What Works in the Treatment of Children and Youth with Persistent Behaviour Problems and Why

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22 November, 2011

Research into the causes of antisocial development has important implications for the design of interventions for children at risk of antisocial development because it identifies both the learning processes and the contexts which need to be targeted by such interventions. This paper provides an overview of a series of research reviews undertaken for the Advisory Group on Conduct Problems into what works to halt and reverse antisocial development at ages 3 to 7, 8 to 12 and 13 to 17 years. These reviews indicate that, at the youngest age level, the parent management training programmes such as the Triple P, Incredible Years, and Oregon PMT programmes have the strongest effect. At the 8-12 year level, school based contingency management systems (when combined with parent management training) have the strongest effect. At the adolescent level the only interventions which have any kind of lasting effect are the long term, multimodal interventions such as Multisystemic Therapy, Teaching Family Homes, and Multidimensional Treatment Foster Care. Research into the development of antisocial behaviour provides strong leads into why certain interventions have been shown to have strong effects while other widely used interventions have been found to have little or no effect on antisocial development.

1. Introduction

One of the aims of the Advisory Group on Conduct Problems has been to identify effective interventions for children at risk of developing along an antisocial, rather than a prosocial, developmental trajectory. The Advisory Group began this task by noting that the social learning needs of children and the socializing agents in the child's environment change as the child grows older. The search for effective programmes was divided, therefore, into three developmental phases: 3 to 7 years, 8 to 12 years, and 13 to 17 years. The division at 8 years was based on the observation that persistent antisocial behaviour problems become increasingly difficult to treat around 8 years of age (Walker, Ramsey & Gresham, 2004). The division at 13 years reflected the onset of adolescence and entry to secondary school.

The Advisory Group's review of what works in the treatment of antisocial behaviour problems at the 3 to 7 year old age level is included as an appendix to its 2010 report (Advisory Group on Conduct Problems, 2010) and its review of what works in the treatment of persistent antisocial behaviour in 8 to 12 year olds is included as an appendix to its 2011 report (Advisory Group on Conduct Problems, 2011). The review of effective responses to antisocial behaviour in adolescence has recently been completed and will appear in the final report of the AGCP in 2012.

The search for effective responses to antisocial development proved to be a complex undertaking. This is because treatment evaluations have been undertaken in a range of contexts (the home, the school, residential facilities, and the community at large); they have used a variety of different definitions of antisocial development and have, as a result, recruited samples of different kinds of children into their evaluations; they have used a wide variety of different outcome measures; and they have used a range of different kinds of research designs in their attempts to measure programme effectiveness.

Like the AGCP, this paper focuses on the identification of those interventions and intervention programmes which have been found to have the strongest positive effects when evaluated using well controlled evaluation designs such as the randomised groups designs and sets of controlled single case experimental analyses.

2. Effective interventions for children and youth with persistent conduct problems identified by the AGCP reviews

A summary of the results of the AGCP reviews of what works will be found in Table 1. The interventions listed in the table are those which meet the Group's criteria for "evidence-based". As can be seen from Table 1, some of the interventions in the table have been shown to be effective across multiple RCTs, some have been shown to be effective using large collections of controlled single case analyses while the effectiveness of some has been demonstrated in only one or two controlled evaluations. As work on the reviews proceeded, it became clear that the effective interventions could be grouped into four general categories: (a) interventions involving parents or caregivers, (b) interventions involving teachers, (c) training interventions targeting the child alone, and (d) multimodal interventions involving parents and/or teachers and/or the child and/or the child's peers.

2.1 Interventions involving parent training

The most effective interventions for young antisocial children were found to be the parent behaviour management training programmes (Church, 2003; Advisory Group On Conduct Problems, 2010). The original programme, Parent Management Training (Oregon type) was developed and refined by behaviour analysts at the Oregon Social Learning Centre in the late 1960s and subsequent programmes such as the Incredible Years programmes tend to teach much the same set of parenting skills as PMT-O. The Incredible Years programme is built around a set of video vignettes showing effective and ineffective parental responses to child misbehaviour. Parent-Child Interaction therapy (PCIT) is a one-on-one parent training programme in which the parent plays with his or her child in a clinic setting and receives coaching via a "bug in the ear" from a therapist working behind a one-way window.

All four of these programmes are designed to teach and to get parents practising the behaviour management skills which have been shown, from applied behaviour analysis research, to be effective in managing the behaviour of young misbehaving children. These skills include the modelling and teaching of desired behaviours (starting with compliance), the differential reinforcement of desired behaviours, ceasing to inadvertently reinforce antisocial behaviour and, where necessary, the calm punishment of defiant behaviour and aggressive behaviour using time-out from reinforcement or response cost procedures.

Table 1
Evidence-based programmes identified by the Advisory Group on Conduct Problems

Intervention programmes for 3-7 year olds with persistent conduct problems	*Intervention programmes for 8-12 year olds with persistent conduct problems*	*Intervention programmes for 13-17 year olds with persistent conduct problems*
Family based interventions		
Parent Management Training (Oregon type) (5+)		Adolescent Transitions Programme (2)
Triple P Level 4 (6+), Triple P Level 5 (1)	Triple P Level 4 (3), Triple P Level 5 (1)	Teen Triple P (1)
Incredible Years Basic (8+)	Incredible Years Basic (1)	Functional Family Therapy (3)
Incredible Years Basic + Advanced (1)	Incredible Years Basic + Advanced (0)	
Parent Child Interaction Therapy (8+)	Parent Child Interaction Therapy (0)	
School based interventions		
School Wide Positive Behaviour Support (1)	School Wide Positive Behaviour Support (1)	School Wide Positive Behaviour Support (1)
Prevent-Teach-Reinforce † (1‡)	Prevent-Teach-Reinforce † (1‡)	Prevent-Teach-Reinforce (1‡)
Incredible Years Teacher PD (1)	Incredible Years Teacher PD (1)	
Group Gontingency Management (GBG) (2)	Group Contingency Management (GBG) (2)	Group Contingency Management (GBG) (4)
First Step to Success (incl CLASS) (4)	CLASS (2)	
RECESS (1)	RECESS (1)	
	Check & Connect (1)	Check and Connect (1)
	Check, Connect & Expect (2)	
Personal skills teaching		
Incredible Years Dino Dinosaur † (2)		Aggression Replacement Training (3)
Multi-modal intervention programmes		
Multidimensional Treatment Foster Care – Oregon (1)	Multidimensional Treatment Foster Care – Oregon (1)	Multidimensional Treatment Foster Care-Oregon (3)
	Coping Power (3)	Teaching Family Homes (4+)
	Kazdin Method (2)	Multisystemic Therapy (5)
	Stop Now and Plan (0)	Adolescent Transitions Programme (1)

† Added since publication of the AGCP report for this age group
(1) Numbers in parentheses refer to the number of randomised control trials. These numbers are approximate.
‡ Plus more than 50 controlled within-subject experiments measuring the effects of programme components.
GBG Good Behaviour Game and its variants

Parent management training is most commonly delivered by trained and certified facilitators, in a group format involving up to a dozen sets of parents. The Triple P and Incredible Years programmes have add-on modules for parents who are experiencing major personal difficulties such as depression. PMT-O and PCIT are more criterion based with the training programme being lengthened for parents who have more to learn.

Parent Management Training (Oregon), Triple P, Incredible Years and Parent-Child Interaction Therapy have all been evaluated using multiple randomised trials and tend to halt antisocial development in about 60 per cent of children with high rate conduct problems in the 3 to 8 year old age group (Advisory Group for Conduct Problems, 2010; Church, 2003). With older 8 to 12 year old children the evidence base is quite sparse with only a few well controlled evaluations. J. B. Reid, who was involved in many of the PMT-O evaluations, has reported that the success rate with older children with clinical levels of behaviour problems tends to fall to about 30 per cent (Reid, 1993).

The only systematically evaluated family intervention for teenagers with persistent conduct problems is Functional Family Therapy. This is a therapeutic programme for individual families in which all family members attend each session. It teaches the behaviour management skills taught in the four parenting programmes already described but, prior to this, time is spent changing patterns of negative interaction by consistently reframing blaming statements as opportunities for change. These initial reframing sessions are nearly always required in order to develop both a motivation to change and some positive family interaction to build upon.

Inclusion of Functional Family Therapy as an effective evidence-based treatment rests upon the results of three relatively small RCTs involving adjudicated delinquents. In all three studies, post-treatment offending was reduced to less than half the pre-treatment rate while that of the control group remained unchanged.

2.2 Interventions involving teacher training

It is difficult to run a randomised control trial in the school setting because students with behaviour problems sit in classes and the random assignment of their teachers involves the random assignment of entire classes of students. However, there is a very considerable research base of some 280 controlled single case experiments involving children and youth with persistent behaviour problems in school settings and this research has been used to build two evidence-based programmes for the teachers of children with persistent conduct problems. These are School Wide Positive Behaviour Support and Prevent-Teach-Reinforce. In addition, a number of other, smaller scale, interventions have been found to be effective in reducing antisocial behaviour in children with persistent conduct problems in the school setting. These are the group contingency management programmes, the targeted teacher education programmes CLASS and RECESS, and the supervision programmes "Check & Connect" and "Check, Connect & Expect".

School-Wide Positive Behaviour Support (SWPBS).

SWPBS is 3-level (primary, secondary and tertiary level) intervention which has four main aims. These are (a) to redesign the school environment to reduce problem behaviour, (b) to provide teachers with new skills to reduce problem behaviour, (c) to rigorously acknowledge and reward appropriate student behaviour while at the same time removing inadvertent

reinforcement for inappropriate behaviour, and (d) to put in place an active and on-going data collection system which can be used to guide future changes. When a school adopts SWPBS, all the teachers in a school are trained over a period of several months to treat recurring misbehaviours in the same way that they treat recurring academic mistakes, that is, as learning opportunities which require a teaching goal, demonstrations of what is expected, practice, feedback, monitoring, and reinforcement for improvement (Horner, Sugai, Todd, & Lewis-Palmer, 2005; Sugai & Horner, 2006).

Inclusion of SWPBS as an evidence-based programme rests on a 15 year history of research and development and on the results of several within group and between group evaluations of SWPBS at the primary, intermediate and secondary school levels (e.g. Bohanon et al., 2006; Bradshaw, Mitchell & Leaf, 2009). One of the RCTs examined the effects of SWPBS on the behaviour of children with conduct problems specifically (Nelson, 1996). Over a 6 month period, the mean score of 20 behaviour disordered children on the Devereaux Behavior Rating Scale fell from 116 (which is in the clinical range) to 108 (the same as that for the comparison children). SWPBS is being implemented in over 9,000 schools across some 34 US states and is currently being introduced into 400 New Zealand schools.

Prevent-Teach-Reinforce (P-T-R)

Prevent-Teach-Reinforce is a programme designed by behaviour analysts to meet the educational needs of individual students with serious and persistent conduct problems (Dunlap et al., 2010). P-T-R consists of the following four elements: (a) Functional assessment to identify the conditions which are currently operating to maintain antisocial behaviour, (b) Prevent, that is, removing the conditions which are currently triggering and/or reinforcing the continued use of antisocial responses, (c) Teach the behaviours and skills which are to function as replacement behaviours and (d) Reinforce, that is, introduce motivational contingencies for attendance, engagement and progress towards social and academic learning goals.

Prevent-Teach-Reinforce brings together inside a single manualised programme each of the elements which have been found, through extensive single case experimentation, to be necessary in the effective education of children and youth with persistent conduct problems. Because it is a very recent development, only one RCT has so far been reported in the research literature (Iovanone et al., 2009).

Group Contingency Management

The most widely used version of Group Contingency Management is the Good Behaviour Game (Embry et al, 2003). With Group Contingency Management, the teacher first establishes three or four positively stated behavioural rules; divides the class into teams or groups; establishes a reward criterion; and rewards the teams which meet criterion with an agreed upon privilege which will function as a reinforcer.

The latest review of evaluations of this intervention (Tingstrom, Sterling-Turner & Wilczinski, 2006) lists 24 controlled within-group evaluations and two randomised groups evaluations of which seven involved students with conduct problems. In almost all cases the targeted disruptive behaviours were quickly reduced to acceptable levels and, where maintenance data have been collected, maintained during the following months. There is some suggestion that while the monitoring and the group reward are the major causes of

behaviour change, peer influence also plays a part (Gresham & Gresham, 1982). The Good Behaviour Game and its effects have been replicated with New Zealand samples (Thomas, Pohl, Presland & Glynn, 1977).

Contingencies for Learning Academic and Social Skills (CLASS)

CLASS is a simple contingency management system for the teachers of children with moderate conduct problems. CLASS is introduced by a consultant such as an RTLB over a 5-day teacher training period. The CLASS programme typically runs for 30 school days and consists of a green/red cue card, a points system in which the antisocial child can earn a reward to be shared by the whole class, frequent praise for appropriate behaviour, a home reward system, a point response cost system, and time out if needed.

The main evaluation data for the CLASS programme are contained in two randomised control trials reported in Hops et al. (1978). In the first, using 11 experimental classrooms and 10 control classrooms, the effect size for the programme's effect on total positive classroom behaviour was 1.0. The second experiment involved 16 experimental classrooms and 17 control classrooms. The ES at the end of the programme and at follow-up was 0.5.

Reprogramming Environmental Contingencies for Effective Social Skills (RECESS)

RECESS consists of four components: (a) training in co-operative social behaviour for the antisocial child and all other class members, (b) a response cost system in which points which have been awarded at the start of each playtime are lost for negative social interactions and rule infractions, (c) high rates of praise by the classroom teacher and duty teachers for cooperative interactions and (d) group activity rewards for meeting group goals in the classroom and individual rewards at home for meeting individual goals at school. RECESS is introduced by a consultant such as an RTLB over a 5-day teacher training period. Responsibility then passes to the class teacher and duty teachers (with the RTLB in a consultant's role) for 30 school days (Walker, Hops, & Greenwood, 1993).

Evaluation consists of a single RCT (Walker, Hops & Greenwood, 1981) involving 12 teachers and 12 highly aggressive primary school children plus 12 control children. Complete data was collected for 20 of these children. The RECESS programme reduced the level of playground aggression from a mean of 64 acts an hour to a mean of 4 per hour over a three month period. The ES on reduction in playground aggression was 0.97.

Check and Connect

Check and Connect involves mentoring by a trained counsellor or social worker who is responsible for working to increase school engagement in each of up to 25 at-risk students. The "Check" component of Check & Connect involves daily monitoring of student attendance, suspensions, grades, and so on. The "Connect" component involves individual weekly or biweekly "conversations" where problem solving is modelled and practised, conflict-resolution training provided and school and home activities planned and reviewed.

Inclusion of Check & Connect as an evidence-based programme for students with persistent conduct problems rests on the results of two evaluations: one at the secondary school level (Sinclair, Christenson, Evelo & Hurley, 1998) and one at the primary school level (Lehr, Sinclair & Christenson, 2004). At the end of Grade 9 significantly more of the Check &

Connect students were still at school. They also received significantly lower scores on the problem behaviour scale of Gresham & Elliot's Social Skills Rating Scale. The primary school study resulted in improved school attendance but no measures of problem behaviour were collected.

Check, Connect and Expect

Check, Connect, and Expect is an extension of Check and Connect which uses paraprofessional coaches who have been trained by a behaviour analyst. The coaches assume responsibility for 20 or so children with clinical levels of conduct problems. Coaches check with each of their students prior to school each day to discuss goals for the day, to check that a parent has signed the previous day's daily progress record (DPR), to enter data into a web-based recording system for their school, to provide scheduled social skills tuition, and to complete the afternoon check-out where they check the day's DPR, provide feedback and discuss solutions to any problems encountered during the day.

Check, Connect and Expect has been evaluated in one large, 2 year, RCT involving 18 Washington primary schools. After 2 years the CCE graduates moved from the at-risk range to the normal range on the Social Skills Rating Scale (Cheney, Flower & Templeton, 2008; Cheney et al., 2009).

2.3 Interventions involving interpersonal skills training

The search for interventions which involve teaching missing social and self-regulation skills to children and youth with persistent behaviour problems proved to be largely fruitless. We found one experimental evaluation of the Dino Dinosaur programme for 3 to 6 year olds and three evaluations of Aggression Replacement Training for delinquent adolescents which met the criteria for inclusion.

Dino Dinosaur. This programme, designed by the authors of the Incredible Years programme is designed to operate as an adjunct to the parent training programme. It consists of discussion around 100 video vignettes, imaginative play activities, and peer group problem solving activities spread over 22 weekly sessions. Data from a single RCT comparing the effects (on parent reported deviant child behaviour) of the parenting programme, the child programme, and the two programmes together, found that the child programme had an additive effect over and above the effect of the parenting programme.

Aggression Replacement Training. *Description (ART).* Aggression Replacement Training is a 30 hour group training programme designed for young adolescent offenders. The programme provides training and practice in 50 social skills, anger control training and moral reasoning training using moral dilemmas. Skills are taught using live and DVD demonstrations and instruction. Skills are practised using role plays (Glick and Gibbs, 2010). Of the 12 published evaluations of ART (Goldstein, 2004), three are RCTS which include data on changes in rates of offending 3 to 12 months post intervention. Lipsey, Landenberger, and Wilson (2007) in a Campbell review give the effect size for ART on reductions in offending as d = 0.16 which translates to a reduction of about a 16 per cent.

2.4 Multimodal interventions

The multimodal treatment programmes which consistently result in reductions in antisocial behaviour and which qualify as evidence based are Multisystemic Therapy, Teaching Family Homes, and Multdimensional Treatment Foster care. All are complex treatment programmes which attempt to bring about reductions in antisocial behaviour in the home (or residential setting), school, and peer environments.

Multsystemic Therapy (MST)

Multisystemic therapy targets the social environments of 10 to 18 year old youth who have come before the court. Its main aims are to improve caregiver behaviour management skills, increase positive family interactions, improve school performance, reduce contact with deviant peers, and increase engagement in normal recreational and social activities. Interventions with the individual teenager focus on improving social, academic and self-management skills. Interventions with the family focus on improving communication, supervision, contingency management and discipline skills. A major goal is to empower parents with the skills and resources needed in order to cope with family, peer, school, and neighbourhood problems. Interventions, which typically last about 4 months, are delivered by trained master's level therapists who receive on-site supervision from a doctoral level clinician.

Controlled evaluations of MST have been reviewed by Curtis, Ronan and Borduin (2004). The classification of MST as evidence based rests of the results of five evaluations of which four were undertaken by the developers. All five RCTs have included follow ups for at least a year and all four report significant reductions (compared to control teenagers) in re-arrests, and/or time spent incarcerated, and/or seriousness of offending. A follow-up 22 years post-treatment confirmed the significantly lower recidivism rates for the MST group across not only violent and felony crimes but also civil proceedings such as divorce and paternity suits (Sawyer & Borduin, 2011). MST has been trialled in New Zealand (Curtis, Ronan, Heiblum & Crellin, 2009). Nil-effect results have also been reported. Results from an RCT of a Swedish implementation found few differences between the improvements produced by MST and those produce by Child Welfare Services (Sundell et al., 2008) and a large unpublished Ontario evaluation by Leschied and Cunningham also found few positive effects for MST. Aos, Phipps, Barnoski and Lieb (2001) calculated that MST returns $2.64 in savings for each dollar spent on treatment.

Teaching Family Homes

The Teaching Family model was designed and piloted by behaviour analysts in the early 1970s. Teaching Family Homes are small scale residential programmes which take youth aged 12 to 17 who have been referred by the youth justice system for residential placement. Each home takes 6 to 8 antisocial teenagers at a time and is staffed by a married couple who have completed a year long training programme and who continue to meet annual certification requirements. The programme includes teaching and practice of social skills, self-help skills, problem solving skills, learning to maintain emotional control for extended periods of time, learning to accept feedback, and so on – all within the context of a family home environment in which the teenager has responsibilities such as keeping his or her room tidy, helping to prepare meals, washing clothes, and cleaning up after meals. Youths who are not motivated by social consequences are placed on a token economy in which all privileges

(snacks, going out, extra TV, pocket money, money for clothing, time with one's family, etc.) have to be earned (Davis & Daly, 2003. Teaching Family youth attend the local school and teaching parents liaise with the school, assist with the development of educational plans, supervise homework, receive a daily report card, and give points for achievements at school.

The TFH programme has been more carefully evaluated than any other residential treatment programme for antisocial teenagers. Operational procedures have been evaluated in numerous single case experiments and there have been at least six evaluations of the long term effects of Teaching Family home placements. A long term follow-up by Thompson et al. (1996) of boys from Boys Town homes (which use the Teaching Family model) found significantly superior performance for Boys Town graduates on a range of educational measures (grade point average, secondary school completion, and attitudes to college) for four years post-treatment compared to youths in community programmes. An overview of the results of a number of Boy's Home follow-up studies has been provided by Friman (2000).

Multidimensional Treatment Foster Care (Oregon model)

Multidimensional Treatment Foster Care was developed by the Oregon Social Learning Group to provide a service for children with serious behaviour problems who are in need of out of home care. There are three versions of the service: a version for 3-5 year olds, a version for 6-11 year olds, and a version for 12-17 year olds. Children are placed in a family setting for 6 to 9 months. MTFC programmes operate across multiple settings: the foster home, the family of origin, school, and recreational facilities. Foster parents are part of the treatment team. They provide close supervision and are responsible for setting clear rules, expectations, and limits. MTFC parents receive 12-14 hours of pre-service training, participate in support meetings weekly, and have access to program staff and support 24/7. They are paid a monthly salary and a small stipend to cover extra expenses. For children and youth who have been referred as a result of delinquency, a high level of supervision throughout the day is achieved through the use of a 3-level points system. Privileges and level of supervision are based on the teenager's level of compliance with programme rules, adjustment to school, and general progress. Heavy emphasis is placed on the teaching of interpersonal skills and on participation in mainstream social activities such as sports, hobbies, and other forms of recreation.

Five randomized trials testing the efficacy of MTFC have been completed. These include a study of preschool-aged foster children, a study of upper primary school foster-children, a study of youth leaving psychiatric hospital placements, and two studies of adolescents (one of boys and one of girls) in foster care due to involvement in the juvenile justice system. Each used appropriate outcome measures and each found significant advantages for the MTFC group. In the two adolescent studies, adolescents in the MTFC groups were less frequently arrested, had fewer associations with delinquent peers and had higher school attendance rates during the follow up period than adolescents in the control groups (Chamberlain, Leve, & DeGarmo, 2007; Eddy, Whaley & Chamberlain, 2004). Aos et al. (2001) has calculated that the savings arising as a result of these effects represents a savings of $43.70 for every dollar spent on MTFC at the adolescent level.

3. Treatment research across the age range: Implications for theory and practice

1. *The futility of social skills training without also changing the context.* A large amount of research time has been spent trying to devise effective social skills training programmes for children and youth with persistent behaviour problems (Maag, 2006). By and large these social skills training programmes have proved to have little sustained positive effect on the behaviour of antisocial children and youth (Taylor, Eddy & Biglan, 1999). From a learning theory perspective this finding is not unexpected. Children learn the behaviours which work for them. Therapists can teach an antisocial child how to behave politely but if the child spends most of the day in environments where coercive behaviours pay off more frequently than polite behaviours then there is no reason to expect that this teaching will have any detectable effect on the antisocial child's day-to-day behaviour.

2. *Trying to halt and reverse antisocial development becomes more difficult the older the child becomes.* Social skills are used in dozens of social interactions each day and tens of thousands of social interactions each year. As a result of this practice, these skills become increasingly sophisticated and increasingly automatic. For the antisocial child, it is the child's coercive skills which become increasingly sophisticated and increasingly automatic. This is why it becomes increasingly difficult to halt antisocial development the older the child becomes. That this is so, is shown by the fact that the same intervention has diminishing effects the older the antisocial child becomes (Reid, 1993) and the fact that, in order to produce any effect at all, increasingly intensive interventions are required the older the antisocial child becomes.

3. *The developmental hypothesis is confirmed by the treatment research.* Some writers argue that the conduct problems appear when risk factors combine to produce them, that there are many risk factors and that there is no single combination of risk factors which result in the development of conduct problems in children. Social learning theorists, on the other hand, argue that elevated rates of antisocial behaviour are indicative of antisocial development and that the same learning processes which operate to teach and to strengthen social behaviours also operate to teach and to strengthen antisocial behaviours. The effectiveness of the parent management training programmes in halting and reversing antisocial development provide strong evidence in support of a social learning theory account of the origins of antisocial behaviour. This is because when parents of antisocial children are trained to model prosocial behaviours, to differentially reinforce prosocial behaviours, and to cease reinforcing antisocial responses, younger children readily switch from antisocial to prosocial behaviours in order to get what they want.

4. *Study of antisocial development and its treatment is important preparation for work with the parents and teachers of children with persistent conduct problems.* A knowledge of the way in which antisocial behaviour develops in children and youth its just as important as a knowledge of effective treatment procedures and programmes. A knowledge of antisocial development is important because it identifies the ecologies, or contexts, which need to be targeted by intervention at each age level. These are the antisocial child's interactions with parents and siblings (the home context), with teachers and classmates (the school context) and with peers and associates (the playground and recreational contexts).

5. *A social learning account has important workforce implications.* Almost all of the effective responses to children with persistent conduct problems were designed initially by behaviour analysts (or are copies of programmes designed by behaviour analysts). Social

learning theory itself is a variant of the principles of behaviour (that is, the principles of learning) discovered by behaviour analysts. It follows therefore, that the dissemination of effective treatment programmes for antisocial children and their parents and teachers will require a much larger workforce trained in the principles of behaviour and applied behaviour analysis than presently exists in this country.

6. *The shortage of behaviour analysis specialists in teacher education and social work training is especially acute,* The frontline staff who first come into contact with children who are at risk of antisocial development are teachers and social workers. A quick examination of the teacher education programmes and the social work training programmes in this country indicates that there are almost no behaviour analysts teaching into these programmes and that there are no courses in applied behaviour analysis in any of these programmes. Nor is this state of affairs is likely to change in the near future. This is because the New Zealand Graduating Teacher Standards make no reference to a knowledge of the principles of behaviour and behaviour management and the Core Competence Standards of the Social Workers Registration Board makes no reference to the psychological knowledge required for evidence-based practice when working with antisocial children and their families.

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Presented to the 4th Educational Psychology Forum, Albany, N. Z., 22 November, 2011. Revised 28 November, 2011.
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