date of Birth .....

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Restless, overactive, cannot stay still for long	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often complains of headaches, stomach-aches or sickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shares readily with other children (treats, toys, pencils etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often has temper tantrums or hot tempers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rather solitary, tends to play alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally obedient, usually does what adults request	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many worries, often seems worried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Helpful if someone is hurt, upset or feeling ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Constantly fidgeting or squirming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has at least one good friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often fights with other children or bullies them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often unhappy, down-hearted or tearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally liked by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Easily distracted, concentration wanders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nervous or clingy in new situations, easily loses confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kind to younger children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often lies or cheats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Picked on or bullied by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often volunteers to help others (parents, teachers, other children)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thinks things out before acting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steals from home, school or elsewhere	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gets on better with adults than with other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many fears, easily scared	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sees tasks through to the end, good attention span	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you have any other comments or concerns?

**Please turn over - there are a few more questions on the other side**

Overall, do you think that this child has difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?

	No	Yes - minor difficulties	Yes - definite difficulties	Yes - severe difficulties
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you have answered "Yes", please answer the following questions about these difficulties:

• How long have these difficulties been present?

	Less than a month	1-5 months	6-12 months	Over a year
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties upset or distress the child?

	Not at all	Only a little	Quite a lot	A great deal
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties interfere with the child's everyday life in the following areas?

	Not at all	Only a little	Quite a lot	A great deal
PEER RELATIONSHIPS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLASSROOM LEARNING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties put a burden on you or the class as a whole?

	Not at all	Only a little	Quite a lot	A great deal
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature .....

Date .....

Class Teacher/Form Tutor/Head of Year/Other (please specify:)

Thank you very much for your help



**Appendix E**  
**Teacher Stress Inventory – classroom factors highlighted**

**Teacher Stress Inventory**

Your Name:

Name of School:

Please circle the most appropriate answer for you.

0            1            2            3            4

As a teacher, how great a source of stress are these factors to you?	No Stress	Mild Stress	Moderate Stress	Much Stress	Extreme Stress
Poor career structure (poor promotion prospects).	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>
Difficult class.	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>
Lack of recognition of good teaching.	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>
Responsibility for pupils (e.g. exam success).	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>
Noisy pupils.	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>
Too short rest periods (mid-morning break, mid-day break).	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>
Pupils' poor attitude to work.	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>
Inadequate salary.	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>
Too much work to do (lesson preparation, marking).	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>
Having a large class.	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>
Maintaining class discipline.	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>
Administrative work (e.g. filling in forms).	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>
Pressure from parents.	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>
Ill-defined syllabuses (e.g. not detailed enough).	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>
Lack of time to spend with individual parents.	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>
Shortage of equipment and poor facilities.	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>
Attitudes and behaviour of other teachers.	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>
Pupils impolite behaviour or cheek.	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>
Pressure from head-teacher and education officers.	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>
Having extra students because of absent teachers.	<i>None</i>	<i>Mild</i>	<i>Moderate</i>	<i>Much</i>	<i>Extreme</i>

Any other comments?

Please check that all questions have been answered.  
Thank you for taking the time to complete this questionnaire.

Appendix F  
Teacher Demographics Questionnaire

Enw/Name:.....

Cyfeiriad cartref/Home Address:.....

.....

Rhif ffôn adra/Home Phone Number.....

Ysgol/School:.....

Swydd Uchaf Addysgol/Highest Academic Post:.....

Nifer o flynyddoedd yn dysgu/No of years teaching experience:.....

Nifer o ysgolion bu chi'n athrawes/No of schools in which you have taught:.....

Dyddiad Geni/Date of Birth:.....

Byddwch chi'n dysgu yr un naw plentyn ymchwil eto'r flwyddyn nesaf/Will you be teaching the nine 'research' children next year?

Byddaf, yr naw i gyd/Yes, all of them

Byddaf, rhai ohonyn nhw (nodwch faint)/Yes, some of them (note how many)

Na, dim un ohonyn nhw/No, none of them.

Diolch yn fawr am gymryd yr amser i gwblhau'r ffurflen yma/Thank you for taking the time to complete this questionnaire.

**Appendix G**  
**Parent information sheet (also available in Welsh)**

Evaluation of a Teacher Classroom Management Programme  
in North Wales Primary Schools.

**INFORMATION SHEET**

**Researcher: Pam Martin, jointly funded by Gwynedd Education Authority and the Economic and Social Research Council.**

**Supervisors: Dr. David Daley & Dr. Judy Hutchings.**

**Invitation**

Gwynedd County Council are introducing a teacher classroom management programme into all of their primary schools and we are carrying out research to see how effective it is. Your child's teacher is taking part in the research programme and we are approaching parents to ask if we can include their child in our observations.

**What is the purpose of the study?**

Your child's teacher(s) will be receiving classroom management training some time during the next two years, over a five-month period. We would like to see how this influences or affects classroom behaviour. We will visit your child's classroom to observe your child's teacher (which will last approximately an hour in each case) four times over a period of eighteen months, to assess the effectiveness of the programme. We also need to observe a small number of children in the process.

**Do I have to take part?**

It is entirely up to you whether or not you decide to take part. If you do decide to participate, you can keep this information sheet to refer to, and you will be asked to sign a consent form. You are free to withdraw from the research at any time; you need not give a reason. Your withdrawal from the study will not affect any service your child will receive from the school.

**What will I be asked to do?**

We are asking your permission to observe your child to see if the teacher's training has any effect on the class as a whole. We will observe both the teacher and a range of children in order to investigate this. We would also like to learn something about your child's behaviour at home, so we will ask you to fill in a short questionnaire about your child.

**What are the benefits of taking part?**

If you agree to take part you will help us to learn about the value of the teacher classroom management training and its influence on the classroom. As a thank you for agreeing to participate you will receive a £5 book voucher taking part.

**What are the possible disadvantages or risks of taking part?**

There are no disadvantages or risks, to neither you nor your child.

**Will my and my child's details be kept confidential?**

Yes. All the information about you, your child, and their school, will remain strictly confidential. Results will only be reported for the whole group of teachers taking part and for the children as a group.

**What about the results of the study; can I get a copy?**

The results will be published in a scientific journal, as well as presented to Gwynedd Education Authority. Rest assured that again, your child's identification (and your own) will remain confidential, as will the school's.

You are more than welcome to receive a summary of the research findings. Please indicate this on the consent form if you decide to take part.

**I have a few more questions. Who can I call?**

If you need to know any more about the study, you can call Pam on either 07719 750243 (day) or 01248 490714 (eves); email her at [p.martin@bangor.ac.uk](mailto:p.martin@bangor.ac.uk) or write to her at The Brigantia Building, University of Wales Bangor, Penrallt Road, Bangor, Gwynedd, LL57 2AS.

In the case of any complaints about the conduct of this study, please contact either: Dr. Dave Daley, on 01248 388067, Dr. Judy Hutchings on 01248 383625, or write to Professor Richard Hastings, Acting Head of School, School of Psychology, University of Wales, Bangor, Gwynedd, LL57 2DG.

**Thank you for taking the time to read this information sheet.**

Appendix H  
Parental consent form (also available in Welsh)

Consent Form

I agree for my child to participate in a classroom observation study, undertaken by Pam Martin, which is part-funded by Gwynedd Education Authority, under the guidance of Dr. Dave Daley and Dr. Judy Hutchings (of the School of Psychology and Incredible Years Wales respectively) of the University of Wales, Bangor. I have read about the study and understand this explanation.

I understand that my child is free to withdraw from this study at any time if they so wish, and is under no obligation to take part in any aspect of this research.

I also understand that all data will remain confidential with regard to their identity.

**Please delete as appropriate:**

I am willing for my child to participate in a classroom observation study

YES NO

I am willing to complete a questionnaire about my child

YES NO

I would like a summary of the completed study

YES NO

Signature of parent: \_\_\_\_\_

Your name in (print): \_\_\_\_\_

Your child's name: \_\_\_\_\_

Your address: \_\_\_\_\_

\_\_\_\_\_

Post code: \_\_\_\_\_

Contact tel no: \_\_\_\_\_

Email: \_\_\_\_\_

Date \_\_\_\_\_

In the case of any complaints about the conduct of this study, please contact either: Dr. Dave Daley, on 01248 388067, Dr. Judy Hutchings on 01248 383625, or write to Professor Richard Hastings, Acting Head of School, School of Psychology, University of Wales, Bangor, Gwynedd, LL57 2DG.

**Thank you for your time.**

**Appendix I**  
**Parent version of Strengths and Difficulties Questionnaire (English version)**

**Strengths and Difficulties Questionnaire**

**P4-16**

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of the child's behaviour over the last six months.

Child's Name .....

Male/Female

Date of Birth .....

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Restless, overactive, cannot stay still for long	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often complains of headaches, stomach-aches or sickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shares readily with other children (treats, toys, pencils etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often has temper tantrums or hot tempers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rather solitary, tends to play alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally obedient, usually does what adults request	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many worries, often seems worried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Helpful if someone is hurt, upset or feeling ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Constantly fidgeting or squirming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has at least one good friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often fights with other children or bullies them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often unhappy, down-hearted or tearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally liked by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Easily distracted, concentration wanders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nervous or clingy in new situations, easily loses confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kind to younger children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often lies or cheats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Picked on or bullied by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often volunteers to help others (parents, teachers, other children)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thinks things out before acting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steals from home, school or elsewhere	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gets on better with adults than with other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many fears, easily scared	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sees tasks through to the end, good attention span	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you have any other comments or concerns?

**Please turn over - there are a few more questions on the other side**

Overall, do you think that your child has difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?

	No	Yes - minor difficulties	Yes - definite difficulties	Yes - severe difficulties
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you have answered "Yes", please answer the following questions about these difficulties:

• How long have these difficulties been present?

	Less than a month	1-5 months	6-12 months	Over a year
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties upset or distress your child?

	Not at all	Only a little	Quite a lot	A great deal
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties interfere with your child's everyday life in the following areas?

	Not at all	Only a little	Quite a lot	A great deal
HOME LIFE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FRIENDSHIPS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLASSROOM LEARNING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LEISURE ACTIVITIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties put a burden on you or the family as a whole?

	Not at all	Only a little	Quite a lot	A great deal
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature ..... Date .....

Mother/Father/Other (please specify:)

Thank you very much for your help

Appendix J  
Welsh version of Parent SDQ

**Holiadur Cryfderau a Thrafferthion (SDQ-Wel)**

P2-16

Am bob eitem, marciwch y bwrch Anwir, Gwir i Ryw Raddau neu Gwir yn Bendant. Byddai o gymorth petaech yn ateb pob eitem hyd eithaf eich gallu hyd yn oed os nad ydych yn hollol siŵr neu bod yr eitem yn ymddangos yn hurt! Atebwch ar sail ymddygiad eich plentyn dros y chwe mis diwethaf.

Enw eich plentyn .....

Gwryw/Benyw

Dyddiad Genl .....

	Anwir	Gwir i Ryw Raddau	Gwir yn Bendant
Ystyriol o deimladau pobl arall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aflonydd, gorsfywiog, methu aros yn llonydd am amser hir	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dioddef o ben tost/eur pen, poen yn y stumog neu salwch yn aml	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rhannu pethau'n llawen gyda phlant arall (danteithion, teganau, penseli syb)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yn aml yn strancio neu'n cael pwl o dymor ddrwg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tueddol o chwarae ar ei ben/phen ei hun	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
At ei gilydd yn ufudd, yn gwrandao ar oedolion fel arfer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Llawer o ofidiau, yn edrych yn bryderus yn aml	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yn barod ei gymwynas/chymwynas os oes rhywun wedi cael dolur, yn ofidus neu'n sâl	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yn aflonydd neu'n anesmwyth yn gyson	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ganddo/ganddi o leiaf un ffrind da	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yn ymladd â phlant eraill neu'n eu bwlio yn aml	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yn anhapus, yn ddigalon neu'n ddagreuol yn aml	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ar y cyfan mae plant eraill yn ei hoffi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gellir tynnu ei sylw yn hawdd, ei foddwl/meddwl yn crwydro	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yn nerfus neu'n anfodlon eich gadael mewn sefyllfa oedd newydd, yn colli hyder yn hawdd	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yn garedig i blant iau	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yn dweud celwydd neu'n rwylo'n aml	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Plant arall yn ei boenydio/phoenyddio neu'n ei fwlio/bwlio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yn cynnig helpu eraill yn aml (rhieni, athrawon, neu blant arall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meddwl am bethau'n ofalus cyn gweithredu	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yn dwyn o'r cartref, yr ysgol neu rywle arall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yn cyd-dynnu'n well gydag oedolion na phlant eraill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Llawer o ofnau, yn dychryn yn hawdd	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gorffenn tasgau, gallu canolbwyntio'n dda	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Trowch y dudalen - mae rhagor o gwestiynau ar yr ochr draw**



At ei gilydd, a ydych yn credu fod eich plentyn yn cael trafferthion mewn un neu fwy o'r meysydd canlynol: emosiynau, canolbwytio, ymddygiad neu'r gallu i gyd-dynnu ag eraill?

	Ydy - trafferthion bychain	Ydy - trafferthion pendant	Ydy - trafferthion difrifol
Nac ydy			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Os ydych wedi ateb "ydy", atbwch y cwestiynau canlynol am y trafferthion hyn:

- Ers pryd y mae'r trafferthion hyn wedi bod yn bresennol?

Llai na mis	1-5 mis	6-12 mis	Blwyddyn neu fwy
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- A ydy'r trafferthion yn gofidio neu'n poeni eich plentyn?

Ddim o gwbl	Dim ond ychydig	Cryn dipyn	Yn fawr
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- A ydy'r trafferthion yn amharu & bywyd bob dydd eich plentyn yn y meysydd canlynol?

	Ddim o gwbl	Dim ond ychydig	Cryn dipyn	Yn fawr
YN Y CARTREF	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GYDA FFRINDIAU	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
YN Y DOSBARTH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GWEITHIGAREDDAU HAMDDEN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- A ydy'r trafferthion yn faich amoch chi neu'r teulu cyfan?

Ddim o gwbl	Dim ond ychydig	Cryn dipyn	Yn fawr
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Llofnod ..... Dyddiad .....

Mam/Tad/Arall (nodwch:)

**Diolch yn fawr am eich cymorth**

## Appendix K

**Thank you letter to teachers after baseline measures (only available in Welsh).**

Hydref, 2006

Annwyl

Amgauaf anrheg fechan mewn gwerthfawrogiad o'ch help gyda'r ymchwil. Ymddiheuraf am yr oediad; ni bum yn y swyddfa dros gyfnodau hir yn yr haf oherwydd salwch teulu agos.

Bydd rhai ohonoch dal i ddysgu rhai or plant – neu hyd yn oed bob plentyn - arsylwyd y tro diwethaf, pan ddaw gwanwyn 2007, e.e. chwi'r athrawon sydd yn dysgu dosbarth derbyn a blwyddyn un. Gofynnwn i chi lenwi ffurflen ynglyn â'r plant 'ymchwil', a llenwi'r Teacher Stress Inventory eto yn y gwanwyn, os gwelwch yn dda, a byddwn yn gofyn eich caniatad i ddod i arsylwi am y tro olaf. Os nad ydych yn dysgu y plant 'ymchwil', ni byddwn yn dod i'r dosbarth eto.

Hoffwn ddiolch o galon am eich cyd-weithrediad; rydym wedi cael lot o hwyl yn ymweld â'ch dosbarth. Rydym yn gwerthfawrogi eich amser a'ch amynedd. Buaswn yn hoffi'ch gweld chi i gyd eto – er dwi'n siwr bod rhai ohonoch yn falch peidio llenwi mwy o holiaduron ag ati! – ond er na byddwn yn dod i arsylwi rhai ohonoch eto, gobeithiaf eich gweld rhyw dro eto yn y dyfodol. Cofiwch, byddwn yn hapus I yrru copi o'r gwaith ymchwil ar ôl ei ddarfod (rhyw dro hwyr 2007/2008). Dymunaf pob lwc i chi a'ch dosbarth yn y dyfodol, a gwelaf rhai ohonoch eto yn y Gwanwyn.

Yr eiddoch yn gywir,

Pam Martin,  
Myfyriwr ymchwil.

Appendix L

**Thank you letter to parents after baseline measures (also available in Welsh).**

Dear Parent,

I enclose a small gift for your child in appreciation of your filling in the questionnaire last year. Would you be so kind as to complete the same questionnaire again please, and give it back to your child's teacher within the week if you can? We will send you another small token of our appreciation for doing so, as soon as we receive your form.

I will ask some of you to fill in the questionnaire for a third time; this will be those of you whose child is staying with the same teacher/in the same classroom, for another year. This next phase of the study would take place next spring.

I would like to thank you for your assistance in our study; we have had a lot of fun visiting primary schools, and we look forward to seeing your child and their class again soon.

Yours sincerely,

Pam Martin,  
Research student.

Appendix M  
Randomisation letter sent out to teachers

Dear

First I would like to thank you all again for taking part in our research. Thank you also very much for completing the SDQs so promptly. As you know we will be making a donation to school funds of £25 as a thank you and also sending along a small gift for the teacher who completed the SDQs.

I am writing now to make the process of choosing schools for this year's course absolutely clear. Initially we started with 12 schools but one has now withdrawn so we are left with eleven schools.

I have paired up ten schools as best as I can, comparing the size of school and the number of reception class pupils. This has left one school without a partner so we shall not be using Santes Helen School Caernarfon in the research but Orina Pritchard has confirmed that supply cover will be provided to Santes Helen to attend the course this year along with the identified schools.

For the remaining 10 schools, teachers (and head teachers if willing) from one school from each pair will attend the five day training starting on Thursday 24th November. Observations will be done in all of your classrooms before the start of the course and again in all classes during the Summer term after some of you have completed the training.

I am enclosing a list of the paired schools so that you can understand exactly how we are doing this. No schools have been selected so far and each pair will be put into a hat. The first school to be drawn out will get the course this year and the second school next year.

Ideally we would like all observations to be done before we select the schools for this years training. We appreciate that those schools that are selected will not have a lot of time to organise their supply teachers but hope that you can appreciate the needs of our research programme.

The paired schools are as follows (names were listed here).

I shall be away now until 1st November and will undertake the random selection of schools on my return.

Looking forward to meeting you all in the training either this year or next year.

Apologies for writing in English only but I am en-route for South America. The course will be bilingual as I am teaching it with Rhian Gwyn

Regards

Dr. Judy Hutchings

## Appendix N

**Letter advising schools of their randomisation into the intervention group**

January, 2006

Dear

Firstly, thank you for your patience. All the schools' names have been pulled out of a hat, and your school is going to be part of phase one of the study. This means that the teacher(s) from your school will begin their training at the end of this month. We ask that you do not tell Pam which phase of the study you will participate in, in order that her observations remain unbiased. We apologise for the short notice; we lately asked two schools to be part of the research, so needed to complete the process with them before dispatching everyone into their groups.

Here are the training dates:

Session 1:	Monday the 30th of January
Session 2:	Thursday the 2nd of March
Session 3:	Thursday the 30th of March
Session 4:	Tuesday the 25th of April
	(note that this date has changed since our phone conversation)
Session 5:	Thursday the 25th of May

The training will be held in the University in Bangor; it will begin at 9am and finish at 4pm at the latest. I enclose a parking ticket for you to display clearly in the windscreen of your car. For barrier controlled car parks, please punch in the code 1944 to get in. I also enclose a map of the University (the training takes place in the Brigantia Building) and adjacent car parks. Should you need any more information please phone Dilys on the number displayed on the top of this letter.

Pam will be back again in the spring/summer term, when she will ask you to complete another set of questionnaires relating to the nine children we have observed, and a Teacher Stress Inventory; the same questionnaires that you previously completed. She will ask your permission to perform classroom observations, and will also be asking parents to fill in a questionnaire (the parent version of one of your questionnaires). You will receive a small gift for completing the questionnaires and allowing us to observe you in the classroom. You will receive a small gift for both sets of questions; the first in the coming month, and the next after you have completed the spring/summer measures. This is a little thank you for all the help and assistance you have given us.

Thank you very much for your time, we look forward to seeing you at the end of the month!

Yours sincerely,

Pam Martin, research student.

Appendix O

**Letter advising schools of their randomisation into the control group**

January, 2006

Dear

Firstly, thank you for your patience. Each school's name has gone into a hat, and your school has been 'chosen' to take part in the second phase of our study. This means that your teachers will be receiving their training in September, 2006. We ask that you do not tell Pam which phase of the study you are in; it's important that she does not know this so that her observations remain unbiased.

Pam will be back to see you again before the Summer, when she will ask you to fill in a second set of questionnaires relating to the nine children she observed, as well as the Teacher Stress Inventory. She will also ask your permission to observe in your classroom again, and will request parents complete the parent version of the aforementioned questionnaires. You will receive a small gift for completing the questionnaires and allowing us to carry out observations in this phase of the study, and you will again receive a small gift as a thank you for having assisted us again in the summer.

It is important that you are aware of the fact that albeit your school is part of the second phase of training, each school that we visit is part of the research, and we appreciate your assistance very much.

Thank you very much for your time, and we look forward to seeing you again in the spring/summer term!

Yours sincerely,

Pam Martin, research student.

Appendix P  
Teacher thank you letter T2 (only Welsh version available)

Ebrill, 2008

Annwyl

Diolch am eich help efo'r ymchwil! Dyma anrheg fechan fel gwerthfawrociad o'ch gwaith. Byddwn yn ysgrifennu ein darganfyddiadau ar ddiwedd yr ymchwil rhyw dro o gwmpas mis Hydref, a'u gyrru nhw i chi. Bydd y canlyniadau yma wedi eu selio ar pob un ohonoch efo'ch gilydd, felly ni fyddwn yn medru rhoi unrhyw adborth ynglyn â chi yn unig gan bod yr ymchwil yn edrych ar y cwrs rheoli dosbarth, ac nid ar unigolion. Hoffwn ymddiheuro am yr amser maith sydd wedi mynd heibio heb eich bod wedi cael eich anrheg! A diolch eto am eich help gyda'r ymchwil yma.

Yr eiddoch yn gywir,

Pam Martin,  
Myfyriwr ymchwil.

Appendix Q  
Parent thank you letters after follow-up measures

October, 2006

Dear,

I enclose a small gift for your child in appreciation of your kindness in completing the questionnaire last year. I apologise that it's taken so long but I have not been able to attend work for prolonged periods throughout the summer due to illness of a close family member.

I will ask some of you to fill in the questionnaire for a third time; this will be those of you whose child is staying with the same teacher/in the same classroom, for another year. This next phase of the study will take place next spring.

I would like to thank you for your assistance in our study yet again, and wish you the very best for the future.

Yours sincerely,

Pam Martin,  
Research student.



Appendix R  
Appointment letters for teachers at T3 (only available in Welsh)

Ebrill, 2007

Annwyl

Diolch eto am gytuno I mi ddod I arsylwi'r dosbarth, a diolch hefyd (wrth gwrs) am gyntuno I gwblhau mwy o'r holiaduron!

Rydw I yn amgau dau 'fwndel' o lythyrau i'r rhieni – mae un bwndel o lythyrau efo 'Q' ar dop y llythyrau (Q am Questionnaires) a'r bwndel arall efo 'V' (am vouchers). Â buasech mor garedig a rhoi'r bwndel Q allan i'r rhieni yn gyntaf os gwelwch yn dda? Rydw I wedi rhoi llythyr yn gofyn i'r rhieni ddod a'r llythyr yn ôl atoch ymhen yr wythnos, felly os nad ydynt, wnewch chi roi dipyn o 'hwb' iddyn nhw os gwelwch yn dda! Pan mae'r rhieni yn dychwelyd yr holiadur, buasech chi'n medru rhoi yr amlen 'V' iddynt os gwelwch yn dda, ar ein rhan ni?

Mi fyddwn i'n casglu'r llythyrau a'r holiaduron I gyd yn ôl gennych pan ddof draw I arsylwi, a gobeithiaf cael gair bach anffurfiol ar ddiwedd yr arsywli, ynglyn â'r astudiaeth gyda chi hefyd, os bydd hyn yn gyfleus. Hoffwn ofyn unwaith eto os buasech yn hapus gwneud y cyfweiliad ffôn eto hefyd – os fedrwch chi siarad am bum munud bob plentyn, grêt; os na fedrwch, peidiwch a phoeni, dim ond I chi wneud rhyw ddau funud neu fwy – felly byddwn yn gofyn I chi am ddyddiad ac amser pan fydd hyn yn gyfleus I chi. Ar y diwedd, byddaf yn rhoi anrheg fechan I chi fel gwerthfawrogiad o'ch gwaith.

Edrychaf ymlaen I weld chi a'r dosbarth unwaith eto!

Yr eiddoch yn gywir,

Pam Martin,  
Myfyriwr ymchwil.

## Appendix S

**Teacher thank you letters after follow-up measures (only available in Welsh)**

Annwyl

Diolch am y tro olaf yma am eich help gyda'n hastudiaeth. Mae'r ymchwil yma'r un cyntaf o'i fath, wrth ein bod yn astudio y rhaglen hyfforddi dosbarth ar ei ben hyn, heb bod rhaglen rhieni na rhaglen Dino yn cael ei gynnal yr un amser, felly mewn ffordd bach rydan ni i gyd yn arloyswyr!

Rydwyf yn gwerthfawrogi eich amynedd, yn gadael i mi ddod i'ch dosbarth ac amharu ar eich gwaith. Rydw i'n ddiolchgar dros ben hefyd am yr holl holiaduron a'r galwadau ffôn – dwi'n ymwybodol nad yw'n hawdd siarad am bum munud heb fod y person ar yr ochr arall yn gofyn cwestiynau! Roedd amryw ohonoch yn dweud nad oeddech mor 'keen' ar y galwad ffôn yna, er, mae'n rhaid dweud, roedd pawb yn brofiadol dros ben!

Rydw i a'r tîm wedi cael llawer o bleser yn dod i weld y plant yn eich gofal, ac rydym yn gwerthfawrogi yr amser mae hyn i gyd wedi cymryd o'ch gwaith pob dydd (llenwi ein holiaduron ni, cyfweiliadau ffôn, a rhoi llythyrau allan i rieni ag ati!). Gobeithiwn yr aiff yr anrheg fechan yma ychydig o ffordd i ddangos hyn. Diolch unwaith eto am eich help amrhisiadwy, a phob lwc i chi yn y dyfodol.

Yr eiddoch yn gywir,

Pam Martin,  
Myfyriwr ymchwil.

Appendix T  
Parent thank you letter at T3

Dear Parent,

I enclose a small gift in appreciation of you having completed the questionnaire for the third time. Your help has been invaluable in this study; it's been a pleasure – and lots of fun! – visiting your child's classroom.

I would like to thank you for your assistance in our study this one last time, and wish you and your child the very best for the future.

Yours sincerely,

Pam Martin,  
Research student.

Appendix U  
The Teacher-Pupil Observation Tool (T-POT)

TEACHER	INDEX	GENERAL
<b>Acknowledgement:</b> <i>inc reflectives &amp; descriptives</i>		
<b>Γ Negative:</b> <i>neg commnd, phys neg, crit, ntrusion, warning</i>		
<b>Positive</b> <i>(incl continuing activity)</i>		
<b>Negative</b>		
<b>Γ Praise Unlabelled</b> <i>not specific/vague</i>		
<b>Γ Praise Labelled</b> <i>specific as to why pupil praised</i>		
<b>Γ Positive:</b> <i>Pos affect, when/then, phys pos, ncouragement</i>		
<b>Pos Response</b> <i>(incl continuing activity)</i>		
<b>Neg Response</b>		
<b>Problem Solving</b>		
<b>Γ Ignore</b> <i>(inappropriate beh)</i>		
<b>Question:</b> <i>Command that requires a verbal esponse</i>		
<b>Compliance</b> <i>(even if answer is incorrect)</i>		
<b>Noncompliance</b>		
<b>Indirect Command:</b>		
<b>No Opp</b>		
<b>Compliance</b>		
<b>Noncompliance</b>		
<b>Direct Command:</b>		
<b>No Opp</b>		
<b>Compliance</b>		
<b>Noncompliance</b>		

	INDEX	GENERAL
<b>Time Out Warning:</b>		
<b>No Opp</b>		
<b>Compliance</b>		
<b>Noncompliance</b>		

**CHILD BEHAVIOUR**

	INDEX	GENERAL
<b>Aggression to Peer:</b> <b>Verbal</b> <i>(incl snurt talk, teasing, tongue pulling)</i>		
<b>Physical</b> <i>(incl grab, hit, throw at, steal, snatching, pulling)</i>		
<b>Aggressive to T</b> <i>(verb &amp; phys)</i>		
<b>Destructive</b> <i>(incl destroying, damage, self harm)</i>		
<b>Disruptive</b> <i>(crying, whining, yelling, non-directed inappropriate behaviour)</i>		
<b>Initiation to Peer</b> <i>(any neutral/positive approach, request)</i>	<b>I - P</b>	<b>P - I</b>   <b>P - P</b>
<b>Pos Response</b>		
<b>Neg Response</b> <i>(incl ignoring)</i>		
<b>Positives:</b> <i>(incl pos affect verbal and non-verb and physical warmth)</i>		
<b>Off Task</b> <i>(I count initially, then 1 per 30 seconds if off-task behaviour persists)</i>		

NOTES:

Appendix V  
**The Teacher-Pupil Observation Tool Coding Manual.**

Welcome! If you're reading this manual chances are you are about to carry out classroom observations be they with teachers, classrooms, individual pupils or a combination of the three. Once you have mastered the TPOT, it is advisable that you have a top-up session every week (an hour would suffice) with your fellow observers, in order to keep the categories clear in your mind and ensure good inter-rater reliability (agreement between coders/observers) and good implementation fidelity (sticking to the categories' 'prescribed' descriptions).

First of all, here are some ways in which you may want to use this measure:

- a) You may be interested in observing the teacher with the whole classroom, i.e. you will be using the TPOT as a general classroom measure. In this case, you will only need to put a frequency count under the columns marked 'General' and 'Peer' in both the TEACHER and CHILD BEHAVIOUR sections.
- b) You may want to observe the teacher with a particular pupil - we will refer to these as the 'index' - you may not be interested in what this pupil's peers (the rest of the classroom) are doing. If this is the case, you will need to put a frequency count of the behaviours you observe in the columns marked 'Index' in both the TEACHER and INDEX BEHAVIOUR sections (you will not need to use the 'general' nor 'peer' sections).
- c) You may want to observe the teacher, and have a specific child/specific children in mind that you want to observe, but you also want a picture of what is going on in the classroom as a whole. If this is the case, you will be using the whole measure - the TEACHER, INDEX/PEER behaviour sections - and noting the frequency of behaviours in both the General/Peer column, and the Index column.
- d) The teacher's behaviours may not be your focus of interest; instead you may only need a record of children's interactions with each other in the classroom. The section on the right hand side of the measure, headed CHILD BEHAVIOUR (marked Index if you are

observing one child in particular, Peer when you are observing their classmates or the whole classroom) is the only section of the measure you will need to utilize.

## CODING:

Requests we need to make of the teacher:

- If you are observing any one child in particular, ask the teacher to ensure that they interact with that child during the time you are observing them.
- Classroom activities should be structured if possible; lessons dealing with numbers, letters or similar - the more formal subjects - are ideal.
- If a structured lesson is not possible, a play session such as water, sand or painting, is acceptable, but only if the children are to be supervised mainly by the teacher you will be observing (if you are coding teacher behaviour).
- Observing the children with a classroom assistant or another teacher should be avoided, unless you are not coding teacher behaviour or the assistant/other teacher is the focus of your observation.

Things we need to remember:

Stopwatch; Pen; Supply of observation sheets, Good solid board to rest the sheets on.

The Index is the child who is the main focus of your observation. When observing peers, they should either be directly around or interacting with the index, or directly around or interacting with the teacher, or both (depending on the focus of your observation). If neither the teacher nor the index are not attending to behaviour in other parts of the classroom, do not code.

Section for notes, so you can scribble anything you're unsure about to look up later, or contact me about (if it's not included in this manual).

Length of observation

Each sheet = 5 minutes

Minimum for index = 15 minutes

Teacher and classroom observation - minimum = 30 minutes

## TEACHER BEHAVIOUR

### ACKNOWLEDGEMENT

#### Definition

This category consists of three different behaviours and ensures the pupil is aware that the teacher values their contribution.

- A brief acknowledgment
- Reflective statements and questions
- Descriptive comments.

1. An acknowledgement can consist of a very brief verbal response to pupil behaviour which is little more than a simple response to a question, or that recognises an achievement or behaviour.

#### Examples:

Yes

Ok then

Really?

I see

Hmm?

Uh-huh

Well!

There!

Oh



2. A reflective statement or question does just that: it reflects all or part of a preceding verbalisation from the pupil. It may exactly mirror the verbalisation or contain some words, but the message is the same.

Examples:

Pupil: I can't get this car to move!

Teacher: You can't get the car to move?

Pupil: I don't like maths.

Teacher: You really don't like maths.

Pupil: My mum took me to the zoo at the weekend.

Teacher: Ooh, you went to the zoo!

Pupil: My mum, my dad, my sister and my two brothers are going to Cornwall on holiday next week.

Teacher: You're all going away on holiday?

Pupil: Cow moo

Teacher: The cow says moo.

Pupil: I can't get these sums right.

Teacher: You're struggling with these sums?

Pupil: Can I have that book?

Teacher: You want this book?

3. A comment or question that describes the pupil's actions. They are almost as if the teacher is giving a running commentary. This behaviour must be relevant to the pupil's actions there and then, and not concerning past or future activities.

Examples:

You're writing up the story.

Now you're putting the letters in the right place.

You've lined everything up

You're drawing a big black cat.

## TEACHER NEGATIVE

### Definition

This category contains multiple negative teacher behaviours.

- Criticism
- Negative command
- Negative physical behaviour
- Physical intrusion
- Warning
- "Shush" or "Ssht"

1. Criticism includes sarcasm, blame statements, finding fault with the child, the child's attributes, or something they have said or done. Generally criticism makes the pupil feel inferior or is hurtful to the child.

### Examples:

No (except when in answer to a question)

You're nasty

I'm getting fed up of you now

You're just being silly

You're putting it in the wrong place

You can't read that properly

What on earth is that?! (in a sarcastic tone, pointing at the child's work)

You're awful today

How much more clumsy can you be?

That's not the right way to do it.

I don't like it when you do that

Well, thanks a LOT!

Because I said so.

You're seeing him at his worst today (to coder)

2.. A negative command is a more specific kind of criticism that tells the child not to do something.

### Examples:

Stop that now

Absolutely not

Forget it

That's it

Don't do that

Not yet!

That's enough!

Leave it alone.

You can't do X

I don't want any biros left on the floor  
Mind you don't tear it

3. Negative physical behaviour includes restraining, inflicting pain, forcing or pulling a child.

Examples:

Teacher holds the child's shoulder or arms to prevent them leaving the room

Teacher touches the child's hand as they intrusively take their toy away

Teacher says "no" and pushes child's hand away

Teacher holds child at arm's length to prevent being hit

Teacher affectionately ruffles child's hair and child says "Stop it"

4. A teacher that behaves intrusively will interfere with ongoing pupil activity or will obtrude into a child's space. This behaviour would include taking over the child's activity, blocking access, physical interruption.

Examples:

Teacher snatches away something out of the child's reach when the child was playing with the object.

Teacher leans over the child's work and stops them from continuing their activity.

5. Warnings are statements that include a command with a negative consequence.

If you don't do these sums you're not going to play

Get back to your chair or I'll take your game away

Either you do that now or you stay after school

If you don't keep your pens we'll all have to stay here while everyone else goes on the school trip.

Examples:

6. Using "Shht" to command silence is a negative teacher behaviour as it does not utilise a positively phrased command and implies impatience with the pupil.

CHILD POSITIVE RESPONSE

## Definition

A positive response can include a relatively neutral behaviour such as continuing the activity the teacher has originally asked the pupil to partake in, or responding in an outright positive fashion (see Child Positives category).

CAN BE IN RESPONSE TO TEACHER NEGATIVES OR POSITIVES

CHILD NEGATIVE RESPONSE

## Definition

Negative responses include talking back (double code Aggressive to Teacher), shouting or yelling (double code Aggressive to Teacher) or behaving in a physically aggressive fashion towards the teacher (double code Aggressive to Teacher). Turning away from the teacher or frowning constitutes a negative response but is not double coded.

CAN BE IN RESPONSE TO TEACHER NEGATIVES OR POSITIVES

TEACHER PRAISE - UNLABELLED

## Definition

Unlabelled praise is a non-specific positive verbalisation that expresses satisfaction or enjoyment with the pupil's activity or a pupil attribute.

## Examples:

Great!

Excellent.

You're right on top of things.

Nice!

Terrific!

Fabulous!

Right.

That's right.

You're right.

Marvellous!

Wonderful.

Thank you very much

Perfect.

Correct.

Thank you!

Good job!

Congratulations!

So far, so good!

That's better!

Cool

Thanks!

I appreciate that.

Awesome!

Brilliant!

You're creative.

Smart thinking.

You're playing nicely.

You're so funny.

I'm proud of you.

You're so thoughtful!

TEACHER PRAISE - LABELLED

## Definition

Labelled praise is a specific positive verbalisation that expresses satisfaction or enjoyment with the pupil's activity or a pupil attribute.

## Examples:

That's a terrific house you made.

You did a great job of building the tower.

I like the way you drew that circle.

Your picture is very pretty.

You have a beautiful smile.

You have a wonderful imagination.

That's an excellent way to figure out the solution.

You're considerate to share your cookie with me.

Isn't that a lovely design you made!

Did you make that wonderful tower?

What pretty hair you have!

You're my little helper for making the bed.

Thanks for putting that back on the shelf.

I sure appreciate it when you help pick up.

TEACHER POSITIVE

## Definition

This behaviour includes the following multiple teacher behaviours:

- Positive affect
- Physical positive behaviour
- When/Then or Grandma's rule
- Encouragement

1. Positive affect is a non-verbal expression of enjoyment, warmth or enthusiasm, directed at the pupil.

## Examples:

Smile  
Laughter

2. Physical positive is a neutral or positive touch between teacher and pupil.

Examples:

Hug  
Ruffling hair  
Petting arm  
Rubbing shoulder  
Brushes past pupil  
Touches pupil's nose  
Nudges pupil  
playfully

3. A when/then or grandma's rule is a form of command that specifies a positive consequence of pupil compliance.

Examples:

If you finish writing then you can go out to look for the leaves from the trees we've been talking about.

Pupil: I want to read that book

Teacher: Not until you clear the table

When you hang up your coats we can watch the tv programme

You can go and play football as soon as you've given me the answer to the question

4. A statement that shows appreciation, approval, positive judgement towards something the child has done, is attempting to do, or pupil or classroom attributes. It is a borderline praise but is not as specific.

Examples:

Wow!

Hurray!

That's the way.

You're doing well.

You got it right

There you go

That's lovely and neat

You're really quick

You're helping

You did it

That looks like fun!

You're so strong

How about that!

You walked in so quietly I didn't hear you!

You're thinking hard

Aren't you proud of yourself?

You're really cheerful aren't you?



## PROBLEM SOLVING

### Definition

A statement, command, or question, that attempts to encourage the pupil or classroom to resolve a problem. It attempts to get the child planning, organising and thinking about consequences. Problem solving is DOUBLE CODED.

### Examples:

Can you think of a way you can both play with the ball? (problem solving and indirect command)

If he started teasing you again how would you react? (problem solving and question)

I've got a problem I'm having a little trouble with, can you help me? (problem solving and question)

Think of a way. (indirect command/comply/problem solving)

Tell me your plan (problem solving and direct command)

I can see you're pretty upset, what happened? (problem solving and question)

If you did that what do you think would happen? (problem solving and question)

Key words that signify problem solving include:

problem solution

what else

consequences

What could he do?

what would happen

How would you feel?

if..

How would he feel?

ideas

let's suppose

brainstorm

what if

## TEACHER IGNORE

### Definition

Ignoring in this context refers to ignoring mildly deviant or inappropriate pupil behaviour by remaining silent, turning away from the child, and keeping a neutral facial expression. This behaviour must last five seconds at least to be coded as an Ignore, and is an attempt by the teacher not to give attention to mildly inappropriate behaviour in order to cause that behaviour to dissipate.

### Examples:

Pupil: [Sobbing and whining] (disruptive)

Teacher: [makes no verbal or physical response] (ignore)

Pupil: [kicks table] (destructive)

Teacher: [looks intently and silently at books on table] (ignore)

Pupil: You're horrible (aggressive to teacher)

Teacher [continues to read] (ignore)

Pupil: [Flings workbook from table onto floor] (destructive)

Teacher: [carries on writing on board] (ignore)

## QUESTION

### Definition

Questions include using the child's name as a form of command in order to gain an answer to a previous question. Questions can also be aimed at the classroom. They may follow pupil or classroom activity or give an account of objects or activities in question form.

## COMPLIANCE TO QUESTION

### Definition

If a pupil is asked to answer the question and attempts to answer, code compliance even if their answer is incorrect. In the case of classroom

question and answer sessions, if roughly half or more pupils raise their hands, code compliance.

### NON-COMPLIANCE TO QUESTION

#### Definition

If a pupil is asked directly to answer a question and obviously refuses to answer, code non-compliance. This does not apply if the pupil is obviously trying to think of an answer but failing.

### INDIRECT COMMAND

#### Definition

An order, direction or demand for a particular behavioural response that is nonspecific, implied or in question form (except for when the teacher is asking for a verbal response in answer to a question).

#### Examples:

Put it here OK?

Come on

Will you please do what I ask

Josie!

Guess what I've got

Let's make some circles

See those containers?

Watch

What about giving me one of them?

Be careful

Settle down

Write this all up, ok?

Can you open the door please?

Shouldn't you be over there?

It would be good if you could tidy that

You will do what I say

Look

Watch your feet

Be nice

Calm down

Remember to leave that there

It's time to go

### DIRECT COMMAND

#### Definition

A specific clear order, demand or direction, so the child is in no doubt as to what is being requested of them.

Examples:

Come here

Let me take your book

Put your workbooks on the bench

Pretend you're a bat

See (with a point)

Tell me

Listen to me please

Sit down now

Make one like this

Spit that out

Give me the scissors

Look at me

Clean up the table now

Bring the red box here please

I want you all to clear up now

Spell "nightmare"

Sing "The little red tractor"

Let me help you

Leave that there

Tell me what sound a pig makes

Go and ask Mrs Davies if we can

have the big red pen

I expect you all to have finished

by the time I come back

Pretend it's really cold

## COMPLIANCE TO INDIRECT OR DIRECT COMMAND

### Definition

If the pupil begins to comply, tries to comply, or succeeds in complying with the command, code compliance.

### Examples:

Teacher: Give me the book

Pupil: [gives teacher the book] (compliance)

Teacher: Write me a story about when you visited Newborough forest

Pupil: [begins writing] (compliance)

Teacher: Find me the odd one out

Pupil: [points to the board] (compliance, even if the answer is wrong)

Teacher: Tell me what time the lady went to the party

Pupil: [puts hand up] (compliance)

Teacher: Finish your book

Pupil: [picks up book] (compliance)

Teacher: Put that away now

Pupil: [throws item into desk drawer] (compliance + destructive)

Teacher: Do as I tell you

Pupil: Fine! (compliance and aggressive to teacher)

## NON-COMPLIANCE TO INDIRECT OR DIRECT COMMAND

### Definition

When pupils disobey a command given by the teacher, or does not comply within 5 seconds, code non-compliance.

### Examples:

ignoring parent

making an excuse  
refusing to obey  
arguing  
engaging in incompatible behaviour  
engaging in a debate  
counter-commanding  
feigning deafness

### NO OPPORTUNITY TO COMPLY WITH INDIRECT OR DIRECT COMMAND

#### Definition

No opportunity is when the child is not given ample time to comply with a command.

#### Examples:

Command is vague

Behaviour requested is not within the child's competence

Teacher quickly repeats the command (within 5 seconds)

Teacher quickly issues another command (within 5 seconds)

Teacher gives a command while pupil is already doing the requested action

Command is given after pupil has already completed the requested action

Teacher does the requested behaviour for the pupil

### TIME-OUT WARNING

#### Definition

When a teacher gives a time-out command this will usually take the form of moving the child away from their peers and into a neutral space, possibly a chair or another part of the classroom or building. This should always be in response to misbehaviour.

Examples:

If you keep behaving like that you're going to the quiet room

If you don't sit down you'll be going to Time-out

Do you want to sit in the naughty chair?

I'm going to put you to sit in the corner if you keep that up.

## CHILD BEHAVIOUR

### VERBAL AGGRESSION TO PEER

#### Definition

This category includes verbal or gestural statements with an aggressive consequence towards a fellow pupil and includes a number of behaviours:

- Verbal aggression
- Teasing
- Tongue pulling

1. Being verbally aggressive is designed to insult or hurt another child, whether it be hurting the child's feelings or a threat of actual physical punishment.

#### Examples:

You're stupid.

I hate you.

You idiot!

No! (following any command)

Hey, pig face.

So!

Why should I?

It's not fair!

Oh, God! (except when given as an acknowledge)

Sticking out tongue-even without speech.

Spitting on floor.

Burping on purpose.

Growling

Raspberries.



2. Teasing a child by name calling or gesturing with e.g. a fist should be coded verbal aggression to peer.
3. Tongue pulling should be coded separately to any other gesture of aggression or verbal aggression.

### PHYSICAL AGGRESSION TO PEER

#### Definition

Snatching another child's possession, causing physical harm to another child or stealing from a child is physical aggression.

#### Examples:

hitting  
pinching  
pulling hair  
spitting at anyone  
slapping  
twisting finger  
standing on someone's toe  
biting  
kicking  
throwing something at a fellow pupil  
grabbing a pen from a fellow pupil  
pushing someone

### AGGRESSIVE TO TEACHER

#### Definition

Verbal or physical aggression (such as illustrated in verbal and physical aggression to peer) directed towards the teacher.

### DESTRUCTIVE

#### Definition

Destructive behaviour is usually directed at an object rather than a person, the only exception being self-harming behaviour. Behaviour that causes damage to an object or has intention to destroy or deface is coded as destructive behaviour.

Examples:

Pupil attempts to remove a non-removable part from a table

Pupil throws blocks at the wall.

Pupil throws toys into the toy box from more than 2 feet away.

Pupil beats book on table.

Pupil kicks school-bag.

Pupil tears pages up.

Pupil bangs head against wall.

Pupil spits at an object.

## DISRUPTIVE

### Definition

Inappropriate non-directed behaviour is coded as disruptive behaviour. These behaviours are only disruptive during structured teaching time and are not considered disruptive at playtime.

Examples:

Crying loudly, fake crying, whimpering

Whining in a slurring, nasal, high-pitched voice.

Yelling, screeching, screaming or loud crying

INITIATION TO PEER

## Definition

An initiation to peer is a verbal interaction of a relatively neutral nature, with a peer. The initiator may be the Index child (in which case the I-P category would be coded), it may be a peer initiating an interaction with the Index (code P-I) or two children, neither of whom is the Index child (code P-P).

POSITIVE RESPONSE

## Definition

A positive response can be a verbal response or it can be a physical response (in which case double code as Child Positive). The response has a positive, complimentary or neutral tone.

NEGATIVE RESPONSE

## Definition

Negative responses are uncomplimentary or involve ignoring the initiator (no response within five seconds of initiation).

CHILD POSITIVES

## Definition

Positive child behaviour consists of multiple behaviours:

- Positive verbal behaviour
- Positive valence
- Physical warmth

## Examples:

Smiling  
 Laughing  
 I did a good job!  
 I'm getting much better at this

Oh goody!  
 I'm a winner!  
 I like you  
 Thank you

**Appendix W**

*Number of pupils in each classroom scoring below borderline, borderline, and above borderline on the SDQ TD scale, and sum of TD score for each classroom, at T1.*

School ID	Score 0-11	Borderline score 12-15	Score 16 +	TD High score	Total TD score
1	5	1	3	4	108
2	6	1	2	3	93
3	7	2	0	2	73
4	9	0	0	0	25
5	7	2	0	2	47
6	7	0	2	2	74
7	6	0	3	3	79
8	5	1	3	4	98
9	8	1	0	1	68
10	8	1	0	1	42
11	5	0	3	3	56
12	6	2	1	3	74

**Appendix X****Glossary of acronyms**

<b>ADHD:</b>	<b>Attention Deficit Hyperactivity Disorder</b>
<b>ANOVA:</b>	<b>Analysis of Variance</b>
<b>ANCOVA:</b>	<b>Analysis of Co-Variance</b>
<b>APA:</b>	<b>American Psychological Association</b>
<b>BESD:</b>	<b>Behavioural, Emotional and Social Difficulties</b>
<b>CBPR:</b>	<b>Community-Based Participatory Research</b>
<b>CD:</b>	<b>Conduct Disorder</b>
<b>CTT:</b>	<b>Courage to Teach</b>
<b>DPICS:</b>	<b>Dyadic Paren-Child Interaction Coding System</b>
<b>EBIs:</b>	<b>Evidence-Based Interventions</b>
<b>IY:</b>	<b>Incredible Years</b>
<b>KS1/KS2:</b>	<b>Key Stage 1/Key Stage 2</b>
<b>LEA:</b>	<b>Local Education Authority</b>
<b>MBSR:</b>	<b>Minfulness-Based Stress Reduction</b>
<b>MOOSES:</b>	<b>Multiple Option Observation System for Experimental Studies</b>
<b>NICE:</b>	<b>National Institute of Clinical Excellence</b>
<b>NIMH:</b>	<b>National Institute of Mental Health</b>
<b>ODD:</b>	<b>Oppositional Defiant Disorder</b>
<b>PCT:</b>	<b>Patterson's Coercion Theory</b>
<b>PFMSS:</b>	<b>Preschool Five Minute Speech Sample</b>
<b>PPA:</b>	<b>Preparation, Planning and Assessment</b>
<b>PT:</b>	<b>Parent Training</b>

RCT:	Randomised Controlled Trial
SDQ:	Strengths and Difficulties Questionnaire
SEN:	(Statement of) Special Educational Needs
SES:	Socio-Economic Status
SLT:	Social Learning Theory
TCM:	Teacher Classroom Management
TD:	Total Difficulties (score from SDQ)
T-POT:	Teacher-Pupil Observation Tool
TSI:	Teacher Stress Inventory
T1/T2/T3:	Time 1/Time 2/Time 3 data collection points