

Positive classrooms, **Positive children**

A Randomised Controlled Trial to investigate the effectiveness of the *Incredible Years Teacher Classroom Management* programme in an Irish context (short-term outcomes)

Sinéad McGilloway, Lynda Hyland, Gráinne Ní Mháille, Anne Lodge, Donal O'Neill, Paul Kelly, Yvonne Leckey, Tracey Bywater, Catherine Comiskey and Michael Donnelly

SUMMARY REPORT



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Contents

Section	Page
Acknowledgements	4
List of Authors/Contributors	4
Executive Summary	5
Background: What is the study about?	7
The Incredible Years Ireland Study: An Overview	7
Aims and objectives of the current study: The IY TCM programme	7
Study Design	8
1. Testing the benefits of the TCM programme in Ireland: An Experimental Study	9
How was the experiment conducted?	9
Key findings: short-term outcomes	11
2. Teachers' experiences of the TCM programme: A Qualitative Study	16
How was the qualitative study conducted?	16
Key findings: short-term analysis	16
3. The costs of the TCM programme	21
How was the cost analysis conducted?	21
Key findings: short-term outcomes	21
Discussion	21
Conclusion	22
References	24

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Executive Summary

Background

This summary report presents the key short-term findings from a large-scale, independent evaluation of the effectiveness of the Webster-Stratton *Incredible Years Teacher Classroom Management (TCM)* programme - a classroom-based intervention designed to reduce conduct problems and promote children's pro-social behaviour by strengthening teacher classroom management strategies. The evaluation involved a clustered Randomised Controlled Trial (RCT) to examine the impact of the TCM programme on teacher behaviour and the classroom environment. Two related studies were conducted in parallel: (i) a qualitative study involving one-to-one interviews with teachers; and (ii) an assessment of the costs of the programme.

Methods and Design

Eleven schools (in the Limerick area), 22 teachers and 217 children (aged 4 to 7 years) from Junior and Senior Infant classrooms took part in the research. One teacher (and their class) from each school was randomly allocated to an intervention group (i.e. to receive the TCM programme), or to a waiting-list control group. Questionnaire data and extensive 'live' observations of teachers and selected children in the classroom were used to provide a detailed assessment of teacher and child behaviour at baseline (i.e. prior to the intervention) and six months post-baseline. In addition, a series of qualitative interviews was conducted with a small sample of teacher participants (n=11), the main aim of which was to elicit views and experiences of the programme. Key outcomes were combined with data on the costs of the programme in order to assess its overall cost-effectiveness.

The Intervention

The Incredible Years (IY) TCM programme is a group-based intervention guided by the principles of behavioural and social-learning theory. Teacher training was delivered by two trained facilitators (with backgrounds in education and psychology) for one day per month for a five-month period, using videotape modelling, role plays and discussions to promote positive behaviour and participation, to decrease classroom aggression/hostility and to set clear classroom rules. A month-long interval between each teacher training day provided teachers with an opportunity to implement the new classroom management strategies that they had learned and to carry out classroom assignments.

Results

The main study - The experimental test of the Incredible Years TCM programme:

A substantial proportion of children (26%) showed significant social, emotional and behavioural difficulties at baseline. Statistical analyses indicated that the teachers who had taken part in training, were using significantly fewer negative classroom management strategies (e.g. fewer warnings and threats, less shouting) whilst their self-reported frequency of use and perceived usefulness of positive classroom management strategies (e.g. modelling good behaviour) had also increased significantly. A number of significant differences in child behaviour also emerged between the intervention and control groups, including a significant decrease in emotional symptoms in the intervention group.

Conduct problems and total behavioural difficulties among children in the intervention group also decreased when compared to the controls, although these fell short of statistical significance. Further sub-group analyses suggested that those children who were most 'at risk', derived the most benefit from the programme.

Study 2 - The qualitative study of teachers' experiences:

A series of one-to-one interviews with teachers, highlighted firstly, the difficulties inherent in managing conduct problems in the classroom and, secondly, the benefits of TCM training in this respect. Overall, teachers found the principles of the TCM programme to be effective and easy to implement, and children responded well to the strategies. Teachers also reported significant benefits of the intervention on their overall levels of stress, as well as classroom management and home-school collaboration. They felt that TCM training had led to an improvement in classroom atmosphere and a reduction in disruptive behaviour in the classroom.

Study 3 - The cost analysis:

The estimated cost of delivering the TCM programme was €2012.92 per teacher, whilst the average cost per child was €100.65. Further analysis indicated that it would cost €52.97 to effect a one-point change in the SDQ score for a given child. These findings demonstrate that the costs of implementing the IY TCM programme are very modest when compared to other popular education-based programmes.

Conclusion

The findings point toward the overall utility and cost-effectiveness of the IY TCM programme in an Irish context. The programme led to improvements in the classroom environment, including a reduction in teacher reported stress and negative classroom management strategies, as well as fewer incidences of disruptive behaviour amongst pupils in the classroom. Some improvements were also seen in teacher reports of social, emotional and behavioural difficulties in the intervention group children when compared to their control group counterparts including, in particular, a significant reduction in emotional symptoms. Teacher reports also underline the acceptability and benefits of the programme to teachers and possibly other staff within the Irish education system.

It is important to note that these results are based on a six-month pre-post intervention period, during which time the teachers were still receiving the training. This may have limited, to some extent, the opportunity available to teachers to *fully* implement everything that they had learned from the programme during this relatively short period, whilst universal changes in child behaviour may also have required a longer period of time to materialise. Nonetheless, it is notable that a number of positive changes in child and teacher behaviour were achieved and that the nature of the teacher-child relationships amongst the intervention group teachers, appear to have changed positively within a short period of time. Overall, the collective findings from this research are encouraging and have important implications for educational policy and practice in Ireland (and elsewhere) (*Box 1*).

Box 1: Summary of Key Findings and their Implications**KEY FINDINGS****Our results demonstrate that the IY TCM programme:**

- significantly improves teacher competencies and their management of disruptive behaviours in the classroom.
- benefits pupil behaviour and socio-emotional adjustment, particularly for those children considered to be most 'at risk'.
- facilitates a more positive social and academic environment for teachers and children.

Overall, teachers, classrooms and schools can play an important role in promoting the social and emotional development of children. The findings reported here have significant implications for educational practice and policies, both in Ireland and elsewhere.

IMPLICATIONS OF THE RESEARCH**FOR TEACHERS AND SCHOOLS...**

- Irish teachers were highly satisfied with the IY TCM programme and would readily recommend the programme to other teachers. This is important because anecdotal evidence suggests that teachers often find that the implementation of these types of programmes, impacts negatively on their workload and with little, if any, tangible benefits.
- Teacher participants felt that the IY TCM programme helped to create more relaxed, manageable and positive classroom environments and a better learning experience for children.
- The implementation of the IY TCM training in the early school years can help to promote children's social and emotional development and prevent the onset of negative and aggressive behaviours.
- TCM training can provide teachers with an opportunity for professional development and augment reflective teaching practices. These factors can help to strengthen the teaching and learning environment in Irish schools, whilst also potentially averting, or minimising teacher burnout and stress.
- There was also an indication, from some of our qualitative findings, that the programme promotes better home-school collaboration, thereby contributing toward more effective shared learning between parents and teachers.
- Ultimately, this programme may help to bring about positive changes in children's academic abilities, whilst reducing the risk of early school leaving and maladjustment in the longer term.

FOR POLICY-MAKERS...

- A child-centred approach in Irish infant classes is needed in order to address some of the kinds of emotional and behavioural challenges that tend to characterise many contemporary classrooms.
- Adequate practical training in classroom management, as recommended by the OECD (2009), is important for those who work with young children in Ireland. Currently, teachers who work with young children receive little classroom management training. The IY TCM programme can help to address this important gap in provision.
- The TCM programme can provide a cost-effective means of improving the learning environment and young children's experiences of early education, whilst also being highly acceptable to the teachers who take part in the training.

FOR RESEARCHERS...

- The long-term outcomes of classroom-based interventions for teachers and children and the extent to which these kinds of interventions can facilitate the transferability of positive behaviour across different environments, should be assessed in future research.
- The combination of classroom-based intervention with child training and/or parent training may further help to promote and foster positive child outcomes. Future research should explore how psychosocial interventions can be used most effectively in 'real world' settings to better manage and prevent emotional and behavioural difficulties in childhood.

Background: What is the study about?

Conduct problems in school

Academic and social success in school is an important prerequisite for positive developmental outcomes and healthy adjustment in later life (e.g. Hayes & Kernan, 2001). Conversely, child conduct problems in an educational context are associated with academic underachievement, poor attendance and disengagement from school, school failure and early school leaving (e.g. Knitzer, 1993). Children with these problems are also much more likely to have greater difficulty in establishing and maintaining positive relationships with their peers and are at increased risk of depression and low self-esteem (de Boos & Prins, 2007). In the classroom, such children may be frequently 'off-task' and may show aggression towards others, or refuse to co-operate, all of which can adversely affect their own learning as well as the learning of others around them (Irish National Teachers Organisation (INTO), 2004).

The disruptive behaviour of a minority of children with conduct problems may also have a negative effect on school 'climate' and may impinge on the rights of other children to an education and the rights of teachers to educate children in their care (INTO, 2005). High levels of disruptive behaviour in the classroom may also negatively impact upon teachers' job satisfaction (Nelson et al., 2001), whilst increasing stress (Greene et al., 2002) and the likelihood of burnout (Brouwers & Tomic, 2000). Furthermore, teachers often feel ill-equipped to deal with challenging behaviour in the classroom (Webster-Stratton & Taylor, 2001; Shernoff & Kratochvill, 2007). Indeed, there is growing recognition of the increase in discipline problems within school settings and teachers in Ireland (and possibly elsewhere) are now facing increasing demands on their role as educators.

Classroom management has been identified by the Department of Education and Science (DES, 2006) in Ireland as a key element of teaching, and the importance of positive teacher-child relationships in the development of 'positive school cultures' and an optimal classroom learning environment have also been recognised (Hamre & Pianta, 2001). The promotion and reinforcement of teachers' capacities to create and sustain positive classroom environments by means of professional training, should allow them to effectively manage and minimise disruptive behaviour and make their classrooms better, more productive and less stressful places to teach and learn. The provision of such training may also help teachers to foster positive socioemotional and behavioural well-being amongst the children in their class.

Teacher Classroom Management training

Teachers are well placed to create the conditions that support and foster positive development and learning, whilst providing an emotionally secure and safe environment that prevents and reduces aggressive behaviour (National Institute for Health and Clinical Excellence (NICE), 2008). However, teachers with poor classroom management skills tend to have higher levels of aggression and peer rejection in their classrooms which may, in turn, impede the development of appropriate self-regulatory and behavioural skills (Webster-Stratton & Reid, 2008). Existing research indicates that well designed classroom management training interventions can help teachers to develop their skills for tackling behavioural problems and for promoting pro-social behaviour, thereby

improving both the general classroom environment and individual student behaviour (Kellam et al., 1998; Raver et al., 2008; NICE, 2008; Kellam et al., 2008). Indeed, the provision of teacher classroom management training has been shown to result in more substantial improvements in child behaviour when compared to social skills training (Webster-Stratton & Taylor, 2001). Accordingly, intervention strategies that support teachers may be important in preventing negative developmental outcomes, whilst also potentially reducing the need for special education resources (Jennings & Greenberg, 2009).

The current study evaluated the effectiveness of a well known teacher classroom management intervention called *The Incredible Years (IY) Teacher Classroom Management (TCM)* programme (Webster-Stratton & Reid, 1999). This was developed to provide teachers with appropriate strategies and skills to effectively manage pupil behaviour within the classroom. The TCM programme is a group-based programme which consists of five one-day training sessions, each of which is delivered monthly. Videotape modelling, role plays and discussions are used to help teachers promote pro-social behaviour in their pupils and reduce undesirable and aggressive behaviour through the use of praise, encouragement and motivation through incentives. Teachers are encouraged to establish more positive relationships with pupils and to facilitate peer-to-peer bonding. The programme also aims to encourage teachers to collaborate with parents and promote parent involvement in school (Webster-Stratton et al., 2008). The few evaluations of the IY TCM programme completed to date, support the effectiveness of the intervention in improving child behaviour, classroom environment and teacher skills across several different cultural contexts (Webster-Stratton & Reid, 2003; Webster-Stratton et al., 2004; Hutchings et al., 2007; Baker-Henningham et al., 2009).

The Incredible Years Ireland Study: An Overview

The Incredible Years Ireland Study involves a comprehensive and methodologically rigorous, community-based evaluation of the effectiveness of different elements of the IY suite of programmes. The first findings from this study, based on the short-term outcomes from an experimental study of the *Incredible Years BASIC Parent Training* programme, were produced in September 2009 (McGilloway et al., 2009a; McGilloway et al., 2009b) and further findings will become available as the study progresses. The study reported here, focuses on the second element or phase of the evaluation, the *IY Teacher Classroom Management (TCM)* programme. Both of these evaluations involved several sub-studies which were undertaken in parallel to examine the processes by which the different programmes work (i.e. the process evaluation), as well their cost effectiveness (i.e. the economic evaluation). A third phase of the *Incredible Years Ireland Study* involving an evaluation of two of the IY programmes, is currently under consideration.

Aims and objectives of the current study: The IY TCM programme

This report presents a summary of the second set of key findings to emerge from the *Incredible Years Ireland Study*. This second phase of the study was undertaken to assess the overall effectiveness and cost-effectiveness of the IY TCM programme in an Irish context. The findings focus on short-term (six-month) outcomes of the programme and provide useful insights into the impact of TCM training on both teacher classroom management behaviour and child behaviour. The longer-term (12-month) findings from this study will be reported at a later date; these will focus on the extent to which teacher 'learning' and strategies have generalised to new classrooms.

The specific research questions addressed in this study were as follows:

- Does the *Incredible Years Teacher Classroom Management (TCM)* programme improve teacher classroom management competencies and provide teachers with the appropriate skills to manage challenging behaviour?
- To what extent does the TCM programme improve child behaviour in the classroom?
- To what extent do outcomes for teachers and children change over time?
- What are the experiences of teachers and which factors facilitate or inhibit the effective implementation of the programme?
- How cost-effective is the programme?

Three separate, but interrelated studies were undertaken to address the above questions including: the main experimental study or Randomised Controlled Trial (RCT); a qualitative study involving interviews with teachers who took part in the RCT; and a third study involving a cost analysis. Each of these is outlined briefly below.

Study Design

The main study: The experimental evaluation of the Incredible Years Teacher Classroom Management programme

First, we present key findings from an RCT evaluation of the effects of the TCM training programme on teacher management strategies and on the behaviour of children (aged 4-7 years) in the classroom.

Study 2: The qualitative sub-study

This part of the study assessed teachers' views of managing conduct problems in the classroom, in general, as well as the teacher-perceived effectiveness and acceptability of the IY TCM programme in an Irish context.

Study 3: The cost analysis

The cost analysis explored the cost-effectiveness of the IY TCM programme. The costs of various elements of the programme were computed and the total costs compared to international education-based programmes.

Testing the benefits of the TCM programme in Ireland: An Experimental Study (RCT)

How was the experiment conducted?

Participants and settings

Eleven schools and a total of 22 teachers (two teachers from each school) agreed to take part in the trial. The schools participating in this research were located in Limerick city (n=8), or within an approximate 30-mile radius of the city (n=3). Seven schools were designated as 'disadvantaged'.¹ At the time of recruitment, the teachers had been assigned to either a Junior or Senior Infant class. Most participants (n=15) were aged 25 to 34 years. They had, on average, 9 years' teaching experience and had spent an average of almost 5 years teaching infant classes. All but one of the teachers were female. In total, 445 children (192 boys and 253 girls) were taught by the teachers participating in the study and class size ranged from 11 to 29 children (average class size=20). Teacher reports indicated that approximately one quarter of children in the study sample were showing significant levels of social, emotional and/or behavioural difficulties at baseline (i.e. pre-intervention). In addition, 42% were rated by teachers to be above the recommended cut-off indicating the presence of hyperactivity.

Procedure/analysis

At baseline, teachers were asked to complete the teacher version of the *Strengths and Difficulties Questionnaire* (SDQ) for every child in their classroom. Teacher participants were randomly and blindly allocated on a 1:1 ratio to an intervention or control group. Thus, one teacher from each school was allocated either to an IY TCM training group, or to a waiting-list control group (see *Fig 1*). No significant differences ($p>0.05$) in mean SDQ scores were found between the intervention and control group classrooms at baseline.

From the 445 children initially screened, approximately 12 children from each class were selected for inclusion in the study on the basis of their teacher-reported SDQ scores, to yield a cross-section of index children that was balanced in terms of 'high', 'medium' and 'low' levels of behavioural problems.

Thus, observations were conducted on the four highest scoring children in each class (i.e. those who, as reported by their teacher, exhibited the most conduct problems in the class according to their 'total difficulties' score on the SDQ); the four lowest scoring children (the children who showed the fewest conduct problems in the class according to the SDQ 'total difficulties' score); and the four middle-scoring children (the children who obtained a score at or around the class mean on the SDQ 'total difficulties' measure). In two classrooms, where there were fewer than 12 children, all pupils were included in the trial.

Children were excluded from the study if they had a formal diagnosis of a developmental disorder, if parental consent forms were not returned, or if they were absent from school on more than one occasion during baseline assessment. In total, data were collected for 234 index children at baseline. However, 17 children (7%) were lost to follow up (see *Fig 1*). This yielded a total of 217 index children (107 control group children and 110 intervention group children) (102 boys and 115 girls)² with differing levels of behavioural problems, who were included in the final analysis (71 high scoring children, 74 low scoring children and 72 children who scored at, above, or below the mean depending on the

distribution of scores)^{3,4}. The analyses in this report were conducted on teachers (n=22) and index children (n=217).

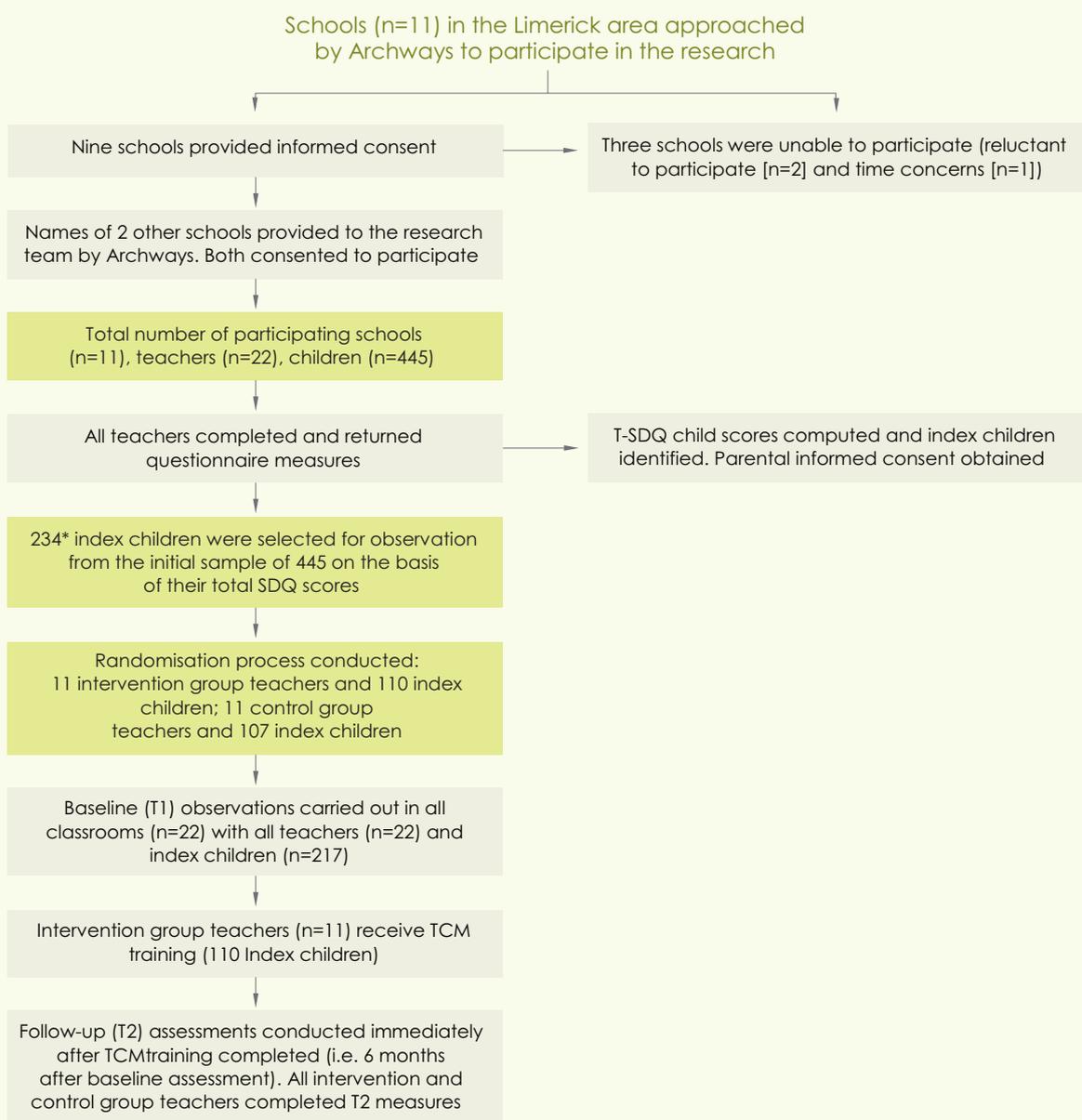
1. A total of 311 primary schools in Ireland have been designated as 'disadvantaged', indicating that they receive a greater level of support in terms of pupil-teacher ratios, special grants and extra support for pupils (Dept. of Education & Science, 2010).

2. Control group= 48 males and 59 females; Treatment group= 54 males and 56 females.

3. 71 high scoring children (35 control, 36 intervention); 74 middle scoring children (36 control, 38 intervention); 72 low scoring children (36 control, 36 intervention).

4. The 'high', 'medium' and 'low' groupings which were used to select index children, do not correspond to the normal, borderline and abnormal cut-off points on the SDQ 'Total Difficulties' scale.

Fig 1: Overview of teacher recruitment and RCT design



*17 children were lost to follow-up.

Measures

Child behaviour outcome measures (teacher-completed)

Two widely used and psychometrically robust questionnaires - the *SDQ* Teacher version (Goodman, 1997) and the *Conners Abbreviated Teacher Rating Scale* (Conners, 1994) - were used to provide a brief assessment of the nature and severity of child emotional and behavioural problems. These included: emotional symptoms; disordered conduct; peer-relationship problems; and hyperactivity in the classroom.

Observational outcome measures (researcher-completed)

Naturalistic observations of the classroom and teacher-pupil interactions were also undertaken to provide a rigorous and comprehensive assessment of the key outcome domains relevant to this research, including teacher classroom management strategies and child behaviour. The *Teacher-Pupil Observational Tool* (T-POT; Martin, 2005) was developed specifically for classroom observation and provides detailed insights into the nature of teacher-pupil interactions in the classroom setting, as well as frequency counts of teacher behaviours and child positive and negative behaviour. The behaviour of each index child and teacher was observed in class for a total of 15 minutes and, typically, 60 minutes of continuous coding was undertaken in each classroom for both baseline and post-intervention assessments. Frequency counts of teacher and pupil behaviour were obtained during structured lessons (i.e. reading, writing, mathematics) and focused on the behaviour of the index child and his/her interaction with their teacher and peers. Reliability between coders was examined in half of the classroom observations and an average (and acceptable) reliability of 73% was achieved. Where possible, the research team was blind to randomisation in order to minimise any potential bias.

Teacher self-report measures

A background profile of all teachers was obtained using a *Teacher Profile Questionnaire*. The *Teacher Strategies Questionnaire* (TSQ; Webster-Stratton, 2005) was used to collect data relating to teachers' confidence in managing challenging behaviour in the classroom, as well as their use of positive strategies (e.g. modelling good behaviour, using praise and incentives, ignoring non-disruptive behaviour), negative classroom management strategies (e.g. warning and threatening to send children out of class, singling out children for misbehaviour, commenting in a loud voice) and strategies to improve home school links (e.g. sending notes home). This questionnaire was also used to assess the teacher-perceived utility of these classroom management strategies (e.g. the frequency and usefulness of praise and incentive; proactive strategies, limit-setting strategies and inappropriate strategies). An adapted *Teacher Satisfaction Questionnaire* was administered at follow-up to the intervention group teachers to assess their perceptions of the intervention.

Analysis strategy

The IY TCM intervention is designed primarily to improve teachers' management competencies. Therefore, it was necessary, to analyse first, the extent to which the intervention led to any changes in the classroom management strategies of individual teachers. The changes in teachers' classroom strategies from baseline to follow-up were assessed

by computing the difference between teachers' mean scores at both time points. Independent sample t-tests were then used to examine whether the magnitude of this change differed significantly between the teachers in the intervention and control groups. Teachers' self-reported use of classroom management strategies was subsequently examined using analysis of covariance (ANCOVA).

Children in this study were clustered within classes. Individuals within pre-existing groups, such as classrooms, may resemble each other more than individuals in different groups, on a range of factors, such as gender and age and/or socio-economic, ethnic and religious background. Therefore, we used robust regression modelling to examine pre- to post-intervention differences in child behaviour, whilst adjusting for this clustering effect, or controlling for the potentially confounding effects of group-level factors. Effect sizes were calculated using partial eta squared to provide an estimate of the size of the effect of the intervention on teacher and child outcomes. An effect size of 0.01 (or smaller) is considered to be a small effect of the intervention, 0.06 is a moderate effect whilst 0.14 (or greater) represents a large effect (Cohen, 1988).

Key Findings: Short-Term Outcomes

Does the Incredible Years Teacher Classroom Management programme result in changes in teacher behaviour?

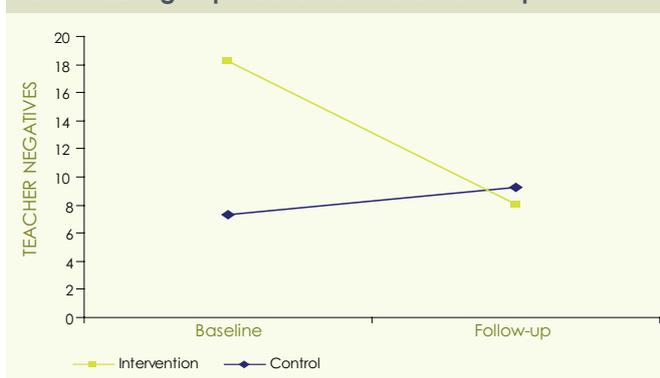
Classroom observations

- A number of post-intervention benefits for teachers were evident from the observation of their general classroom management. As shown in *Table 1*, a moderate to large positive effect of the intervention was evident at follow-up, from a significant reduction in the observed incidence of teacher negatives for the intervention group ($p < 0.01$). Thus, after training, teachers used significantly fewer harsh and critical statements, as well as fewer negative commands in their interactions with children when compared to control group teachers (*Fig. 2*).
- At follow-up, teachers in the intervention group also gave pupils in their class significantly more time to comply with instructions and questions (e.g. 'no opportunity') when compared with their control group counterparts ($p < 0.05$).
- Some increases in the use of positive classroom management strategies were also observed for TCM-trained teachers at the pre- and post-intervention stages, although the differences between groups in this respect were not statistically significant (*Table 1*).
- Contrary to expectation, the use of indirect commands (e.g. 'listen!') amongst the intervention group teachers did not decline over time; that is, teachers who received the TCM training did not use fewer indirect commands at follow-up. Whilst the use of direct commands amongst the intervention group teachers showed a small increase, this was not significant.

Table 1: Summary of teacher observational measures at baseline and follow-up

	Mean (SD) raw scores				Mean Diff (95% CI), p-value	Effect size (95% CI)
	CONTROL (n=11)		INTERVENTION (n=11)			
	Baseline	6 month follow-up	Baseline	6 month follow-up		
Teacher Positives	75.5 (16.3)	82.5 (15.7)	67.4 (17.5)	82.8 (15.4)	8.3 (-8.4 to 25.0) 0.29	0.11 (-0.11 to 0.53)
Teacher Praise	29.9 (13.5)	26.8 (8.5)	27.7 (8.5)	31.6 (9)	7.0 (-2.7 to 16.6) 0.14	0.21 (-0.04 to 0.60)
Teacher Negatives	7.3 (6.1)	9.3 (7.5)	18.2 (15.2)	8.1 (9.9)	-12.2 (-16.8 to -7.5) <0.001	-0.77 (-0.87 to -0.56)
Indirect Commands	52.9 (14.7)	56 (9.4)	49.4 (14.9)	49.4 (11.7)	-3.0 (-18.7 to 12.8) 0.68	-0.02 (-0.41 to 0.25)
Direct Commands	16.3 (6.9)	17.2 (5.2)	16.9 (9.2)	19.7 (10.5)	1.9 (-8.3 to 12.0) 0.69	0.02 (-0.28 to 0.44)
No Opportunity	7.1 (4.3)	12.1 (6.7)	8.7 (6.1)	8.8 (4.3)	-4.9 (-9.2 to -0.6) 0.03	-0.39 (-0.69 to -0.01)

Fig.2: Observations of teacher negatives for intervention and control groups at baseline and follow-up



- Based on responses from the *Teacher Satisfaction Questionnaire*, all of the teachers reported the programme to be either ‘appropriate’ or ‘very appropriate’ for managing classroom behaviour whilst 7 of the 11 teachers (64%) who took part in the training, indicated that they would recommend the programme to another teacher.
- All of the intervention group teachers reported that they felt much more confident in their ability to manage behaviour problems in the classroom.
- On average, teachers’ overall impression of the programme was positive, with eight teachers (73%) rating it as either ‘positive’ or ‘very positive’.

Teachers’ self-reported use of strategies and overall levels of satisfaction

- Overall, the results on teachers’ self-reported frequency of use and perceived usefulness of positive classroom management strategies (e.g. modelling good behaviour, using praise and incentives) as measured on the *Teachers Strategies Questionnaire*, highlighted statistically significant between-group differences strongly in favour of the intervention group (Table 2). This suggests that teachers in the intervention group found positive classroom management strategies both easy to implement in the classroom and more useful at follow-up.
- There was also a significant decrease in the self-reported frequency of use of inappropriate strategies for managing misbehaviour (e.g. commenting on bad behaviour) amongst the intervention group teachers. By contrast, some increases were evident in both the frequency and perceived usefulness of inappropriate strategies amongst the control group teachers.

Table 2: Summary of Teacher Strategies scores at baseline and six month follow-up

	Mean (SD) raw scores				Mean Diff (95% CI), p-value	Effect size (95% CI)
	CONTROL (n=11)		INTERVENTION (n=11)			
	Baseline	6 month follow-up	Baseline	6 month follow-up		
Total Positive Strategies - Frequency (Min=1; Max=5)	3.6 (0.5)	3.4 (0.5)	3.6 (0.7)	4.0 (0.4)	0.44 (0.09 to 0.79), 0.02	0.56 (0.05 to 0.80)
Total Positive Strategies - Usefulness (Min=1; Max=5)	3.8 (0.5)	3.9 (0.8)	3.5 (0.8)	4.3 (0.5)	0.54 (0.006 to 1.08), 0.05	0.45 (0.0001 to 0.76)
Inappropriate Strategies - Frequency (Min=1; Max=5)	1.4 (0.5)	1.9 (0.6)	2 (0.4)	1.5 (0.5)	-0.59 (-1.19 to 0.014), 0.05	0.43 (-0.76 to 0.0005)
Inappropriate Strategies - Usefulness (Min=1; Max=5)	1.7 (1)	2.1 (1.1)	2.3 (0.7)	2.4 (1)	-0.07 (-0.98 to 0.83), 0.85	-0.005 (-0.48 to 0.40)

Does the Incredible Years Teacher Classroom Management programme lead to changes in child behaviour?

Child behaviour outcomes: Teacher-reported SDQs

- Emotional symptoms showed a significant improvement for intervention group children (post-intervention) when compared with the control group. This suggests that the TCM programme had helped teachers to better manage and promote the children's socio-emotional development, resulting in improved self-regulation and co-operation skills.
- The SDQ 'total difficulties' score in the intervention group had decreased at follow-up, although this fell short of statistical significance (*Fig 3*). Conversely, disruptive behaviour among the control group had increased post-intervention.
- Post-intervention teacher reports of child behaviour, as measured on the SDQ subscales (*Table 3*), demonstrated a number of improvements in child behaviour.
- Children receiving the classroom intervention showed fewer conduct problems than their control group peers as seen by a large effect size, although the difference between the intervention and control groups was only approaching statistical significance (*Table 3*).
- Teacher reports of hyperactivity, peer problems and prosocial behaviour did not differ from baseline to follow-up. Similarly, intervention teachers did not report a significant reduction in the general distress and social impairment experienced by children as a result of conduct problems.

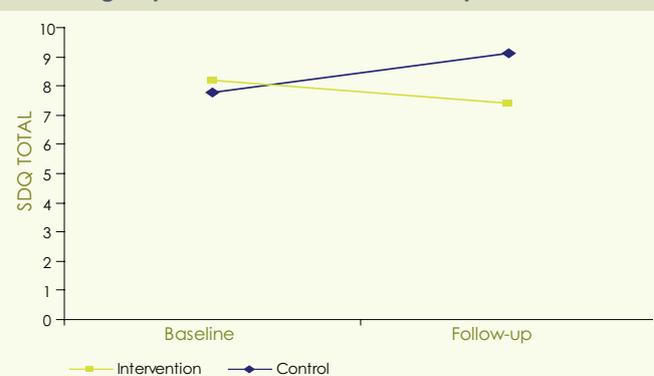
Fig.3: SDQ 'total difficulties' score for intervention and control groups from baseline to follow up

Table 3: Summary of SDQ scores at baseline and follow-up

	Mean (SD) raw scores				ICC*	Mean Diff (95% CI), p-value	Effect size (95% CI)
	CONTROL (n=107)		INTERVENTION (n=110)				
	Baseline	6 month follow-up	Baseline	6 month follow-up			
Emotional Symptoms	1.6 (2.1)	2.5 (2.5)	2.1 (2.7)	2 (2.4)	0.185	0.84 (-1.69 to 0.01), 0.05	-0.17 (-0.45 to 0.00)
SDQ Conduct Problems	1 (1.8)	1.1 (2)	1.1 (1.9)	0.9 (1.8)	0.097	-0.33 (-0.69 to 0.03), 0.07	-0.15 (-0.43 to 0.001)
SDQ Hyperactivity	3.4 (3.4)	3.7 (3.6)	3.6 (3.2)	3.3 (3.2)	0.084	-0.53 (-1.41 to 0.35), 0.23	-0.07 (-0.34 to 0.03)
SDQ Peer Problems	1.7 (2)	1.7 (1.9)	1.3 (1.7)	1.1 (1.5)	0.155	-0.37 (-1.08 to 0.33), 0.29	-0.05 (-0.32 to 0.04)
SDQ Pro-Social	7.1 (2.7)	7.4 (2.7)	7.6 (2.3)	8.2 (2.3)	0.203	0.36 (-0.38 to 1.10), 0.33	0.05 (-0.05 to 0.31)
SDQ Total	7.8 (7.1)	9.1 (7.9)	8.2 (7.1)	7.4 (6.4)	0.116	-2.06 (-4.35 to 0.23), 0.07	-0.14 (-0.43 to 0.002)
SDQ Impact	0.7 (1.5)	0.9 (1.7)	0.8 (1.5)	0.7 (1.4)	0.222	-0.30 (-0.67 to 0.07), 0.10	-0.12 (-0.40 to 0.008)
Conners (Hyperactivity)	17.1 (7.8)	16.7 (8.3)	16.2 (7.5)	14.7 (6.5)	0.096	-1.23 (-3.13 to 0.67), 0.19	-0.08 (-0.36 to 0.02)

*The Intraclass (or intraclass) Correlation Coefficient compares the variance within clusters to the variance between clusters. Values range from 0 to 1 and higher values indicate higher levels of inter-cluster variance which may be problematic in clustered designs.

Sub-analyses

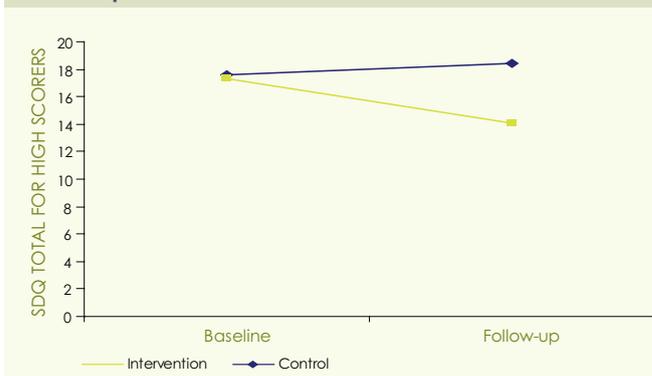
Sub-analyses were conducted to examine the impact of the intervention on children with differing levels of behavioural need (i.e. children who were at low and high risk of behavioural problems). For purposes of this analysis, the index children were divided into the following two groups: (1) a ‘high risk’ group comprising 63 children (30 control, 33 intervention; 27 girls and 36 boys⁵) who were exhibiting borderline or abnormal levels of behavioural problems (i.e. who obtained a score of 12 or more on the SDQ ‘total difficulties’ score); and (2) a ‘low risk’ group comprising 154 children (77 intervention, 77 control; 88 girls and 66 boys⁶) who were rated as being within the ‘normal’ range (i.e. who obtained a score of 11 or lower on the SDQ ‘total difficulties’ score).

Pre- to post-intervention comparisons between intervention and control group children in both sub-groups were carried out using robust regression analysis, controlling for clustering. No significant differences were found between the intervention and control ‘low risk’ children across both time points. However, a number of significant improvements were seen in the ‘high risk’ group, all of which are outlined below (see Table 4).

- There was a significant difference between the intervention and control groups with respect to total behavioural difficulties (as shown by the ‘SDQ total’ scores); these showed a significant decline in the intervention group children across both time points.

- There was also a statistically significant difference in peer problems between the two groups, indicating improved interpersonal skills amongst the intervention group children. In addition, there was a significant effect of the intervention with respect to the distress and social impairment experienced by the children in the intervention group (as measured by the SDQ ‘impact supplement’ scale).
- Overall, these findings indicate that the programme was most beneficial for children who showed the highest levels of socioemotional and behavioural difficulties, in terms of improved emotional and social competence skills. Conversely, there was a slight deterioration in behaviour for the ‘high risk’ children in the control group (Fig 4).

Fig.4: SDQ total difficulties score for ‘high risk’ children in the intervention and control groups at baseline and follow-up.



5. High scoring group: Controls: 15 female and 15 male; Intervention: 12 female and 21 males.
 6. Low scoring group: Control: 44 females and 33 males; Intervention: 44 females and 33 males.

Table 4: Summary of SDQ scores at baseline and follow-up for the 'high risk' group (who obtained 12 or higher on the SDQ 'total difficulties' score)

	Mean (SD) raw scores				ICC	Mean Diff (95% CI), p-value	Effect size (95% CI)
	CONTROL (n=30)		INTERVENTION (n=33)				
	Baseline	6 month follow-up	Baseline	6 month follow-up			
SDQ Emotional Symptoms	3.7 (2.2)	4.4 (2.5)	4.4 (3.1)	3.6 (2.7)	0.412	-1.23 (-2.66 to 0.20), 0.09	-0.15 (-0.44 to 0.004)
SDQ Conduct Problems	2.8 (2.3)	3 (2.8)	2.9 (2.4)	2.4 (2.4)	0.229	-0.66 (-1.55 to 0.22), 0.13	-0.12 (-0.41 to 0.01)
SDQ Hyperactivity	7.5 (2.3)	7.4 (2.9)	6.8 (2.8)	6.1 (3.1)	0.286	-0.74 (-2.29 to 0.80), 0.33	-0.05 (-0.34 to 0.06)
SDQ Peer Problems	3.6 (2.3)	3.6 (2.3)	3.2 (1.8)	2 (1.7)	0.359	-1.32 (-2.44 to -0.20), 0.02	-0.24 (-0.52 to -0.008)
SDQ Pro-Social	4.4 (2.3)	5.1 (2.9)	6 (2.4)	6.6 (2.6)	0.491	0.17 (-0.80 to 1.13), 0.72	0.007 (-0.14 to 0.24)
SDQ Total	17.6 (4)	18.4 (6.7)	17.3 (4.3)	14.1 (5.6)	0.299	-4.01 (-8.13 to 0.10), 0.05	-0.18 (-0.47 to 0.0001)
SDQ Impact	2.3 (2.1)	2.8 (2.0)	2.4 (1.8)	1.8 (1.8)	0.55	-1.09 (-2.02 to -0.15), 0.03	-0.24 (-0.52 to -0.006)
Conners (Hyperactivity)	25.4 (8.1)	24.8 (9.3)	24.1 (8.4)	21 (8.2)	0.23	-2.79 (-7.47 to 1.89), 0.23	-0.08 (-0.37 to 0.04)

Classroom observation of index children

- Findings from the classroom observation (*Table 5*) did not reveal any statistically significant effects of the intervention. Nevertheless, in contrast to the control group, there was a slight improvement for intervention group children in relation to negative responses to teacher-initiated behaviours ('child negatives'), as indicated by a moderate-sized difference (in the expected direction) between the two groups.
- Similar moderate sized differences in the expected direction were found with respect to non-compliant behaviour, although the difference was not statistically significant.

Table 5: Summary of child observational measures at baseline and follow-up

	Mean (SD) raw scores				ICC	Mean Diff (95% CI), p-value	Effect size (95% CI)
	CONTROL (n=30)		INTERVENTION (n=33)				
	Baseline	6 month follow-up	Baseline	6 month follow-up			
Child Positives	2.5 (3.0)	2.0 (2.6)	2.1 (2.9)	2.0 (2.0)	0.284	0.03 (-0.59 to 0.65), 0.93	<0.001 (-0.16 to 0.18)
Child Negatives	0.2 (0.6)	0.3 (1.0)	0.5 (2.1)	0.2 (0.7)	0.279	-0.20 (-0.57 to 0.16), 0.26	-0.06 (-0.33 to 0.04)
Compliance	4 (4.4)	4.5 (5.2)	4.5 (5.4)	3.8 (4.5)	0.119	-0.78 (-2.63 to 1.07), 0.389	-0.04 (-0.29 to 0.06)
Non Compliance	0.1 (0.5)	0.1 (0.4)	0.2 (0.9)	0.1 (0.3)	0.188	-0.05 (-0.12 to 0.03), 0.23	-0.07 (-0.35 to 0.03)

Frequency counts of child behaviour in 15 minutes

Teachers' experiences of the TCM programme: A Qualitative Study

How was the qualitative study conducted?

Participants and settings

This section of the report provides an overview of the findings relating to the qualitative sub-study (or process evaluation). This study comprised a series of one-to-one interviews with teacher participants and other key stakeholders across all three time points of the study. The interviews with teachers only - at both baseline and immediately post-intervention - are outlined here. The findings from interviews with other key stakeholders (e.g. school Principals) will be detailed at a later stage.

A total of 11 teachers (5 intervention teachers and 6 control teachers) from six schools participated in one-to-one semi-structured interviews at baseline (December 2008-January 2009) and immediately after programme completion (intervention group-June 2009; control group-June 2010). Only one intervention teacher who was invited to take part in an interview, was not available at the six-month follow-up due to time constraints (although we interviewed her subsequently at the 12-month follow-up). Four control group teachers, who had received the training and who were asked to participate in follow-up interviews, were unable to do so. A diverse sample of teachers was recruited to reflect varying age, years of service, types of classroom problem behaviour and school location. Within this study, teachers had five years' experience of teaching infant classes (Mean=5.3, SD=7.5), although this ranged from 0 to 27 years. Years of teaching experience in primary schools ranged from 1 to 30 years (Mean=9.7, SD=9.7). Seven teachers were working in schools designated as disadvantaged, whilst four were working in non-disadvantaged schools.

Procedure/analysis

Baseline and follow-up interview schedules were devised to include questions pertaining to current classroom management issues and strategies used by teachers when dealing with specific difficulties in the classroom. The follow-up interview schedule included questions about teachers' experiences of participating in the TCM programme and post-training classroom management. At the six-month follow-up, eight teachers (four of the five intervention group teachers and four of the control group teachers) were interviewed again in order to ascertain their experiences of the training programme. All interviews were recorded and transcribed verbatim and subjected to a thematic analysis based upon the 'Framework method' (Pope et al., 2000; Ritchie and Spencer, 2002).

Key Findings: Short-Term Outcomes

Six key themes were identified from the analysis including: (1) 'reality of the classroom environment'; (2) the 'learning experience'; (3) 'changes to the self'; (4) perceived impact on child behaviour; (5) the 'positive classroom'; and (6) further recommendations for the programme. These and the sub-themes within each (where applicable) are briefly outlined here.

1. Reality of the classroom environment

All teachers, to varying degrees, reported significant behavioural challenges in their classrooms. These challenges mainly took the form of attention-seeking behaviours and attention difficulties, such as off-task behaviours. Although these types of behaviours were seen as relatively manageable, they required a great deal of time to address, disrupted lesson plans and the learning opportunities of other students and were regarded as a significant stressor for teachers:

"I've 25 [children] in the class, and it is two or three that are constantly drawing off your attention or needing it. It can be quite difficult... It can be disheartening some days." (T5)

"When I'm disciplining, sometimes I feel helpless because you might start with your hand up, or making eye contact, or praising. But as long as you're talking, then they're talking. And you sit there in silence. I've sat there five, ten minutes, and it doesn't work either." (T8)

For some teachers, these difficulties were compounded by the occurrence of extremely challenging behaviours, such as physical and verbal aggression from students, which were viewed as highly disruptive and distressing for everyone involved. Teachers have a duty of care to all children in their classroom and, as such, the health and safety of the class is a priority. Frequently, teachers were faced with having to physically remove a child from the room, due to the occurrence of behaviours considered to be dangerous to the child and to other children in the class:

"She couldn't sit down and she would run around the classroom, and she would scream and she would shout. And she would push children out of the way and she would hit children. And if you tried to remove her, she would scream and she would kick... It was very distressing for her, for us to have to physically remove her from the room, and then it was incredibly distressing for the rest of them [the class]." (T4)

"He has thrown things behind his head and hit children with them. And he has even been violent towards adults as well too, children and adults. Numerous teachers I'd say at this stage have gotten kicked and punched when he lashes out." (T1)

The daily incidence of low-level problem class behaviours, coupled with occasional but highly disruptive physical aggression from some pupils, were reported to have a negative effect upon teachers. Some felt helpless, having tried and failed on many occasions to manage the behaviour of disruptive children. There were obvious differences in how teachers reported coping with classroom stressors, and in some cases, these challenging classroom behaviours had a detrimental effect upon teachers' emotional states:

"Some days I went home and just cried, because I was just so exhausted and frustrated with the situation because, you know, I could see it in the other children, and I could see it in the other parents as well." (T4)

Though some teachers reported that they felt comfortable asking their colleagues for assistance or advice in the management of these behaviours, many reported a reluctance to do so, for fear of being judged as incapable, or being seen as less than competent. A reluctance to involve parents in

an attempt to improve behaviour was also reported by some teachers. The reasons for this were manifold and included a reluctance to cause problems for the child, or the parents at home, beliefs that they may not be supported by the parents, or that the parents may feel that the teacher was unable to manage the class. This led to teachers continuing to struggle on alone, thereby compounding the sense of isolation that they felt within their classroom. Although support was often needed, it was not always sought:

"...sometimes you feel like you're being judged when you bring a child to someone else... you need the support but at the same time you're kind of thinking, 'right do they think I can't handle it?'" (T7)

"That's like your worst nightmare- I do not want to have parents coming in, giving out to me for upsetting their children." (T8)

2. TCM: The learning experience

The theme of classroom management as a constructive learning experience was echoed by all those teachers who had taken part in training. Learning was perceived to have occurred in several ways during the course of the training.

(a) Increasing awareness: TCM content

The central learning medium of the TCM programme content was viewed very positively by the teacher participants. All reported knowing and using the theoretical underpinnings of TCM strategies prior to the training, but regarded the programme as building upon what they knew and were trying to achieve. According to their responses, the course had provided them with an invaluable opportunity to crystallise their theoretical knowledge into conscious practical applications in the classroom:

"I got a good lot of ideas from the programme. A lot of things you use yourself anyway but maybe kind of just tweaking them a little bit or whatever... And a lot of the reward systems and things like that I was kind of doing anyway, do you know? A lot of things you were doing, but it just makes you more aware of them." (T3)

(b) Experiential learning: From theory to practice

The mode of programme delivery, which allowed for the implementation of learned strategies in the classroom over the course of one month, before feeding back to the group, was considered to be a very positive element of the programme; teachers valued the opportunity to try out the different strategies in the classroom over time. Furthermore, the feeding back of information on the successes and challenges of strategy implementation, fostered open discussion and generated solutions:

"... it was nice to do it over a period of time... we learned about children in different classes, we learned about their progress. It was as if we almost knew them." (T2)

The course materials - course notes, books and other resources - were also regarded as extremely useful tools. After training, teachers appreciated the utility of these resources and stated that they could refer back to these whenever the need arose:

"... they gave a handout too with certificates and different things that you could give the children, I found that very good too... I found that very handy too because just sometimes you wouldn't have time to look them up and find them yourselves whereas now we've got a set of them just to photocopy." (T1)

(c) Group leaders: Building relationships and facilitating learning

All teachers reported having developed strong relationships with the group leaders. They noted, in particular, the consistent effort that the group leaders had invested in the delivery of the training and their strong commitment to the programme. The knowledge and expertise of the group leaders were also held in high regard by the teachers, who felt that they were always open and willing to offer support when requested, even outside of usual contact hours:

"... The group leaders were very, very good. They were very open and... they'd ask and they would try their best - even give you ideas to try this or that or try the other." (T1)

(d) 'I am not alone': Social support and the learning process

All teachers reported that further learning had occurred via the social medium of interaction with other teachers on the course which provided them with a readily accessible 'wealth of experience'. For example, some of the teachers on the programme had several years' experience dealing with infant classes and this was highly valued as offering potential learning opportunities, particularly by the more recently qualified teachers on the course:

"Well one bit which I did enjoy and which I found to be quite useful was sharing ideas with other teachers. You know... there was a vast range of experience there to begin with... There were some teachers there that had taught infants for years whereas it was only my third year with infants and if you are with the same age group for years, you do pick up things that do work and try this and try that." (T1)

As indicated earlier, many teachers struggle alone with classroom management difficulties and feel that behavioural problems are partly attributable to their own lack of expertise. As part of the sharing process at the heart of the TCM programme, these teachers realised that others were in a similar situation to themselves and that they were no longer alone in dealing with these issues. This was regarded as an invaluable aspect of the programme:

"The sharing of ideas was great, that you could hear other people's experiences and you didn't feel like, I am the only one that this is happening to. It is because I am young. 'It is because I am not as experienced in this classroom as say other people would be', or whatever, and then when you hear other people expressing the same fears as well or that they feel that they are being seen like that in the school as well. You are like 'oh right, ok it is not just me'... the kind of camaraderie of it was great, that you kind of felt like I am not alone." (T7)

3. Changes to the self: A new way of managing

Teachers reported that a fundamental change had occurred since completing the programme, in the way that they approached classroom management. All teachers reported using the TCM techniques in their classroom, whilst some also noted how their pupils had detected these strategies, understood their utility and had incorporated them into the way that they themselves dealt with difficult situations:

"I've kind of stopped commenting on 'don't do that' and the negatives, and more on the positives... I think that's the main improvement." (T3)

Although all teachers reported understanding and using the basic underlying TCM principles prior to undertaking the course, some reported that the course had enabled them to focus on, and further develop, these strategies. This allowed them, in turn, to establish that they had not been implementing them to the extent they had thought and encouraged consistency with regard to the application of positive strategies in the classroom. Teachers further reported that the programme had helped to foster a greater awareness of their teaching practices through a process of self-reflection and that this had led to beneficial outcomes for themselves and for their pupils:

"It was very beneficial - it would change your way of thinking... And it is a very simple thing and one that you would think you are doing already, but I don't think you think enough about it and focus in on it enough until you actually have something like this course to reinforce it for you and say 'look you are half way there, just push it an extra bit and you will see the benefits of it.'" (T7)

"I suppose it has reaffirmed [for] me, the good practices that I have. Now I know... that I have an awful lot to learn, but I realise that there are some things that I am doing well, and it has encouraged me in doing that." (T2)

For some teachers, the programme allowed them a greater sense of freedom in the classroom, enabling them to 'let go' of issues that they previously would have felt compelled to manage, such as ignoring minor misbehaviour. Ignoring was increasingly viewed as an active and productive strategy rather than as a general permissiveness/inability to control the class:

"I suppose the biggest change that I would have noticed would be that it's ok to ignore behaviour and I suppose I feel I have the freedom to do that now, whereas in the past I wouldn't have had. And I think it's good, it's a good strategy." (T2)

Some of the teachers also alluded to the positive impact of the TCM programme on home-school communication and collaboration. For example, some participants felt it was rewarding to pass on information to the parents about the programme (e.g. how it is working) whilst others indicated that, as a result of the programme, they were making more effort to contact and share information with parents about their child's progress.

4. Perceived impact on child behaviour: A 'therapeutic milieu'?

Several changes in child behaviour were reported by teachers at the post-intervention stage. Most notably, teachers reported that children were displaying a greater ability to stay on task, were less distracted, and were engaging in less attention-seeking behaviours. Children who, at baseline, had posed significant challenges to teachers in terms of their attention-seeking and lack of task-focus, were seen as much more manageable in the class. This was regarded as highly significant by teachers and due directly to the implementation of the TCM principles:

"I ignore a lot more too than what I would, you know just ignore it and the children themselves have got used to ignoring a lot of different things as well... they know themselves that if they actually stay in their seat and do their work... that there will be something nice, a treat or whatever for the ones who have been very good." (T1)

"Mainly the attention seeking and... being off task, it would have helped very much in that. And returning people to task, getting people to focus on a particular task, the visual clues- they would have helped as well." (T2)

Children were thought to have benefitted from the labelling of emotions. This was a key aspect of the TCM programme which teachers believed was extremely beneficial for the children in their class. Participants stated that, prior to the TCM programme, children had been unable to identify the emotions that they experienced and felt that this had led to inappropriate behaviour in the classroom. Post-training, teachers were able to model appropriate responses to emotions; children learned from this and were thereby equipped with the language to express their feelings. This, in itself, was perceived by teachers as increasing the confidence of children, enabling them to speak their minds in the class, rather than 'acting out' in frustration:

"I think it gives the children confidence also, because I find the children in here quite confident... they're well able to speak up for themselves and if they're not comfortable with something, they'll tell you. And if they're happy with something, they'll tell you as well." (T12)

"They're more sure of themselves because they feel that they can say what they need to say and that there's nobody kind of judging them." (T10)

Another notable aspect of child behaviour change, reported by teachers post-intervention, was the increased ability of their pupils to independently resolve conflict with their peers. Prior to the TCM, teachers were often called upon by the children to intervene in the conflict, but this was a much less frequent occurrence in the post-TCM period. One teacher reported that this ability to resolve conflict with peers, extended outside the school environment. Children were seen to have developed these skills and used them in a variety of settings by labelling emotions and talking through problems in the classroom context:

"And the other thing... that we did was sorting out your own problems. And I really focused on that. And that they weren't always coming to me [to intervene in the conflict]. And we did a kind of a role play of it... the wording that they could use and what they could say. And then nine times out of ten they were sorting it out themselves." (T10)

"[A parent] said to me that she noticed her child in something that happened at home with friends that were over to play, and she couldn't get over how he'd become much more conciliatory - that normally he would have like flown off the handle, but when she went to talk about the problem, she could see that he seemed to have learned- that maybe it's that in dealing [with it] in the classroom we're looking at things more positively now." (T6)

Teachers also reported that children had shown improvements in their overall conduct within the classroom. Several different aspects of child behaviour were discussed by teachers as having noticeably changed from pre- to post-TCM. Children had developed better peer relations, they had become more pro-social, and showed a greater willingness to help and encourage each other. The modelling of positive behaviour by teachers was regarded as being instrumental in promoting pro-social behaviour in the class, even amongst children who had previously displayed good class behaviour:

"He's improved. His behaviour has improved. And I am sure it is probably some of the things that I have been using... in the class." (T3)

"They would be encouraging each other. They have started to get on better with each other and they're co-operating amongst themselves even." (T1)

"For the children... who were doing well and who might often get overlooked, they were encouraged and you know they were boosted and their behaviour was improved as a result." (T2)

5. The 'positive classroom' and teachers' overall views of the TCM programme

It was clear from the findings, that the teachers' views of the classroom prior to training (as portrayed in Theme 1) had been transformed once they had completed the course. The general atmosphere within the classroom was considered to be calmer and more co-operative, whilst it was also regarded as a happier and more positive environment in which to work (and learn). Whilst behavioural challenges continued to present themselves from time to time, they were reported as being less frequent and teachers also felt much more confident in their ability to manage these:

"We've been having more and more really, really good days where they've been enjoying it and I've been enjoying it. And you know, they have been saying things like, 'oh you should get a sticker too teacher', or 'you should take a jelly too teacher, you were very good today', and all this kind of thing! So I think it helps me personally feel like I can cope with anything now." (T7)

All respondents viewed the TCM programme not only as very beneficial, but also enjoyable for themselves personally and for their class. They regarded it as a worthwhile programme and all reported that they would highly recommend it to another teacher/school. Teachers often referred to post-training increases in their confidence levels and reported that they felt better equipped to deal with any problems that they may encounter in the future. At the six-month follow-up, the teachers were looking forward to implementing their newly acquired strategies with new class groups in the subsequent school year. Many believed that if these strategies were in place from day one of the school year,

that a positive class ethos would be developed from the outset and that children would display even greater improvements in behaviour as the year progressed. Importantly, all teachers stated that they would highly recommend the TCM training to another school and they were grateful for the opportunity to participate in the programme:

"I was glad to have the opportunity to avail of this programme and I must say I enjoyed the experience. I am looking forward to implementing the practice in the future in the new school year." (T2)

"I think it is good. I think it is very good... I definitely would recommend people to do it." (T3)

6. Recommendations for programme improvement

Although the programme was received very well, all teachers highlighted aspects of it with which they were less than satisfied, such as the perceived repetition of topic information. The general consensus was that the material could have been covered as thoroughly without the need for constant repetition throughout the day. The intervention group teachers considered the length of the training day (i.e. 9.00am- 4.00pm), in particular, to be excessive:

"They [the substitute teacher] get to leave at half-past-one and I am still here and it's four o'clock. What is going on? It might sound really petty like, but I think the programme itself could have been easily delivered in the amount of time of a regular school day. There is absolutely no reason for it to go over that." (T7)

One teacher suggested covering two topics per day, so that a change of topic could occur in the afternoons. She stated that this would be a more interesting method of programme delivery and that it would go some way toward overcoming fatigue in the afternoons. Another teacher recommended that the course be held over six days (rather than five) so that it would finish within the hours of a regular school day. However, the training day was of shorter duration for the control group teachers, due to a reduction in the length of lunch and coffee-break times. Therefore, it is important to note that the length of the training day was not an issue for teachers in the control group.

Some teachers also discussed the benefits of adopting a whole-school approach in order to maximise the effectiveness of the programme and of involving more parents in the new strategies to better manage challenging child behaviours. One teacher feared that without a whole-school TCM implementation, the improvements gained in child behaviour may be short-lived:

"I think for it to be effective and to see the whole benefit of everything, that the whole school has to be doing it and you even need to have the parents on board." (T1)

"The only thing I worry about in the future is that he is going to get a teacher next year or the year after (who has not received TCM training)... all you need to do is to meet one person up along the way who is going to totally knock his confidence and he will be 'gone' again." (T7)

These findings are further discussed later in the report.

The costs of the TCM programme

The third and final study involved a cost analysis to examine the short-term cost effectiveness of the IY TCM programme as it is being delivered in Ireland. While other components of the IY series, most notably the BASIC parenting programme, have been subjected to rigorous cost analysis, this is, to the best of our knowledge, the first stand-alone cost analysis that has been conducted on the TCM programme to date (although a small number of other studies have looked at the costs of combining various elements of the IY suite of programmes). The cost-analysis reported here, was carried out in parallel with the two other studies described earlier. The results help to determine the effectiveness of each euro spent on the TCM programme and, in so doing, help to ensure that scarce financial resources are allocated efficiently.

How was the cost analysis conducted?

The first and main component of the cost analysis involved collecting detailed costs data on four key elements of the TCM programme. These included: (1) non-recurrent initial training costs of group leaders/trainers (i.e. those delivering the programme); (2) the pre-delivery cost of the programme; (3) the group training costs; and (4) substitution costs for the teachers while on the training course. The first of these - the non-recurrent initial training costs of group leaders - included the TCM training fee, as well as accommodation and travel costs of the group leaders during the training period. Some of this information was collected using 'cost diaries' which were completed by both group leaders. The pre-delivery costs included mainly travel and accommodation costs relating to the recruitment phase of the RCT. The group training costs consisted of a range of items, most notably salary costs of the group leaders, room rental and some food and travel expenses for both the teachers and the group leaders. Finally, the substitution costs covered the costs of finding replacement teachers while the participant teachers were attending training.

The robustness of the findings was also considered within a sensitivity analysis. In particular, the direct group training costs included travel and overnight accommodation expenses for the group leaders. This reflects the fact that the trial was based in Limerick and that local group leaders were not available. However, if the programme was implemented nationally, these costs would not normally apply because ideally, local group leaders should be used. Therefore, we have considered the results excluding these costs in the first instance. The third and final component of the analysis involved combining the results of the cost analysis with the outcome results from the main RCT in order to estimate the short-term cost-effectiveness of the programme. The traditional approach to studying cost-effectiveness in the health evaluation literature was used here; that is, where cost-effectiveness is defined in terms of the incremental cost effectiveness ratio (ICER⁷) of the new treatment (T) relative to specified alternative (most commonly chosen to be the status quo) (see for example, Edwards et al., (2007) and McGilloway et al., (2009)).

Key Findings: Short-Term Outcomes

- When the costs relating to group leader travel and expenses were excluded, the total cost of delivering the TCM programme was €22,142.13. The initial training costs of the group leaders accounted for approximately 10% of this total cost. The remainder of the cost was approximately equally divided between the remaining three cost elements.
- The average cost per teacher was €2012.92 whilst the cost per child was €100.65. The latter was calculated on an average class size of 20.
- The above figures are likely to provide a close approximation to the true costs of the programme, assuming that local group leaders are used in the delivery.
- When the travel and accommodation costs of the two group leaders were factored into the cost analysis, the total cost of delivering the TCM programme increased marginally to €23,848.98, as did the average costs per teacher (€2168.08) and per child (€108.40).
- These costs are modest when compared to the other components of the IY programme and other interventions (irrespective of whether or not group leader travel and accommodation costs are included).
- When the total SDQ scores were combined with the results from the cost analysis above (i.e. excluding the travel and accommodation costs of the group leaders), we estimate a cost-effectiveness ratio of €52.97 per 1 point change in the SDQ score (i.e. 100.65/1.9; where the numerator is the estimated cost of the TCM per child and the denominator is an estimate of the change in test score brought about by the treatment).
- In order to put this figure in context, it is worth noting that, according to statistics from Eurostat (<http://epp.eurostat.ec.europa.eu>), the expenditure per primary school child in Ireland during 2007 was €5,737. Hence, our figures suggest that the TCM programme would cost less than 1% of total expenditure per primary school pupil.
- Unlike our previous work on the IY BASIC parenting programme (which focused on a smaller number of high risk children), we were unable to demonstrate the potential longer term benefits to society of the TCM programme. However, it is important to note that the annual teacher student ratio in this study was 1:20. Thus, in the long run, the cost-effectiveness of the TCM programme may be even higher than reported here, as more children are taught in subsequent years by TCM-trained teachers. This implies, though, that the effects we have found here will be maintained in the longer term. We will examine this more closely in the analysis of our longer term (12-month) follow-up data.

7. The ICER simply measures the cost of obtaining a one-unit decrease in the SDQ when using one treatment when compared to an alternative. This is based on the assumption that the estimated effect would be typical of the average effect for the entire class.

Discussion

This study assessed the impact of the *Incredible Years Teacher Classroom Management* programme on teacher and child behaviour in a sample of Irish primary schools. The combined findings provide support for the effectiveness of the TCM intervention and indicate that classroom management training is effective in contributing to an improved positive classroom environment and positive changes in several important aspects of child and teacher behaviour, as well as impacting positively on teacher stress. Few studies have independently evaluated the IY TCM programme or indeed, classroom-based interventions in general. The results of this study, the first independent RCT evaluation of the IY TCM within both an Irish and European context, point to the potential utility and benefits of the programme for teachers and schools in Ireland (and elsewhere).

Key Findings

Teacher and child outcomes

Participation in the TCM training appeared to improve teachers' classroom management, resulting in a decreased use of negative classroom management strategies (e.g. fewer harsh and critical statements), as well as higher levels of praise and increased use of positive behavioural management strategies in the classroom amongst teachers in the intervention group. In other words, the levels of warmth, encouragement and responsiveness that intervention group teachers showed towards pupils in their classrooms had increased. This is notable because, at baseline, teachers in the intervention group used generally more negative strategies than their control group counterparts. These teachers also allowed their pupils more time to comply with commands. Collectively, these findings reflect positive changes in teachers' attitudes toward, and management of, child behaviour in their classrooms. A growing body of research points to the importance of the school environment on child psychosocial health and well-being, and aversive and disorganised classroom environments can compound the development of conduct and socioemotional difficulties (Kellam et al., 1998). Therefore, the observed reductions in negative classroom management strategies and increased use of positive, proactive approaches, highlight important changes in the shared classroom experiences of teachers and children in this study.

The TCM intervention also had beneficial effects on teacher-reported child behavioural difficulties; that is, children in the intervention group exhibited fewer behavioural problems and showed better emotional adjustment at follow-up than their peers in the control group. The intervention also appeared to impact most significantly on children with the worst behavioural problems. In other words, the provision of TCM training contributed to significant decreases in the disordered behaviour shown by those children considered to be most 'at risk'. This finding is consistent with previous research (Webster-Stratton et al., 2008) and suggests that children who are most 'at risk' are more likely to reap early benefits from the TCM intervention. Overall, these findings indicate that a well-managed classroom can reduce the risk of conduct problems in individual children, whilst also helping to improve child adjustment. Moreover, aggressive, off-task and other inappropriate behaviours in the class can often be disruptive to learning and may serve to reinforce a maladaptive form of behavioural engagement more generally within

the class, thereby leading to an escalation of disordered conduct and an increased risk of school failure and drop-out in the longer term (Knitzer, 1993; INTO, 2004). Our findings indicate that positive and proactive teacher classroom management strategies appear to reduce general disruptive and negative behaviour in the classroom, especially for 'high risk' children, whilst it is also likely that these will help to promote longer-term emotional and behavioural health and positive experiences at school.

Some aspects of conduct problems in the intervention group (e.g. hyperactivity and peer problems) did not appear to change over time, although neither was there any deterioration in these behaviours. This finding may be due, at least in part, to the kinds of 'sleeping effects' that have been commonly reported in other intervention trials (Kellam et al., 1994; Barrera et al., 2002; Bayer et al., 2009), whereby the impact of an intervention may lie dormant initially and may only manifest itself over a longer period of time. The analysis of the 12-month data may help to shed light on this hypothesis. Furthermore, no significant differences were found in child pro-social behaviour at the six-month follow-up. However, it is important to note that most of the children were within the normal range for pro-social behaviour, which meant that there was less scope for significant improvements in this domain. Additionally, in the current study, data were collected immediately after the intervention ended and it is likely, therefore, that only initial improvements in child conduct and adjustment were observed and/or that change took place faster in those children at the extreme end of the spectrum of behavioural difficulty. Thus, the full effects of the intervention may only emerge at a later stage.

Qualitative findings

The findings from the qualitative study support and amplify the results of the RCT. Importantly, those teachers who took part in the TCM programme, found its principles to be effective and easy to implement and felt that children responded well to the new strategies. Indeed, teachers felt that some of the children had 'modelled' the teachers' behaviour and used some of the TCM principles when interacting with their peers, indicating a positive 'knock-on' effect of training on peer-to-peer interaction within the classroom. Overall, teachers indicated that their post-TCM training classrooms were much more positive environments in which children had become more socially competent and co-operative with their peers and school staff. These findings are consistent with the small number of previous qualitative studies which have included teacher reports on the effectiveness and acceptability of the IY TCM programme (Hutchings et al., 2007; Baker-Henningham & Walker, 2009). The interviews with teachers also indicate that prior to TCM training, teachers felt generally ill-prepared to address, and were sometimes overwhelmed by, the disruptive classroom behaviours which they encountered on a daily basis. However, after taking part in the TCM programme, teachers reported feeling less stressed and having more confidence to deal effectively with these kinds of behaviours.

The collective findings from both the RCT and the qualitative study, suggest that the positive changes in child behaviour and in the class 'dynamic' that arose directly from the implementation of the TCM principles, led to the creation of a particular kind of educational and environmental

'therapeutic milieu' in classrooms. Thus, it would appear that the TCM programme operates at a higher level than addressing only organisational/management skills. This is important in terms of providing an appropriate foundation for improved learning and more positive developmental and social outcomes in the longer term (Kellam et al., 2008).

Teachers identified several aspects of the programme to be particularly helpful. The social support given by group leaders and by others on the course, coupled with the non-judgemental and 'safe' environment of the TCM programme delivery, were viewed as important mechanisms for the facilitation of problem-sharing and the identification and development of solutions. Support from group leaders and peers on the programme fostered a willingness for open and honest discussion, which all teachers reported as being an integral and satisfying part of the course. The role of the programme in promoting better home-school communication/collaboration is also notable, in that some teachers reported engaging with parents more regularly and in more rewarding ways. The findings from the qualitative interviews further suggest that the provision of TCM training enabled teachers to engage in a critical process of self-reflection. These aspects of the programme may be crucial in the longer term, particularly with regard to teachers' role in promoting greater self-awareness of teaching practices and reducing teacher stress, whilst also helping to shape the behaviour of subsequent classes of children into the future. These outcomes may also have positive implications for teaching practice, school culture and ethos, as well as additional longer term benefits in terms of a return on any investment, by schools, in the programme.

Some perceived weaknesses of the TCM programme were also identified; these related, in large part, to the repetition of some topics (e.g. ignoring minor misbehaviour) and the overly long training day. The delivery of the programme with fidelity is paramount and would preclude any attempts to change the content in any way, although certainly there may be merit in recognising variance in work practices (e.g. school working hours) and preparing teacher participants for same, in the future delivery of the programme. A further recommendation for future programme delivery related to the importance of implementing the programme on a 'whole school' basis in order that all school staff are able to understand and use the key TCM principles, thereby effecting sustained improvements in behaviour over time. For teachers, a shared school ethos based on the type of positive classroom management that is a focus of the IY TCM programme, may enable them to learn and share techniques for classroom management in a more collegial and collaborative way.

Cost-analysis findings

The findings from the cost analysis indicate that the overall costs of the TCM programme are modest when compared to alternative education interventions. We know of no other independent cost analysis of the IY TCM programme. When interpreting the ICER for the TCM, it is important to note that the alternative 'programme' under consideration in this study is the status-quo (i.e. usual treatment/intervention or educational service provision). This is quite typical in cost-effectiveness analyses. Since all of the costs incurred under the status quo are also incurred under the new TCM scheme (but not vice-versa), the incremental cost here collapses to the additional cost of the TCM.

The average TCM cost per primary school child accounts for only a very small proportion of the total annual expenditure (according to Eurostat estimates for 2007) on educating a primary school child in Ireland; this is an important policy consideration. Furthermore, other education-based interventions tend to be characterised by higher costs than reported here (Aos et al., 2004). For instance, the costs for the US-based Early Childhood Education programme for low income 3-4 years olds, amounted to \$7301 per youth, whilst the costs for Even Start and Early Head Start amounted to \$4863 and \$20,972 per youth respectively. The higher costs of these programmes, for the most part, reflect the much more intensive nature of these interventions relative to the TCM.

Conclusion

This research involved a rigorous, independent evaluation of the IY TCM programme which involved extensive fieldwork and combined psychometric, observational and qualitative methodologies to provide a comprehensive and psychometrically robust assessment of the outcomes of the IY TCM programme in a sample of Irish primary schools and teachers. However, the study was limited by a low level of statistical power to detect changes in child behaviour, due to the nature of the design and the numbers of teachers/schools that were available to participate. It is also important to note that the results are based on a six-month pre-post intervention period, during which time the teachers were still receiving the training. This may have limited, to some extent, the opportunity for teachers to fully implement everything that they had learned from the programme during this relatively short period, whilst universal changes in child behaviour may also have required a longer period of time to materialise. Nonetheless, our results demonstrate that a group-based teacher classroom management intervention, when delivered with fidelity, can help to significantly improve teacher competencies and their management of disruptive behaviours in the classroom. The findings also show a number of positive changes in pupil behaviour and socio-emotional adjustment, thereby facilitating a more positive social and academic environment within the classroom for both teachers and children alike - especially those considered to be most 'at risk'.

By implementing the TCM training in the early school years, schools are well placed to promote children's social and emotional development, whilst also preventing the development of negative or violent behaviours (Poulou, 2005). There is further evidence to indicate a strong association between these skills and academic performance (e.g. Henrich et al., 1999). Thus, implementing the IY TCM programme, particularly on a 'whole-school' basis, may offer a preventative approach toward challenging behaviour, whilst also helping to promote children's social and emotional health. This, in turn, may bring about positive changes in academic ability whilst possibly reducing the risk of early school leaving and maladjustment in the longer term. The addition of child training and/or parent training may further help to promote and foster positive child developmental outcomes and indeed, this is the way in which the IY programme is intended to be delivered in order to facilitate the transferability of positive behaviour across different environments.

Overall, our findings suggest that Teacher Classroom Management training helps to provide teachers with the appropriate skills and strategies to reinforce positive child behaviour and to promote appropriate

classroom behaviour, as well as facilitating a greater awareness of, and reflection upon, the teachers' role in the creation of a positive classroom and school environment. The findings from the RCT, despite their relatively short-term nature and the constraints of the study design, highlight a number of positive child and teacher outcomes. These, when combined with the results from the qualitative study and the cost analysis, indicate that the IY TCM programme is well suited to an Irish context in terms of its overall effectiveness, cost-effectiveness and acceptability. Our future work will attempt to assess the extent to which the outcomes noted here, are maintained one year post-intervention.

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Existing evidence suggests that, without early intervention, social, emotional and behavioural problems in childhood can persist into adolescence and adulthood. The unresolved experience of these difficulties can affect children as they develop and grow, increasing the likelihood of low educational attainment, school drop-out, unemployment, poor mental health, anti-social behaviour and criminality later in life. In September 2007, Archways commissioned an international research team, led by NUI Maynooth, to undertake a four-year national evaluation of a prevention and treatment programme for children with emotional and behavioural difficulties, called the *Incredible Years Parent, Teacher and Child Training Series*.

This Summary Report presents a substantive overview of the second set of key findings to emerge from the *Incredible Years Ireland Study*. These findings focus on an evaluation undertaken to examine the effectiveness of the *Incredible Years Teacher Classroom Management (TCM)* programme. The collective findings, drawn from three separate, but inter-related studies, highlight the potential utility and benefits of this programme for teachers, schools, and children in Ireland (and elsewhere).

