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## **Child-centred environments to limit early aggression (Childhood Aggression Prevention (CAP) Project) progress report: presented to the Western Australian Health Promotion Foundation**

Child Health Promotion Research Centre, Edith Cowan University

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**Child-Centred Environments to Limit Early Aggression  
(Childhood Aggression Prevention (CAP) Project)**

**Progress Report Presented to  
The Western Australian Health Promotion Foundation**

**December 2006**

# **Child Health Promotion Research Unit**

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**ool of Exercise, Biomedical and Health Sciences**

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(Childhood Aggression Prevention (CAP) Project)**

**Progress Report Presented to  
The Western Australian Health Promotion Foundation**

**December 2006**



Childhood Aggression Prevention

**FILE NO: 15172**

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**PROJECT TITLE:** Child-Centred Environments to Limit Early Aggression Intervention

Trial NB: The Project working title is now "Childhood Aggression Prevention Project"  
or in brief "CAP Project"

**ORGANISATION:** Child Health Promotion Research Centre (CHPRC), School of  
Exercise, Biomedical and Health Sciences, Edith Cowan University (ECU).

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## SUMMARY

A growing body of evidence indicates that early intervention may be most effective in preventing the high health and social costs of violence, victimisation, and other outcomes of aggression. The Childhood Aggression Prevention (CAP) Project is a trial of a new classroom-based intervention designed to prevent problems associated with aggression and other problem behaviours in early-primary years students. The intervention was developed through a review of established and previously-evaluated programs with similar aims and through a formative study conducted previously by the Child Health Promotion Research Centre. The CAP Project aims to reduce overt physical and verbal aggression, but also to reduce social (or relational) aggression, to promote prosocial behaviours and empathy. The intervention targets five primary areas: (1) explicit learning opportunities to support emotion regulation and social competence amongst children; (2) preventive strategies to promote pro-social goals amongst children and to limit peer exclusion and rejection, which can lead to increases in aggressive behaviour; (3) strategies to enable school staff to self-diagnose and address relational problems with difficult students, which can entrench behaviour problems; (4) strategies for how schools can support parents of children with problem behaviours; and (5) effective proactive and reactive responses to incidents of anger and/or aggression.

The CAP Project intervention is being assessed through the participation of 918 students and their families from 24 Government schools (12 intervention, 12 control schools) in the Perth metropolitan area. After random selection of schools and random assignment to condition, children have been recruited in their Kindergarten year, and will be followed into Pre-Primary (PP; 2007), and then to Year 1 (2008). Teacher and parent reports about the individual children have been collected. Child interviews and sociometric assessments to be conducted in 2007 have been subject to preliminary pilot testing. In anticipation of the 2007 school year start, we have already trained 24 Pre-Primary teachers and 22 Education assistants in the CAP Project intervention and provided materials for their use in classrooms in 2007.

## OBJECTIVES

As noted in our original application, our aim has been to build on our year-long formative research to develop, disseminate and evaluate a school- and home-based intervention that provides pro-social and non-aggressive strategies for junior primary school age children in Perth, WA. The project holds to this primary objective, focusing on delivery of a program to Pre-Primary students. The school is the dissemination source for health promotion information on parenting support, which evidence indicates can be a powerful influence to promote healthy behavioural development. Parents will be engaged through schools, but opportunities for direct intervention at the family-level have been recognised as beyond the scope of such an intervention.

In the original application, we indicated that the intervention will build the capacity of teachers and parents to support children's pro-social behaviour. This remains an objective, with the inclusion of building capacity of educational assistants in the pre-Pre-Primary classroom to support pro-social behavioural development.

We are currently implementing the group randomised intervention trial that will follow a cohort of Pre-Primary children and their parents/carers for three years as discussed in our original application, but rather than beginning to track the cohort in Pre-Primary and following until year 2, we have recruited the children in Kindergarten, and will follow through to year 1. Logistics and costs have led us to limit the intervention to a single-year. The first year of this project required formal development of the intervention to be implemented, and necessitated training of teachers to run the intervention, as well as recruitment of schools and then of families. By running the intervention for a single year, we will be able to ascertain the effect of the intervention past the immediate completion of the intervention. This more stringent criterion for assessment will allow us to determine the efficacy of the intervention at a minimal follow-up of 6-8 months.

### Primary Objectives

The primary objectives of the study have not changed. However, we have adjusted our measurement plan somewhat, summarised below.

- Decrease the prevalence and severity of aggressive behaviour by intervention group children at school and home.
  - *We had proposed to use the Children's Aggression Scale - Teacher[1] and Parent[2] Versions. Instead, we are using questions developed*



and used by the research team of Professor Richard Tremblay of the University of Montreal, as part of a research partnership with his group; see *Partnerships* for details. The child's teacher and one parent will respond to questions.

- Decrease the number of intervention group children identified as experiencing physical and indirect aggressive behaviour directed towards them at school.
  - We had proposed to make use of Teacher and Parent report (see note above regarding changes to the instruments). However, we will also be collecting data from a third source – the children themselves, using sociometric (i.e., peer nomination) reports; see *Progress* for details.
- Improve intervention group children's social skills including cooperation, assertion, responsibility, empathy and self control.
  - We had proposed to use items from the Social Skills Rating System – Ages 3-5, Teacher and Parent Forms. Instead, we are using questions developed and used by the research team of Professor Richard Tremblay of the University of Montreal, as part of a research partnership with his group; see *Partnerships* for details

### Secondary Objectives

As with our primary objectives, our secondary objectives have not changed substantively. However, we have adjusted our plans for measurement of these objectives.

- Create a positive emotional climate in classrooms that supports effective behavioural management.
  - We had proposed to conduct Classroom observation - adapted from the Classroom Assessment Scoring System. However, observational approaches may not reflect day-to-day classroom functioning. We have opted for an indirect measure of positive emotional climate by assessing the relationship quality between teachers and students through reports from both sources. A composite measure at the classroom level will provide an overall score for classroom emotional climate.
- Enhance teacher understanding and modelling of alternative strategies to aggressive behaviour. (*Teacher questionnaire*)
- Enhance parent understanding and modelling of alternative strategies to aggressive behaviour. (*Parent questionnaire*)

- *This aim will be achieved through indirect contact with parents via school-based delivery of resources and health promotion messages relevant to parenting and aggression.*

## **PROGRESS**

### **1. PROJECT MANAGEMENT**

A strong, multidisciplinary management team is responsible for overseeing this project. The Management Committee is responsible for the day-to-day administration of the project and comprises:

Dr. Kevin Runions

Ms. Tommy Cordin

Ms. Elizabeth Bowker

Ms. Thérèse Shaw

Prof. Donna Cross

Ms. Melanie Epstein

Dr. Marg Hall

Ms. Stacey Waters

This team has been supported by a number of staff at the Child Health Promotion Research Centre, including Ms. Renee Campbell-Pope, Ms. Kaashifah Bruce, Ms. Erin Erceg, Ms. Patricia Cardosa, Mrs Sharon Bell, and Ms. Dionne Paki. As well, two post-graduate psychology students and four health promotion students have completed practica around various aspects of the, and seven student volunteers have provided assistance to the research team (see EFFECT OF RESEARCH ON PROFESSIONAL DEVELOPMENT AND CAPACITY BUILDING, below).

Extensive consultation continues in this project. Many people have provided formal and informal contributions to the project. These include

Jeanette Hasleby, Director, Behaviour Standards and Well-being, Department of Education and Training, WA.

Grania McCudden, Behaviour Standards and Well-being, Department of Education and Training, WA.

Sue Rowe, Behaviour Standards and Well-being, Department of Education and Training, WA.

Prof. Richard Tremblay, Director, Research Unit on Children's Psychosocial Maladjustment, University of Montreal, Canada

Prof. Frank Vitaro, Research Unit on Children's Psychosocial Maladjustment,  
University of Montreal, Canada

Dr. Francois Poulin, University of Quebec at Montreal, Canada

Prof. Robert Pianta, University of Virginia, U. S. A.

Corie Williams, Curtin University

### 1.1 Collaboration with Prof. Tremblay and the Research Unit on Children's Psychosocial Maladjustment

These contributions are an important part of the CAP Project. Dr. Runions initiated a meeting with Prof. Tremblay while Tremblay was visiting Perth in 2006. This meeting was intended simply to seek the advice of this pre-eminent scholar of early childhood aggression on our intervention approach, and was attended by members of the Project Management team. Following this meeting, Prof. Tremblay and Dr. Runions agreed that this might be a forum for further collaboration, as Prof. Tremblay was planning two intervention assessments, with similar aims, in Paris and Geneva. It was decided that the CAP Project might be a third node in a multi-national comparison of aggression prevention programs. The CHPRC sponsored Dr. Runions to travel to Montreal to learn first hand about the intervention ("Fluppy"; Capuano & Giard, 2001; Tremblay, Pagani-Kurtz, Mâsse, Vitaro, & Pihl, 1995) and about assessment strategies, including instrumentation and techniques for sociometric assessment (see Instrumentation and Data Collection, below) through a week of meetings with Prof. Tremblay, Prof. Vitaro, Dr. Poulin, and trainers from their intervention projects. Dr. Runions, Prof. Cross, and Erin Erceg met once more in July 2006 with Prof. Tremblay at the meeting of the International Society for the Study of Behavioural Development in Melbourne to finalise details of this collaboration. The input that Prof. Tremblay's team have provided has had a strong influence on some of the changes to the project. We believe that these changes reflect the wisdom of the years of experience in early interventions to address aggression that this team has had.

### 1.2 Collaboration with the Department of Education and Training

Prior to the full Management Team meeting with Prof. Tremblay (described above), Dr. Runions met with Prof. Tremblay and Grania McCudden of the DET Directorate of Behaviour Standards and Well-being (DBSW). Following this meeting, the CAP Project began discussions with Jeanette Hasleby, the Director of DBSW, and Ms. McCudden, about their interest in supporting the project. They have a keen interest in evidence-based programs that can support teachers in addressing aggression,

and have expressed interest in scaling up if the CAP Project intervention shows significant effects. They were also keen to ensure that the intervention program was appropriate for Pre-Primary teachers in W.A., that it fit with the Curriculum Guidelines for W. A., and that the intervention be cost-effective on a per-unit basis.

The DBSW and the CHPRC agreed that the easiest way for the DET to provide support would be through providing funds to cover teacher relief payments for teacher time spent (a) in completing questionnaires about the children in the CAP Project and (b) in training for the CAP intervention. They are able to deposit funds directly into the budgets of participating schools once notified how much is owed. They have verbally committed to provide up to \$50,000 over two years (2006 and 2007). This financial support has allowed us to focus on developing cost-effective intervention materials, to train Education assistants in the CAP intervention (which was considered by Richard Tremblay's group to be a potentially powerful innovation), and to cover costs associated with teacher-completed evaluations of participating children.

### 1.3 Collaboration with Prof. Robert Pianta

A core feature of the revised conceptual framework is the concept that the relationship between teacher and child represents a potentially powerful influence on developmental pathways of aggression and problem behaviour. One of the world's leading authorities on teacher-child relationships is Prof. Pianta of the University of Virginia. Dr. Runions has been in contact with Prof. Pianta regarding use of the Student-Teacher Relationship Scale and the psychometric properties of the abbreviated version used here, which was previously used in the U. S. National Institute for Child Health and Human Development (NICHD) Study of Early Child Care. We have also incorporated an innovative strategy which Prof. Pianta has been developing and is currently evaluating, which he refers to as 'Banking Time' and we have called 'the Good Times Bank' (see Section 3 and Appendix A for details). Prof. Pianta has provided support in developing this idea in the CAP Project program.

## 2. STUDY DESIGN

In the proposal we discussed beginning the intervention in 2006. However, as funding was not obtained until after the start of the school year, it was not feasible to recruit schools and children/families, at the beginning of the 2006 school year. We concentrated instead on developing our multi-systemic intervention, and on careful

recruitment of schools and of families that aimed to maximise participation and commitment.

In terms of study design, we have collected baseline data this year from parents and teachers for 2006. Staff from Phase 1 schools (i.e., those in the condition to implement the intervention in 2007) have been trained and will initiate the intervention at the very start of 2007. Most interventions train staff mid-year, but the importance of setting goals and behavioural expectations for the class from the very start of the school year is high for this type of project. Such a "ready schools" approach to the transition into Pre-Primary is increasingly recognised as an important component of a health-promoting schools policy. The intervention, then, will be focused on the Pre-Primary year in 2007. We believe that a well-planned, multi-systemic intervention 'dose' in a single year will be more effective than what we could have offered to schools had we attempted to begin the intervention this year.

Table 1: Revised study design

	Term 4 2006	Terms 1 - 4 2007	Term 3-4 2007	Terms 1-4 2008	Term 2-3 2008
Phase 1 Schools	O <sub>1</sub>	X <sub>1</sub>	O <sub>2</sub>		O <sub>3</sub>
Phase 2 Schools	O <sub>1</sub>		O <sub>2</sub>	X <sub>2</sub> *	O <sub>3</sub>

\* note: although training will be provided to Pre-Primary teachers in Phase 2 schools prior to the 2008 school year, the children who constitute the CAP Project cohort will be in Year 1 in 2008, and hence will not receive the intervention in Phase 2 schools.

### 3. DEVELOPMENT OF INTERVENTION CONCEPTUAL FRAMEWORK

Health researchers have been increasingly aware of the importance of early intervention to prevent long-term health problems, and have been attuned to early risk markers. Amongst the key risk markers for a wide range of poor developmental health outcomes are aggressive and disruptive behaviour problems, which signal poor emotional and behavioural regulation. A growing number of longitudinal studies from a range of nations, including Canada (Tremblay, Masse, Perron, & Leblanc, 1992), Sweden (Andersson, Mahoney, Wennberg, Kuehlhorn, & Magnusson, 1999), New Zealand (Moffit, Caspi, Harrington, & Milne, 2002), Mauritius (Raine, Venables, & Mednick, 1997), Australia (Smart et al., 2003), and the United States (e.g.,

Schaeffer, Petras, Ialongo, Poduska, & Keillam, 2003), have noted that problems such as criminal involvement (violent and non-violent), poor school performance, and drug and alcohol misuse can be predicted from these early indicators of conduct problems. Early detection and interventions to address these problems can play a valuable role in promoting health and in preventing this broad range of developmental health problems.

On average, the frequency of physically aggressive acts (e.g., biting, hitting, kicking) peaks in the second year of life, from whence there is a normative decline, as the vast majority of children learn to regulate their aggression or to channel it into socially acceptable or social condoned outlets (Tremblay). Thus a key task of development is acquiring the capacity to regulate aggression and disruptive tendencies. By the time children are entering formal schooling, only a fraction are capable of consistently regulating their more disruptive behaviours. Statistical estimates with an American sample of boys found that approximately 85% of boys showed medium to moderate levels of maternal-rated overt conduct problems at five-years of age, but the overall level of these problems declined in the first few years of schooling (Shaw, Lacourse, & Nagin, 2005). Despite this decline, under normal schooling conditions, over 50% of boys were reported by teachers as having problems with delinquency at age 9-10. Moreover, a small proportion (~ 7 – 11 %; Broidy et al., 2003; Shaw et al., 2005) of boys show persistent disruptive and aggressive behaviours. It is true that a smaller number of girls show problems with physical aggression over childhood. But best estimates indicate that 12 – 43% of girls show moderate but declining levels of physical aggression over the course of primary school; whereas 3% - 10% of girls show persistent physical aggression throughout primary school (Broidy et al., 2003). Thus limiting aggression amongst both young boys and young girls will be an important goal of preventive interventions.

But despite the fact that aggressive behaviours, along with other defiant, overactive, inattentive and impulsive tendencies, may be considered normative in young children, persistent problems of this type account for the bulk of childhood psychiatric problems in most Westernised nations (Loeber et al., 2000). For a small subgroup of children, aggression remains elevated, and the emotional and behavioural capacities for self-control are either never learned or are not utilised, and conduct problems continue to be displayed. In Western Australia, it has been estimated that over three percent of children between the ages of 4 and 11 demonstrate clinically significant problems with aggression, and over ten percent demonstrate problems with other

'delinquent' behaviours (Zubrick, Silburn, Garton, Burton, Dalby, et al., 1995). As these children grow, the impact and severity of their aggressive and disruptive behaviours grows too, and the problems they experience become problems for others who are a part of their lives, whether as classmates, dates, spouses, children, or co-workers. Children who demonstrate early conduct problems at high risk for criminal activity and incarceration for serious offences, and have little success in maintaining even low-status unskilled work (Moffit et al., 2002). Violence against women and children is also notably elevated amongst men who had shown severe conduct problems in early childhood (Moffit et al., 2002).

### 3.1 Taxonomies of Aggression

There are different ways of being aggressive. Aggression can be reactive or proactive, and it can be physical, verbal, or social. *Reactive* physical aggression usually shows up as an emotional overreaction to events, marked by frustration and anger. The child who gets angry at and lashes out over what appears to be nothing to others is an example of a children showing reactive aggression. Reactive aggression is sometimes triggered by children misreading social cues, and believing that other children are deliberately being provocative (Dodge & Coie, 1987). Such children will sometimes judge an emotionally "neutral" face to be hostile. These errors or biases in *social information processing* will be discussed in more detail below, and understanding them, and helping children to understand them, will be an important part of the CAP intervention.

Proactive aggression usually shows up as a child using aggression to achieve a goal. The classic example would be the traditional idea of a "bully" who uses his or her power to get what they want. Proactive aggression might be thought of as a problem with children's social goals—children use aggression to achieve a certain kind of goal, perhaps involving power or control, at the expense of goals that emphasise the importance of cooperation, for example. But the social context and support that children feel they have for proactive aggression is also very important. Research on bullying has shown just how important the "other" children in a bullying situation are. If children just stand by and allow it to happen, then the problems get worse. This shows how addressing aggression requires change not just in the obviously aggressive children, but in the behaviours of all the children in the class.

Obviously physical aggression is of great concern, but other forms of aggression can be disruptive to classroom functioning and harmful to children's wellbeing as well.

The old saying about sticks and stones breaking bones, but names never hurting might have helped some people keep a “stiff upper lip”, but it doesn’t reflect the reality of psychological harm that verbal aggression can have. Children also engage in social aggression—the manipulation of social networks to cause harm (Bjoerkqvist, Lagerspetz, & Kaukiainen, 1992; Crick & Grotpeter, 1995; Galen & Underwood, 1997). Although there is considerable overlap in the use of both physical and social aggression, research with Canadian children suggests that they represent distinct forms of aggression (Vaillancourt, Brendgen, Boivin, & Tremblay, 2003). Social aggression appears to share genetic factors with physical aggression; indeed, problems with physical aggression appear to precede and lead to social aggression (Brendgen, Dionne, Girard, Boivin, Vitaro, & Pérusse, 2005). Thus, aggression may be expressed initially through physical means, but once these behaviours become punished, alternative—but socially-condoned—forms of aggression may be adopted (Bjoerkqvist, Lagerspetz, & Kaukiainen, 1992). Although these behaviours tend not to arise until later in childhood, even by Pre-Primary, some children will show adeptness in excluding particular children as a way of asserting power and inflicting punishment. Although these behaviours might seem less dramatic than physical aggression—indeed, this kind of manipulation is not uncommon in adult workplaces—it can have a devastating effect on children who have not developed the self-esteem to ride it out. This form of aggression, which supports much bullying, social exclusion and rejection, and discriminatory acts against marginalised others, has serious negative consequences for schools and for society generally. Community studies estimate that 20 – 30% of children and youth are chronically victimised by peers (Nansel, Overpeck, Pilla, et al., 2001). Such social aggression often results in psychosocial adjustment problems for those targeted (Hawker & Boulton, 2000). But academic functioning can be adversely affected as well. For example, peer rejection is directly linked with children’s achievement, with indirect pathways via chronic peer exclusion and reduced classroom participation (Buhs, Ladd, & Herald, 2006). Ironically, then, school is often the central location for this sort of social aggression, and as such is a necessary environment in which to locate interventions (Storch & Ledley, 2005). This suggests that schools and teachers need to examine their current practices and methods of discouraging physical aggression, and adopt practices and methods that will not simply motivate children to replace physical with social aggression.

### 3.2 Elements of a Classroom-based Early Aggression Intervention



It is increasingly recognised that early intervention provides the most effective as well as the most cost-efficient investments into long-term health outcomes (Raphael, 1993 in WACHS report). Schools are increasingly seen as an ideal locus for early intervention, due to the universal exposure to program content which can take place in schools (Silburn, Zubrick, & Garton, 1995 (in WACHS)). The school context is also important due to the power of the socialising influences that children encounter there. These include (a) the potential for direct explicit learning opportunities that bolster emotional and behavioural self-regulation and promote pro-social goals and activities; (b) the potential for transformative relationships with adults other than direct families (i.e., teachers and education assistants); (c) the potential for positive peer influences; and (d) the potential for transformative relationships between parents/guardians and school staff to influence children's development. Although each of these is a potential positive influence, the school context can also be a potentially *negative* influence that could operate through the same influences.

Schools and teachers are eager for effective preventive approaches that will enable them to limit the problems that can arise from aggressive and disruptive students. Schools, then, have a stake in supporting health promotion to limit behaviour problems. But it is important that educators recognise the processes that are occurring within their schools that might be aggravating behaviour problems and aggression. Although it is true that children do enter formal schooling already showing individual differences in aggression, and these seem likely to be related to the family context the child is coming from, these facts do not imply that schools do not have a role. In fact, they do.

In discussing the school, teacher and peer mechanisms that might unintentionally promote aggression and that might be harnessed to limit aggression, we have drawn upon not only published research relevant to the mechanisms, but also the findings of our earlier Unit study, funded by Healthway, assessing best practices to limit aggression that was conducted with key education stakeholders in Western Australia (Cross, Hamilton, Roberts, & Hall, 2004). These stakeholders included government policy officers from the Departments of Education and Health, and representatives from a wide range of education offices and associated groups. Semi-structured interviews were developed to identify current and proposed policies and programs aimed at aggression reduction and social skills development in junior primary school. In total, semi-structured telephone interviews were conducted with 17 key stakeholders. In these interviews, stakeholders were asked to identify schools and

teachers who were implementing successful policies and/or strategies. These schools were then contacted and individual teachers were invited to take part in interviews. This resulted in interviews with 47 teachers from 25 schools in Western Australia. Finally, a Delphi study of successful practice in aggression reduction was conducted using a 9 member expert panel. These suggestions for successful practice are reflected in the following review.

### 3.3 Direct explicit social-emotional learning opportunities

As noted, for the majority of children, early childhood is a time in which the social and emotional capacities to regulate aggressive and disruptive behaviours is developing. These capacities do not develop in a vacuum, however, and schools represent a forum for explicit learning opportunities, both formal and informal.

Difficulties in controlling aggressive and disruptive impulses are often seen as failures in *emotion regulation*. In particular, young children's aggression often arises "in the heat of the moment", as tempers flare. School can be a social challenge for children, in which emotion regulation capacities are pushed to the breaking point. The social context of formal schooling is radically different from the previous contexts in which most children have grown up. The school is constituted by a wide range of novel and unknown people, situations, and tasks. With these new setting and actors come new expectations, rules, challenges and rewards that may differ markedly from those of the family context or prior experiences with nursery or playgroup. Thus, it is not surprising that many children show difficulty in regulating their emotions in these contexts.

Emotion regulation consists of competencies that enable the child to modulate their emotions (Eisenberg et al., 1997). They include

- Self-soothing
- Re-focusing attention from upsetting situations
- Reframing distressing or upsetting situations
- Inhibiting actions motivated by intense emotions

While some children do not require any explicit instruction in these areas, seeming to learn these competencies through "osmosis" from their early social contexts, others do benefit from formal support and instruction.

A second primary area of research that should inform activities to explicitly promote pro-social behaviour is based on research children's social information processing (SIP; Crick & Dodge, 1994). The SIP model has become very influential in research and interventions into behaviour problems. It consists of a sequence of "steps" that children theoretically will go through during social interactions. These steps are generally thought to be "subconscious" or implicit, but for purposes of teaching about them, it may be necessary to make them explicit.

The SIP model can be thought of as *what happens between something happening to a child and that child responding to it*. The steps that are thought to take place are:

- What social cues are attended to (cue encoding);
- How social cues are interpreted (cue interpretation);
- What goals the child is seeking to achieve (goal selection);
- What potential plans come to mind (response planning); and
- Whether they think those plans will achieve their goals and whether they think they are capable of implementing the plan (response evaluation).

*Cue encoding:* As children interact with others, they will attend to some (but probably not all) the potential social cues in the interaction. There may be patterns of attending to some cues and ignoring others that result in initiating an "inaccurate" or incomplete picture of what has happened or what is happening.

*Cue Interpretation:* Just because a child attends to a social cue does not mean they will all "see it" the same way. A great deal of research has focused on what sort of motives a child ascribes to other children. Some children seem prone to attributing hostile intent to others. That is, they think that other children behave as they do because they mean to do harm to the child; that the other child meant to harm or humiliate them. This kind of interpretation can take place in response to situations that any "objective" judge would say were likely to be ambiguous in their intent, or even when the action appears accidental to most observers. Such an interpretive tendency may predispose children to more hostile responses. These processes are thought to be especially important for reactive aggressors; that is children whose aggression is largely of the "fly off the handle" sort in response to stress or provocation, rather than proactive aggressors, who are thought to use aggression as a means to an end.

*Goal Selection:* Although the goals a child holds may vary depending on the situation, there is reason to believe that children hold some generally consistent goal tendencies that may influence their behaviours across a range of situations. Aggressive children tend to endorse punishment of and retaliation against those perceived to have done them wrong. Tendencies toward controlling over one's own activities or those of others also appear to relate to more hostile and coercive responses by children. By comparison, withdrawn and pro-social children rate relationship-oriented goals higher.

*Response Planning:* As children are preparing their response to social situations (although this 'preparation' is best thought to be below conscious processing), certain response possibilities will be more likely to arise than others. Some of these will be commonly accessed and frequently used responses, whereas at other times, children will generate a novel response to fit the situation. For aggressive children, the reliance on stereotyped aggressive solutions may be strong.

*Response Evaluation:* The decision whether or not to go with a particular response plan is thought to be influenced by a number of things. First, the child's sense of self-efficacy will be a factor—they are unlikely to act if they do not feel confident in succeeding. It is important to note here that promoting self-esteem alone may not always be beneficial in reducing aggression. A child who holds both an aggressive plan and high self-esteem may judge themselves as better able to successfully complete their plan.

Children's outcome expectancies are also important—if they feel that positive outcomes will flow from some behaviour, they may be more likely to enact that behaviour. This has an important implication for "Stop and Think" approaches to aggression reduction. There is a notion that aggressive children would be less aggressive if they thought more or longer about their actions before they act. But a study has shown that, for aggressive boys, a 10 second wait condition actually increased the aggressiveness of proposed responses to difficult social problems (Orobio de Castro, Bosch, Veerman, & Koops, 2003). Providing more time may simply allow aggressive children to "stew" further on their perceived grievance. In the same study, a condition in which participants were prompted to monitor their own emotions and generate an emotion-regulation strategy was associated with reduced aggressive response generation in aggressive boys, compared with control boys. So

a focus on emotion regulation and self-control may work better than a straight "Stop-Wait" approach.

A number of programs have been developed in recent years that work to systematically instruct children in social skills and facilitate their understanding of social cues and interactions. The most successful of these also incorporate formal instruction on helping children to reflect upon their emotions. These include the Promoting Alternative Thinking Strategies (PATHS) program (Kusche & Greenberg, 1995), the Fluppy Program (Capuano & Girard, 2001; Tremblay et al., 1995), and the Making Choices program (Fraser, Nash, Galinsky, & Darwin, 2000). These programs all build upon a common framework developed through the current developmental psychology literature around the cognitive and emotional processes implicated in early aggression. Explicit instruction around emotion regulation and social information processing are a key core component of any intervention to prevent problems with aggression.

But explicit instruction around these themes is not likely to be adequate. Many of the programs mentioned above, while reporting significant differences in their evaluations of intervention versus control groups, have found the differences to be small in effect size and to not be sustained long past the completion of the intervention. In response, many of these researchers have re-evaluated their programs in conjunction with strategies that target other strategies. These strategies focus on the role of the teacher, on the role of peers, and on the role of parents.

### 3.4 The Teacher-Child Relationship

Teachers and other school staff who work directly with children operate independently of the family context in which the children have lived for the preceding years of their lives. Through their teachers, children are exposed to new behavioural systems and expectations that can differ from those of the home context. This can be seen as bearing the potential to amplify problems behaviours, although it is also a opportunity to introduce behavioural expectations that have not been in place in the home context. Also, there is a growing body of research that suggests that quality of the relationship that teachers maintain with their students is important for children's outcomes.

The quality of the teacher-child relationship is another important component of the entry to formal schooling that can have a positive or a negative impact on children's

conduct problems and social development. Several longitudinal studies have now demonstrated that teacher-child relationship quality in Kindergarten predicts aggressive behaviour problems in subsequent years (Hamre & Pianta, 2001; Pianta, Steinberg, & Rollins, 1995). Even more provocative for intervention efforts, Silver, Measelle, Armstrong and Essex (2005) have recently found that children who begin formal schooling showing high levels of aggressive problem behaviour but who develop a close relationship with their Kindergarten teacher show the greatest rate of decline in their problem behaviours over the next three years. The flip side of this pattern however is that teacher-child conflict during the early years of schooling may increase children's problem behaviours (Meehan, Hughes, & Cavell, 2003), and that this relationship may be strongest in the boys and girls who begin school with the greatest behaviour problems (Hamre & Pianta, 2001; Ladd & Burgess, 2001; Silver et al., 2005). Although we cannot rule out that these children are different from those who do not desist in their aggression, it does suggest that the effort involved in developing a close relationship with difficult children may pay off for the child in the long run. Establishing a warm, affectionate relationship may be a powerful protective force in the lives of difficult children

### 3.5 Peer Influences

The second new social influence that results from school entry is the presence of a new group of peers. These other children constitute the selection pool of potential friends and enemies, bullies, victims, and bystanders with whom, generally speaking, the child will likely interact for years to come. Whereas, in the educational models in many nations, the teacher is likely to have direct influence on the child for a single year only, the child's classmates are much more likely to become a stable presence over the course of relatively many subsequent years.

A great deal of attention has been paid in recent years to two processes by which peers help to maintain, if not aggravate, early behaviour and aggression problems in children. First, the disruptive and aggressive behaviours that the child demonstrates during the initial entry into school appears to motivate their less aggressive peers to exclude them from social interaction (Bagwell, 2004; Snyder, Schrepferman, et al., 2005). A recent study indicated that children who had the lowest levels of problem behaviours tend to be particularly social (i.e., they chose to engage in social rather than solo play more often than other children); these children choose children who do not show conduct problems as their preferred play partners (Hanish, Martin, Fabes, Leonard, & Herzog, 2005). This preference may result in aggressive children being

excluded from social interaction. Taken to extremes, children—and girls in particular—who express anger, aggression, and dis-regulated behaviours can place themselves at risk of being victimised (e.g., called names, hit and pushed) by their less disruptive peers (Hanish, Eisenberg, Fabes, Spinrad, Ryan, & Schmidt, 2004). Ironically, rather than serving to deter further blatant aggression (as some might suppose would be the result if it served an effective policing function), peer rejection and victimisation have been shown to predict higher levels of later aggression, delinquency and anxiety/depression (Guerra, Asher, & DeRosier, 2004; Hanish & Guerra, 2002). Continued victimisation is particularly likely if children tend to fight back physically or socially aggressed (Kochenderfer & Ladd, 1997), a pattern that is particularly likely for children who begin school with high levels of physical aggression. Thus, entry to school for children with aggression or disruptive tendencies is likely to lead to rejection, exclusion, and victimisation by ostensibly “pro-social” peers. More often than not, these social responses serve to aggravate or maintain children’s problem behaviours.

The second process by which peers maintain or aggravate early behaviour problems is through “deviancy training” (Snyder et al., 2005) or “peer contagion” (Boxer, Guerra, Huesmann, & Morales, 2005; Dishion & Dodge, 2005; Hanish et al., 2005). Perhaps as a response to exclusion and rejection by less disruptive peers, or perhaps due to an affinity to other disruptive children, children who enter school settings showing conduct problems are more likely to associate with other deviant peers (Snyder, Horsch, & Childs, 1997). This affiliation between the more disruptive children can result in the mutual encouragement and reward of deviant talk and actions, which in turn can lead to increases in overt and covert conduct problems (Snyder, Schrepferman, Oeser, Patterson, Stoolmiller, Johnson, & Snyder, 2005). Such processes are likely to be extremely resistant to intervene once they are established, due to the strong intrinsic reward that they would provide to children. Preventive approaches that encourage the formation of mixed (i.e., antisocial and prosocial) peer and friendship groups, implemented in contexts that provide motivational scaffolding for all children to engage with one another, are more likely to be effective.

### 3.6 School – Family Interactions

The role of parenting in the development of childhood aggression is widely documented. Hundreds of studies have found significant correlations between a range of parenting variables and children’s adjustment (Cowan & Cowan, 2002).

Interventions that target the parent-child relationship and parenting skills appear to be more effective in reducing aggression than are those that focus solely on children's behaviour management (Cowan & Cowan, 2002). Less well understood is how a school-based intervention addressing children's aggression and problem behaviours can best support parents in promoting pro-social behaviours.

Facilitation of communication between the Kindergarten teacher and children's preschool instructors, and activities which involved inviting parents and children into the classroom to familiarise them with expectations and routines (Smolken, 1999) may help promote appear to promote more harmonious interactions between teachers and children (Mantzicopoulos, 2005).

Studies have found that engaging parents by providing information books and personalised exercises can have a positive effect on children's social behaviours and parenting styles (Sanders, Montgomery & Brechman-Toussaint, 2000; Sanders, Turner, Markie-Dadds, 2002). These approaches suggest that high-intensity programs may not be necessary to support some parents of children with behavioural difficulties. Thus, a cost-effective school-based program that seeks to engage parents in understanding children's development could be an important part of an effective intervention.

#### 4. DEVELOPMENT OF INTERVENTION MATERIALS AND TRAINING

In the absence of a ready-to-implement intervention that incorporated strategies that addressed the key elements of classroom-based aggression prevention, the CAP Project developed a comprehensive set of strategies to address these elements. The CAP Project intervention and its associated materials, assembled as a Pre-Primary Handbook and a box of classroom resources linked to activities in the Handbook, were developed to enable easy implementation of strategies in Pre-Primary classrooms. This Handbook includes four overarching strategies. These strategies include: "Team Kids", a strategy for helping children support one another; the "Good Times Bank", a strategy for investing in at-risk relationships with children who show problematic behaviours; "Taming Tiger Mountain", a framework for assisting teachers and education assistants in recognising the phases of angry and aggressive episodes and strategies for managing each phase of such an episode; and "Team Families", a strategy for supporting parents who are concerned about aggression (this final strategy is in development). These four strategies are designed



as processes that teachers can incorporate into their daily planning either as a planned approach or on an ad hoc basis.

The Handbook (accompanying this report; see Appendix A) then introduces 15 Teaching and Learning Focuses, which are divided into three modules. The first module is "Creating a Happy, Friendly, and Safe Learning and Teaching Environment", and focuses include developing shared goals for classroom behaviour and practising friendly behaviours. The second module is "Understanding and Managing Emotions", and focuses on recognising one's own emotions and emotions in others, and on strategies that children can use to recognise when their emotions are beginning to overwhelm them and to deal with those moments. The final module is "Understanding and Managing Social Interactions", and focuses on predicting emotional outcomes to challenging but common social mishaps, on strategies children can use in being cooperative and in entering new situations, and on children's social information processing (see 2.3 above).

Teachers and education assistants at the twelve Phase 1 schools (see 3.1 below) who were identified by schools as Pre-Primary staff for 2007 received the first of two formal training sessions in November 2006. On 8 November, we trained 10 teachers and nine education assistants, and on 9 November another 14 teachers and 13 education assistants were trained. We wanted to train both the teachers and the education assistants as both school staff play important roles in the 'behaviour management' in the classroom. Members of our advisory group, including Richard Tremblay and Frank Vitaro, indicated that including the education assistants in the training could be a powerful aspect of the overall effectiveness of the program.

We opted to train Pre-Primary (PP) staff prior to the start of the 2007 school year so that they could incorporate the strategies into their planning and begin implementation on the first day of school. Research indicates that the transition into school is a critical point in the establishment of classroom behavioural goals, and consequently on children's behaviour (La Paro, Kraft-Sayre, & Pianta, 2003; Rimm-Kaufman, Pianta, & Cox, 2000; Stormont, Beckner, Mitchell, & Richter, 2005). Three teachers and five education assistants who are expected to be working with the PP class in 2007 did not attend, and school principals indicated that they may have other new staff begin in the new year. We will be holding another training session to train 14 new staff early in the 2007 school year.

A second full-day group training session is planned for the end of Term 1, 2007 for all Pre-Primary teachers and education assistants. This will be important in providing a forum for debriefing on the effectiveness of strategies and to support fidelity to the program. A further half-day of training will be held mid-year 2007. Depending on staff needs as indicated in the second training session, this may take the form of in-class coaching and debriefing, or a third group training session.

## 5. RECRUITMENT AND PARTICIPATION

The selection criteria for schools to participate in this project were that schools must:

- be Government primary schools;
- be located in the Perth metropolitan area;
- have had more than 21 and fewer than 79 students registered in Kindergarten and in Pre-Primary in 2006;
- have had more than 20 students in Year 1 in 2006;
- not be currently running or involved in the evaluation of any other formal program to limit aggression (e.g., PATHS; Roots of Empathy).

Given these, 196 schools met our criteria for inclusion. These 196 schools were divided into 3 socioeconomic (SES) strata according to the SEIFA index of advantage/disadvantage based on the school postcode. This SEIFA index has a Normal distribution with mean of 1000 and SD of 100, so the appropriate cut-offs that would divide such a Normal distribution into thirds were used (Australian Bureau of Statistics (2001). This resulted in 47 schools in the lower, 70 in the middle and 79 in the higher SES groups. A randomisation algorithm was used to randomly select 25 schools from each strata, and these were entered in this random sequence into an SPSS file. Recruitment of schools was based on this list, with the first school of each stratum contacted for recruitment, and continuing down the list until eight schools were recruited from each of the three SES strata.

Prior to contacting schools, we sought and obtained permission from the Department of Education and Training (DET; see Appendix B). Thereafter, we posted introductory letters to the first twelve schools in each SES strata (on the assumption that at least four per strata would not choose to participate or would be already involved with another program). In this letter (see Appendix C), the Principal was asked to discuss the school's involvement in the project with the coordinator of the school's early childhood program and/or the Pre-Primary teachers. This was

intended to ensure that the teachers would be willing to participate in the program as well.

In the subsequent weeks, CAP Project staff telephoned principals using a recruitment script to:

- discuss their school's participation and the level of commitment required for the project;
- advise if they are also involved in other CHPRU projects (i.e., not just projects with early childhood classes)
- ask if they are involved in similar programs (e.g., Paths, Tribes etc). Exclude them from CAP if they are; and
- request formal agreement to participate.

In total, twelve schools contacted in this manner refused to participate, including five from the lowest SES strata, three from the middle strata, and six from the highest SES strata. A number of schools across the strata indicated that they were already running programs that they felt addressed aggression (2/1/1 – lower, middle, and upper SES strata respectively). Other schools referred to being busy with other projects that placed demands on staff time and capacity (1/1/4). Other schools reported that they were too busy in general to take on anything else (2/1/1). Only one school—in the upper strata—indicated that they were declining due to aggression not being a problem in their school.

Once 24 schools had agreed to participate, we conducted a random assignment within strata to intervention and control conditions. A letter was sent to each school principal to advise them on which condition their school was in (Phase 1 – intervention materials and training supplied for 2007 or Phase 2 – delayed intervention (2008)/control group), to request class lists of current Kindergarten students, and to arrange a time for a visit to the school by CAP Project staff to introduce the project to the school's administration, Kindergarten and Pre-Primary teachers. Principals were provided with the option of nominating a CAP Project co-ordinator within their school.

During the presentation to schools, we presented a formal information letter and consent form to the Kindergarten teachers (see Appendix D), who would provide the first (baseline) assessment on the CAP Project cohort of children. Principals were

provided with a letter of agreement to return to us, and a copy for their records (see Appendix E).

Following formal inclusion in the Project, we began recruiting families of the anticipated CAP Project cohort. Once approval was obtained from the ECU Human Research Ethics Committee (granted 3 July 2006), we initiated an 'active-active-passive' recruitment strategy. All students enrolled for Kindergarten in 2006 in the 24 recruited primary schools were invited to participate in the Childhood Aggression Prevention Project.

A combination of active and passive consent was sought from parents of the Kindergarten students enrolled in the 24 recruited primary schools in Term 3 of 2006. Parental consent for their Kindergarten child to participate in the CAP Project assessments was sought through a process of three letters sent home to parents (see Appendix F). The first letter seeking active parent consent entailed mailing parents a letter describing the study, requesting their active consent for their Kindergarten child to participate, as well as providing a contact telephone number for parents to call should they have any questions. A reply paid envelope for the return of their completed consent form directly to the CAP Project research team was included. Schools were offered a choice of either sending parent names and addresses to the CHPRC to enable the consent letters to be mailed directly home or to have the CHPRC deliver the consent letters in blank envelopes with postage stamps affixed to the school administration to attach parent address labels and post out via the school. Where the latter was chosen, delivery of the consent letters to schools was tied to the school visits by CAP project staff. Delivery of the first consent letter was staggered over a two week period during weeks 1 and 2 of Term 3, 2006.

Approximately three weeks after receipt of the first consent letter, parents who had not responded were given a follow up information letter and consent form (this time handed to parents of Kindergarten students by the Kindergarten teacher at student collection time) again requesting active consent for their child to participate in the study. Once again a reply paid envelope to return the completed consent form was included. Two and a half weeks after this second letter was distributed, parents who had not responded were sent a final follow-up letter (posted to home addresses via schools) requesting passive consent for their child to participate in the study. Once again, a reply paid envelope to return the completed consent form was included.

In the end, four study schools provided mailing address labels to the CHPRC to mail directly to the parents of to their Kindergarten students. Twenty schools opted to address the consent letters themselves and post out to the parents of to their Kindergarten students. The CHPRC provided these schools with sufficient consent letters (in blank envelopes with postage stamps attached) for the number of students enrolled at the school. A \$50 voucher from Wooldridges was provided to these schools as compensation for their time to address the letters.

For several of our recruitment and assessment efforts, we used raffles as an incentive. First, to motivate parents to return consent forms, we offered entry into a draw for two Coles/Myer gift cards, valued at \$100, for parents who returned the completed form, regardless of whether consent was given or withheld. We offered another draw a \$100 voucher for returned completed parent surveys. In our pilot schools, we had a draw for a \$50 gift card at each of the three pilot schools for parents who returned consent forms (either consent given or withheld) for consent regarding the parent and teacher surveys and another \$50 gift card for consent regarding the child interviews. Finally, we had a draw for two \$100 cards to school staff (one to Pre-Primary staff and one to Kindergarten teachers) for completing individual surveys about themselves. All draw winners were based on random numbers that were derived from the random.org website ([www.random.org](http://www.random.org)), which uses atmospheric noise to generate random numbers, rather than using pseudo-random numbers generated by computer or by random number tables.

## 6. INSTRUMENTATION AND DATA COLLECTION

### 6.1 Instrument Development

Several changes were made to the instruments used to assess the CAP Project since the proposal was submitted. Several of these were motivated by revisions to the conceptual framework as outlined above. For example, given the importance of the teacher-child relationship on deflecting children from developmental pathways toward long-term aggressive outcomes, we have incorporated the Student-Teacher Relationship Scale (STRS; Pianta, 2001; see Appendix G for teacher survey questions), which assesses the relationship from the teacher's perspective, and the Young Children's Appraisal of Teacher Support (Y-CATS; Mantzicopoulos & Neuharth-Pritchett, 2003; see Appendix H for the child interview questions). The STRS was used in the NICHD-SECC and reliability data are available for 1007 children aged approximately five years old. Principal component analyses indicated a good factor structure, with two principal components accounting for 57.99% of the

variance in scores. The Negative Interaction/Conflict scale, comprised of seven items, showed excellent internal consistency ( $\alpha = .90$ ). The Warmth/Support scale was comprised of eight items, one reflected, which showed good internal consistency ( $\alpha = .86$ ). The Y-CATS shows good internal consistency for the key subscales of interest in the current study: warmth ( $\alpha = .75$ ) and conflict ( $\alpha = .75$ ). These two scales will be used in the CAP Project.

Similarly, given the conceptual focus on reducing the risks associated with peer rejection of children with behavioural difficulties, we have incorporated a sociometric assessment strategy. This involves engaging children to provide peer nomination based on explicit behavioural criteria (e.g., "who are the children who often have trouble sitting still"). Children select from a booklet of photos of the children in their class. This also allows an assessment of children's self-reported friends and best friend, allowing us to analyse the influence of those children on children's own behavioural development and responsiveness to the intervention.

The conceptual framework emphasises two other aspects of children's psychological development that might serve as important mediators of the efficacy of the intervention: emotion understanding and social information processing. We will assess the former through use of the Eisenberg and Bryant Empathy Index (Bryant, 1982; Eisenberg, Fabes, Murphy, Karbon, Smith, & Maszk, 1996; Eisenberg, Fabes, Schaller, Carlo, & Miller, 1991). This scale, which the authors suggest is better labelled a sympathy scale, as it measures concern for others feelings, shows good internal consistency,  $\alpha = .73$ . Although test-retest assessments of this combination of items has not been carried out, the items from the original Bryant (1982) scale had a test-retest reliability coefficient of  $r(53) = .74$ .

Children's social information processing will be assessed through use of four questions used in the U. S. National Institute for Child Health and Human Development (NICHD) Study of Early Child Care. These questions will be supplemented by one of two questions developed by a former Honour's student of Dr. Runions (Lemme, 2005), and another question developed for this project. The original four items used by the NICHD-SECC had internal consistency of .65. The inclusion of the two additional items by Lemme resulted in an internal consistency of .66. We have not analysed our pilot data as it is currently being entered for analyses (See section 3.2 – piloting of instruments). Despite the low reliability of the NICHD-SECC measure, it was a significant predictor of children's externalising (aggressive

and disruptive) tendencies in early childhood, even after controlling for a wide range of child and family contextual risk markers (Runions & Keating, in press).

In developing our research partnership with Prof. Richard Tremblay's group in Montreal (see Partnerships), we have coordinated our instrumentation with regard to children's aggression and other behavioural outcomes. Thus, we have not made use of the Children's Aggression Scale (CAS; Halperin, McKay, & Newcorn, 2002) as proposed. Instead we have incorporated a revised version of the Social Behaviour Questionnaire (SBQ; Tremblay, Vitaro, Gagnon, Piché, & Royer, 1992) for use with parents and teachers. This instrument included items derived from Behar and Stringfield's preschool behaviour inventory (1974), which was in turn a modification of Rutter's (1967) behaviour questionnaire. The SBQ also includes items on reactive and proactive aggression from Dodge and Coie (1987), items on social or relational aggression from Crick, Casas, and Mosher (1997) and from the Direct and Indirect Aggression Scales (Björkqvist, Lagerspetz, & Kaukianen, 1992). Items on children's pro-social behaviours were derived from Weir and Duveen (1981). The CAP Project research team has added additional newly developed items on pro-social behaviour. Thirty-four of the items in our current scale constituted the core social behaviour and problem behaviour questions in the National Longitudinal Survey of Children and Youth (NLSCY), conducted by Statistics Canada. Reports from this study are available in Willms (2002) and Miller, Jenkins and Keating (2002).

The current incarnation of the SBQ as used in the CAP Project has three global scales – Prosocial, Externalising, and Internalising. The parent version includes 83 questions in total, and the teacher version has 84 items. The Prosocial scale is constituted of four subscales: reconciliation behaviours, leadership, emotional intelligence, and general prosocial behaviours. The Externalising scale is constituted of eight subscales: physical aggression (e.g., proactive aggression, reactive aggression, oppositional behaviours, indirect (social/relational aggression), general conduct problems, hyperactive behaviours, and attention deficit-type behaviours. The Internalising scale has three subscales: anxiety, emotional problems, and social withdrawal. The SBQ also includes questions on victimisation by others. The SBQ currently achieves an excellent balance of reporting commitment by raters (i.e., the number of questions relative to constructs measured) to reliability of measurement. For example, the three item teacher-rated physical aggression subscale  $\alpha = .88$ , the 3 item proactive aggression subscale  $\alpha = .72$ ; and the four item reactive aggression subscale  $\alpha = .88$  (Brendgen, Vitaro, Boivin, Dionne, & Perusse, 2006).

For the parent questionnaire, we have also included questions assessing core parenting constructs related to children's prosocial and antisocial behaviours, including affection, behavioural control, and psychological control. The specific items used were those used by Aunola and Nurmi (2004), which were in turn from the Child Rearing Practices Report (CRPR; Roberts, Block, & Block, 1984). The theoretical subscales for the CRPR previously suggested by past researchers showed low reliability in the Finnish study from which these factors were developed (Aunola & Nurmi, 2004). Aunola and Nurmi conducted factor analysis on data from three time points (preschool, first grade and second grade) to determine a temporally-invariant factor structure. This resulted in the factor structure outlined above. For the time 1, 2, and 3 assessments with mothers, the internal consistency of the affection scale was .82, .81, and .82 respectively; for the behavioural control (BC) scale, internal consistencies were .66, .66, and .70; and for the psychological control (PC) scale, .79, .77, and .76 respectively. The test-retest values for the affection, BC, and PC scales were .89, .82, and .88. The internal consistencies for fathers (Aunola & Nurmi, 2005) were very similar (affection:  $t1\alpha = .82$ ,  $t2\alpha = .84$ ,  $t3\alpha = .84$ , test-retest = .89; behavioural control:  $t1\alpha = .70$ ,  $t2\alpha = .69$ ,  $t3\alpha = .70$ , test-retest = .85; psychological control:  $t1\alpha = .75$ ,  $t2\alpha = .72$ ,  $t3\alpha = .75$ , test-retest = .85).

The Parent Survey (see Appendix I) also includes questions regarding the child's age, the parent's level of schooling, English language use in the home and the child's ancestry. This last question was adapted from the Australian Bureau of Statistics Australian Standard Classification of Cultural and Ethnic Groups.

The Teacher Survey (see Appendix G) regarding participating children also includes items on the duration of the teacher's experience with the child, on children's special needs, on ESL status, and on teacher perceptions of the child's ancestry. The Student-Teacher Relationship Scale (Pianta, 2001; see above) is included. Finally, the survey includes six items on teacher responses to child misbehaviours and to children's positive behaviours. Finally, the teacher survey included 28 items assessing language, cognitive development, and communication skills the Australian Early Development Index (Andrich & Styles, 2004).

Two other surveys have been used to assess school staff constructs for the CAP Project. The first is a School Staff baseline survey for teachers and education assistants (EA) who will be working with the CAP Project cohort in Pre-Primary 2007



(see Appendix J). This survey addresses teacher and EA perceptions of the extent to which aggression and related problem behaviours are a priority at the school level, about communication with parents, and about current practices to reduce aggression and develop pro-social skills. It also includes attitudinal and self-efficacy measures related to school practices regarding aggression and related problem behaviours. A 15-item general measure of overall problem behaviours, adapted from Social Behaviour Questionnaire items, was included. In partnership with the Centre for Behavioural Research, University of Stavanger, Norway, we have included a version of the Teacher's Perceptions of Complaints Scale, which has been developed to assess the extent to which teachers have experienced complaints or comments from parents of students in their class. Research by Westergård (in press) on this instrument indicated that the internal consistency of the teachers' perception scale was high ( $\alpha = .82$ ). This survey also includes 16 items assessing pressure and job satisfaction amongst school staff. These include seven items describing work pressure in the school environment from the School-Level Environment Questionnaire (SLEQ; Fisher & Fraser, 1991; Cronbach's  $\alpha = .71$ ). Work satisfaction (sample items include 'I experience my work as useful', and 'my work gives me an experience of satisfaction') and emotional exhaustion (e.g., 'I feel emotionally drained', 'My work frustrates me') are also assessed using items from Starnaman and Miller (1992; Cronbach's  $\alpha = .90$  &  $.75$ , respectively). Eight items assessing sources of stress for school staff was also included (adapted from Cooper & Marshall, 1978, in Roland & Galloway, 2004). Cronbach's  $\alpha$  for this scale was above 0.7 (exact estimate not available; Roland & Galloway, 2004). Finally, we obtained information about staff position, experience, age and highest academic qualification.

The CAP Project also used a Kindergarten teacher survey 2007 (see Appendix K). This short survey is administered to each teacher who is providing baseline data on the CAP Project cohort (see Data Collection, below). This survey included a subset of questions from the School Staff survey described previously. This included the Roland and Galloway instrument, and items on stress and working environment from Fisher and Fraser (1991) and Starnaman and Miller (1992). This survey also included items on what strategies teachers use to address social skills and aggression. Finally, as with the School Staff survey, we obtained information about staff position, experience, age, and academic qualification.

All instruments were written and reviewed by members of the management committee who include health and education professionals experienced in questionnaire development and the evaluation of school-based mental health programs. An iterative process whereby comments on the questionnaire were integrated and re-circulated for further comment was followed until all were in agreement with the questions addressing each objective.

## 6.2 Piloting of Instrumentation

Five parents of children in the age range assisted in an initial pilot of face validity of the parent assessment instrument, and four teachers provided this initial piloting for the teacher instrument. Feedback at this level focused upon wording, and several changes were made to the phrasing, in many cases making the questions clearer to Australian respondents. This piloting also provided an estimate of the time required to complete the survey.

Once these changes were incorporated, three schools (one from each SES strata) were selected from the initial list of eligible schools (see 4.1 Sample Selection and Recruitment, above). These schools were not randomly selected, but instead were selected as schools likely to agree to assist in our piloting of instruments. Principals and teachers of Pre-Primary classes were contacted and consent obtained to partake in the project. Information letters and consent forms were sent to all parents of children in the Pre-Primary classes of these schools requesting consent for teacher and parent surveys to be completed (see Appendix L for consent materials). This letter indicated that we were seeking to conduct a test-retest reliability assessment, and they the parents would themselves be expected to complete two copies of the same instrument over a span of 2-3 weeks, and that teachers would complete two copies themselves. Data from these pilot surveys are currently undergoing more detailed analyses.

Separate to this, two post-graduate students from the School of Psychology at ECU assisted in organising the initial piloting of questions and procedures for the child interview and sociometrics. Parents who had provided consent for the previous phase of the piloting were sent letters requesting consent for this second phase (see Appendix L). One of the three schools was not followed up with regard to these child interviews as they had already indicated that they were too busy to continue their involvement with the piloting. During a visit to the two remaining schools, digital photos were taken of children for whom consent had been obtained, which were

arranged into a booklet for the sociometric assessments (see 3.1 Instrument Development, above). In visits to the schools, pilot data from 34 children were collected on the sociometric questions and the social information processing questions. The latter resulted in a marginal Cronbach's alpha of .60. It is important to note that with four of these items used in the NICHD-SECC, with a sample size of 893, achieved  $\alpha = .65$ . Although less than ideal, measures of children's social information processing for this age group have not been higher than .70 (Orobio de Castro, Veerman, Koops, Bosch, & Monshower, 2002). Analyses from the sociometric pilot data is not yet complete.

### 6.3 Data collection

Baseline data were collected from teachers and a parent of Kindergarten children in the 24 study schools in November, 2006. Based on procedures trialled in the pilot process and on prior CHPRC projects, we hand delivered packages to participating schools. These packages included teacher reports and parent reports for all participating children (see Appendix M for copies of instructions). The teacher reports were labelled with the child ID, and with a separate removable label that had the child's name on it.

These packages included an C3 envelope with the full set of parent reports inside. Each parent report was in an unsealed C4 manila envelope labelled to the parent of the participating child, who was named. The blank survey inside was labelled only by the child ID code. Parents were asked to complete the survey, and to return them to teachers in the sealed envelope provided by the due date. Teachers were instructed to fax back a checklist that had been provided with the C3 envelope, indicating which parents were to be followed up. Teachers were instructed to retain this list for recording late returns and noting other circumstances related to returns of parent surveys, with codes provided for children whose parents indicated they would not be returning the survey and for children who had left school since we had obtained consent. Upon receipt of these fax-back forms, the CAP Project team prepared and distributed a second copy of the parent survey to schools to deliver to parents who had not responded by the due date.

Teachers and school CAP Project coordinators were instructed to retain the hard copies of all completed surveys for pick-up by the CAP Project team, which we conducted in the last week of Term 4.

Response rates are presented below. Data from these surveys are currently being entered. Analyses will be conducted over the next year.

## RESULTS

### Pilot Data Collection

One hundred and ten students were enrolled in Kindergarten at our three pilot schools. One round of consent at these schools resulted in 99 active consents (90%) for children to be involved in the parent and teacher reports. Teachers completed 100% of the first (test) copy, and 90 of 99 of the retest copy (90.9%). Eighty parents returned the first (test) copy of the survey (80.8%) and 65 returned the retest copy (65.65%).

For the second wave of consent (child interview), only parents who had provided consent for the first phase of piloting were conducted ( $n = 99$ ). Of these, 63 parents provided active consent (63.63%). However, at this juncture, one of the three pilot schools withdrew from involvement with the CAP Project piloting for the year, citing workload problems. This left 39 students with active consent for the child interview piloting. Of these, 34 children were available for interview on the dates arranged with the teachers.

Time restrictions prevented a full assessment of all four instruments, so the Young Children's Appraisal of Teacher Support (Y-CATS), and the Eisenberg and Bryant Empathy Index (EBEI; see 5.1 Instrument Development, above) were only piloted with four children to assess any problems with language or understanding. No such problems were noted. The EBEI took approximately two minutes to administer. The Y-CATS took approximately five minutes to administer. Following the suggestion of Mantzicopoulos & Neuharth-Pritchett, 2003, a simulated letter-box and rubbish bin were used, along with cards on which the questions were printed. The children were read the card, the card was then handed to them, and they were instructed to put it in the bin if they did not agree, and to put it in the post box if they did agree. Sample questions were used to ensure the children understood the procedure. This approach is valuable because children this young can quickly become de-motivated in responding verbally to instructions. This allowed a range of assessment modes that maintained child focus on the task. The Social Information Processing questions took approximately three minutes to administer, and children found the questions easy to understand.

The practica students who conducted these assessments recommended that the assessments be limited to the morning sessions, and that a list of children from the class be prepared so that teachers can easily access who is next. They also noted that, so long as the activities are presented as a fun activity, children were happy to move from activities to these assessments.

The practica students also conducted sociometric assessments in these one-on-one sessions. These took approximately 13 – 18 minutes per child. The most problematic aspect of the assessment was that the photos did not represent all the students in the class: for some questions, students wanted to nominate students whose photos were not included in the response booklet. Given that we will not have 100% participation for the cohort assessments, this will continue to be a problem for this measurement approach. Given the time commitment required to complete the assessment, the student's recommended trialling a group administration, using cardboard shields to ensure privacy. Data are currently being entered for analyses.

#### Teacher Training Evaluations and School Staff Surveys

School staff surveys were provided to all staff who will be working with the CAP Project cohort in the 2007 Pre-Primary year. Fifty-one were distributed, and 48 returned (94.12%). Some staff who were provided with surveys may not be teaching in the 2007 Pre-Primary class after all. We will follow-up on this in the new year.

Kindergarten teachers who completed surveys on the CAP Project cohort this year were provided with a brief survey (see 5.1 above). Thirty-seven of the 40 Kindergarten teachers have returned completed surveys (92.5%). We will follow-up with the outstanding surveys in the new year.

Following the CAP Project Pre-Primary training, we asked teachers and education assistants to complete an evaluation form (see Appendix N). All 45 staff who attended the training returned this form to us. All these data are currently being entered for analyses in the new year.

#### Recruitment Response Rates

During presentations held with each school at the start of Term 3, 2006, school staff were asked to provide the number of Kindergarten students who were enrolled in their school for 2006. These total numbers have been used to calculate the response rates for the student recruitment (see Tables 1 and 2). In total, the 24 schools had

Table 1: Recruitment Response Rates

	2006 Kindergarten students	
	N	%
Total sample (estimated enrolment numbers)	1082	100
<b>Total 'No' consent</b>	<b>164</b>	<b>15.2</b>
<i>Active 'no' consent</i>	77	7.1
<i>Passive 'no' consent</i>	40	3.7
<i>Consent withdrawn or child left school</i>	47	4.3
'Yes' consent (active + passive)	918	84.8
<i>Active 'yes' consent</i>	563	52.0
<i>Passive 'yes' consent (ie non-responders to passive consent letter)</i>	319	29.5

Table 2: Recruitment Response Rates by Intervention Condition

	Phase 1 Schools		Phase 2 Schools	
	N	%	N	%
Total sample (estimated enrolment numbers)	483	100	607	100
Left school	21	4.35	25	4.12
Active 'no' consent	31	6.42	46	7.58
Passive 'no' consent	16	3.31	24	3.95
'No' consent (active or passive 'no')	47	9.73	70	11.53
Active 'yes' consent	251	51.97	312	51.40
Passive 'yes' consent (ie non-responders to passive consent letter)	164	33.95	200	32.95
'Yes' consent (active + passive)	415	85.92	512	84.34

1090 students in Kindergarten. Less than five per cent left school prior to data collection completion. Just over ten per cent indicated that they did not want their child to be a part of the CAP Project assessments. Over fifty percent provided active consent, and a further thirty-three percent provided passive consent. Percentages were very similar across the Phase 1 (i.e., intervention in 2007) and Phase 2 (i.e., delayed intervention control group) conditions.

One of the schools in the Phase 2 condition refused to provide classlists for their Kindergarten students. We only became aware of student names for that class if parents provided passive consent (yes or no). This made it very difficult to indicate which students should be considered to have passive consent, and hence for which students surveys should be completed. This resulted in 12 students from that school not being represented in data collection. Thus, the functional 'Yes' consent number for the Phase 2 schools is dropped to 500 for the subsequent tables.

The rates of survey return are listed in Table 3. Note again that the functional total sample for the Phase 2 (i.e., control) schools is 500, as per the preceding paragraph. Teachers in both conditions provided surveys for all participating children in their classes. Of all participating parents (i.e., those who provided either active or passive consent), almost eighty percent completed surveys.

Table 3: Baseline Assessment Response Rates by Intervention Condition and by Consent Status

	Phase 1		Phase 2		Overall Total	
	n	%	n	%	n	%
Total sample (active & passive consent)	415	100	500	100	915	100
Active consent only	251	60.48	312	62.40	563	61.53
Teacher surveys returned	415	100	500	100	915	100
Parent Surveys returned (% total consent)	325	78.31	400	80	725	79.23
Parent Surveys returned (% active consent)	"	129.48	"	128.21	"	128.77

It was of interest to note that more parents returned surveys than provided active 'yes' consent. In total 563 parents provided active 'yes' consent and 725 returned

completed surveys. This is a powerful indicator of the importance of the active-passive mode of recruitment. Had we only been able to conduct assessments for children for whom parents had provided active consent, we would have ended up with 28.77% (i.e., 162) fewer reports than we did based on this approach.

### **EFFECT OF RESEARCH ON PROFESSIONAL DEVELOPMENT AND CAPACITY BUILDING**

The CAP Project provided an opportunity for the Chief Investigator, Dr Kevin Runions to take responsibility for the conduct of this study for 2006. This is the first large intervention trial on which he has taken primary responsibility for all aspects of its management.

The piloting of the child measures was undertaken through practica by a Master's and a Doctoral student from the Community Psychology program in the School of Psychology at Edith Cowan University. These students oversaw the preparation and implemented data collection of the sociometrics procedures, the social information processing questionnaire, the empathy index, and the Y-CAT (see 5.1 Instrument Development, above).

The CAP Project has also provided opportunities for ECU undergraduate students and practicum students who have assisted in the coordination of data collections and trainings. In total, seven ECU students worked as volunteers on the project. A further four ECU Health Promotion students conducted their practica around the CAP Project. As further data collection is scheduled for 2007, we will seek to involve more post-graduate-level students in the data collection.

Furthermore, we have provided professional development for 24 Pre-Primary teachers and 22 education assistants, who we have trained as a part of the CAP Project. We will provide training for approximately 14 more teachers and EAs in early 2007.

This research project continues to build the capacity of the Child Health Promotion Research Centre to foster a multi-discipline research team. The members of the management committee have engaged in professional debate in representing their disciplines of health promotion, education, psychology, speech pathology and biostatistics.



## **IMPLICATIONS FOR HEALTH PROMOTION / LINKING RESEARCH TO HEALTH OUTCOMES**

This project aims to build on our year-long formative research to develop, disseminate and evaluate a school- and home-based intervention that provides pro-social and non-aggressive strategies for junior primary school age children in Perth, W.A. The evidence-informed approach used in the intervention will be tested and the potential for the research to be translated into health care outcomes will be assessed as the study progresses. As noted, the Behaviour Standards and Well-Being Directorate of the W. A. Department of Education are very interested in the project, and have indicated that if it proves to be efficacious, they would be interested in examining its utility as a curriculum resource for W. A. schools. If efficacious, this project will provide an important resource for health-promoting schools.

## **COMMUNITY BENEFITS FROM THE RESEARCH**

The primary community benefits will accrue with the implementation of the CAP Project intervention over the next two years (for the Phase 1 schools in 2007 and the Phase 2 schools in 2008). However, in asking all parents and teachers to complete surveys about children's social behaviours, the CAP Project may have already raised awareness about the nature and type of behaviours – pro and anti-social—which are age-appropriate for children of this age. This awareness raising may have unanticipated benefits as parents and teachers reflected upon those behaviours. Furthermore, questions about parenting and about teaching style, in the respective parent and teacher surveys, may have provided a lens with which parents and teachers reflected upon their approaches to their child(ren).

## **PARTNERSHIPS**

The research team of the CAP Project have developed several partnerships around this project. These include partnerships with the W. A. Department of Education and Training, and with researchers and research groups in Canada, Norway, and the United States.

The **Department of Education and Training** have agreed to provide funding to enable teacher relief payments to support the large numbers of teacher assessments required by this project, and to enable training of Pre-Primary education assistants, as well as teachers. They have also supported the development of intervention materials and strategies.

We are collaborating with the **Research Unit on Children's Psychosocial Maladjustment ("GRIP")**, a **Quebec-based inter-university group**, of which Prof. Richard Tremblay is Director. GRIP is preparing intervention trials of projects in Paris and Geneva with similar objectives to the CAP Project for a similar aged cohort. To enable comparison across projects and interventions, we have harmonised our instrumentation. This will provide excellent value for Healthway as the primary funding body for this project, as it will provide information as to the relative efficacy of this project relative to different approaches implemented elsewhere.

We have also collaborated with Elsa Westergaard, a researcher from the Centre for Behaviour Research, **University of Stavanger in Norway**. Her research focuses on processes and predictors of conflict between teachers and parents, and she will provide invaluable perspectives to our research. We have included a scale that she has developed to assess teacher perceptions of conflict with parents (see Instrumentation, above).

Finally, we have an informal collaboration with Prof. Robert Pianta of the **University of Virginia, U. S. A.** The CAP Project intervention has incorporated a variant of Prof. Pianta's ideas about 'Banking Time' under a strategy called 'The Good Times Bank'. Prof. Pianta has been providing support on implementation and training of this strategy.

## **PUBLICATIONS**

As yet, we have not published any papers deriving from this project. We have prepared a 129 page CAP Project Pre-Primary Handbook for use by teachers and education assistants. Dr. Runions is currently preparing a paper reviewing the conceptual framework for journal submission. Our baseline data collection will provide an important set of data for testing basic associations between a range of constructs that have not previously been measured in a large sample of young children. It is expected that these data will support multiple papers.

## **SEMINARS**

Dr. Runions is scheduled to participate in the "Building Resiliency" conference in Perth in 2007.

## **FURTHER DISSEMINATION**

No further dissemination has been undertaken to date.

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