

**The Effects of two Components of the Aussie
Optimism Program on Social Skills**

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Declaration

I declare that this thesis is my own account of my research and contains as its main content, work which has not previously been submitted for a degree at any tertiary education institution.

Kaye Natalie Cuthbertson Mills

2007

Dedication

With love to Kieran, Breanne and Harrison

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Abstract

The relationship between social skill deficits and emotional and behavioural problems has led researchers to examine the cognitive and behavioural elements of social skill acquisition in childhood. This research aimed to compare the effectiveness of two components of the Aussie Optimism program for enhancing social behaviour in late childhood.

One hundred and twenty-eight children (68 boys and 60 girls) aged between 9 and 12 years from two schools participated in the study: (a) 34 students received the social life skills program; (b) 49 students received the optimistic thinking skills program; and (c) 45 students were assigned to a no-treatment control group.

Children were assessed with self-report and teacher-report measures of social skills, adjustment and explanatory style at pretest, posttest and three months follow-up. In addition, the relationship between these variables at pretest and health-related variables measured throughout the intervention was examined. The results indicated that the social skills program improved the social skills of participating children at posttest. No intervention effects were found for explanatory style. No intervention effects were found for teacher-rated measures of behaviour or adjustment, although in general students improved on these measures over time. Eating breakfast was associated with increased social skills, and better teacher-rated academic performance and adaptive functioning at pretest. Stressful life events were negatively correlated with academic performance and teacher-rated happiness at pretest, and higher exercise levels were associated with less teacher-rated social problems at pretest.

This research indicates that the social life skills intervention program improves the social skills of participating children in the short-term. Limitations and implications of the present findings are discussed. Further research is needed to clarify the impact of health-related variables on intervention outcomes for children.

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CHAPTER 1

OVERVIEW

The development of adaptive social behaviour in children is complex and occurs through a combination of individual, family and environmental factors. The relationship between social skill deficits and various forms of emotional and behavioural problems in children has led to an increasing recognition of the importance of the cognitive and behavioural elements of social skill acquisition in childhood. This recognition has resulted in the inclusion of a mix of adaptive and self-regulatory cognitive and behavioural therapy components in interventions designed to increase social skills in children. This prevents an understanding of which intervention components are most efficacious, and little is known about the numerous extraneous variables that may influence group therapy outcomes in children, which will be the focus of this study.

The present research aims to compare the effectiveness of two components of the Aussie Optimism program in enhancing observable social and interpersonal skills in late childhood. The social life skills component includes modules on identifying and expressing feelings, communication, coping and social problem-solving skills, and the optimistic thinking skills component includes modules on identifying and expressing thoughts and feelings and cognitive restructuring (how to modify thoughts or employ mediating responses). Intervention effects will be assessed with a combination of teacher-report and child-report measures of observable social behaviours, retention and application of the skills taught, explanatory style and school functioning. In addition, this research will extend existing knowledge by examining the role that extraneous child variables such as

nutrition, fatigue, stress and exercise play in the success of the program or lack thereof.

The study of which interventions enhance social skills in childhood is important for three broad reasons. Firstly, there is evidence that suggests that cognitive and behavioural social skill deficits impact on psychological, academic and adaptive functioning. Several studies suggest a link between these deficits and depression, antisocial and conduct disordered behaviours, academic under-achievement and ineffective coping (Green, Forehand, Beck, & Vosk, 1980; Kazdin, 2002; Kendall, 1985; Malecke & Elliott, 2002; Melnick & Hinshaw, 2000; Nowicki & Duke, 1992; Pincus & Friedman, 2004; Richard & Dodge, 1982; Segrin, 2000; Toblin, Schwartz, Hopmeyer, Gorman, & Abou-ezzeddine, 2005).

Secondly, social skills result in a range of protective factors for children that are believed to reduce the likelihood of developing particular disorders. These include positive interpersonal relationships with peers, positive reinforcement from teachers and parents, the ability to handle unreasonable behaviour in others and achieve success in social situations. Children who have deficits in particular social skills may also not have the opportunity to build on and practise these skills in different situations, decreasing their chances of maintenance and generalisation of these behaviours (Matson & Ollendick, 1988; Spence, 2003).

Thirdly, in Australia, preventative interventions have been implemented in the primary school setting in late childhood and early adolescence. These school-based programs aimed at increasing protective factors in children have a number of advantages. They allow access to children who would not attend other mental health services, and avoid labelling. Programs that have been integrated into the school curriculum are cost-effective and make use of existing organisational resources

(Harrington, Whittaker, & Shoebridge, 1998; Roberts, 1999). Preventative interventions are based on research and developmental theory, however less research had been conducted into how well this theory translates into practice and evaluating change. Importantly, the impact of many programs may be influenced by individual child characteristics, and effect sizes that reflect the average benefit of an intervention may mask variation in the benefit that exists for individuals (Offord & Bennett, 2002).

This chapter begins with a definition of social skills and provides a review of the theoretical and empirical literature on social skill deficits in children. This includes the relevant investigations into the relationship between social skills and childhood adjustment and variables that are hypothesised to play a role in the performance of socially competent behaviours. Empirical evidence regarding the impact that nutrition, fatigue, stress and exercise may have on intervention outcomes will also be reviewed. Meta-analytic studies of cognitive behavioural programs that aim to enhance social skills are reviewed, and selected school-based interventions including multi-component interventions are highlighted. Finally, a description is provided of the Aussie optimism program that was implemented in this study. For the purpose of this thesis, 6- to 12 –year-olds are referred to as children and 13- to 19- year-olds are referred to as adolescents.

1.1 Definition of social skills

There is little consensus and enormous variation in the literature on what constitutes the social skills that underpin social competence in children (Cavell, 1990; Matson & Ollendick, 1988; Moote, Smyth, & Wodarski, 1999; Spence, 2003; Crick & Dodge, 1994). Broadly, social skills are behaviours that enable a person to be socially competent (Spence, 2003). They can also be defined in terms of a

description of such behaviour, their function in terms of a specific outcome or underlying cognitive processes. They can be used to alter the topography of social performance and are a necessary but insufficient determinant of social performance (Cavell, 1990). Definitions of social skills vary across studies although generally they are defined in terms of the degree to which children engage in adaptive behaviour, inhibit aggressive behaviour and are accepted by their peers (Crick & Dodge, 1994) A cognitive behavioural definition of social skills includes a recognition of the importance of cognitive abilities including the social perception and information-processing skills that guide social behaviour and the verbal and nonverbal behaviours that result (Bedell & Lennox, 1997).

Cognitive factors including social knowledge and cognitive style are measured in this study. In addition, the social skills measured in this study are observable positive and negative behavioural skills rather than trait-like behaviour or descriptive personality characteristics such as assertiveness or shyness. They include positive social behaviours such as looking at people when talking to them, helping, conversational skills, saying thank you, sharing, showing feelings and playing with others. Negative social behaviours include hitting others, speaking loudly, breaking promises, taking things, bullying, interrupting, bragging and anger.

The current study will focus on the evidence related to the contribution of specific cognitive and behavioural skills (e.g., emotional knowledge, social information processing, problem-solving and communication) that are amenable to change, and which are thought to be related to competence and adaptive functioning in children (Compas, Benson, Boyer, Hicks, & Konik, 2002:, Crick & Dodge, 1994; Pincus & Friedman, 2004; Toblin et al., 2005).

1.2 Methodological Issues

Several methodological issues are important when assessing social skills in children. Firstly, social skills and social competence are measured in a variety of ways depending on the researcher and research orientation. Cavell (1990) suggests that measurement can include the *products* of social functioning, the *skills* of social functioning and *social functioning* itself. Performance-based measures focus on the performance of specific socially competent behaviours. The child-report utilised in this study is a performance-based measurement e.g., how often a child engages in a range of appropriate and inappropriate social skills.

Secondly, one difficulty is that often researchers are measuring cumulative effects of functioning (e.g., academic performance or several different factors that complement a specific behaviour such as eye contact and verbal intelligence) or simply different phenomena across studies. For example, studies that measure the frequency of peer interaction may include measurement of both positive social interactions and negative or aggressive interactions (Cavell, 1990). The focus of this study is on observable social skills. All of the items of the self-report social skills measure used in this study refer to observable appropriate behavioural social skills (e.g., looking at people when talking to them, saying thank-you, sharing), and inappropriate behavioural social skills (e.g., speaking loudly and interrupting). However, these social behaviours are the aggregate of a combination of cognitive processes and behaviours as well as intrinsic child and environmental factors, some of which are also measured in this study.

Thirdly, scant attention has been paid to content-sensitive measures that are psychometrically sound (Spence, 2003). Social skills can be assessed via interview, behaviour rating scales, questionnaires, direct observation and measures of social

status. The self-report social skills measure used in this study has demonstrated high levels of internal consistency, test-retest reliability and criterion validity.

Fourthly, many studies of children rely on single modality or informant sources. As social skills are multidimensional, assessment of several modalities and informants is often necessary (Blonk, Pier, Sergeant, Ringrose, & Brinkman, 1996; Spence, 2003). Research assessing the effectiveness of behavioural assessment with children also emphasises the importance of assessing a wide range of discrete and observable verbal and nonverbal behaviours and situations (Matson, Rotatori & Helsel, 1982; Matson, 1994). In order to provide a broad assessment focus, and to consider more than one view of the child's social skills, this study includes both child and teacher-report questionnaire measures and includes measurement of children's daily functioning based on observation of classroom functioning.

1.3 Prevalence of Social Skill Deficits

The prevalence of cognitive and behavioural social skills deficits among school-aged children is difficult to estimate due to heterogeneity of presentation and the unique contribution they make to numerous different measures of childhood adjustment and performance. Children can present with a large variety of peer-related difficulties, internalising disorders like depression or social withdrawal or externalising behaviour problems such as oppositional or conduct disorder and attention deficit hyperactivity disorder. However, the evidence relating specific skill deficits to behavioural and social problems is diverse, and a rudimentary estimate of how many children have difficulties with social skills can be gained by examining epidemiological and longitudinal studies of childhood disorder and development. For example, the prevalence of emotional and behavioural disorders among 4-17 year-old Australian children in the Child and Adolescent component of the recent National

Survey of Mental Health is approximately 13 %. This is in line with cross-cultural epidemiological data that suggests that 15-20% of school age children suffer emotional and behavioural problems (Bird, 1996 as cited in Sawyer et al. 2001). These difficulties have also been shown to be persistent and stable across development. A large Australian longitudinal study assessing the development and temperament of 2443 children from infancy found that the strongest predictor of adjustment at twelve years of age was previous behaviour problems, followed by maternal ratings of child difficulty and child self-regulation (Prior, Smart, Sanson, & Oberklaid, 2001).

1.4 Models of the Development of Social Skills

Social information-processing models of children's social behaviour posit that children's social behaviour develops via the combination of biological capabilities, memories of past experience and the encoding and interpretation of situational cues (Crick & Dodge, 1994). According to this model, developmental change occurs in cognitive skills through increases in knowledge, improved attention and organisation of information and increases in processing speed. Changes that occur in social knowledge with development include knowledge of social outcomes, goals, intent and causation and the appropriateness of social behaviours (Crick & Dodge, 1994).

Similarly, cognitive-social learning models emphasise cognitive representations of behaviour via learning as the basis for guiding performance and include the importance of motivational aspects of prosocial behaviour (Ladd & Mize, 1983). Cognitive behavioural approaches to teaching children adaptive social skills are based on the principle that there is a close influential relationship between thoughts, feelings and behaviour. Cognitive behavioural therapy (CBT) is thought to

modify distressing feelings and associated cognitive distortions and establish coping templates which, in turn, mediate planned goal-directed behaviour change. According to cognitive-social learning theory, children are thought to form a cognitive representation of behaviour from experience such as observation or listening; these patterns can be applied to later performance and rehearsed to enhance proficiency and allow for maintenance and generalisation across situations (Ladd & Mize, 1983). Hobbs, Moguin, Tyroler, and Lahey (1980) divided cognitive training methods into three general classes. The child is either presented with a verbal or written description of a particular coping strategy or trained to employ self-verbalizations, or the child is exposed to a model who exemplifies a particular cognitive strategy.

One criticism of these models is the limited weight given to emotion (Crick & Dodge, 1994; Mostow, Izard & Trentacosta, 2002). Izard, Shultz, Fine, Youngstrom, and Ackerman (2000) argue that emotional knowledge or the ability to recognise and label emotional cues is a pivotal construct organising the developmental research on this relationship. The reciprocal relation between emotions and cognition is recognised in discrete emotions theory. According to this theory, a child's developing understanding of emotions and their function enables emotional regulation which facilitates and motivates cognitive and behavioural coping strategies (Blumberg & Izard, 1986; Izard, Schultz, Fine, Youngstrom, & Ackerman, 2000).

However, questions can be raised about why cognitive variables like social information processing and emotional regulation account for only a small percentage of the variation in social behaviour in children (Crick & Dodge, 1994). Research has shown that correlations between any single processing pattern and behaviour are

small. Higher correlations have emerged when information processing steps are aggregated, as each step provides a unique increment in the prediction of social behaviour. However, studies of the link between processing and behaviour suggest processing patterns in one situation predict certain behaviours but not in other situations (Dodge et al., 1986 as cited in Dodge, 1993).

Cognitive behavioural therapy for children is an amalgamation of several treatment approaches and interventions and often includes many therapy components. Their inclusion in treatment packages is based on studies that have found that particular skills are associated with social competence or enhance protective factors that may reduce the risk of future disorder. The impact of these programs may be influenced by a variety of individual child characteristics, and evaluation of these programs could be enhanced by a consideration of some of these factors.

1.5 Social Skills and Gender

Some studies have looked at the influence of gender on social behaviour in children (Crick & Dodge, 1994; Pattison & Lynd-Stevenson, 2001; Scourfield et al., 1999; Toblin et al., 2005). In general these studies suggest that boys are more likely to engage in overt aggressive behaviours and display greater deficits in social skills and social cognition than girls, who were found to be more interpersonally oriented. Crick and Dodge (1994) suggest two hypotheses for the way gender moderates (influences the strength or direction of a relationship between an independent and dependent variable) the relationship between cognition and social adjustment. They propose that social skill deficits are associated with different cognitions for boys and girls: interpersonally related cognitions for girls are more prosocial, cooperative and concerned about social disapproval, whereas instrumentally related cognitions for

boys are more concerned about controlling external events and domineering. Socially maladjusted children may have two different types of problematic social information-processing patterns that result in different types of behaviour. Children may exhibit behaviour that is extreme but gender normative (e.g., a boy who dominates by using aggression). There is some preliminary evidence for this hypothesis from studies that have found differences in the processing patterns of adjusted and maladjusted boys for the generation of aggressive responses (Crick & Ladd, 1990; Rubin, 1982a as cited in Crick & Dodge, 1994). Alternatively, children who exhibit behaviour that is not normative for their gender (e.g., physically aggressive girls) may experience more deviant social information processing difficulties in comparison to more socially adjusted peers (Crick & Dodge, 1994).

Prior et al. (2001) found that internalising problems and social skills were found to discriminate between at-risk and comparison groups consistently, over both parent and teacher report, for girls but not for boys, whereas hyperactive behaviour problems, temperament and academic factors were the more powerful discriminators for boys. Taken together, these findings suggest gender differences in both the cognitions and social behaviours that discriminate socially maladjusted children. Thus, it is possible that cognitive behavioural interventions aimed at changing cognitions and teaching social-cognitive skills will have a differential impact on boys and girls. It is possible that boys will display greater deficits in social skills than girls and show a greater change in social behaviour than girls.

Very few studies have looked at the effect of gender on intervention outcomes, and in many studies gender is not included as a factor. In a large meta-analytic review of 150 outcome studies, Weisz, Weiss, Han, Granger, & Morton, (1995) found that in general, psychological therapy was more successful in samples

with female majorities, however this effect was significant only among adolescents. In contrast, Pattison and Lynd-Stevenson (2001) and Jaycox et al. (1994) found no differential effects for gender when they investigated the moderating effect of gender on the outcome of a school-based cognitive-behavioural program similar to the one employed in this study. Further research is needed to clarify these differential findings and investigate the possible effects of gender on the outcome of cognitive behavioural interventions aimed at enhancing social skills.

1.6 Social Skills and Cognitive Factors

Several studies have shown a positive relationship between various measures of academic achievement and adaptive social behaviour (Norwicki & Duke, 1992; Feshbach & Feshbach, 1987; Malecki & Elliott, 2002). For example, in a short longitudinal study of 139 third and fourth grade American school children, teacher-ratings of students' social skills and problem behaviours were significantly positively related to academic competence measured via teacher ratings on the Social Skills Rating System (SSRS). Academic achievement was measured by assessing student performance in reading, language, and mathematics on a standardized measure. Social skills were also a significant predictor of future academic functioning (Malecki & Elliott, 2002). A larger study of 364 school-aged children found that social and academic difficulties as measured by peer ratings and maths achievement scores best predicted peer nominated depression. Both peer-nominated and self-rated depression were highest among children rated as less socially and academically competent (Blechman, McEnroe, Carella, & Audette, 1986). A review of the results of several cross-sectional and longitudinal studies by Kovacs & Goldston (1991) showed that while social cognitive abilities thought necessary for social functioning were unaffected by depression, symptomatic children showed

impaired social-interpersonal behaviours (Mullins, Siegel, & Hodges, 1984; Blechman et al., 1986 as cited in Kovacs & Goldston 1991). However, Roberts (1999) argues that further longitudinal research is needed to determine whether social skill deficits precede depression or whether depression precedes social deficits and leads to further depression.

Developmental research suggests that emotional knowledge, which develops as children grow, is one way pathway through which cognitive ability mediates (explains the process by which a treatment impacts on outcomes) social behaviour (Izard et al., 2000; Mostow, Izard, & Trentacosta, 2002). This ability to recognize and label emotion has been linked to peer popularity, competence and acceptance (e.g., Green et al., 1980; Kendall & Choudhury, 2003; Norwicki & Duke, 1992). Empathy in younger children has also been related to academic achievement in later childhood (Feshbach & Feshbach, 1987). Similarly, cognitive models of aggression (e.g., Dodge, 1993) also implicate social cognitive skill deficits in the development and maintenance of aggressive behaviour. Aggressive children have been found to have an array of social cognitive deficiencies including cognitive problem-solving difficulties and attributions of hostile intent to others (Dodge, 1993; Kazdin, 2002). Taken together, the above studies seem to suggest that improving social cognitive deficits in emotional knowledge and problem-solving should lead to better social skills and peer relations which, in turn, could influence academic outcomes.

1.6.1 Intervention studies

Evaluative research directed at social skills interventions has generally focussed either on the broad question of whether social skills training influences social behaviour or the effect on various different target groups rather than the efficacy of different intervention components. In addition, study designs,

methodology, intervention length and the utility of measures used varies widely, making comparisons across studies difficult (Erwin, 1994; Gresham, 1985; Ogilvy, 1994).

A number of meta-analytic reviews have attempted to answer the broad question of whether training in social cognitive skills changes social behaviour in children (Beelmann, Pfingsten, & Losel, 1994; Erwin, 1994; Gresham, 1985; Moote al., 1999). Many of the studies reviewed contain elements of several intervention components, making conclusions difficult. However, taken together, these studies suggest that short-term outcomes are better than long-term outcomes when training children social skills (Beelmann et al., Gresham, 1985; Weisz et al., 1995). Preventative school-based programs are delivered to all children in sample and are primarily designed to prevent future social and behavioural problems. They achieve significant change on both behavioural problems and competencies with mean effect sizes ranging from .24 to .93. For children aged from 7 to 11, mean effect sizes of .24 were achieved for affective education programs (aimed at increasing children's awareness of feelings and behaviour) and .36 for programs teaching problem-solving strategies. In contrast to the conclusions of other researchers (e.g., Beelmann et al., Harris & Ferrari, 1983; Wasserman, 1984), both problem-solving training and affective education (e.g., identifying feelings in themselves and others) were more effective when taught to younger children aged from 2 -7 than older children aged 7-11. In addition, interventions using problem-solving training when used alone increased competencies but did not reduce maladjustment. Thus, the authors concluded that problem-solving training is not effective unless combined with other program elements. School-based programs alone achieved significant changes on both behavioural problems and competencies. In addition, the 26 programs reviewed

that employed behavioural or cognitive-behavioural strategies were almost twice as effective as the 16 that utilised non-behavioural techniques (Durlak & Wells, 1997).

Beelmann et al. (1994) reported a weighted mean effect size of .47 across 49 studies of social skills training that included behavioural, social problem solving and self-regulation interventions. All types of intervention showed significant effects with the exception of social perspective-taking training. Training in social problem solving had favourable effects on social-cognitive skills in both monomodal and multimodal interventions (weighted mean effect sizes of .78 to .80) and on social behaviour when included in multi modal interventions. Overall, training effect sizes were lowest for children aged 9-11 with no indicated problems (mean effect size for outcome assessments of social cognitive skills were .75, social behaviour; .31, general adjustment (e.g., ratings of popularity), .09 and self-rated cognitions, .02). Effect sizes reported for outcome assessment of ratings of actual social behaviour were .28 for 9-11 year old children and .62 for social problem solving when this component was included in multimodal interventions. Moderate effects were found for both internalising (.46) and externalising syndromes (.31) with self-control training showing high effect sizes for externalising behaviours, and simple behavioural training for socially withdrawn children. Long-term effects were weak and were retained only for social problem solving training with extensive behavioural training. However, the length of follow-up of the studies reviewed was not specified.

Similarly, Erwin (1994) found evidence for effectiveness of coaching, modelling and cognitive problem-solving interventions and maintenance of behavioural changes across time for socially isolated children (mean effect sizes of .13 to .39 at posttest and .17 to .30 at follow-up). Higher effect sizes were noted for

outcome measures of social interaction and lower effect sizes were reported for measures of social status and cognitive problem solving ability.

Some explanations offered for the mixed findings in the above efficacy research include the interaction between different components of CBT, the developmental stage of the child and the verbal and processing requirements of complex multimodal interventions. Similarly, generalisation and maintenance may require the development of more advanced verbal and reasoning ability (Beelmann et al., 1994; Harris & Ferrari, 1983; Wasserman, 1984).

Denham and Almeida (1987) limited the scope and focus of their review to investigate only the relationship between children's social problem-solving skills, training in these, and adjustment. They included 70 studies with participants who were between 3 and 12 years of age and included behavioural observations in their assessments. They found strong support for the view that socially adjusted children score higher on measures of social problem-solving than maladjusted children, and social problem-solving training increases these skills, particularly for at-risk groups. There were positive but small effect sizes across studies (mean $d = 0.26$) for the hypothesis that teachers posttest behaviour ratings for children trained in social problem-solving were higher than untrained control group children. Observed social behaviour at posttest for trained children was more positive than controls (mean $d = 0.75$). Boundary conditions like age, subject classification and intervention length were also examined. Training was more effective at changing younger subjects' behaviour, interventions lasting for 40 or more lessons led to better skill acquisition, and at-risk participants benefited more than primary prevention participants from training (Denham & Almeida, 1987). This research provides some evidence that children can be taught social problem solving skills and that these skills influence

observed behaviour. It is possible that teaching children cognitive problem solving processes, which usually involves giving children step by step instructions and relating these to specific behaviours in social situations, is more effective at changing behaviour in these situations because of the focus on generalisation and practice which may enhance the aggregation across steps and the link between cognition and behaviour.

Similarly, findings from several studies where interventions have been implemented in school settings and administered to all participating students have demonstrated that children can be taught social problem-solving at school (e.g., Weissberg et al., 1981; Hepler & Rose, 1988; Sawyer et al., 1977; Elias et al., 1986) and also conversational skills (Bierman & Furman, 1984). Typically, interventions that were successful at teaching children social-problem solving were highly structured and/or lengthy. For example, Weissberg et al. evaluated the effects of a 52-lesson social problem-solving skills program on 243 third grade children in their school settings. The children were selected from three schools and were assigned to treatment or control conditions. Children were assessed at pretest and posttest using cognitive problem-solving measures and behavioural adjustment measures. The treatment program was a structured social skills and problem-solving program teaching affective education, problem-solving and integration of this behaviour via practice. The program increased problem-solving skills and children also evinced generalisation to other situations. However, problem-solving training did not significantly affect children's behavioural adjustment including self-esteem, sociometric status or trait anxiety, and gains in problem-solving did not correlate with change in these outcome measures (Weissberg et al., 1981). Similarly, Sawyer et al., (1997) found short-term gains but not longer term gains for third and fourth

grade children. They evaluated the effects of the Rochester Social Problem Solving Program (Weissberg et al., 1980 as cited in Sawyer et al., 1977), a 20-week structured cognitive based social skills and problem-solving program teaching affective education, problem-solving and integration of this behaviour via practice. Participating children were from two schools and were assessed at pre-treatment, posttreatment and at one-year follow-up using a measure of problematic social skills, peer sociometrics, the Child Behaviour Checklist (CBCL) and the Teacher Report Form (TRF) which both assess childhood emotional and behavioural problems. The program increased the positive peer relationships of participating children but these gains were not maintained at follow-up. However, the gains in peer relationships did not correspond with reductions in behavioural or emotional problems as rated by teachers and mothers.

In contrast, two smaller studies (Hepler and Rose, 1988.; Hepler, 1994) provide further evidence for a link between training in skills and change in social behaviour, and suggest that problem-solving skills can be effectively taught to a universal sample of children in a school setting over shorter periods of time (8 sessions). However they also found only short-term gains in behavioural adjustment. Children were assessed at pre-treatment, posttreatment and at four week follow-up using peer nominations, peer ratings (both completed by all participating intervention and control group children) and a skills-based roleplay measure. The treatment program was a structured problem-solving program teaching problem-solving steps as they related to a specific problem concerning peer interaction and focussing on conversational skills. The program increased the skills of participating children at posttest and peer ratings at follow-up, although follow-up in this study was short. There was also a significant decrease in negative peer nominations

experienced by rejected children (Hepler & Rose 1988). In a later study, Hepler (1994), using a sample of 45 fifth grade students from two classes and a similar cognitive-behavioural intervention, also found positive gains at posttest but not follow-up. These studies provides further evidence for a link between training in skills and change in social behaviour, and suggest that problem-solving skills can be effectively taught to a universal sample of children in a school setting over short periods of time.

However, consistent findings from many studies across divergent samples suggest that the evidence for the maintenance and wide generalisation of these skills is inconclusive. There is some evidence that when children are given the opportunity to practise and apply newly learned skills that are taught in a structured format they can apply these skills in other situations, although this has not always corresponded with gains in measures of behavioural adjustment (Weissberg et al., 1981; Milne & Spence, 1987; Sawyer et al., 1977). Both older and younger children can be taught social skills although interventions that have been successful at teaching younger children social-problem solving were highly structured and/or lengthy and combined with other program elements. The complexity of social skill acquisition adds to difficulties with maintenance for children who develop cognitively and physically at different age levels. Maintenance of social skills may require the development of more advanced verbal and reasoning ability or longitudinal interventions conducted over several years (Beelmann et al., 1994; Harris & Ferrari, 1983; Hepler, 1994; Wasserman, 1984).

1.6.2 Attributional Style

There is considerable evidence to suggest that deficits in communication skills are related to depression in adults (for a review see Segrin, 2000).

Communication style, specifically a negative style of communicating or explaining events (negative attributional style) has been studied in detail in children and adolescents. There is some evidence that this particular style of communicating is associated with and predictive of depression in children (for a review see Gladstone & Kaslow, 1995; Nolen-Hoeksema, Seligman & Girgus, 1992; Seligman & Girus, 1992; Segrin, 2000). Explanatory style is viewed as a trait that originates from early childhood experience. Specific factors that have been investigated and are amenable to change via intervention programmes include pessimistic attributions and cognitive errors associated with negative self- perceptions e.g., the cause of a problem is something that will persist, "I'll never make friends at this school."

Depressive symptoms in adolescents have been found to be associated with more negative automatic thoughts, dysfunctional attitudes and a negative attributional style (Garber, Weiss & Shanley, 1993; Gladstone & Kaslow, 1995; Gotlib, Gladstone & Kaslow, 1993; Lewinsohn, Seeley, Rohde & Redner, 1993; Nolen-Hoeksema, Girgus, & Seligman, 1992; Segrin, 2000). A negative attributional style in the Gotlib et al., study was not just specific to depressed adolescents but was also evident in adolescents with current psychiatric disorders other than depression, which the authors explained could be due to elevated levels of depressive symptoms in both groups of participants. In addition, attributional style was found to be distinct from an individual's level of optimism or pessimism and on both factors, differences were found between currently depressed adolescents and remitted participants, suggesting that negative cognitive functioning does become more positive as depression remits.

There is some preliminary evidence that this is the case. A recent study by Kaufman et al. (2005) tested the hypothesis that changes in cognitive behavioural

skills that were taught in the Adolescent Coping With Depression course mediated the effects of treatment on depression amongst adolescents aged 13 to 17. Skills specific to CBT, including improved social skills, negative cognitions, problem solving and behavioural activation as well as therapeutic alliance and group cohesion, were examined in 93 adolescents with comorbid depressive disorder and conduct disorder who received the intervention or a life skills control condition. Measures of negative automatic thoughts were the strongest mediators of depression level changes at posttest for these adolescents; however, recovery rates from depression were low (less than half of the participants in both groups had recovered at the end of treatment) and rates of conduct disorder did not change significantly during treatment.

Taken together, these findings suggest that negative cognitions and communication style are associated with depression in adolescents. Furthermore, changing negative cognitions appears to be an important part of CBT interventions for depressed adolescents. Questions remain about the specificity of negative attributional style to depression in children and the relationship between explanatory style and positive or negative affect. The direction of causal influence and the stability across time of the relationship between negative attributional style and depression is difficult to establish with children given the limited number of longitudinal studies and the limited research on other environmental and family variables that may influence this relationship. Further research is needed to evaluate the effectiveness of programs aimed at enhancing cognitive factors that are thought to protect children against depression. Research in the area of prevention is important because of the large number of children who may be at risk of developing depression or who have symptoms that are not treated.

Nolen-Hoeksema et al. (1992) assessed 508 children over a five year period on measures of depression, negative life events, helplessness and explanatory style and found that negative life events predicted depressive symptoms in early childhood. Later in childhood, a pessimistic explanatory style alone and in conjunction with negative life events predicted depressive symptoms, and children who had suffered depression still exhibited a negative explanatory style after remission. Similarly, Prinstein and Aikins (2004) conducted a small longitudinal study over 17 months and found that peer rejection in adolescence was a significant predictor of depressive symptoms when combined with a negative attributional style. Peer nominated rejection predicted self-reported depressive symptoms in girls, but not in boys. However, other possible distal family or environmental predictors of depression and peer rejection were not assessed and the sample size was relatively small.

These longitudinal findings suggest that the relationship between many of the variables hypothesised to impact on children's social skills may be more important at different stages of development and that the interrelationship between these variables changes as children develop. Roberts' (1999) developmental model suggests that in early childhood when cognitive style is developing, the influence of negative life events leads to negative cognitions which can produce depressive symptoms. In late childhood and early adolescence, attributional style is more stable and moderates the effect of negative life events on depression.

1.6.3 Intervention Studies

Findings from several studies where cognitive interventions aimed primarily at altering cognitive processes have provided some preliminary evidence that both younger children (e.g., Cunningham, Brandon, & Frydenberg, 1999; Pincus &

Friedman, 2004) and adolescents (Hains & Szjakowski, 1990; Hains, 1992) can be taught these skills. Furthermore, these studies also provide some initial evidence for the generalisation and maintenance of these skills to social behaviour. Cunningham et al. (1999) evaluated the effects of a universal Australian preventative program aimed at enhancing resilience via positive thinking and cognitive problem-solving skills. *The Bright Ideas: Skills for Positive Thinking* program adapted cognitive techniques used for depressed children and was implemented in the school setting over a six week period for children aged between 9 and 12 years old. Children were assessed at pretest and posttest with three self-report measures that assessed self-efficacy or perceived control, coping and explanatory style. Explanatory style was assessed with the Children's Attributional Style Questionnaire (CASQ) which is a 48-forced choice item self-report questionnaire developed to measure whether children's style of explaining events in their lives is optimistic or pessimistic.

The treatment program used a cognitive problem-solving framework developed by Seligman (1995). It relied on a scripted format that focussed on teaching children to listen to their own self-talk, to connect thoughts to feelings, to evaluate thoughts, challenge negative thinking and generate more positive thoughts. Children participating in the program reported a more optimistic explanatory style, increased control, and reduced use of non-productive coping strategies, although no significant differences were found in the use of self-reported productive coping strategies pre- and post - program. Reductions in the severity of stressors were experienced by children four months after the program ended (Cunningham et al. 1999). This study relied on self-reports, thus limiting conclusions about generalisation. In addition, a nested design and lack of a comparison or control group were methodological limitations.

Hains and Szyjakowski (1990; 1992) also found short and longer-term reductions in anxiety and anger and increased self-esteem for adolescents by teaching six sessions of cognitive restructuring procedures developed by Meichenbaum (1985). In the 1992 study two intervention groups received either training in cognitive restructuring or anxiety management and both groups showed significant reductions in anxiety, anger and depression. The cognitive restructuring program included the use of self-instructions to cope with stress-producing events. Depression scores decreased for treatment and control groups. These findings suggest that adolescents can be taught to change cognitive processes using brief interventions, although it is possible that student characteristics (all were high academic achievers) and addressing the stressors identified by adolescent participants contributed to the successful outcomes.

In sum, findings from these studies suggest that children and adolescents can be taught cognitive processes like challenging and modifying thoughts and feelings in school settings. However, much less is known about the generalisation and maintenance of this knowledge. Specifically, there has been limited research directed at understanding the lack of long-term effectiveness of social skills training, that is, establishing a direct link or causal pathway between training in skills and change in social behaviour. However, in order to translate developmental theory into practice, and optimise outcomes, some researchers have begun investigating whether certain individual child or environmental variables moderate intervention outcomes (e.g., Durlak & Wells, 1997; The Conduct Problem Prevention Research Group, 2002; Weiz & Hawley, 2002). Durlak et al. (1991) reviewed 64 cognitive behavioural programs directed towards modifying behaviour or social functioning by teaching children to specifically change cognitive thoughts and thought processes. Treated

children had to have a degree of behavioural or social skill deficits. In line with developmental researchers (e.g., Wasserman, 1984), findings suggested that children's cognitive developmental level was an important moderator between treatment and outcome. In fact, for children aged 11 to 13 the effect size (0.92) was nearly twice that of younger children (0.57 for ages 5 to 7 and 0.55 for ages 8 to 11). Data suggested that effects achieved for maladjusted children were high (0.55 to 0.92) and meaningful change was achieved on behavioural measures of adjustment. In this review, age, rather than cognitive assessments determined cognitive developmental level. In addition, the age/effect outcomes did not increase incrementally as children between the ages of 5 to 11 achieved similar effect sizes. However, cognitive change was not related to behavioural change as predicted by the theoretical premise of CBT. The failure to find a link between cognitive change and behavioural change precludes an understanding of the causal model of the process of change. Most studies and reviews include a mix of interventions aimed at changing cognition. Other more distal variables such as parenting or family stress and contextual factors such as the situation, fatigue and mood may influence outcomes. The diversity of behaviours that contribute to social skills and the changes that occur developmentally at different stages make it unlikely that single variables will correlate consistently with change, and the homogeneity of assessment increases this complexity.

1.7 Social Skills and Stress

One variable that has been hypothesised to play a role in social behaviour is stress. Stressful life events have been associated with many forms of psychological maladjustment including depression (Hoffman, Levy-Shiff & Malinski, 1996; Mullins et al., 1984; Nezu & Ronan, 1985). The frequency of stressful life events has

also been found to be strongly associated with the number of teacher-reported adverse behavioural problems and symptoms (Hoffman et al., 1996). Smith and Prior (1995) examined resilience in 81 school-aged children and found the protective effects of a positive temperament, attachment and cognitive ability accounted for no more than 36% to 50% of the variance in a large number of child adjustment outcomes. However predictability may be limited by the reliability of the child adjustment measures, and the number of stressful events experienced by children was influential in discriminating between resilient and non-resilient children. Children were rated as resilient if their scores on the behavioural and social competence measures at home and school fell within the normal range. Temperament, mother-child warmth and fewer negative life events ($r = -.28$) were the three discriminators of child resilience.

Similarly, stress accounts for only a small percentage (approximately 33%) of the variance in predicting depressive symptoms in children and adults (Goodman, Gravitt & Kaslow, 1995). This had led to research investigating the effect of other possible moderating variables like social problem-solving. Results provided preliminary support for a role of the *effectiveness* but not the quantity of alternative solutions children generate in response to social problems. Children who experienced stress as a result of negative life events and who had less effective social problem-solving skills reported higher levels of depression than those children who had more effective social problem skills. In this study the interaction between the impact of negative life stress and average effectiveness of alternative solutions was significantly related to depression scores, and effective problem-solving accounted for 73% of the variance (Goodman et al.).

However, the relationship between stressors and social skills is multidimensional and many other individual and contextual variables could influence children's behaviour. One influential model was proposed by Lazarus and Folkman (1984). A stimulus is appraised as either threatening or benign and this depends on features of the stimulus condition, including the magnitude, likelihood of harm, duration, controllability and the psychological structure of the individual. When a stimulus is appraised as requiring a coping response, resources are evaluated. Coping responses include actions to alter conditions or thoughts or actions to relieve the emotional stress response. If effective responses are perceived, no stress response occurs (Folkman & Lazarus, 1985).

Taken together, these studies imply that while stressful life events account for a small percentage of the variance in the social behaviour of children, if children are taught coping skills and effective responses including actions to alter conditions or thoughts and problem-solving skills to relieve the emotional stress response, stress and depressive symptoms will be decrease.

1.7.1 Intervention Studies

There is a large variety of interventions designed to teach children skills to deal with stress. The focus of recent research has been on teaching children coping strategies to manage daily stressors (e.g., Pincus & Friedman, 2004). Many interventions include numerous CBT components, and evaluations of these interventions can include an array of outcomes measures. Some researchers have narrowed the focus of their intervention research to evaluate the teaching of particular skills and the effect of this on measures of adjustment. For example, Elias et al., 1986 looked at the effects of teaching children problem-solving skills and assessed participants on measures of social problem-solving and adjustment to

school including the frequency and intensity of stress experienced. The treatment program used a cognitive problem-solving framework developed from earlier research by Spivack and colleagues (Spivack, Platt, & Shure, 1976, as cited in Elias et al. 1986). It was integrated into the school curriculum and relied on a scripted format that focussed on teaching problem-solving thinking steps and applying these to specific problem situations, particularly routine classroom situations, thus promoting maintenance and generalisation. The year-long program was related to reductions in the severity of stressors experienced by fifth-grade children four months after the program ended. Interestingly, a mediating role for social problem-solving was found, specifically problem analysis and action, and to a lesser extent, planning and consequential thinking. Children who performed poorly at problem-solving were more likely to experience many intense stressors although the outcome measures in this study relied on self-reports and did not include teacher or parent-ratings. For children with adequate social problem-solving skills, other unmeasured factors apparently mediated the extent to which they experienced intense stress (Elias et al. 1986).

Much less is known about the differential effects of teaching different CBT intervention components. However, one recent study (Pincus & Friedman, 2004) evaluated the effects of teaching young children problem-focussed skills (the five steps of problem-solving and how to apply these to everyday stressful situations) or emotion-focused skills (to recognise thoughts and feelings, to modify these when they are maladaptive and to apply these skills). Participants were 167 children, aged 8-11 who were assigned to one of two treatment conditions or a discussion/control condition. The participating students were assessed at pretest and posttest using two

child-report measures that assessed coping, and a parent checklist that assessed child psychopathology.

The two interventions were very brief and consisted of 75 minute one-session groups. Children who received the brief cognitive-affective skills training showed an increase in their generation of emotion-focussed strategies when compared with children in the other two groups at posttreatment. Interestingly, children in both treatment groups showed a significant increase in the number of coping strategies they could generate at posttest (Pincus & Friedman, 2004). This study lends support to the view that younger children can be taught both types of coping skills. However, follow-up data was not available, the primary outcome measures were limited to assessing coping strategies and there was no evidence to suggest that children were able to generalise these skills to home or classroom behaviours.

There is limited research on the relationship between stressful life events and other social skills intervention outcomes for children, and one goal of this study was to examine this relationship. Previous research would suggest that contextual factors such as the accumulation of stressors at a time of transition could negatively influence outcomes for children. Furthermore, it is possible that other temporary individual stressors e.g., physiological states such as fatigue or nutrition could negatively influence social skills and intervention outcomes for children. Further research is necessary to determine if these easily amenable individual stressors are related to school-based intervention outcomes. If these variables influence outcomes negatively, future research could determine the benefit of including rest periods, exercise prior to interventions and/or snacks before or during interventions with school children.

1.8 Child Health Factors

1.8.1 Nutrition

If children are not eating enough nutritious food it is possible that their capacity to benefit from CBT is reduced. A 24-hour food record completed by 1878 Western Australian primary and secondary school students found the average reported fruit and vegetable intake to be well short of the minimum recommended daily intake for children (Western Australian Child and Adolescent Physical Activity and Nutrition Survey, 2003). Correlational studies conducted with adults have found that the consumption of breakfast cereal is associated with positive mood and improvements in memory (Smith, Clark, & Gallager, 1999).

Very few studies have investigated the association between nutrition and child psychological development, although correlational evidence suggests that nutrition does impact on cognition (Alaimo, Olson, & Frongillo, 2001; Mahoney, Taylor, Kanarek, & Samuel, 2005; Theodore et al., 2005). Theodore et al. (2005) recently examined the food intake of children aged 3.5 years and their cognitive abilities. Increases in IQ were found for children who consumed the recommended food intake of bread and cereals. The authors of this study suggest that consumption of these products is an important source of iron and may result in higher intakes of iron and folate which facilitate healthy growth and development. Glucose is also essential for brain function and the nature of facilitation of glucose to the brain can influence cognitive performance (Mahoney et al.). Mahoney et al. examined the relationship between cognitive performance and breakfast in 6-8 and 9-11 year old children. Children completing spatial memory, short-term memory and auditory attention tasks performed better after consuming breakfast compared to children who had not consumed breakfast.

Alaimo et al. (2001) found that after controlling for confounding variables, food insufficiency for 6-11 year- old children was significantly negatively associated with Wide Range Achievement Test-Revised (WRAT-R) arithmetic scores, having seen a psychologist and having repeated a grade at school. In addition, other correlational studies have shown that children from low-income families who report multiple experiences of food insufficiency are more likely to show behavioural, emotional and academic problems on standardised measures. In fact, hungry children were seven times more likely than children who were not hungry to receive scores indicative of clinical dysfunction on the Pediatric Symptom Checklist. Analysis of specific symptoms revealed that the symptoms of conduct disorder were most likely. The authors of this study suggest that the problematic behaviours prevalent in this community sample of hungry children are an understandable response to stress and anxiety of periodic hunger (Kleinman et al., 1998).

Similarly, Weinreb et al. (2002) examined the independent contribution of nutrition on physical and mental health and academic functioning. For school-aged children, hunger was associated with low birth weight, more stressful life events and a larger number of internalising behaviour problems as measured by the CBCL. It is possible that other variables including associated family problems play a larger role in child functioning, although further research into the relationship between health-related physiological states, like hunger, and intervention outcomes seems warranted.

1.8.2 Exercise

Physical exercise has long been associated with health outcomes for both adults and children. Correlational evidence also suggests that exercise can decrease psychological symptoms including depression and anxiety and buffer adults against

stress (Brannon & Feist, 2004). In addition, Tarus (2005) found that concentration improves in children immediately after exercise although this does not necessarily impact on school achievement per se. In a large review of the recent work on the physical and mental health benefits associated with physical activity, Penedo and Dahn (2005) found that several studies, including randomized clinical trials, suggested benefits to emotional well-being, such as increased mood and reduced depression and anxiety in adults. One large study of over 4500 adolescents found that increases in physical activity outside of school-based programs were significantly associated with fewer depressive symptoms over a two-year period. This association was found to be independent of other factors such as gender, socioeconomic status and alcohol consumption.

A large survey of 2880 Western Australian children and adolescents in years 3 to 11 found that school-based physical education and sport was an important component of physical activity participation with over 90% of participants reporting engaging in physical activity and sport at school. Approximately 11% of primary school males and 13% of primary school females reported doing no physical activity outside of school (Government of Western Australia, 2003). The overall number of outside school activities was similar for both metropolitan and non-metropolitan schools, although the participation rate for sport over the past 12 months for this sample was higher than the Australian average (Government of Western Australia, 2003).

Preliminary correlational evidence suggests that physical activity may impact on anxiety and depression in adolescents and has many health benefits for children. Sporting activity involves social interaction and gives children the opportunity to interact socially with their peers in a structured environment that encourages

teamwork. It is possible that physical activity is one of a number of individual factors that influences CBT intervention outcomes for children either by impacting on internalising symptomatology or by providing more opportunity for children to learn and practice adaptive social behaviour.

Intervention literature has included very few studies that have examined the relationship between individual child factors such as exercise, nutrition and fatigue on social skills and intervention outcomes for children. Correlational findings from previous research would suggest that these contextual factors could influence intervention outcomes although different predictors have been examined in different studies with disparate age groups, outcome measures and research designs. This exploratory study aims to extend existing knowledge by examining the relationship between a small set of health-related variables (breakfast consumption, fatigue, exercise and stressful life events) and intervention outcomes for children.

1.9 Improving Social Skills in School Settings

A number of individual studies evaluating the effects of multi-component cognitive behavioural programs aimed at improving social skills have shown increases in social skills and/or ratings of psychological adjustment for children with peer difficulties (Blonk et al., 1996) and behavioural problems (Hemphill & Littlefield, 2001). Results are theoretically and practically encouraging with increases in social skills and/or ratings of psychological adjustment supporting the inclusion of several components and teaching a range of diverse skills although gains have generally been short-term. As a result, several preventative school based interventions have been developed with the aim of increasing protective factors and teaching social skills to younger children (Cooper, Paske, Goodfellow, & Muhlheim, 2002), children with depression (Jaycox et al., 1994; Gillham, Reivich, Jaycox, &

Seligman, 1995), and universal samples (Derosier, 2004; Hepler & Rose, 1988; LeCroy & Rose, 1986; Roberts, Kane, Thomson, & Bishop, 2003; Roberts, Kane, Bishop, Mathews, & Thomson, 2004; Quayle, 1999). Other studies conducted in school settings have not been as successful at demonstrating behavioural change (Milne & Spence, 1987; Pattison & Lynd-Stevenson, 2001) although sample sizes in these studies were small and intervention evaluated in the Milne and Spence study was focussed on training social perceptions skills (understanding feelings and emotions, understanding facial expressions and gestures). Thus, despite extensive research, questions remain about the positive and long-term effects of social skills training in schools, and fundamentally whether training in social skills equates to behavioural change. Cognitive behavioural interventions that have resulted in longer term gains for children have generally been administered to children with existing social or behavioural difficulties (e.g., Blonk et al., 1996; Hemphill and Littlefield, 2001). Blonk et al. evaluated a program that was conducted over a long time period (20 weeks). Gains for children have also been found to be maintained by including a parental component (Hemphill & Littlefield, 2001).

Some recent preventative school-based interventions have been developed based on the success of earlier programs which specifically targeted children considered to be at risk of developing depression. For example, The Penn Prevention Program (Jaycox et al., 1994) was designed to teach children to change their thinking style and increase social problem-solving in order to increase coping skills, build social supports, and decrease vulnerability to depression. It was based, in part, on work cited earlier by Elias et al. (1986) and Weissberg et al. (1981) on preventative social problem-solving programs designed to improve adjustment in children. The approach is predicated on the assumption that proactively teaching these skills to

children will generalise to behaviour, specifically social skill deficits (e.g., low social skills and poor peer relations) problem-solving deficits and cognitive styles which are correlates of depression (Gladstone & Kaslow, 1995; Kovacs & Goldston, 1991; Liddle & Spence, 1990).

The original study by Jaycox et al. (1994) was a five-year prospective study to investigate the efficacy of three versions of the Penn Prevention Program. One hundred and forty three children aged from 10 to 13 years who were identified as being at-risk for depression based on current level of depressive symptoms and perceptions of parental conflict participated. The children were assigned to either a cognitive training component, a social problem-solving component or a combined treatment group which included both. Seventy-four children were assigned to a combined no-participation or wait-list control condition. Children were assessed at pretest, posttest, and at 6-month follow-up using child, teacher and parent reports on depressive symptoms, the CBCL, classroom behaviour and attributional style using the Children's Attributional Style Questionnaire (CASQ).

The three versions of the program were conducted in small groups. The cognitive component included flexible thinking, evaluating beliefs, and explanatory style training. The social problem-solving component included goal setting, problem-solving and coping with family conflict and other stressors via problem-solving, distraction, relaxation and seeking social support. Training methods included group discussion and activities for practice and reinforcement, and homework. Both components used cognitive techniques although the former specifically teaches cognitive restructuring and the latter focuses on teaching specific action-orientated behaviours to solve problems. The three versions of the program (delivered to children considered at-risk for depression) did not produce differences

in the groups at posttest so the three groups were collapsed and considered together when evaluating the program. The combined program which was conducted over twelve weeks reduced depressive symptoms and these gains were maintained at follow-up. Externalising behaviour problems as reported by parents were also reduced at follow-up.

No changes were found in overall explanatory style. However, children who participated in the combined program were less likely to attribute negative events to stable, enduring causes at the end of treatment. In addition, explanatory style changes were unrelated to behavioural changes. The authors of this study concluded that behavioural changes were related to children's increased ability to handle interpersonal problems. In addition, they hypothesised that children used learned skills to prevent depressive symptoms when experiencing negative events. Treatment effects were higher for children with more depressive symptoms and more conflict at home, lending further support to a broad CBT approach (Jaycox et al., 1994).

A 2-year follow-up study (Gillham, Reivich, Jaycox, & Seligman, 1995) reassessed the treated and control group children and found that treated children reported fewer depressive symptoms than control group children, two years later. Changes in explanatory style (again, less stable global and internal interpretations of negative events) found in the original study were maintained and correlated with changes in depressive symptoms. The authors surmise that the latency effect for children in the prevention groups was due to them becoming better at using techniques over time (Gillham, et al., 1995; Jaycox et al., 1994).

However, methodological limitations included low initial response rates, non-random assignment to groups reflecting a possible self-selection bias, and high attrition rates (72% from the prevention groups and 67% from the control group

completed the 24-month assessments). The intervention and control groups were from separate school districts and the results of the three treatments groups were combined in the analysis due to non-significant changes as a result of teaching the separate components to children. In addition, behavioural changes were not measured in the follow-up study.

Quayle (1999), Roberts, Kane, Thomson and Bishop (2003) and Roberts, Kane, Bishop, Mathews and Thomson (2004) have investigated the efficacy of the Jaycox et al. (1994) program in Australia. Quayle (1999) found prevention effects using a shorter (8 week) “Australianised” version of the original Penn Prevention Program implemented with 11-12 year olds in their school setting. Compared with the control group, intervention group students reported significantly fewer depressive symptoms and greater self-worth at the six- month follow-up assessment. Prevention group students were also less pessimistic than the control group students at both posttest and follow-up; however, a high attrition rate (12.5% for the intervention group and 8.7% for the control group) and small sample size ($n = 47$) were methodological limitations. In addition, changes in behaviour were not measured in this study.

In contrast, Roberts et al. (2003) found no changes in depressive symptoms or child-reported social skills at either posttest or follow-up in a large randomized controlled trial (RCT) with a targeted sample of rural children with depression. One hundred and eighty-nine children aged from 11 to 13 years from 18 schools participated and children with elevated levels of depression scores were randomly assigned to the treatment group. The remaining children received their usual classes and were assigned to the control condition. Children were assessed at pretest,

posttest, and at 6-month follow-up using child and parent reports on anxiety, the CASQ, Matson's Evaluation of Social skills in Youngsters (MESSY) and the CBCL.

The 12-session treatment program was the same as the combined intervention used in the Jaycox et al. (1994) study, but Australian spelling and place names were substituted. It was conducted during school time by school staff who had received training in the program. Intervention group children reported less anxiety and these gains were maintained at follow-up. Explanatory style changes were restricted to children in the intervention group reporting more optimistic explanations for positive events, although changes in explanatory style did not mediate anxiety. Behaviour problems as reported by parents were reduced immediately after the program but not at follow-up ($d = 0.28$ for internalising problems and $d = 0.20$ for externalising problems). The authors of this study concluded that group differences were not associated with enhanced competencies in either social skills or changes in attributional style, although methodological limitations included limited intervention quality control measures and lack of a true placebo control (Roberts et al., 2003).

The 30-month follow-up study (Roberts et al., 2004) reassessed the treated and control group children and found that treated children also reported fewer anxious symptoms than control group children. A group effect on depressive symptoms at 30-month follow-up was mediated by this reduction in anxiety symptoms. However, there were no significant intervention effects for depression or behavioural problems at either 18-month or 30-month follow-up. In addition, intervention students reported lower levels of appropriate social skills at 30-month follow-up. Changes in explanatory style found in the first study were not maintained at either follow-up. The authors note attrition effects and low power, controlling for differences between schools, which reduced group effects. The lack of effects on

competencies directly targeted by this program (social skills and explanatory style) suggest that other mechanisms may be responsible for outcomes (Roberts et al., 2004).

Only one study (Pattison & Lynd-Stevenson, 2001) has investigated the differential effects of the cognitive and social-cognitive skill components of the prevention program on measures of social skills and cognitive style. In a preventative intervention study, sixty-six children aged from 9-12 years from one school participated. Thirty-two children were randomly assigned to either the ten-week group program teaching the cognitive restructuring component followed by the ten-week social skills component, similar to the previous studies, or the social skills component followed by the cognitive component. Thirty-two children were assigned to either an attention control condition or a non-participation control group. Children were assessed at pretest, at the end of the first component of the treatment program, at posttest, and at 8-month follow-up using child reports on anxiety, cognitive style, and the MESSY. The treatment program was conducted during school time by facilitators who had received training in the program. The attention control group received a program of group activities over ten weeks, similar to those used to foster group identity in the Penn program. In contrast, the non-participation control group had no active involvement in the study. Contrary to predictions, the combined programs had no impact on depressive symptoms, social skills, anxiety or cognitive style when compared to the two control groups. In addition, there were no significant effects at follow-up. There were also no differential effects for children who scored high on outcome measures at pretest or gender effects, although boys did exhibit greater deficits in social skills than girls in this study. Moreover, the separate

components of the program also did not evidence changes on any of the outcome measures at the end of the first component (Pattison & Lynd-Stevenson, 2001).

The authors of this study suggested possible “floor effects” as a result of using a universal (non-targeted) sample including non-symptomatic children and leaving little scope for improvement on outcome measures and limited statistical power due to small sample sizes. However, they also noted similar pretest means to the Jaycox et al. (1994) study and greater changes in depression score means across time. The results of this study, except for those relating to anxiety symptoms, also correspond with those of Roberts et al. (2003) who used a much larger albeit targeted sample.

In summary, Jaycox et al. (1994) suggest that with regards to preventing depression, children in that study used the skills they learned to prevent symptoms when experiencing future negative events. Other consistent findings when implementing the Penn Program with children aged between 9 and 13 years of age are limited changes in cognitive explanatory style as measured by the CASQ and limited generalisation of treatment effects to social behaviour. Importantly, explanatory style did not mediate changes in behaviour in the above studies. Teasdale (1999) argues that with adults, the negative and positive scenarios presented in the Attributional Style Questionnaire (ASQ) may act as probes that activate depressive or optimistic processing so scores reflect this, rather than an underlying fixed style. Accordingly, if group differences are not associated with enhanced competencies in either social skills or changes in attributional style, it is possible that other processes are involved (Pattison & Lynd-Stevenson, 2000; Roberts et al., 2003).

Only one study has examined the differential effects of the optimistic thinking and social skills components of the program on children's social skills and attributional style (Pattison & Lynd-Stevenson 2000). The authors of this study suggested limited statistical power due to small sample sizes may account for their findings. Previous findings would suggest that when implementing the Penn Prevention Program in Australia, both depressed and non-depressed children report limited changes in cognitive explanatory style and limited generalisation of treatment effects to social behaviour.

However, a number of previously cited studies and meta-analyses have been theoretically and practically encouraging with results suggesting that preventative school-based interventions increase social skills and/or ratings of psychological adjustment for participating students in the short-term. Moreover, behaviour ratings for children who take part in interventions that include social problem-solving are generally higher than for other children although, again, long-term effects are weak. Evidence for the maintenance and wide generalisation of an amalgamation of cognitive behavioural skills, specifically their impact on social behaviour, is inconclusive. Thus, despite a large body of research, questions remain about the generalisation and long-term effects of teaching social skills in schools and fundamentally whether training in social skills equates to behavioural change. If interventions are to have the desired long-term effect, it would seem reasonable to expect that children understand the content of the training, and optimal that they recognise and use opportunities to apply their new knowledge and skills as soon as possible. Similarly, generalisation of cognitive components may require the development of more advanced verbal and reasoning ability (Beelmann et al., 1994; Harris & Ferrari, 1983; Wasserman, 1984). It is possible that there are numerous

other moderators of program effectiveness such as, gender, breakfast consumption, fatigue, stress and exercise that affect children's social functioning and their ability to learn from preventative interventions.

In the following section, the present school-based study is described with the goal of building on previous literature and comparing the effectiveness of the optimistic thinking and social life skills of the Aussie optimism program at enhancing social and interpersonal behaviour in late childhood. It will utilise a larger universal sample than the Pattison & Lynd-Stevenson (2001) study, and include a 3-month follow-up assessment to assess for maintenance of intervention effects. Possible differences in the impact of the two components of the program were not evident in the Pattison and Lynd-Stevenson (2001) study at posttest. This study will also use a combination of measures to assess both trait-like social skills and specific knowledge to assess the retention and behavioural application of the social and social-cognitive skills taught in the program. In addition, in this exploratory study, possible child correlates of program efficacy will be examined.

1.10 The Aussie Optimism Program

The Aussie Optimism Program (Curtin University of Technology, 2003) is a cognitive and social skills program that has been adapted from the original Jaycox et al. (1994) study for Australian children and "real world" classroom conditions. It includes two separate components similar to those used in the Jaycox study. The language used in the program has been adapted for Australian school children and the length of the program has been shortened slightly so that each component can be delivered during the Western Australian school term. The program includes a cognitive training component and a social problem-solving component. The Aussie Optimism program aims to teach children social skills, social problem solving and

optimistic thinking and can be delivered in two parts. The Optimistic Thinking skills program comprises 10 modules covering social-cognitive skills including the link between thoughts and feelings, cognitive restructuring, practising optimistic thinking and applying this to conflict. The Social Life Skills program comprises ten modules that cover instruction in skills that are believed to be precursors of adaptive social skill development including social problem-solving, coping skills, positive peer relationships, social support and communication.

As the inclusion of a mix of components precludes an understanding of what components of the intervention are most efficacious, and the present research aims to specifically compare the effectiveness of the social problem-solving (e.g., affective education, communication, coping and social problem-solving skills) and cognitive components (e.g., affective education and cognitive restructuring).

1.11 Rationale of the Study

This study has three aims:

- (1) To compare the effectiveness of the social and cognitive components of the Aussie Optimism program in enhancing observable social and interpersonal skills in late childhood. It will add to earlier research by utilising a larger universal sample than Pattison and Lynd-Stevenson (2001), and will include follow-up assessments to assess for maintenance and intervention effects.
- (2) To evaluate the retention and application of the social and social-cognitive skills taught in the program and changes in the explanatory style of participating children.
- (3) To determine the effect of possible moderators of program effectiveness such as gender, breakfast consumption, fatigue, stress and exercise. This study will extend existing research to discover whether these potentially

modifiable health related factors influence the success or failure of the program.

1.12 Hypotheses

One hundred and twenty-eight children aged between 9 and 12 years from two schools participated in the study. Children received either the social life skills program or the optimistic thinking skills program or were assigned to a no-treatment control group. Students were assessed with self-report and teacher-report measures of social skills, adjustment and explanatory style at pretest, posttest and three months follow-up. In addition, the relationship between these variables at pretest and health-related variables measured throughout the intervention was examined.

The following hypotheses were tested:

- Hypothesis 1: Social skills will increase from pretest to posttest for the social life skills group but not in the optimistic thinking skills group or the control groups.
- Hypothesis 2: Retention and application of the social and social cognitive skills taught in the program will increase from pretest to posttest for the intervention groups but not the control groups.
- Hypothesis 3: Attributional style will become more positive from pretest to posttest for the optimistic thinking skills group but not the social life skills group or the control groups.
- Hypothesis 4: Adaptive behaviour would increase from pretest to posttest for the treatment groups but not the control groups.

Hypothesis 5: Program efficacy will be positively correlated with physical exercise, breakfast scores and negatively correlated with fatigue.

CHAPTER 2

METHOD

2.1 Participants

The study was conducted at two schools located in a regional city south of Perth, Western Australia. The sample from school A was matched to the sample from school B on geographical location and school size but not socioeconomic status. School A has a SocioEconomic Indicator (SEI) Decile Rank of seven and School B has an SEI Decile rank of six. A decile rank of one means that the school is in the most advantaged 10% of schools (based on the student addresses). A decile rank of ten means the school is in the most disadvantaged 10% of government schools.

All students in years 5, 6 and 7 from School A and from years 6 and 7 from School B were invited to take part in the study, and their parents were notified in writing of the study. Both the children and their parents were asked to consent to participation in the study (see Appendix A). There was an overall response rate of 81% from school A, where the intervention program was to be conducted and a much lower rate of 19% from school B (the control condition). It was difficult to recruit students to participate in a non-treatment control group from a school where the program was not being offered. Parents and children at school B did not return study consent forms despite several reminders from teachers. The final sample consisted of 128 children (68 boys and 60 girls) aged between 9 and 12 years.

2.2 Design

The consenting children were allocated according to their class group to one of four conditions (two intervention groups and two control groups). Students from two year 7 classes at School A received the Social Life Skills program ($n = 34$). One

of these class groups was removed from their normal split year 6/7 classroom group to join with the other year seven class. Students in year 6 at School A received the Optimistic Thinking Skills program ($n = 49$). Three year 6 classes participated in the program. Two of these class groups were removed from their normal split year 6/7 or 5/6 classroom group to join with the other year six class. The remaining classes, students in year 5 ($n = 35$) of School A and students in year 6 and 7 at School B ($n = 10$) were used as non-treatment control groups. The non-treatment control group students recruited from school A were well-matched on characteristics other than age but may have exhibited more diffuse social skill deficits than those recruited for the treatment groups. In addition, these students were recruited from the same school as the intervention group students and could have been influenced by peers who were completing the program. Consequently, a second non-treatment control group was established in order to provide another comparison group of students who were matched on age and likely social competence.

For an 80% chance of detecting a large effect of the program with a three group ANOVA, at an alpha level of .05, 21 participants were required per group. For an 80% chance of detecting a medium-sized effect, at an alpha level of .05, 52 participants were required per group (Cohen, 1992). Thus, the chance of detecting a large effect in this exploratory study is good while the chance of detecting medium sized effects is only moderate.

Table 2.1 shows the gender breakdown of the intervention and non-treatment control groups.

Table 2.1

Number of Intervention and Control Group Participants by Gender

Group	Optimistic Thinking Skills	Social Skills	Life Yr 5 Control	Yr 6/7 Control
Gender				
Males	25	20	16	7
Females	24	14	19	3

2.3 Measures

2.3.1 Student Report Measures

2.3.1.1 Matson Evaluation of Social skills with Youngsters (MESSY; Matson, Rotatori, & Helsel, 1983).

The MESSY self-report scale was used to assess children's social skills. The MESSY is a 62-item measure of observable, positive (e.g., "I help a friend who is hurt") and negative (e.g., "I threaten people or act like a bully") social skills.

It includes five scales assessing appropriate social skills, inappropriate assertiveness, impulsiveness, overconfidence, jealousy and miscellaneous behaviour (such as making others laugh and wanting to be first). All items were worded to refer to discrete observable behaviours (e.g., "I interrupt when someone else is speaking") rather than trait-like behaviour or descriptive personality characteristics such as assertiveness or shyness. Children respond by indicating on a 5-point scale from 1 (*not at all*) to 5 (*very much*) how true each item is of them. A total score for each scale is obtained, as well as a total social skill score, with lower scores indicating more social skills.

The MESSY has been found to correlate highly with a number of other measures of social skills including teacher ratings of popularity and social skills,

structured interviews asking children what they would say and do in different situations, and the School Behaviour Checklist (Miller, 1972). It has also demonstrated high levels of internal consistency, test-retest reliability and criterion validity (Matson, 1994). Test-retest reliability was assessed in the current study using the combined control group scores at pre, post (within two weeks of completion of the study) and three month follow-up. Correlations between pre and posttest were .65, between posttest and 3 month follow-up were .71 and between pre and 3 month follow-up were .59.

In line with some recent studies (e.g., DeRosier, 2004) the analytic strategy of examining change scores calculated by subtracting pre-treatment from post-treatment scores was adopted for this study. A change score was calculated for each child by subtracting the composite scores for the MESSY at follow-up from the pretest MESSY scores to give an overall measure of change. The difference between the pretest and follow-up score was used in the correlational analyses. If social skills improved this change score was positive.

2.3.1.2 Children's Attributional Style Questionnaire (CASQ; Seligman et al., 1984).

The CASQ was used to assess students' explanatory style. It is a 48-item measure of attributional style. Each item suggests an event and two possible explanations for why that event might have occurred. There are 16 items for each of three attributional dimensions (internal, global and stable) which are used to explain any particular event. For example, an event can be described in terms of internal or external causes, specific versus global situations or stable or temporary causes. Children are required to choose the alternative that best describes why the event (e.g., "All of your friends catch a cold except you") would happen to them (e.g., "I have been healthy lately", or "I am a healthy person"). The two explanations hold

two of the explanatory dimensions constant while varying the third. In the above example, internal and global dimensions are fixed, while the stable dimension is varied. Half of the events are positive and half are negative, so there are six subscales on the CASQ: the internality, stability and globality dimensions for good events; and the internality, stability and globality dimensions for bad events.

Composite explanatory style scores for both positive and negative events were calculated by adding together the child's scores on each of the three subscales for positive events and also each of the three subscales for negative events. Normative data are available for each of the two composite explanatory style scores (positive and negative) and the total CASQ score which is the score for negative events subtracted from the score for positive events.

In accordance with previous studies (e.g., Nolen-Hoeksema, Girus & Seligman, 1992), the total CASQ score was used in this study as an overall measure of explanatory style. Higher scores indicate a more optimistic explanatory style while lower scores indicate a more pessimistic style. Median coefficient alphas of .58 and .56 have been reported for the composite scale for positive and negative events respectively (Nolen-Hoeksema, Girus & Seligman, 1992). Test-retest reliability was assessed in the current study using the combined control group scores at pretest, posttest and three months follow-up. Correlations between pre and post test were .53, between post test and 3 month follow-up were .74 and between pre and 3 month follow-up were .45. Although similar to correlations reported for the separate composite scales in the above study, these are relatively low.

A change score was calculated for each child by subtracting the composite scores for the CASQ at follow-up from the pretest CASQ scores to give an overall measure of change. The difference between the pretest and follow-up score was used

in the correlational analyses. If attributional style improves this change score will be negative.

2.3.1.3 Social-Cognitive Skills Questionnaire (SSQ)

A 48-item questionnaire was developed for this study to assess whether students could initially demonstrate some of the specific social-cognitive skills that were to be taught in the program and to assess the retention and application of the skills taught. There is no theoretical model for the development of social skills, but for social skills to be effective it is necessary that children understand and retain what they are being taught and that they recognise and use opportunities to apply this knowledge and these skills. Lack of such integration may explain some of the mixed success of programs in the literature.

The questionnaire was based on the program objectives. Items reflected the module objectives and included questions relating to the student's understanding of internal dialogue, explanatory style, and behavioural responses to certain situations. For example, "I felt happy when..."; "Can you think of a time in the last two weeks when you were able to think some thoughts that made you feel good about a situation?" were items used to assess children's understanding of their affective state and whether they had applied cognitive restructuring and positive thinking techniques in the previous two weeks. Teachers reported that some of the questions were difficult for some students to comprehend and some students struggled to finish this questionnaire or include detailed answers. A copy of this measure can be found in Appendix B.

Students' answers were scored by awarding points when the student response met the required objective; for example, children who were able to name an example of a specific situation when they felt happy or indicate that they were able to think

positively about a situation in the previous two weeks were awarded full points for these items. Other items (e.g., “How often in the last two weeks did you think helpful thoughts that made you feel good about a situation?”; “I can think of some things that I do well and am good at”) were scored on a five point scale from 1 (*Never*) to 5 (*Almost all of the time*).

In order to assess to what extent the program met its objectives, total scores for items relating to the program objectives (e.g., identifying and expressing feelings, linking thoughts and feelings, ability to identify and express positive self-talk, problem-solving, formulating goals and behavioural social skills) were calculated out of a possible score of 117. A final composite score was calculated for each student by summing these totals. This questionnaire was administered at pre- and post-test. Test-retest reliability was assessed in the current study using the Year 5 control group scores at pre and post-test. Correlations between pre-and post-test were .75.

2.3.1.4 Intervention Evaluations

A program evaluation in questionnaire form was developed for this study. A copy of this measure can be found in Appendix C. Each questionnaire included 23 items and was completed at the end of the program module. Seventeen items provided evaluative data. For example, “What part of today’s session was most useful?”, “What part of today’s session was least useful?”, “What part of today’s module was most fun and why?”, “What was today’s module about?”

2.3.1.5 Child Health Questions

Another six items on the questionnaire assessed health-related and lifestyle variables such as whether the child had eaten breakfast that morning and what they ate, weekly exercise levels and tiredness (e.g., “Did you eat breakfast this

morning?"; "How many days last week did you do some exercise?"; "Please circle one of the following to indicate how tired you feel now"). For some questions the child was required to give a Yes/No response and for other questions the child was required to circle a response on a 5-point or 7-point scale.

Breakfast

A breakfast score was calculated for each student in the intervention groups which represented the average percentage of times students ate breakfast during the intervention. The number of times students participating in the program ate breakfast on the morning of the intervention was recorded over six or seven selected program modules. A total breakfast score was calculated for each student in the intervention groups which represented how many times that student had eaten breakfast across the six or seven program modules. Each time students completed a module evaluation during the intervention programs they were asked if they had eaten breakfast that morning and what they had eaten. If the child's answer was "yes" they scored one point. Missing values were replaced with the student's mean score (Tabachnick & Fidell, 1996). The number of positive responses was then summed, divided by the number of module assessments and this average was converted to a percentage.

Exercise

An exercise score was calculated for each student in the intervention groups which represented the average percentage of times students exercised each week of the intervention. Students were asked to circle the number of days out of seven that they engaged in physical exercise. They were also asked to list what exercise they had done. A total exercise score was calculated for each student in the intervention groups which represented how many times that student had exercised in the week

prior to the module they had just completed. Missing values were replaced with the student's mean score. These figures were summed to provide a total exercise score for the six or seven selected program modules and this score was averaged and then converted to a percentage.

Fatigue

A fatigue score was calculated for each student in the intervention groups which represented the average number of weeks students reported feeling tired or very tired after the module. Students were asked how tired they felt and were instructed to indicate on a scale of 1 to 5 (1 = "Not tired at all" and 5 = "Very tired"). Scores of 1, 2, and 3 were recoded to 0 and scores of 4 and 5 were recoded to one. Missing values were replaced with the student's mean score. These categories were summed and divided by the number of weeks that modules were collected for that group.

2.3.1.6 Life Events Questionnaire (LEQ; Coddington, 1972).

The Life Events Questionnaire used in the current study was an abridged version of the Coddington Life Stress Scale (Coddington, 1972), designed with age-appropriate questions for use with children (Nolen-Hoeksema et al.1992). The measure was included to assess the number of stressful life events experienced by the participants at the time of the study, as it was considered possible that these might impact on sociocognitive functioning or affect the efficacy of the intervention program. The LEQ includes 27 stressful life events that students may have experienced in the previous six and twelve months. The events range from major negative life events such as "A brother or sister has died" to more subjective events such as "Start of a new problem between your parents or stepparents". Students were instructed to tick those events that had happened to them, and their scores were

summed to provide an index of the total number of negative life events students experienced in the last 6 and 12 months. The 12-month sum total was used in this study.

Published validity data for this abridged version is unavailable but Nolen-Hoeksema et al. (1992) reported that higher levels of depressive symptoms were associated with more negative life events. Test-retest reliability over five years ranged from .20 to .87 due to the variance in the incidence of these events across the extended time period. According to Nolen-Hoeksema et al. as the scale is a checklist of independent items, internal consistency calculations are unnecessary.

2.3.2 Teacher Report Measures

2.3.2.1 Teacher Report Form (TRF; Achenbach, 1995).

The TRF for ages 5-18 was used to complement the MESSY and provide a teacher-report of students' internalising and externalising behaviour problems, adaptive functioning and academic performance. It is a 113-item scale that provides a picture of the child's classroom, behavioural and social functioning. It includes internalising and externalising factors and eight specific syndrome scales. The item scores reflect the teacher's judgement of whether the child manifested these particular problems over the preceding two months (e.g., Cries a lot; Shy or timid; Clings to adults or too dependent; Argues a lot). The scores on each item are summed to obtain a total score for each scale.

For the purpose of examining the clinical significance of the interventions in this study, teachers completed the Anxious/Depressed, Withdrawn/Depressed, Social Problems and Aggressive Behaviours syndrome scales of the TRF on all students at pretest. As teachers were reluctant to complete this measure for all students at posttest, only those students whose scores were elevated on these measures were

rated again at posttest. Adequate data were not collected to include this measure in full statistical analysis; however, clinical case discussions are provided in Appendix J.

To assess academic achievement, teachers were also asked to complete the academic performance section of the TRF and rate the student's performance against their peers in their academic subjects at pretest. Responses were rated on a 5-point scale ranging from 1 (*Far below grade*) to 5 (*Far above grade*). A total academic performance score was achieved by computing the child's mean score across the five teacher-rated subjects. This measure has been found to correlate highly with IQ in other studies (e.g., Smith & Prior, 1995).

Teachers were also required to rate the student's adaptive characteristics at pretest, posttest and follow-up, and they completed the other four questions from the adaptive functioning section of the TRF relating to school functioning (e.g., How hard is he/she working? How much is he/she learning?; How appropriately is he/she behaving?; and How happy is he/she?). Each student was compared to other students of the same age and responses were rated on a 7-point scale ranging from 1 (*Much less*) to 7 (*Much more*).

American normative data are available for academic performance and adaptive functioning to indicate a normal range, a borderline clinical range from the 93rd to the 98th percentile and a clinical range above this to determine the degree to which a child's scores deviate from those of their peers (Achenbach, 2001). The TRF has high retest reliability and validity. A coefficient alpha of .90 has been reported on the TRF Total Adaptive Scale, but coefficients are not reported for each of the TRF adaptive characteristics or Academic Performance because each one is based on only a single item. For the problem scales, coefficient alphas range from .72 to .95.

Test-retest reliability at mean intervals of 8 to 16 days ranges from .80 to .90. In addition, the TRF items have been found to discriminate significantly ($p < .01$) between demographically similar referred and non-referred children (Achenbach, 2001).

2.3.2.2 Facilitator Questionnaire

An 8-item questionnaire was developed for this study (See Appendix F) and given to facilitators to complete at the end of each program module. These evaluations provided information about any difficulties teachers experienced with delivering the program, including time constraints, implementation problems, effectiveness of each module, and suggestions for improvement (For example, “Were you able to deliver the module in the time stated?”; and “If not, which parts could you not deliver and what was the main reason?”; “Which parts of this module did the class enjoy most?”; “Do you have any suggestions for improving the delivery of this module in a classroom situation ?”).

2.4 The Aussie Optimism Program Administration

The Aussie Optimism program teaches social skills, social problem solving and optimistic thinking and can be delivered in two parts. The Optimistic Thinking Skills program comprises 10 modules covering skills such as recognising thoughts and feelings and the link between thoughts and feelings, cognitive restructuring, practising optimistic thinking and applying this to situations encountered in daily life. The Social Life Skills program also comprises 10 modules that cover recognising thoughts and feelings, communication skills including listening, conducting conversations and assertiveness, social problem-solving and decision-making, coping skills like relaxation and distraction, and the importance of social and family support.

In the current study, students in the Year 5 and year 6/7 control groups participated in their normal classroom instruction. The intervention program modules were conducted on a Friday for the two intervention groups. The intervention programs were administered during school time and lasted approximately 90 minutes. Both the Social Life Skills program and the Optimistic Thinking Skills program were administered over a 13-week period across two school terms. Each module contains a module overview and approximate times for delivery, information on the purpose of the module, the key message, teacher notes, information on cross-learning curriculum areas and materials needed. Each module began with a review of the skills and ideas introduced in the previous module, an introduction to the new module, information to help students process this, discussions and activities. During the module delivery, skills were taught using instruction, skits, games, role plays, stories and group discussion (Teacher Resource Manual, 2003). A summary of the program content for both intervention groups is presented in Table 2.2.

Table 2.2

Summary of Aussie Optimism Modules

<u>Optimistic Thinking Skills</u>	<u>Social Life Skills</u>
1 Awareness and identifying feelings	Identifying, expressing feelings, empathy
2 Awareness, identifying self-talk	Problem-solving and decision-making
3 Linking thoughts and feelings	Body language, verbal language, listening
4 Identifying thinking styles	Communication styles and assertiveness
5 Review and practice of skills learnt	Communication in social situations
6 Generating alternative thinking	Negotiation skills
7 Evaluating thoughts, generalisation	Coping skills e.g., relaxation, visualisation
8 Challenging pessimistic thoughts	Understanding support networks
9 Decatastrophising	Family support; managing difficult times
10 Review and evaluation	Coping with transition; review

2.5 Procedure

Approval was sought and granted from the principals of the schools in which the research was conducted. Approval to conduct this research project was also granted by the Murdoch University Human Research Ethics Committee (permit number 2004 162). School A was in the process of implementing the Aussie Optimism program at the school that year and some of the participating teachers had already received training in its administration. After the school had approved the study, meetings were held with the principal and deputy principal, class teachers and the school psychologist. They were informed of the nature and details of the study

and measures used. The eight teachers were also advised of questionnaire content and administration for the participating students at three testing times: before the program, immediately following the program and three months later. Parent information sheets and parent and child consent forms were sent out (See Appendix D for a copy of the parent information sheet and Appendix A for a copy of the consent forms).

The intervention program was conducted during the second and third term of 2004. The participating children from school A who were allocated to the no-treatment control group were tested at the same time intervals as the intervention groups, whereas the no-treatment control group from school B were tested during the third and fourth term of 2004 and again during first term of 2005. Testing of this group was delayed due to the difficulty of recruitment of participants to a no-treatment control group from schools where the program was not being offered. The intervening end of year school break occurred between the post-testing and follow-up time period of three months. While the difference in time of testing is not desirable, it was considered important to include the results from a group of students who were matched on age and social skills and would not be influenced by peers who were completing the intervention program at their school.

During the two weeks before the program each of the different class groups of participating students completed the four pretest questionnaires. Each group of students was administered the four questionnaires at the same time by their class teachers, and the six teachers were advised to complete the Teacher-Report Forms (Achenbach, 1995). Table 2.3 shows the timetable followed for program administration and data collection.

Table 2.3

Timetable of Data Collection and Aussie Optimism Administration for the Four Groups

Time	Optimistic Thinking	Social Life	Yr 5 Control	Yr 6/7Control
Term 2	1. Pretest	1. Pretest	1. Pretest	
May	MESSY,CASQ,	MESSY, CASQ,	MESSY, CASQ,	
2004	LEQ, SSQ, TRF	LEQ, SSQ, TRF	LEQ, SSQ, TRF	
	2. Program	2.Program		
	conducted	conducted		
	3. Evaluations	3. Evaluations		
Term 3	1. Program	1. Program	1. Posttest	1.Pretest
August	completion	completion	MESSY, CASQ	MESSY,
2004	2. Posttest	2. Posttest	SSQ, TRF	CASQ
	MESSY, CASQ,	MESSY, CASQ,		LEQ, SSQ,
	SSQ, TRF	SSQ, TRF		TRF
Term 4	1. 3-month follow-	1. 3-month follow-	1. 3-month	1. Posttest
November	up	up	follow-up	MESSY,
2004	MESSY,CASQ,	MESSY,CASQ,	MESSY, CASQ	CASQ,
	TRF	TRF		TRF

Term 1	1.3-month
February	follow-up
2005	MESSY, CASQ

Note. MESSY = Matson Evaluation of Social skills with Youngsters; CASQ = Children's Attributional Style Questionnaire; LEQ = Life Events Questionnaire; TRF = Teacher Report Form.

Prior to administration of the questionnaires, a form was given to each student explaining the nature of the program and the details of the study (see Appendix E). Standardised written instructions were used in administering the questionnaires, which were completed by the majority of students in approximately 90 minutes.

Throughout the program, students completed the module evaluations. Teachers were asked to administer evaluations after each module; however, on some occasions these were not administered. Teachers reported that time constraints and the fact that students were breaking for lunch just after the modules were completed made this difficult. The optimistic thinking skills group completed evaluations after modules 2, 4, 7, 8, 9 and 10. The social life skills group completed evaluations after modules 3, 5, 6, 7, 8, 9 and 10. At the end of each module, students completed the module evaluations and were instructed on homework activities which were to be completed prior to the next module. After completion of the program, posttesting was conducted during the following week and again three months later

The five teachers who facilitated the program modules were the class teachers for that year group and thus were the usual class room teachers for many of the students.

They followed the teacher resource manual for each component of the program and planned each session prior to the module each week.

2.6 Program Integrity

Program integrity was assessed with the evaluations and program checklists (see Appendix F for a copy of the questionnaire completed by facilitators and Appendix G for an example of a program checklist). Facilitators completed the evaluations at the end of each module. A total of twelve facilitator questionnaires were returned by teachers. Four checklists were completed by the researcher during the administration of the program in order to assess program implementation and fidelity. Four sessions, Module 3 and 7 (for the social life skills group) and Module 4 and 8 (for the optimistic thinking skills group) were observed and the checklist was used to record and monitor delivery time, session content and student attention. Evaluation consisted of:

Content Compliance

This was assessed by checking that each module was delivered according to the Module Overview in the Teacher Resource Manual. Content compliance was scored as the number of areas covered as a percentage of the total number to be completed. For the Optimistic Thinking Skills Program, total content compliance was 65%. For the Social Life Skills Program, total content compliance was 71%. Teachers reported that areas that were not covered during the module that was evaluated were completed in the following module. These percentages are comparable to the Roberts et al. (2003) study that reported content coverage for 12 sessions ranged from 41% to 97 % ($M = 74\%$).

Time

The time taken to deliver the module was measured. For both program groups, the time stated in the manual was allocated for administration of the module content by the teachers. However, teachers reported that time constraints meant that at times module coverage was incomplete.

Delivery

Any difficulty with organisation of materials, preparation, and activities was noted. For both groups, the researcher noted that the teachers were well-prepared, organised and inventive in the delivery of the activities. Six questionnaires were completed by the teachers who facilitated each program after the modules were administered. For the optimistic thinking skills group, five of the six modules evaluated were reported by teachers to have been delivered in 90 minutes and for the social life skills group all of the modules evaluated were reported to have been delivered in the time specified in the manual. It was noted that for the social life skills group, time constraints meant that teachers reported that some parts of the modules being assessed were delivered in the next session.

Student Attention and Participation

This was scored by checking one of three alternatives, (*“Full attention or participation, “Some not attending or participating” or “Most not attending or participating”*) during different time points throughout the module delivery. Attention/participation was scored with one mark for full attention/participation, half a mark for some not attending/participating and zero for most not attending/participating. A total student attention and participation score was calculated by summing these points across the two modules evaluated. The optimistic thinking skills group achieved a total student attention and participation

score of 78%. The social life skills group achieved a total student attention and participation score of 86%.

CHAPTER 3

RESULTS

3.1 Attrition Rate

All children attended the program modules unless they had left the school or were absent from school for the day. Some children did not complete all of the measures at each testing time and these scores were recorded as missing values and excluded from the analysis. The attrition rate for data collection at posttest was 1.2% with data collected from 82 of the 83 participants in the two treatment groups. The attrition rate in the combined control groups at posttest was 2.2% with data collected from 44 of the 45 participants. This represented a total attrition rate of 1.6%. The overall attrition rate at the three month follow-up data collection was equal to 3.9% with final data collected from 81 of the 83 participants in the treatment groups (2.4% attrition) and 42 of the 45 participants in the combined control groups (6.7% attrition). Of the five students from whom data were not collected at follow-up, four had left their school. The final sample at three months follow-up consisted of 123 children (96% of the original sample): 83 in the treatment groups and 42 in the control groups.

3.2 Data Screening and Assumption Testing

Prior to all analyses, the data were screened for correctness of data entry and missing values. The pattern of missing values was random and missing values were coded as such prior to ANOVA. The distributions of the outcome measures were also examined for normality for each testing period (See Appendix H and I for a printout of histograms). Measures of skewness and kurtosis indicated departures from normality at some of the testing sessions for some of the outcome measures. In general, ANOVA is quite robust to violations of normality (Howell, 1997).

Nevertheless the distribution of scores within each group and gender for each of the dependent variables was investigated at each of the testing times.

Inspection of boxplots revealed only two extreme scores outside of the criterion which was set at three or more box lengths above or below the 25th or 75th percentile of the distribution represented graphically by the upper and lower edge of the box (See Table 3.1). These two extreme scores were deleted and the analyses were conducted using both the complete data set and the transformed data set. No substantial difference was found between the results and therefore the results using the unmodified data set are reported (Tabachnick & Fidell 1996).

Table 3.1

Number of Extreme Scores and Percentage of Sample Deleted

Variable	Number of Scores	Percentage of Sample
Attributional Style	0	0%
Matson's Evaluation of Social skills	2	1%
Social-Cognitive Skills Questionnaire	0	0%

As the group sizes were unequal the default model (type III sums of squares) was used in all analyses. In addition, except for the exclusions above, no other changes were made to the data or analysis and unless stated, an alpha level of 0.05 was used for all statistical tests.

3.3 Pretest Differences and Preliminary Analyses

3.3.1 Control Group Differences

Prior to the main analysis, differences between the two control groups were assessed on the MESSY, the CASQ and the Social-Cognitive Skills Questionnaire

using 3 (time: pretest, posttest, follow-up) X 2 (condition: year 5 control vs... year 6/7 control group) repeated measures ANOVAs (See Table 3.2 and 3.3). As shown in Tables 3.2 and 3.3, there were no significant differences between the control groups on any of the dependent variables.

Table 3.2

Mean, (SD) Control Group Scores for Measures at Pretest, Posttest and 3-months Follow-up.

Measure	Year 5 control			Year 6/7 control		
	Time 1	Time 2	Time 3	Time 1	Time 2	Time 3
MESSY ^a	140 (25)	136 (20)	138 (25)	139 (16)	134 (18)	137 (25)
Social skills questionnaire ^c	71 (15)	66 (19)	--	70 (11)	70 (12)	--
Attributional style ^b	5.4 (5)	4.9 (6)	5.1 (6)	5.9 (3)	5.9 (3)	6.1 (5)

Note. MESSY = Matson's Evaluation of Social skills in Youngsters. ^a High scores indicate lower levels of social skills. ^b High scores indicate a more optimistic explanatory style. ^c High scores indicate higher levels of social and adaptive functioning.

Table 3.3

Analysis of Variance for Effects of Control Group and Time on Outcome Variables.

Variable and Source	<i>df</i>	F	<i>p</i>
Attributional Style			
Time	2,34	.175	.84
Group	1,35	.222	.80
Time X Group	2,34	.006	.94
Matson's Evaluation of Social Skills			
Time	2,35	.68	.51
Group	1,36	.001	.98
Time X Group	2,35	.11	.90
Social Skills Questionnaire			
Time	1,39	.71	.41
Group	1,39	.06	.80
Time X Group	1,39	.52	.47

3.3.2 Sample Comparisons

Matson's Evaluation of Social Skills in Youngsters

As shown in Table 3.4, children in the current study sample ($M = 137$, $SD = 22$) reported being less socially skilled than those reported by Pattison and Lynd-Stevenson (2001) ($M = 128$, $SD = 24$) in an Australian study using a sample of 66 year 5 and 6 primary school students. However, the current sample mean at pretest ($M = 143$ for males and, $M = 130$ for females) is comparable to American norms

reported for children aged between 9-12 ($M = 138$ for males and $M = 130$ for females) (Matson, 1994).

Children's Attributional Style Questionnaire

As can be seen in Table 3.4, for the sample as a whole, the pretest CASQ scores ($M = 5.9$, $SD = 5$) show that the children in this study reported being more optimistic than those reported by Cunningham et al. (1999) ($M = 4.1$, $SD = 5$) in an Australian study using a sample of 58 year 5 and 6 primary school students. The current figures are similar to those found by Nolen-Hoeksema, Girgus and Seligman (1992) ($M = 6.1$ for Grade 5 and 6 and $M = 6.2$ for Grade 7). They tested a large sample of American children over a five year period and reported the mean scores for both positive and negative events of children in Grade 5 and the same children in Grade 6 and 7.

Table 3.4

Means, Standard Deviations and Differences Between Three Samples at Pretest

Measure	Present Sample	Cunningham et al.,	Pattison & Lynd- Stevenson	<i>t</i>
MESSY ^a	137 ± 22	--	128 ± 24	2.62*
N	123	--	66	--
Attributional style ^b	5.9 ± 5	4.1 ± 5	--	2.30*
N	119	58	--	--

Note. MESSY = Matson's Evaluation of Social skills in Youngsters. ^a High scores indicate lower levels of social skills. ^b High scores indicate a more optimistic explanatory style.

* $p < .05$.

3.4 Design and Analysis

As there were no differences between the two control groups they were combined in subsequent analyses. Overall treatment effects on child-reported social skills and attributional style were analysed using 3 (condition: interventions vs. control) X 3 (time: pretest, posttest, follow-up) or 2 (pretest, posttest) X 2 (gender: male vs. female) mixed design factorial univariate repeated measures analyses of variance (ANOVAs). Overall treatment effects on teacher-reported social skills were analysed using non parametric analyses as these data were ordinal rather than interval.

Univariate ANOVAs were used in preference to multivariate analyses of variance (MANOVA) to allow comparison of the present results to those of previous studies (e.g., Jaycox et al. 1994; Pattison & Lynd-Stevenson, 2001; Roberts et al., 2003), and because pretest, posttest and follow-up data were not available for all students on all of the outcome variables. For effects that included the time factor, the multivariate solution was used to calculate F ratios (Vasey & Thayer, 1987).

The relationship between variables measured in this study was assessed using separate bivariate Spearman rank-order correlations to minimise the effect of outliers (Howell, 1997). All computations were conducted using SPSS Graduate Pack 11.5 for Windows statistical package.

3.5 Effects of Interventions on Social Skills and Attributional Style

The first three hypotheses of this study related to comparative effects between intervention groups and the other groups at posttest. The means and standard deviations for the intervention and control groups at the three testing times are presented in the top panel of Table 3.5 and tests of statistical significance are presented in Table 3.6.

Table 3.5

Means and Standard Deviations for Measures at Pretest, Posttest and 3-months Follow-up.

Measure	Social life skills (Yr 7) (<i>n</i> = 16 boys and 14 girls)			Optimistic thinking skills (Yr 6) (<i>n</i> = 22 boys and 21 girls)			Control (Yr 5/6/7) (<i>n</i> = 19 boys and 18 girls)		
	Time 1	Time 2	Time 3	Time 1	Time 2	Time 3	Time 1	Time 2	Time 3
MESSY ^a									
Boys	149 ± 20	136 ± 26	144 ± 36	138 ± 18	136 ± 23	146 ± 27	144 ± 20	138 ± 17	143 ± 24
Girls	130 ± 21	115 ± 14	121 ± 20	124 ± 19	126 ± 22	126 ± 25	136 ± 25	133 ± 21	132 ± 25
Social-Cognitive skills questionnaire ^b									
Boys	65 ± 11	62 ± 12	--	70 ± 9	67 ± 15	--	68 ± 13	62 ± 20	--
Girls	66 ± 8	72 ± 12	--	78 ± 8	73 ± 11	--	73 ± 14	71 ± 16	--
Attributional style ^c									
Boys	5.5 ± 6	4.3 ± 5	3.1 ± 6	4.5 ± 4	5.1 ± 3	4.2 ± 4	3.4 ± 4	3.6 ± 5	4.6 ± 5
Girls	5.8 ± 5	6.6 ± 3	6.6 ± 5	8.4 ± 5	6.7 ± 6	6.0 ± 5	7.7 ± 4	6.6 ± 6	5.9 ± 7

Note. MESSY = Matson's Evaluation of Social skills in Youngsters. --This measure was not administered at follow-up.

^a High scores indicate lower levels of social skills. ^b High scores indicate higher levels of social and adaptive functioning. ^c High scores indicate a more optimistic explanatory style

Table 3.6

Summary of Analysis of Variance and Contrasts for Effects of Group, Gender and Time on Social Skills and Attributional Style

Source	<u>MESSY</u>			<u>Social skills</u>			<u>Attributional style</u>		
	(<i>df</i>)	F	η^{2a}	(<i>df</i>)	F	η^{2a}	(<i>df</i>)	F	η^{2a}
Group	(2,107)	0.72	.01	(2,109)	2.47	.04	(2,104)	0.31	.01
Gender	(1,107)	12.70*	.11	(1,109)	10.46*	.09	(1,104)	11.09*	.10
Time	(2,106)	8.50*	.14	(1,109)	1.91	.02	(2,103)	0.94	.02
Pretest vs. posttest	(1,107)	15.60*	.13	--	--	--	(1,104)	0.55	
Posttest vs. follow-up	(1,107)	5.44*	.05	--	--	--	(1,104)	0.71	
Group X Gender	(2,107)	0.80	.02	(2,109)	0.19	.00	(2,104)	0.39	.01
Group X Time	(4,214)	3.83*	.07	(2,109)	1.50	.03	(4,208)	0.52	.01

Group X Pretest vs. posttest	(2,107)	7.43*	.12	--	--	--	(2,104)	0.11	
Group X posttest vs. follow-up	(2,107)	0.64	.01	--	--	--	(2,104)	0.99	
Gender X Time	(2,106)	1.86	.03	(1,109)	2.99	0.3	(2,103)	0.11	.00
Gender X pretest vs. posttest	(1,107)	1.03	.01	--	--	--	(1,104)	0.12	
Gender X posttest vs. follow-up	(1,107)	3.52	.03	--	--	--	(1,104)	0.03	
Group X Gender X pretest vs. posttest	(2,107)	0.81	.02	(2,109)	1.92		(2,104)	1.41	
Group X Gender X posttest vs. follow-up	(2,107)	0.23	.00	--	--	--	(2,104)	1.14	

Note. MESSY = Matson's Evaluation of Social skills in Youngsters; Social skills = Social-Cognitive Skills Questionnaire; Attributional Style = Children's Attributional Style Questionnaire.--The Social-Cognitive Skills questionnaire was administered at pretest and posttest only.

^a Partial Eta squared, not calculated for follow-up tests of non-significant main effects

* $p < .05$.

3.5.1 Social Skills

Matson's Evaluation of Social skills in Youngsters

In general, scores on the MESSY decreased from pretest to posttest, and then increased slightly from posttest to follow-up. However, the general trends differed among the groups. In particular, the Group X Time and the Group X Pretest vs. Posttest interactions were significant (see Table 3.6). Investigations of these contrasts indicated that MESSY scores decreased from pretest to posttest in the social life skills group, $t(32) = 5.24, p < .01$ (See Figure 3.1). In contrast, there were no significant differences between pretest and posttest scores for the optimistic thinking skills or the control groups, $t(46) = 0.21$, not significant, and $t(40) = 1.33$, not significant, respectively. There were also no significant differences between the three groups at pretest, $F(2,122) = 1.20, p > .05$, or posttest, $F(2,123) = 2.69, p > .05$. The first hypothesis of this study that social skills would increase from pretest to posttest for the social life skills group but not the optimistic thinking skills group or the control groups was supported.

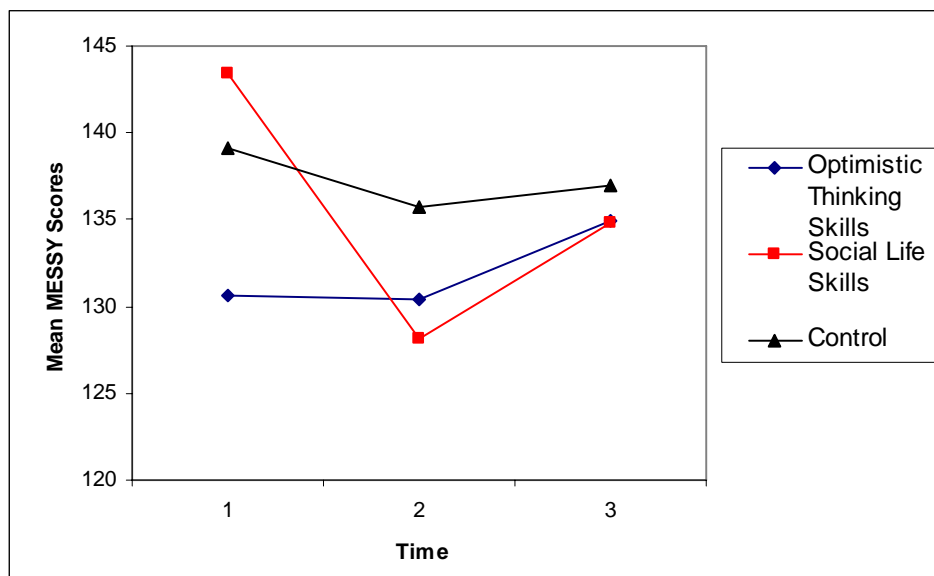


Figure 3.1. Mean MESSY scores for the intervention and control groups at Pretest, Posttest and 3 months Follow-up. High scores indicate lower levels of social skills.

Boys reported significantly worse social skills than girls ($M = 141$, $SE = 3$ and $M = 127$, $SE = 3$, respectively, $F(1,107) = 12.70$, $p < .05$). However, gender did not interact with any of the other factors, indicating that the interventions had similar effects on boys and girls.

Social-Cognitive Skills Questionnaire

The means and standard deviations for the intervention and control groups at the two testing times are displayed in Table 3.5 and tests of statistical significance are presented in Table 3.6. As shown in Table 3.5, there was a main effect for gender but no other main effects or interactions, indicating that there was no evidence that participation in the intervention groups had greater impact on this measure. Thus, second hypothesis of this study that retention and application of the social and social cognitive skills taught in the program would increase from pretest to posttest for the intervention groups but not the control groups was not supported. However, boys reported significantly worse social-cognitive skills (those specifically targeted by the program) than girls ($M = 66$, $SE = 1$ and $F = 72$, $SE = 2$, respectively).

3.5.2 Attributional Style

Children's Attributional Style Questionnaire

The means and standard deviations for the intervention and control groups at the three testing times are displayed in the bottom panel of Table 3.5 and tests of statistical significance are presented in Table 3.6. As shown in Table 3.6, there was a main effect for gender but no other main effects or interactions, indicating that there was no evidence that participation in the intervention groups had greater impact on attributional style. Thus, the third hypothesis of this study that attributional style would become more positive from pretest to posttest for the optimistic thinking skills group but not the social life skills group or the control groups was not supported. However, boys reported a more

pessimistic attributional style than girls ($M = 4.5$, $SE = 1$ and $F = 7.0$, $SE = 1$, respectively).

3.5.3 Teacher Ratings of Adaptive Behaviour

Effects of teacher-reported social skills were analysed using the Friedman and the Kruskal-Wallis Tests as these data were ordinal rather than interval. As only the teachers of students in the year 5 control group completed a 3-month follow-up assessment, separate analyses were conducted using this subgroup in order to investigate group differences over a longer time period (see Table 3.8). The means and standard deviations for the intervention and control groups at the three testing times are presented in Table 3.7. Gender was not included as a factor in these analyses because of the limited capacity to investigate interactions in non-parametric analyses.

Teacher Report Form- Effort

In general, scores for student effort on the teacher-report form increased over time (see Table 3.7). However, there were no significant differences between the groups at any of these time points. The results of the Friedman test indicated that there were significant differences across the three time periods (see Table 3.8) with follow-up scores receiving the highest ranking followed by posttest scores.

Teacher Report – Learning

As can be seen in Table 3.7, teachers generally reported that student learning increased over time. However, there were no significant differences between the groups. The results of the Friedman test indicated that there were significant differences across the three time periods (see Table 3.8) with follow-up scores receiving the highest ranking followed by posttest scores.

Table 3.7

Means and Standard Deviations for Measures at Pretest, Posttest and 3-months Follow up

Measure	<u>Social life skills (Yr 7)</u>			<u>Optimistic thinking skills (Yr 6)</u>			<u>Control (Yr 5)</u>			<u>Control (Yr 6/7)</u>	
	Time 1	Time 2	Time 3	Time 1	Time 2	Time 3	Time 1	Time 2	Time 3	Time 1	Time 2
Teacher Report- Effort	4.3 ± 1.2	4.3 ±	4.6 ±	4.3 ±	4.6 ±	5.0 ±	4.8 ±	4.9 ±	5.3 ±	4.0 ±	4.2 ±
		1.0	1.5	1.1	1.1	1.4	1.3	1.4	1.1	1.6	1.4
Teacher Report- Learning	4.4 ±	4.2 ±	4.4 ±	4.4 ±	4.6 ±	4.9 ±	4.5 ±	4.7 ± 1.2	4.9 ±	4.1 ±	4.3 ±
	1.1	1.0	1.4	0.9	1.0	1.2	1.2		1.1	0.9	0.7
Teacher Report- Behaviour	4.5 ±	4.4 ± 0.9	5.0 ±	4.4 ±	4.6 ±	4.8 ± 1.5	5.2 ±	5.0 ±	5.1 ±	4.3 ±	4.7 ±
	1.2		1.5	0.9	1.2		1.5	1.6	1.4	1.4	1.3
Teacher Report- Happiness	4.5 ± 1.0	4.4 ±	4.6 ±	4.4 ±	4.5 ±	4.7 ±	5.2 ±	5.3 ±	5.0 ± 1.2	4.6 ±	5.3 ±
		0.9	1.3	0.6	0.8	1.2	1.1	1.3		1.1	1.4

Note Higher scores indicate higher levels of teacher-reported adaptive functioning. Scores ranged between 1 and 7.

Table 3.8

Summary of Non-Parametric Analyses for Effects of Three Groups and Time on Teacher- Reports of Adaptive Behaviour

Source	Effort	Learning	Behaviour	Happiness
	(df) χ^2	(df) χ^2	(df) χ^2	(df) χ^2
Time ^a				
Yr 5 Control and Intervention Groups	(2) 27.76*	(2) 10.23*	(2) 14.52*	(2) 2.01
Yr 6/7 Control and Intervention Groups	(1) 0.11	(1) 0.0	(1) 0.35	(1) 1.00
Pretest X Group ^b				
Yr 5 Control and Intervention Groups	(2) 3.02	(2) 1.15	(2) 9.02*	(2) 15.10*
Yr 6/7 Control and Intervention Groups	(2) 0.65	(2) 1.02	(2) 0.23	(2) 0.52
Posttest X Group ^b				
Yr 5 Control and Intervention Groups	(2) 5.48	(2) 4.12	(2) 3.47	(2) 12.83*
Yr 6/7 Control and Intervention Groups	(2) 1.66	(2) 2.38	(2) 0.27	(2) 3.29
Follow-up X Group ^b				
Yr 5 Control and Intervention Groups	(2) 3.56	(2) 2.50	(2) 1.03	(2) 1.03

Note ^a Friedman Test ^b Kruskal-Wallis Test

* $p < .05$

Teacher Report–Behaviour

In general, teachers reported that student behaviour improved over time. The results of the Friedman test indicated that there were significant differences across the three time periods (see Table 3.8) with follow-up scores receiving the highest ranking followed by pretest then posttest scores. A Kruskal-Wallis test indicated that there were significant differences between the intervention and Year 5 control groups at pretest. Teachers of the Year 5 control group children reported that they were better behaved than children in the social life skills group who were in turn, better behaved than students in the optimistic thinking skills group.

Teacher Report-Happiness

In general, teachers reported that student happiness remained reasonably stable over the three time periods (see Table 3.7). Kruskal-Wallis tests indicated that there were significant differences between the intervention and Year 5 control groups at pretest and posttest. Teachers of the Year 5 control group children reported that at pretest, they were happier than children in the social life skills group who in turn, were happier than students in the optimistic thinking skills group. At posttest, children in the Year 5 control group also received the highest ranking followed by children in the optimistic thinking skills group then children in the social life skills group. However, the fourth hypothesis of this study, that adaptive behaviour would increase from pretest to posttest for the treatment groups but not the control groups, was not supported.

3.5.4 Social Skill Correlates

To test the final hypothesis of this study, correlational analyses were performed. In order to minimise the effect of outliers, Spearman's rank-order

correlations were calculated between the dependent and independent variables measured in this study. Table 3.9 shows the intercorrelations between breakfast, exercise, tiredness and life events scores and the changes in dependent variables measured in this study from pretest to follow-up. Correlations between all the variables measured in this study are displayed in Appendices K and L.

Table 3.9

Correlations between Child Health Factors, Change Scores on Dependent Variables and Pretest Measures

Measure	Breakfast	Exercise	Fatigue	Life Events
Child reports				
1. Children's attributional style	.27*	-.02	-.03	-.16
2. Attributional style change ^a	.13	-.10	.03	-.02
3. Matson's evaluation of social skills	-.14	-.06	-.07	.05
4. Social skills change ^b	.34**	.13	.28*	-.02
5. Social skills questionnaire	.21	.01	.00	.04
6. Anxious/Depressed	-.12	-.13	.12	.05
7. Withdrawn /Depressed	-.31*	-.19	.10	-.00
8. Social problems	-.11	-.36**	.00	.15
9 Aggressive behaviour	-.01	.06	.06	.13
Teacher reports				
1. Teacher report form-effort	.27*	.08	-.05	-.14
2. Teacher report form –behaviour	.23	.12	.00	-.18
3. Teacher report form –learning	.27*	.08	-.01	-.17
4. Teacher report form –happiness	.18	.20	.04	-.22*
5. Teacher report- academic	.37**	.12	-.05	-.27**

Note ^a Pretest CASQ score minus follow-up CASQ score. ^b Pretest MESSY score minus follow-up MESSY score. *Correlations are significant at $p < .05$. **Correlations are significant at $p < .01$

As shown in Table 3.9, significant correlations were found between the number of times students ate breakfast throughout the program and social skills change, attributional style, teacher-rated academic performance, effort, learning and

depressive symptoms. Associations between teacher-rated social skills and the number of times students exercised during the program and tiredness and program efficacy were also found. In addition associations were found between teacher-rated happiness and academic performance and stressful life events. These significant correlations will be discussed below.

Breakfast

The average percentage of times students ate breakfast throughout the program can be seen in Figure 3.2.

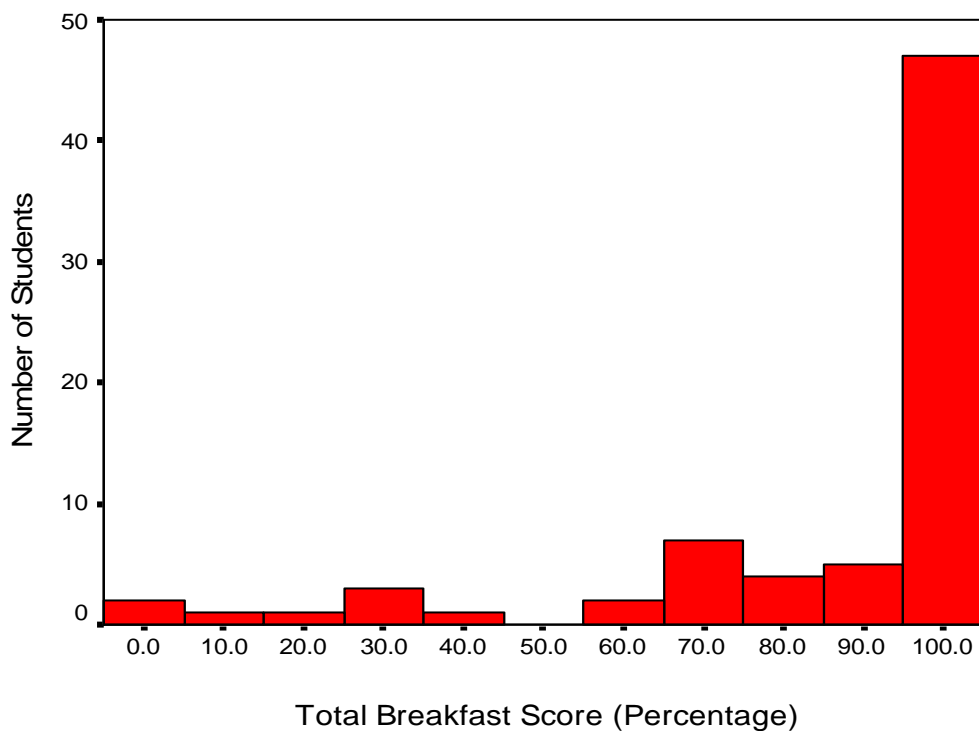


Figure 3.2 Average percentage of times students ($n = 73$), in both intervention groups ate breakfast during the intervention.

As can be seen in Figure 3.2, only 47 of the 73 (approximately 64%) of children participating in the intervention programs reported eating breakfast every morning prior to the six or seven program modules (when module evaluations were conducted). A further sixteen children reported eating breakfast between 60-100% of

the time. Two children reported eating breakfast approximately half of the time. Six children reported eating breakfast less than 50% of the time and two children reported not eating breakfast prior to any of the six or seven program modules. As shown in Table 3.9, high breakfast scores were associated with increases in social skills from pretest to follow-up ($r_s^2 = .12$), and with lower scores on the teacher-rated withdrawal and depression scale ($r_s^2 = .10$). Teacher-rated academic performance at pretest was strongly positively correlated with total breakfast scores ($r_s^2 = .14$). As can be seen in Table 3.9, a positive attributional style and the teacher-rated measures of student effort and learning were also weakly positively correlated with the percentage of times students had eaten breakfast. After correcting for unreliability these correlations were higher (.34 for student effort and learning and the percentage of times students had eaten breakfast and .51 for total breakfast score and attributional style (Nunnally & Bernstein, 1994).

Exercise

The average percentage of times students exercised each week throughout the intervention is displayed in Figure 3.3.

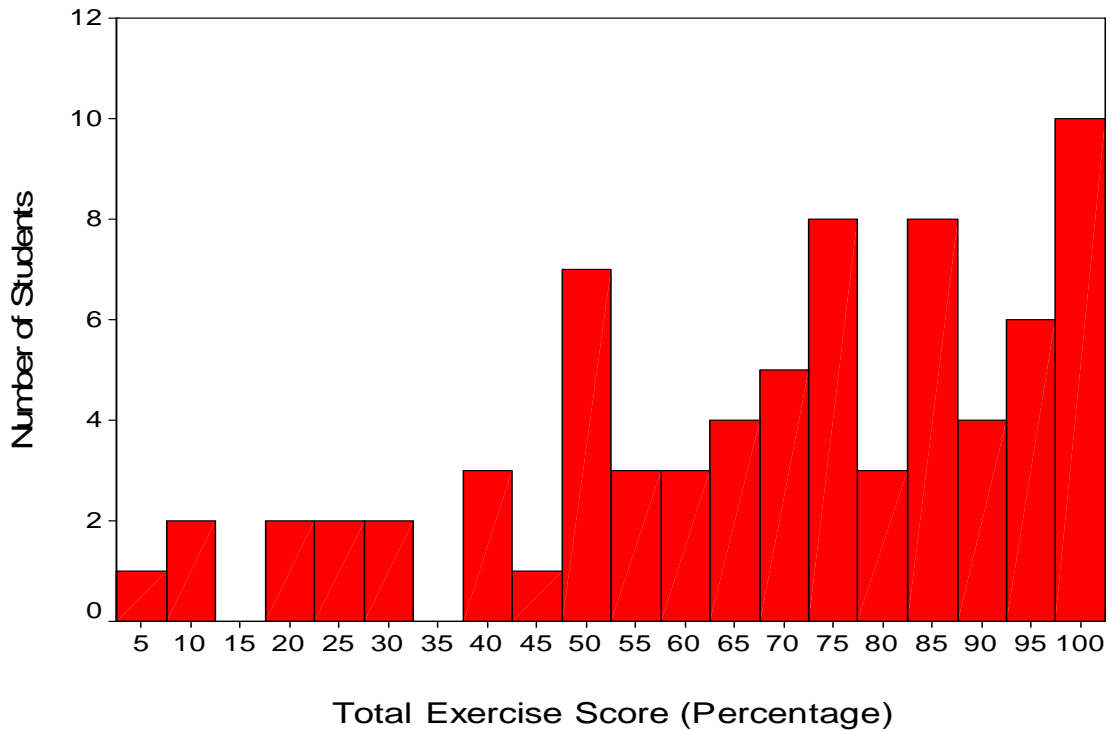


Figure 3.3 Average percentage of times students in both groups ($n = 74$) exercised each week during the intervention

As can be seen in Figure 3.3, ten children reported exercising daily and most children reported exercising more than 35% of the time. As can be seen in Table 3.9, this measure was correlated negatively with teacher-rated social problems. Thus, higher exercise levels were associated with fewer teacher-rated social problems ($r_s^2 = .13$). However, exercise did not correlate with program efficacy.

Fatigue

The average number of times students reported feeling “quite tired” or “very tired” throughout the program was used in the correlational analyses. As can be seen in Table 3.9, this measure was negatively correlated with program efficacy although this correlation was weak ($r_s^2 = -.08$).

Life Events

The number of stressful life events experienced by students over the twelve months prior to the study was used in correlational analysis ($M = 1.63$, $SD = 2.02$). Seventeen students reported more than three stressful life events over the previous twelve months with two students reporting six, four students reporting seven and one student reporting eleven. As can be seen in Table 3.9, the number of stressful life events experienced by students over the twelve months prior to this study was negatively correlated with teacher ratings of happiness and mean academic performance at pretest. More stressful life events were associated with lower teacher-ratings of happiness and academic performance although these correlations were modest ($r_s^2 = .05$ and $.07$, respectively).

3.6 Summary of Study Results

The present research aimed to assess the effects of the two components of the Aussie Optimism program on enhancing social behaviour in late childhood. Children were assessed with self-report and teacher-report measures of social skills, adjustment and explanatory style. In addition, self-report and teacher-report measures of stressful life events, academic performance and health-related variables were examined. Hypothesis one, that social skills would increase from pre-test to posttest for the social life skills group and not the optimistic thinking skills group or the control group, was supported. Investigation of contrasts showed significant improvements in self-reported social skills on the MESSY for the social life skills group from pretest to posttest, but not at follow-up. The changes over the course of the study in the other two groups were not significant, thus confirming the differential impact of the social skills component of the intervention. In addition, there was a difference between boys and girls on both outcome measures with boys reporting significantly worse social skills than girls. The second hypothesis of this study was that retention and application of the social and social cognitive skills taught in the program would increase from pretest to posttest for the intervention groups and not the control groups. This hypothesis was not supported. The third hypothesis, that attributional style would be more positive for the optimistic thinking skills group at posttest when compared to the other two groups, was not supported. Adaptive behaviour was expected to be better for the intervention groups at posttest when compared to the control group. However, on most measures of adaptive functioning improvements were noted over time for the two intervention and the year 5 control groups, so this hypothesis was not supported.

It was expected that improvements in social skill across the course of the program would be positively correlated with physical exercise, breakfast scores and negatively correlated with fatigue. This hypothesis was partially supported. Eating breakfast on the morning of the intervention was strongly associated with increases in social skills from pretest to follow-up and less strongly with lower scores on the teacher-rated withdrawal and depression scale. In addition, teacher-rated academic performance at pretest was also positively correlated with total breakfast scores. Measures of student effort and learning and a positive attributional style at pretest were also positively correlated with total breakfast scores although these correlations were modest. Higher exercise levels were associated with fewer teacher-rated social problems at pretest, and tiredness was negatively correlated with program efficacy although this correlation was weak. Stressful life events were negatively correlated with teacher-rated happiness and academic performance.

CHAPTER 4

DISCUSSION

This study assessed the effects of the cognitive-behavioural and cognitive components of a school-based prevention program aimed at enhancing social behaviour in late childhood. In previous studies, implementing variations of this program in Australia with children aged between 9 and 13 years old has produced limited changes in cognitive explanatory style and limited generalisation of treatment effects to social behaviour (Roberts et al., 2003; Pattison & Lynd-Stevenson, 2003). In the present study, children who received the social life skills program reported improved social skills at posttest but not follow-up. The first hypothesis of this study, that social skills would increase from pretest to posttest for the social life skills group and not the optimistic thinking skills group or the control groups, was supported.

However, the second hypothesis of this study, that retention and application of the social and social cognitive skills taught in the program would increase from pretest to posttest for the intervention groups and not the control groups, was not supported. Previously, Pattison and Lynd-Stevenson (2003) found no significant effects on social skills for children with a similar school-based prevention program. However, consistent with the results from this study, no intervention effects were found for explanatory style. The third hypothesis of this study, that attributional style would become more positive from pretest to posttest for the optimistic thinking skills group and not the social life skills group or the control groups, was not supported. In addition, this study found no intervention effects for teacher-rated measures of behaviour or adjustment. The fourth hypothesis of this study, that

adaptive behaviour would increase from pretest to posttest for the treatment groups and not the control groups, was also not supported.

Eating breakfast on the morning of the intervention was moderately associated with increases in social skills from pretest to follow-up and less strongly with lower scores on the teacher-rated withdrawal and depression scale assessed at pretest. Teacher-rated academic performance at pretest was also positively correlated with total breakfast scores. Measures of student effort and learning and a positive attributional style at pretest were also positively correlated with total breakfast scores although these correlations were not strong. Higher exercise levels were associated with fewer teacher-rated social problems at pretest, and tiredness was negatively correlated with program efficacy, as measured by change scores on the MESSY from pretest to follow-up. The final hypothesis of this study, that program efficacy would be positively correlated with physical exercise, stressful life events and breakfast scores and negatively correlated with fatigue was partially supported. These results are consistent with a number of previous correlational studies that have shown a relationship between hunger and exercise and physical and mental health (Kleinman et al., 1998; Penedo & Dahn, 2005; Weinreb et al., 2002) and stress, academic performance and adjustment (Norwicky & Duke, 1992, Feshbach & Feshbach, 1987; Malecki & Elliott, 2002).

An analysis of the relationship between the study measures (See Appendix K and L) showed high significant correlations between social skills, optimistic explanatory style and exercise, optimistic explanatory style and teacher-reported adaptive functioning and academic performance. These findings merge well with previous research (Norwicky & Duke, 1992; Feshbach & Feshbach, 1987; Malecki &

Elliott, 2002; Penedo & Dahn, 2005; Segrin, 2000). This chapter will interpret and discuss these results and the implications of these findings.

4.1 Social skills

The present study demonstrated that the Aussie Optimism social life skills program increased the social skills of participating children as measured by the MESSY from pretest to posttest but these changes were not maintained at follow-up. The optimistic thinking skills component of the program did not improve the self-reported social skills of participating children. These results and longitudinal research that shows that most children with behavioural or emotional dysfunction prior to adolescence have had difficulties for many years, highlights the importance of such interventions (Prior et al., 2001). However, consistent with previous research, generalisation of social skills outside of social skills training programs has been problematic (Beelmann et al. 1994; Gresham, 1985). A focus on enhancing maintenance and generalisation of gains provided by the program would assist in the reinforcement and retention of learned skills over time.

As expected and consistent with previous literature, girls reported better social skills than boys (Pattison & Lynd-Stevenson, 2001). However, there was no evidence that the intervention program had a differential impact on boys and girls. The results of this study are also consistent with the conclusions of previous meta-analytic reviews that suggest that short-term outcomes are better than long-term outcomes when training children in social skills (e.g., Beelmann et al., 1994; Gresham, 1985). A lack of generalisation and maintenance with social skills training has been a consistent finding of large meta-analytic reviews. The findings of the current study are also consistent with other school-based studies with universal non-

targeted samples (Elias et al., 1986; Hepler, 1994; Hepler & Rose, 1988; Le Croy & Rose, 1986; Sawyer et al., 1997).

The findings of the current study support the premise that intervention components such as affective education, problem-solving, assertive communication skills and coping skills such as relaxation, visualisation and distraction when taught to non-targeted children in a school setting improve self-reported social behaviour, at least in the short-term (Denham & Almeida, 1987; Elias et al., 1986). Further, for this sample of children, teaching intervention components such as affective education and cognitive restructuring did not generalise to self-reported social behaviours. This lends some support to the argument that a focus on training social-cognitive skills in isolation is not sufficient to generalise to social performance (Ogilvy, 1994).

While it is not apparent which component or combination of interventions included in the social life skills program contributed to the outcome, the results of this study support previous research and the underlying theoretical assumptions that has found the combination of problem-solving with other cognitive-behavioural intervention components is more successful at influencing social skills (Beelmann et al., 1994). While a direct comparison with other studies is difficult due to different methodology and various different ways of reporting effect sizes, the medium intervention effect size ($d = 0.60$ i.e., pretest mean for the social life skills group - posttest mean divided by the mean standard deviation of the outcome measure) found in this study can be compared to other studies (Kinnear & Grey, 2004).

For example, Durlak and Wells (1997) reported a small mean effect size of ($d = 0.36$) across universal non-targeted studies that included samples of children aged 7-11 when teaching interpersonal problem-solving. Denham and Almeida (1987)

reported a strong mean effect size ($d = 0.75$) across studies, supporting their hypothesis that social behaviour at posttest was more positive for children trained in social problem-solving than those that were not. Further Beelmann et al. (1994) reported a small weighted mean effect size ($d_+ = .31$) for children aged 9-11 with no indicated problems from studies that used ratings of social behaviour (albeit not self-ratings for which lower effects were reported). The improvement in self-rated, observable social skills at the completion of the Social Life Skills program found in this study is particularly encouraging given that one of the criticisms of social skills training with children has been the lack of generalisation of training to change in actual social behaviour. An improvement in social behaviour can be achieved in the short-term which generalises beyond the social cognitive and interaction skills targeted by this program (Beelmann et al. 1994).

The positive posttest results of this study are inconsistent with those of Pattison and Lynd-Stevenson (2001) who employed very similar programs and found no differential effects on social skills as measured by the MESSY of the two program components at posttest. The authors of this study suggested that this was possibly the result of limited statistical power due to small sample sizes and using a universal sample of non-symptomatic children, leaving little scope for improvement on outcome measures.

Although a direct comparison with previous studies is precluded by different methodology and statistical procedures, other factors could have also contributed to the results of the present study. Firstly, while there were no significant differences between the groups on the MESSY at pretest, sixteen children in the social life skills group scored above the mean, perhaps leaving more scope for these children to improve their social skills. At posttest seven of these children remained

above the mean although their social skills had improved and only two reported that their social skills were relatively unchanged. The overall pretest mean in the current study was slightly higher than American norms reported for children aged between 9-12. It was also higher than the pretest mean reported by Pattison and Lynd-Stevenson, (2001) who used a sample of Australian students of a similar age.

Secondly, the findings of the present study suggest that a long follow-up assessment does not reveal continued generalisation and maintenance of learned social skills. A lack of maintenance with social skills training has been a consistent finding of large meta-analytic reviews and this aspect needs to be considered if appropriate modifications are to be made to future programs. This also points to the need for greater focus on self-directed rehearsal in the classroom, increasing practise in different environments outside of the classroom, reinforcement or extending the length of the program. In addition, Baer (1989 as cited in Beelmann et al., 1994) advocated more emphasis on children's social environment in training programs and including this in intervention components.

Thirdly, it is also possible that participation in the program increased children's expectations of their own social skills and resulted in a lower self-report score at the second assessment. Roberts et al. (2004) concluded that one explanation for the decline in appropriate social skills at 30-month follow-up assessment in that study was due to intervention students expecting more of themselves socially as a result of the program.

The second hypothesis of this study, that retention and application of the social and social cognitive skills taught in the program would increase from pretest to posttest for the intervention groups and not the control groups, was not supported. However, given the improvement in self-reported social skills the most probable

explanation for this is the methodological limitations of the measure used to assess these concepts. While based on the program objectives, teachers reported that many children had difficulty completing the questionnaire and it is suggested future research could identify and investigate the salient cognitive developmental factors that impact on intervention outcomes and evaluate individual differences in retention and application of skills taught in the program.

4.2 Attributional Style

No significant differences were found between the groups on attributional style, so no intervention effects were found for explanatory style. These results do not support the hypotheses of the study, that attributional style would be more positive for the optimistic thinking skills group at posttest when compared to the other two groups, and accord with previous research using targeted samples (Jaycox et al., 1994; Roberts et al., 2003) and a universal non-targeted sample (Pattison & Lynd-Stevenson, 2001).

Previous research with children aged between 9 and 13 years old has revealed limited changes in cognitive explanatory style. In the Pattison and Lynd-Stevenson (2001) study, mid-point assessments were conducted after similar-aged children received the two program components assessed in the present study. They found no evidence that either the cognitive or social component or a combination of both components impacted on attributional style. However, attributional style in their study was measured using the Cognitive Triad Inventory for Children. Children who participated in the intervention program in the Roberts et al. (2003) study reported more optimistic explanations for positive events at posttest. In the present study composite scores were used in the analysis, so changes in the factor scores were not assessed although overall explanatory style was unchanged at posttest or follow-up.

The overall score on the CASQ is calculated when the score for negative events is subtracted from the score for positive events. High scores for positive events increase the overall score while high scores on negative events decrease the overall score, so changes in children's optimistic explanations for positive events would be reflected by changes in the overall score at posttest.

The findings of this study are inconsistent with Cunningham et al. (1999) who evaluated the effects of a universal school-based preventative program using similar cognitive techniques to those employed in the optimistic thinking skills group with children aged 9-12. Children participating in this program reported improvements in their explanatory style as measured by the CASQ. However, no comparison or control group was used. Hains and Szyjakowski (1990) also found short and longer-term gains in positive cognitions and self-esteem for older adolescents by teaching cognitive restructuring procedures, although their focus was on addressing stressors identified by the participating adolescents. Both components of the Aussie optimism program contain cognitive techniques, although the optimistic thinking skills component focuses on affective education and children's interpretations of cognitions.

According to Jaycox et al. (1994) this component attempts to correct depressogenic cognitions while the social life skills component teaches children actions and processes to solve problems. It is possible that cognitive factors influence other outcomes; for example, they could improve acceptance and/or performance rather than mediate treatment effects (Blonk et al., 1996). As these outcomes were not addressed in this study future research could identify and investigate the salient factors that may impact on intervention outcomes (for example, increased confidence when dealing with problems or improved ability to

handle conflict). An important consideration for future research would be to assess which skills are learned from the program. Including an emphasis on children's own social problems and environment in training programs and including this in intervention components is an important consideration for future program development (Baer, 1989 as cited in Beelmann et al., 1994)

One explanation for the results of the present study is that the pretest CASQ scores for this sample were more optimistic than those found by Cunningham et al. (1999) raising the possibility of floor effects. However, the lack of significant changes in attributional style using targeted samples (Jaycox et al., 1994; Roberts et al., 2003) suggests that this is not the case. Secondly, as previously mentioned, cognitive developmental level may have influenced the results as the younger children received the optimistic thinking skills program and may have been developmentally less advanced. The study by Hains and Szyjakowski (1990) would support this as they found short and longer-term gains in positive cognitions and self-esteem for older adolescents by teaching cognitive restructuring procedures. However, findings from a recent study by Pincus and Friedman (2004) suggest that younger children (aged 8-11) can be taught cognitive processes over a very short period of time, and this results in an increase in the number of coping strategies they can generate. However, the focus of the cognitive-affective education intervention evaluated in this study was to teach children affective education but also several specific methods to deal with emotional aspects of a situation and how to *apply* these to everyday stressful situations rather than modifying thoughts and feelings.

Cognitive development has been hypothesised to impact on the effect of cognitive behavioural interventions, particularly more complex cognitive interventions requiring very effective use and understanding of language (Harris &

Ferrari, 1983; Wasserman, 1983). In general, metatanalytic reviews have reported small effect sizes for children aged 7-11 who receive affective education (Durak & Wells, 1997). Age has been found to be a moderator of treatment outcome for all forms of CBT (Durlak et al., 1991). The magnitude of effect for children aged between 11 to 13 in Durlak's study was almost twice that of children aged from 8 to 11. Weisz et al. (1995) also reported a larger mean effect size for studies treating children aged 12 and over than for children aged 11 and younger, and Beelmann et al. (1994) found lower effect sizes for children aged 6-11 years.

In the current study, children in different grades were assigned to different groups. All of the children in the social life skills group were over 11 years of age while some of the children in the optimistic thinking skills group were 10 years of age. While cognitive developmental level rather than age appears to be critical, it is possible that some younger children are developmentally less able to perform and integrate their own and others perceptions, cognitions and self-statements, and the link between thought and action particularly in a group setting.

It is also possible that learning the skills taught in the program does not change attributional style or, alternatively, the CASQ is not a reliable measure of attributional style or attributional style change. Test-retest reliability in this study (although similar to that reported for the separate composite scales in other studies), was relatively low. There are also some methodological difficulties with how attributional style is measured in children. Nolen-Hoeksema et al. (1992) have questioned the reliability of self-report measures of attributional style in children, and Teasdale (1999) argues that with adults, the negative and positive scenarios presented in the adult version of the Attributional Style Questionnaire may act as probes that activate depressive or optimistic processing, so scores reflect this rather

than an underlying fixed style. In general, metatanalytic reviews have reported small effect sizes for behavioural and/or cognitive training for non-symptomatic children when outcome measures are self-rated (Beelmann et al., 1994). Future study could address these difficulties by using outcome measures that are more sensitive to possible cognitive changes and elucidate difficulties with teaching and retention (e.g., focus groups or interviews with children) or application and generalisation of cognitions to situations.

Jaycox et al. (1994) concluded that children who were at-risk for depression used learned skills to stop depressive symptoms occurring in the future and that small changes in explanatory style (children's ability to attribute temporary causes to negative events) mediated the treatment and preventative effects on depressive symptoms. They hypothesise that this aspect of explanatory style has a maintaining role in depressive symptoms as has been found for adults. The present study employed a universal sample of children and did not assess changes in this aspect of explanatory style. Finally, there was a small difference between the groups when assessed on compliance with the content of the intervention manuals. For the optimistic thinking skills group, total content compliance was equal to 65%. For the social life skills group, total content compliance was equal to 71%. These percentages are comparable to the Roberts et al. (2003) study that reported a large variation in the content coverage over 12 sessions and a range from 41% to 97 %.

4.3 Adaptive Behaviour

In general teachers of the two intervention group and the year 5 control group reported improved effort, learning, and behaviour of students from pretest to follow-up. The mean scores across all groups for most measures of adaptive behaviour improved over time; however, student happiness remained relatively stable. In

addition, no significant differences were found between the groups. These results were unexpected as students in the social life skills group reported significantly greater gains in social skills when compared to gains in the other three groups at posttest. While a direct comparison is precluded by different methodology and statistical procedures, these results are consistent with previous researchers who have found no intervention effects on parent or teacher-reported behavioural problems as measured by the TRF and CBCL but improved social behaviour, of children (e.g., Blonk et al., 1996; Sawyer et al., 1997).

Sawyer et al. (1997) found no intervention effects on parent or teacher-reported behavioural difficulties but improved peer relationships and social skills for children who participated in a non-targeted school-based social problem-solving program. Their outcome measures included a measure of problematic social skills, peer sociometrics, the CBCL and the TRF. The program increased the positive peer relationships of participating children but these gains in peer relationships did not correspond with reductions in behavioural or emotional problems as rated by teachers and mothers. Similarly, Blonk et al. (1996) found improved child reported social behaviour and peer relationships for clinically-referred children with peer difficulties who participated in a long social skills training program but no decrease in behavioural problems as measured by the CBCL.

In the present study, the mean scores of the two intervention and year 5 control groups improved over time for three of the four teacher-rated measures of adaptive behaviour; however, no significant differences were found between the groups. These findings differ from the studies by Jaycox et al. (1994) and Roberts et al. (2003), where parents of children in the treatment group reported fewer externalising problems (as measured by the CBCL) and improved classroom

behaviour of students at posttest. In this study, teachers' behavioural reports from students' report cards were used. Two items were included in each subscale to evaluate self discipline, peer relations and conduct, and each was rated on a three-point scale that included commendable effort, satisfactory or needs improvement.

One explanation for these results is lack of sensitivity and/or reliability of the measure (TRF) employed in the present study. The Beelmann et al. (1994) meta-analytical review of social competence training on 3-15 year olds analysed effect sizes according to outcome assessment and found that effects for social-cognitive tests and behaviour observations were more pronounced than data from parent/teacher reports which in general showed statistically significant but low effect sizes (weighted mean effect size, $d_+ = 0.10$). It has also been reported that it is common for fewer problems to be reported at the second assessment when the same informants complete the CBCL and TRF. Sawyer et al. (1997) reported this pattern, with both parents and teachers in this study reporting better scores on the CBCL and TRF at the second assessment. When children have shown many behavioural problems, the CBCL has been shown to be a sensitive measure of change (Kazdin, Bass, Siegel, & Thomas 1994 as cited in Blonk et al., 1996). However, it is possible that with this universal sample, intervention effects were not detected by measures used in the present study. In addition, parent reports of child behavioural change may be more sensitive to change than the measure employed in this study.

4.4 Secondary Analyses

Separate Spearman rank-order correlations were conducted to identify the most notable correlations between the study variables, which will be the focus of the following discussion. Although these indicate the strength of the relationship, the

degree of expected intercorrelation of other variables was not controlled and a correlational study such as this cannot show a causal relationship between variables.

4.4.1 Social skills

In the present study, improvements in social skills in both intervention groups was associated with eating breakfast throughout the intervention programs and with lower levels of tiredness. An additional finding in this exploratory study was that higher exercise levels during the intervention programs were strongly associated with fewer teacher-rated social problems at pretest. However, the total number of times children reported engaging in physical exercise in this group was relatively high with almost a third of the children reporting exercising daily.

There is very little research on the relationship between intervention outcomes and child variables and most has focussed on behavioural, cognitive or family characteristics (e.g., The Conduct Problems Prevention Research Group, 2002). Emerging research on mediators of intervention effects has focussed understandably on therapeutic factors specific to CBT (Kaufman et al., 2005). There is no other research on the relationship between CBT outcomes and child health factors; however, this pattern of results is in accordance with limited prior research examining the positive relationship between nutrition, exercise and physical and mental health (e.g., Alaimo et al., 2001; Weinreb et al., 2002; Penedo & Dahn, 2005). Given that health and lifestyle variables are often amenable to change, this appears to be an important but understudied area of outcome research.

Where possible, adjustments were made to account for unreliability in psychometric measures in this study. As difference scores are less reliable than the measures they are based on, in this case the MESSY, the true correlation between these measures could be expected to be higher.

4.4.2 Child Health Factors

Approximately 64% of children participating in the intervention programs in this study reported eating breakfast every morning prior to the program modules, and two children reported not eating breakfast prior to any of the modules. Further, improved social skills as measured by the MESSY from pretest to follow-up and teacher-reported symptoms of withdrawal and depression, and a more pessimistic attributional style were associated with lower total breakfast scores. Teacher-reported student effort, learning and academic functioning at pretest were associated with higher total breakfast scores. Eating breakfast was strongly associated with mean academic performance and more modestly with higher teacher-ratings of effort and learning and less symptoms of withdrawal and depression. Where possible, adjustments were made to correct for unreliability which resulted in higher correlations between these measures.

These findings are consistent with prior research examining the relationship between nutrition and cognition and nutrition and behaviour (Alaimo, Olson & Frongillo, 2001; Mahoney et al., 2005; Theodore et al., 2005). Breakfast intake has been found to enhance the cognitive performance of 9-11 year old children. Hunger has been found to contribute independently of other variables to CBCL behaviour problem scores (Weinreb et al., 2002). Theodore et al. (2005) suggest that the increases in IQ found in their study for children who consumed the recommended food intake of bread and cereals was due to the higher intake of iron and folate provided by breakfast foods, necessary nutrients that contribute to child growth and development

Unexpectedly, many of the correlations between stressful life events and child functioning were not significant. This was unexpected as when compared to

previous studies, the current pretest LEQ scores were slightly higher (e.g., Prior, Australian Temperament Project unpublished data 1990 as cited by Smith & Prior, 1995). In the current sample, 17 students reported more than three stressful life events in the past twelve months. These results differ from previous correlational research that has found a positive relationship between negative life events and depressive symptoms in children (Hoffman, Levy-Shiff & Malinski, 1996; Nezu & Ronan, 1985; Mullins et al., 1984). However, in the present study there were weak negative correlations between stressful life events and teacher-reported happiness and academic functioning. It is possible that external observers detect problems in children more reliably than children do themselves. This is consistent with previous research findings that stressful life events are positively associated with teacher-reported adverse behavioural problems and symptoms (Hoffman et al., 1996). It is possible that there are numerous other protective factors not measured in this study such as parental relationships, resilience, child temperament and coping responses or problem-solving ability that moderate the relationship between stressful life events and social functioning (Goodman et al., 1995; Prior et al., 2001; Richard & Dodge, 1982). The model proposed by Lazarus and Folkman also suggests other influential variables not measured in this study such as how stress is appraised, the magnitude of stress, and likelihood of harm, duration, controllability and the psychological structure of the individual (Folkman and Lazarus, 1985).

4.5 Summary of Qualitative Data

Teachers' main reported difficulty was working with the large group size. Suggestions for improvement included a kit of resources to be available for use and limiting the group size. Teachers reported that children enjoyed most of the activities except group discussion and filling out the module evaluations for this study. For the

Social Life Skills group, five of the six modules evaluated were delivered in the time frame stated in the manual. Teachers reported no difficulties with module delivery and indicated that this became easier as they developed more familiarity with the program content. Teachers also reported that children enjoyed most of the activities and class interest increased as the program continued.

In general, students in the optimistic thinking skills group reported enjoying the activities (being a detective and doing drawings) and role playing but did not enjoy sharing problems or writing responses. Students in this group reported that practising being a detective, filling in thought bubbles and thinking about what you and others could say in different situations were the most useful things they learnt. Students in the social life skills also enjoyed the role plays and found discussions about emotions, how to respond to peer pressure and the transition to high school most useful. They reported not enjoying discussions about different ways to give and receive compliments.

CHAPTER 5

CONCLUSIONS

The main hypothesis of this study that social skills would increase from pre-test to posttest for the social life skills intervention group and not the optimistic thinking skills group or the control group was supported. The changes over the course of the study in the other two groups were not significant, thus confirming the differential impact and short-term benefit of the social skills component of the intervention. A number of possible explanations for this have been discussed. While it is not possible to determine which elements in the social life skills component were most effective, it is possible that prosocial and/or specific behavioural skills such as problem-solving, communication skills, negotiation and relaxation were effective at achieving behavioural change as the skills taught were concrete, included step by step instructions and self-instructions and, in addition, were targeted at competencies and problems known to be salient in early adolescence.

The second hypothesis of this study, that retention and application of the social and social cognitive skills taught in the program would increase from pretest to posttest for the intervention groups and not the control groups, was not supported. The third hypothesis of this study was that attributional style would become more positive for the optimistic thinking skills group at posttest when compared to the other two groups was not supported. The fourth hypothesis of this study was that adaptive behaviour would increase for the intervention groups at posttest when compared to the control group and this hypothesis was not supported.

In addition, the final hypothesis of this study was partially supported as eating breakfast on the morning of the intervention was strongly associated with

increases in social skills from pretest to follow-up and tiredness was negatively correlated with program efficacy although this correlation was weak

5.1 Methodological Strengths and Limitations

The current study has a number of methodological strengths. The sample size was large and, a control group was employed. A number of reliable measures were used and they included both student and teacher-reports. When assessing children, research has emphasised the importance of utilising assessments from several different informants which limits response bias and increases sensitivity (Verhulst & Van der Ende, 2002). In addition, teachers were trained in program administration and program integrity was monitored.

However, a number of methodological limitations should be addressed when considering the results of this study. Firstly, random allocation to intervention and control groups was not conducted. Children were allocated to groups based on their grade level, and hence age. As a result older children participated in the social life skills group and children who were younger participated in the optimistic thinking skills and control groups. As previously mentioned, while cognitive developmental level rather than age appears to be critical, it is possible that some younger children were developmentally less advanced and less able to learn from the program. Also a possible contamination effect could have occurred as some of the children in the different groups were mixing in class and recess with children in other groups. However, a comparison group of children from another school was also employed in this study. Although the sample size of this group was small, the results indicate no significant differences between the two control groups on measures of social skills and attributional style across time. Improvements in the mean scores of adaptive

functioning were noted over time without intervention, in line with the other groups that received intervention.

Secondly, generalisation to the home environment was not assessed as parent reports were not employed; thus, corroboration was limited to between self and teacher report measures. It is possible that the addition of parent reports would increase the sensitivity of the behavioural assessments used in this study.

In addition, as previously discussed, there are some difficulties with how attributional style is measured in children. It is also possible that learning the skills taught in the program does not change attributional style or, alternatively, the CASQ is not a reliable measure of attributional style or attributional style change. In general, meta-analytic reviews have reported small effect sizes for behavioural and/or cognitive training for non-symptomatic children when outcome measures are self-rated (Beelmann et al., 1994). However, the present study found no changes in attributional style or social behaviour as a result of an intervention specifically aimed at altering attributional style. A future research focus on other cognitive changes that may occur as a result of intervention, or which components of this program are retained, would enable further development of the program and program objectives. For example, assessing and assisting individual student learning, understanding and application regularly throughout the program in a small group format would assist individual students who have difficulty with the concepts taught.

Also relevant are factors related to the logistics of implementing the program that could have interfered with program integrity. The sessions were conducted prior to lunch and occasionally competing events such as sports carnivals interfered with the implementation. In addition, module evaluations employed in the study were administered after the program when children wanted to have their lunch. Qualitative

feedback from students was that the assessment requirements were not enjoyable. It is recommended that this be addressed in future studies.

The correlational design of the secondary analysis in this study necessarily limits causal conclusions and it is not clear if these findings will be confirmed in longer-term designs. There is also a need for further research on the longitudinal relation between nutrition and childhood behaviour and assessment of this.

5.2 Directions for Future Research

Future research in preventative school-based interventions should address a number of general factors:

The practical challenges of conducting research in a school setting include conducting the program with large groups, time constraints and the changing demands of the school timetable. Children in this study were allocated according to class groups and these groups were large. Teachers' suggestions for improvement included a kit of resources to be available for use, and limiting the group size.

Smaller groups sizes necessitate more facilitators, and are less cost effective. However, it is possible that teaching many of the complex concepts in the program would be more effective with smaller groups. Allowing more time for implementation and practise of skills may also be beneficial as findings from the present study suggest improvements in social skills as a result of intervention but lack of maintenance of these improvements over time.

In addition, future research could investigate how intervention impact varies as a function of the different components of the social life skills intervention, or how treatment and child problem characteristics interact (Durlak et al., 2005). Understanding which intervention components or combination of components are most efficacious would enable some flexibility in delivery so that particular child

problems could be matched to particular intervention combinations. An assessment process that includes interviews with children about social difficulties, problems they experience or situations that are problematic could also be beneficial.

Further, process-oriented research could provide more understanding of the mechanism through which a treatment produces change. This should include identifying the salient cognitive developmental factors that impact on intervention outcomes and evaluating individual differences in the retention and application of the social and social-cognitive skills taught in the program.

More specifically future programs should address the following factors:

Social Skills

Research has shown that generalisation of social skills outside of social skills training programs has been problematic (Beelmann et al. 1994; Gresham, 1985). A focus on enhancing maintenance and generalisation of gains provided by the program would assist in the reinforcement and retention of learned skills. This could include increased focus on self-directed rehearsal in the classroom, increasing practise in different environments outside of the classroom, reinforcement and extending the length of the program.

Denham and Almeida (1987) found a significant effect of length of interventions on teacher ratings of socially competent behaviour across studies of social problem-solving interventions. Booster sessions could also be included at the conclusion of the intervention or throughout the program to maintain complex skills. Hepler (1994) has advocated active and continued involvement of school staff that could provide review sessions in small groups. In addition, the use and integration of skills directly taught via the program in classroom situations could be continued at the completion of the program. The intervention could also be conducted over

several grade levels or the program or booster sessions could be developed and delivered via electronic media.

Broadening the scope of the intervention to include a parent component could affect stressors external to the school environment and also enhance reinforcement, maintenance and generalisation. The role of family and environmental stressors in childhood social competence has led researchers to argue that many family issues affect children via their impact on parental ability to implement positive child management skills (Dadds, 1987 as cited in Dadds, 1995). Sanders and Markie-Dadds (1992) advocate preventative programs that promote the behavioural and social competence of children as well as parent competencies.

Numerous other factors not measured in this study, such as parental relationships, resilience, child temperament and coping responses or problem-solving ability, may affect children's social functioning and their ability to learn from preventative interventions (Goodman et al., 1995; Prior et al., 2001; Richard & Dodge, 1982). Future study could measure possible changes across these variables and their impact on intervention outcomes.

Attributional Style

Given that the optimistic thinking skills component of the intervention produced no change in attributional style, as measured by the CASQ, it seems important for future research to identify the possible cognitive changes resulting from this component of the program. The failure to find a link between cognitive change and behavioural change precludes an understanding of a possible causal model of the process of change.

Understanding of the mechanism through which CBT produces change in children may include identifying the salient cognitive developmental factors that

impact on intervention outcomes and evaluating individual differences in the retention and application of the cognitive skills taught in the program. In addition, a focus on which modules of this program are most easily retained and understood would enable further development of these components of the program.

Child Health Factors

The results of this study suggest that for school aged children, health and lifestyle variables, particularly nutrition are important, although this is an understudied area of outcome research. Approximately 64% of children participating in the intervention programs in this study reported eating breakfast every morning prior to the program modules, while two children reported not eating breakfast prior to any of the modules. Recently, research has examined the relationship between nutrition and academic and psychological development and behavioural problems (Alaimo, Olson, & Frongillo, 2001; Mahoney et al., 2005; Theodore et al., 2005). This has led to emerging research interest into the identification of the nutrition habits of school children. In addition, increasing levels of child obesity has prompted a focus on education and the impact of advertising as well as the introduction of healthier food in school canteens. There has been limited research on the effect of nutrition, exercise and fatigue on social behaviour and, importantly, psychological assessments. Future correlational and longitudinal research could substantiate and extend the results of this study.

The results of this study suggest that students should eat prior to intervention modules or, if possible, be provided with a snack prior to or during a break in the module. Providing students with snacks or breakfast, or encouraging students to bring snacks to school, is a non intrusive and potentially low-cost intervention. Breakfast programs are currently offered by charity organisations and could be

provided by community groups. The establishment of school-based health and nutrition programs could boost further research in this area and provide educational programs both for students and parents. This seems an important area of research given that the very students who can potentially benefit most from social skills interventions are possibly not benefiting due to unfavourable health/lifestyle factors.

5.3 Summary

The social life skills component of the Aussie Optimism program was found to be effective in the short-term at improving the social skills of a universal sample of children. In addition, breakfast consumption prior to the intervention modules was correlated with improved social skills at the completion of the program. Further research is required to determine factors that could enhance maintenance and generalisation and the longitudinal relation between nutrition, social behaviour and the efficacy of cognitive behavioural interventions.

The social life skills component of the Aussie Optimism program offers a practical and cost-effective way of teaching a large number of children social competencies and skills that have been identified as important in the prevention of later behavioural and psychological problems. The findings from the present study confirm the short-term merits of the social life skills intervention component. They add to the growing body of prevention research and provide preliminary evidence to support future research into the effect of health and lifestyle variables on intervention outcomes and provide a theoretical and methodological basis to enhance program efficacy.

CHAPTER 6

REFERENCES

Achenbach, T.M. (1995). *Teacher's Report Form for ages 6-18*. Burlington, Vermont: SEBA.

Achenbach, T.M., & Rescorla, L. (2001). *Manual for the ASEBA School-Age Forms and Profiles*. Burlington, Vermont: ASEBA.

Alaimo, K., Olson, C., & Frongillo, E. (2001). Food insufficiency and American school-aged children's cognitive, academic and psychosocial development [Electronic Version]. *Paediatrics*, 108(1), 44-53.

Bedell, J.R., & Lennox, S.S. (1997). *Handbook of communication and problem-solving skills training: A cognitive behavioral approach*. New York: John Wiley & Sons.

Beelmann, A., Pfingsten, U., & Losel, F. (1994). Effects of training social skills in children: A meta-analysis of recent evaluation studies. *Journal of Clinical Child Psychology*, 23(3), 260-271.

Bierman, K.L., & Furman, W. (1984). The effects of social skills training and peer involvement on the social adjustment of preadolescents. *Child Development*, 55, 151-162.

Blechman, E.A., McEnroe, M.J., Carella, E.T., & Audette, D.P. (1986). Childhood competence and depression. *Journal of Abnormal Psychology*, 95(3), 223-227.

Blonk, R.W.B., Pier, J.M., Sergeant, J.A., Ringrose, J., & Brinkman, A.G. (1996). Cognitive-behavioral group therapy for socially incompetent children: Short-term and maintenance effects with a clinical sample. *Journal of Clinical Child Psychology*, 25(2), 215-224.

Blumberg, S.H., & Izard, C.E. (1986). Discriminating patterns of emotions in 10-and 11-year-old children's anxiety and depression. *Journal of Personality and Social Psychology*, 51(4), 852-857.

Brannon, L., & Feist, J. (2004). *Health psychology: An introduction to behavior and health* (5th ed.). Belmont, CA: Wadsworth.

Coddington, R.D. (1972). The significance of life events as etiologic factors in the diseases of children. II. A study of a normal population. *Journal of Psychosomatic Research*, 16,205-213.

Cohen, J. (1992). A power primer. *Psychological Bulletin*. 112(1),155-158.

Compas, B.E., Connor-Smith, J., & Jaser, S.S. (2004). Temperament, stress reactivity, and coping: Implications for depression in childhood and adolescence. *Journal of Clinical Child and Adolescent Psychology*, 33(1), 21-31.

Compas, B.E., Benson, M., Boyer, M., Hicks, T.V., & Konik, B. (2002). Problem-solving and problem-solving therapies. In P.E. Nathan & J.M.G. Gorman (Eds.), *A guide to treatments that work*. (3rd ed.). New York: Oxford University Press.

Cooper, J.A., Paske, K.A., Goodfellow, H., & Muhlheim, E. (2002). Social skills training to reduce aggressive and withdrawn behaviours in child care centres. *Australian Journal of Early Childhood*, 27(4), 29-36.

Crick, N.R., & Dodge, K.A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin*, 115(1), 74-101.

Cavell, T.A. (1990). Social adjustment, social performance, and social skills: A tri-component model of social skills. *Journal of Clinical Child Psychology*, 19(2), 111-122.

Cuffe, S. (2005). Family and psychosocial risk factors in a longitudinal epidemiological study of adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 44(2), 121-132.

Cunningham, E., Brandon, C.M., & Frydenberg, E. (1999). Building resilience in early adolescence through a universal school-based preventive program. *Australian Journal of Guidance & Counselling*. 9(2), 15-21.

Dadds, M.R. (1995). *Families, children, and the development of dysfunction*. (Vol.32). Developmental Clinical Psychology and Psychiatry. Thousand Oaks: Sage:

Denham, S.A., & Almeida, M.C. (1987). Children's social problem-solving skills, behavioural adjustment, and interventions: A meta-analysis evaluating theory and practice. *Journal of Applied Developmental Psychology*, 8(4), 391-409.

DeRosier, M.E. (2004). Building relationships and combating bullying: Effectiveness of a school-based social skills group intervention. *Journal of Clinical Child and Adolescent Psychology*, 33(1), 196-201.

Dodge, K.A. (1993). Social-cognitive mechanisms in the development of conduct disorder and depression. *Annual Review of Psychology*, 44, 559-585.

Durlak, J.A., Fuhrman, T., & Lampman, C. (1991). Effectiveness of cognitive-behavior therapy for maladapting children: A meta-analysis. *Psychological Bulletin*, 110(2), 204-214.

Durlak, J.A., & Wells, A.M. (1997). Primary prevention mental health programs for children and adolescents: A meta-analytic review. *American Journal of Community Psychology*, 25(2), 115-152.

Elias, M., Gara, M., Ubriaco, M., Rothbaum, P.A., Clabby, J.F., Schuyler, T. (1986). Impact of a preventative social problem solving intervention on children's

coping with middle school stressors. *American Journal of Community Psychology*, 14(3), 259-275.

Erwin, P.G. (1994). Effectiveness of social skills training with children: A meta-analytic study. *Counselling Psychology Quarterly*, 7(3), 305-310.

Feshbach, N.D., & Feshbach, S. (1987). Affective processes and academic achievement. *Child Development*, 58, 1335-1347.

Folkman, S., & Lazarus, R.S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology*, 48, 150-170.

Frydenberg, E. (1997). *Adolescent coping: Theoretical and research perspectives*. London: Routledge.

Garber, J., Weiss, B., & Shanley, N. (1993). Cognitions, depressive symptoms and development in adolescents. *Journal of Abnormal Psychology*, 1, 47-57.

Gilham, J.E., Reivich, K.J., Jaycox, L.H., & Seligman, M.E.P. (1995). Prevention of depressive symptoms in schoolchildren: Two-year follow-up. *Psychological Science*, 6, 343-351.

Gladstone, T., & Kaslow, N. (1995). Depression and attributions in children and adolescents: A meta-analytic review. *Journal of Abnormal Child Psychology*, 23(5), 597-604.

Goodman, S.H., Gravitt, G.W., & Kaslow, N.J. (1995). Social problem solving: A moderator of the relation between negative life stress and depression symptoms in children. *Journal of Abnormal Child Psychology*, 23(4), 473-485.

Gotlib, I., Lewinsohn, P., Seeley, J., Rohde, P., & Redner, J. (1993). Negative cognitions and attributional style in depressed adolescents: An examination of stability and specificity. *Journal of Abnormal Psychology, 102*, 607-615.

Government of Western Australia. (2004). *Western Australian Child and Adolescent Physical Activity and Nutrition Survey*. (2004). Retrieved October 19, 2005, from <http://www.health.wa.gov.au> October 04.pdf.

Green, K.D., Forehand, R., Beck, J., & Vosk, B. (1980). An assessment of the relationship among measures of children's social skills and children's academic achievement. *Child Development, 51*, 1149-1156.

Gresham, F.M. (1985). Utility of cognitive-behavioral procedures for social skills training with children: A critical review. *Journal of Abnormal Child Psychology, 13*(3), 411-423.

Hains, A.A. (1992). Comparison of cognitive-behavioral stress management techniques with adolescent boys. *Journal of Counseling and Development, 70*, 600-605.

Hains, A.A., & Szyjakowski, M. (1990). A cognitive stress-reduction intervention program for adolescents. *Journal of Counseling Psychology, 37*, 79-84.

Harrington, R., Whittaker, J., & Shoebridge, P. (1998). Psychological treatment of depression in children and adolescents: A review of treatment research. *British Journal of Psychiatry, 173*, 291-298.

Harris, S.L., & Ferrari, M. (1983). Developmental factors in child behavior therapy. *Behavior Therapy, 14*, 54-72.

Hemphill, S.A., & Littlefield, L. (2001). Evaluation of a short-term group therapy program for children with behaviour problems and their parents. *Behaviour Research and Therapy, 39*(7), 823-841.

Hepler, J.B. (1994). Evaluating the effectiveness of a social skills program for preadolescents. *Research on Social Work Practice*, 4(4), 411-435.

Hepler, J.B., & Rose, S.F. (1988). Evaluation of a multi-component group approach for improving the social skills of elementary school children. *Journal of Social Service Research*, 11(4), 1-19.

Hobbs, S., Moguin, L.E., Tyroler, M., & Lahey, B.B. (1980). Cognitive behaviour therapy with children: Has clinical utility been demonstrated? *Psychological Bulletin*, 87(1), 147-165.

Hoffman, M., Levy-Shiff, R., & Malinski, D. (1996). Stress and adjustment in the transition to adolescence: Moderating effects of neuroticism and extroversion. *Journal of Youth and Adolescence*, 25(2), 161-176.

Howell, D.C. (1997). *Statistical methods for psychology* (4th ed.) Belmont, CA: Duxbury Press.

Izard, C.E., Schultz, D., Fine, S., Youngstrom, E. & Ackerman, B. (2000). Temperament, cognitive ability, emotion knowledge, and adaptive social behavior. *Imagination, Cognition and Personality*, 19(4), 305-330.

Jaycox, L.H., Reivich, K.J., Gillham, J. & Seligman, M.E.P. (1994). Prevention of depressive symptoms in school children *Behavior Research and Therapy*, 32, 801-806.

Kazdin, A.E. (2002). Psychosocial treatments for conduct disorder in children and adolescents. In P.E. Nathan & J.M.G. Gorman (Eds.), *A guide to treatments that work*. (3rd ed.) (pp 57-86). New York: Oxford University Press.

Kendall, P.C. (1985). Toward a cognitive-behavioral model of child psychopathology and a critique of related interventions. *Journal of Abnormal Child Psychology*, 13, 357-372.

Kendall, P.C & Choudhury, M.S. 2003. Children and adolescents in cognitive-behavioral therapy: Some past efforts and current advances, and the challenges in our future. *Cognitive Therapy and Research*, 27(1), 89-104.

Kinnear, P.R & Gray, C.D. (2004). *SPSS 12 Made simple*. Hove: Psychology Press.

Kleinman, R.E., Murphy, M., Little, M., Wehler, C.A., Regal, K., & Jellinek, M. (1998). Hunger in children in the United States: Potential Behavioral and Emotional Correlates [Electronic Version]. *Pediatrics*, 101(1), 3-15.

Kovacs, M., & Goldston, D. (1991). Cognitive and social cognitive development of depressed children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 30(3), 388-392.

Ladd, G.W., & Mize, J. (1983). A cognitive-social learning model of social skill training. *Psychological Review*, 90(2), 127-157.

LeCroy, C.W., & Rose, S. (1986). Evaluation of preventative interventions for enhancing social skills in adolescents. *Social Work Research and Abstracts*, 22, 8-16.

Liddle, B., & Spence, S.H. (1990). Cognitive-behaviour therapy with depressed primary school children: A cautionary note. *Behavioural Psychotherapy*, 18, 85-102.

Mahoney, C.R, Taylor, H.A, Kanarek, R.B., & Samuel, P. (2005). Effect of breakfast composition on cognitive processes in elementary school children. *Physiology & Behavior*, 85(5), 635-645.

Malecki, C. & Elliott, S. (2002). Children's social behaviours as predictors of academic achievement: A longitudinal analysis. *School Psychology Quarterly*, 17(1), 1-23.

Matson, J.L. (1994). *Matson Evaluation of Social skills with Youngsters: Manual* (2nd Edition). Worthington, Ohio. IDS.

Matson J.L. & Ollendick, T.H. (1988). *Enhancing children's social skills: Assessment and training*. New York: Pergamon Press.

Matson, J.L., Rotatori, A.F., & Helsel, W.J. (1983). Development of a rating scale to measure social skills in children: The Matson Evaluation of Social skills with Youngsters (MESSY) *Behaviour Research and Therapy*, 21, 335-340.

Melnick, S.M., & Hinshaw, S.P. (2000). Emotion regulation and parenting in AD/HD and comparison boys: Linkages with social behaviors and peer preference. *Journal of Abnormal Child Psychology*, 28(1), 73-87.

Miller, L.C. (1972). School behaviour checklist: An inventory of deviant behaviour for elementary school children. *Journal of Consulting and Clinical Psychology*, 38, 134-144.

Milne, J., & Spence, S.H. (1987). Training social perception skills with primary school children: A cautionary note. *Behavioural Psychotherapy*, 15, 144-157.

Moote, G.T., Smyth, N.J., & Wodarski, J.S. (1999). Social skills training with youth in school settings: A review. *Research on Social Work Practice*, 9(4), 427-465.

Mostow, A.J., Izard, C., Fine, S., & Trentacosta, C.J. (2002). Modelling emotional, cognitive and behavioral predictors of peer acceptance. *Child Development*, 73, 1775-1788.

Mullins. L, Siegel, L & Hodges, K. (1984). Cognitive problem-solving and life event correlates of depressive symptoms in children. *Journal of Abnormal Child Psychology*, 13(2), 305-314.

Nezu, A. & Ronan, G.F. (1985). Life stress, current problems, problem-solving, and depressive symptoms: An integrative model. *Journal of Consulting and Clinical Psychology, 53*(5), 693-697.

Nolen-Hoeksema, S., Girgus, J.S., & Seligman, M.E.P. (1992). Predictors and consequences of childhood depressive symptoms: A 5-year longitudinal study. *Journal of Abnormal Psychology, 101*, 405-422.

Nowicki, S., & Duke, M.P. (1992). The association of children's nonverbal decoding abilities with their popularity, locus of control, and academic achievement. *Journal of Genetic Psychology, 153*(4), 385-394.

Offord, D.R., & Bennett, K.J. (2002). Prevention. In M. Rutter & E. Taylor (Eds.), *Child and Adolescent Psychiatry* (4th ed.). Bath: Blackwell Science.

Ogilvy, C. (1994). Social skills training with children and adolescents: A review of the evidence on effectiveness. *Educational Psychology, 14*(1), 73-82.

Panedo, F.J. & Dahn, J.R. (2005). Exercise and well-being: A review of mental and physical health benefits associated with physical exercise. *Current Opinion in Psychiatry, 18*(2), 189-193.

Pattison, C. & Lynd-Stevenson. (2001). The prevention of depressive symptoms in children: The immediate and long-term outcomes of a school-based program. *Behaviour Change, 18*(2), 92-102.

Pincus, D.B., & Freidman, D.B. (2004). Improving children's coping with everyday stress: Transporting treatment interventions to the school setting. *Clinical Child and Family Psychology Review, 7*(4), 223-242).

Prinstein, M., & Aikins, J. (2004). Cognitive moderators of the longitudinal association between peer rejection and adolescent depressive symptoms. *Journal of Abnormal Child Psychology, 32*, 147-159.

Prior, M., Smart, D., Sanson, A. & Oberklaid, F. (2001). Longitudinal predictors of behavioural adjustment in pre-adolescent children. *Australian and New Zealand Journal of Psychiatry*, 35, (3), 297-307.

Prior, M., Sanson, A., Smart, D., & Oberklaid, F. (1999). Psychological disorders and their correlates in an Australian community sample of preadolescent children. *Journal of Child Psychology and Psychiatry*, 40(4), 563-580.

Puig-Antich, J., Lukens, E., Davies, M., Goetz, D., Brennan-Quattrock, J. (1985). Psychosocial functioning in prepubertal major depressive disorders. *Archives of General Psychiatry*, 42, 500-508.

Quayle, D.M. (1999). *The effect of an optimism and lifeskills program on depressive symptoms in preadolescence*. Unpublished doctoral dissertation, Murdoch University, Western Australia.

Richard, B.A., & Dodge, K.A. (1982). Social maladjustment and problem-solving in school-aged children. *Journal of Consulting and Clinical Psychology*, 50(2), 226-233.

Roberts, C. (1999). The prevention of depression in children and adolescents. *Australian Psychologist*, 34, 49-57.

Roberts, C., Kane, R., Thomson, H., Bishop, B., & Hart, B. (2003). The prevention of depressive symptoms in rural school children: A randomised controlled trial. *Journal of Consulting and Clinical Psychology*, 71(3), 622-628.

Roberts, C., Kane, R., Bishop, B., Matthews, H., Thomson, H. (2004). The prevention of depressive symptoms in rural school children: A follow-up study. *International Journal of Mental Health Promotion*, 6(3), 4-16.

Rudolph, K.D., & Clark, A. (2001). Conceptions of relationships in children with depressive and aggressive symptoms: Social cognitive distortion or reality? *Journal of Abnormal Child Psychology*, 29(1), 41-56.

Sanders, M.R., & Markie-Dadds, C. (1992). Toward a technology of prevention of disruptive behaviour disorders: The role of behavioural family intervention. *Behaviour Change*, 9(3), 186-200.

Sawyer, M.G., Arney, P.A., Baghurst, JJ., Clark, B.W., Graetz, R.J., Kosky, B., et al. (1999). Heritability of social cognitive skills in children and adolescents. *British Journal of Psychiatry*, 175, 559-564.

Sawyer, M.G., Macmullin, C., Graetz, B., Said, J.A., Clark, JJ., & Baghurst, P. (1997). *Journal of Paediatric Child Health*, 33, 378-383.

Segrin, C. (2000). Social skills deficits associated with depression. *Clinical Psychology Review*, 20(3), 379-403.

Seligman M.E.P., Peterson, C., Kaslow, N.J., Tanebaum, R.L., Alloy, L.B. & Abramson, L.Y. (1984). Attributional style and depressive symptoms among children. *Journal of Abnormal Psychology*, 93, 235-238.

Seligman, M.E.P. (1995). *The optimistic child*. Sydney: Random House.

Smith, A.P., Clark, R., and Gallagher, J. (1998) Breakfast cereal and caffeinated coffee: Effects on working memory, attention, mood and cardiovascular function. *Physiology and Behaviour*, 67(1), 9-17.

Smith, J. & Prior, M. (1995). Temperament and stress resilience in school-age children: A within families study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 34(2), 168-180.

Social Life Skills *Teacher Resource Manual*. (2003). Perth, Western Australia: Curtin University of Technology.

Spence, S.H. (2003). Social skills training with children and young people: Theory, evidence and practice. *Child and Adolescent Mental Health*, 8(2), 84-96.

Tabachnick, B & Fidell, L. (1996). *Using Multivariate Statistics* (3rd ed.). California: Harper Collins.

Tarus, H. (2005). Physical activity and student performance at school. *Journal of School Health*, 75(6), 214-219.

Teasdale, J. (1999). Emotional processing, three modes of mind and the prevention of relapse in depression. *Behaviour Research and Therapy*, 37, 53-77.

The Conduct Problems Prevention Research Group. (2002). Predictor variables associated with positive fast track outcomes at the end of third grade. *Journal of Abnormal Child Psychology*, 30(1), 37-52.

Theodore, R.F., Thompson, J.M.D., Wall, C.R., Waldie, K.E., & Mitchell, E.A. (2005). Food intake and cognitive development in preschool children. [Abstract] *Australian Journal of Psychology: Combined Abstracts of 2005 Australian Psychology Conferences*, 57,172.

Toblin, R.J., Schwartz, D., Hopmeyer Gorman, A., & Abou-ezzedine. 2005. Social–cognitive and behavioural attributes of aggressive victims of bullying. *Journal of Applied Developmental Psychology*, 26(3), 329-346.

Vassey, M.W. & Thayer, J.F. (1987). The continuing problem of false positives in repeated measures ANOVA in psychophysiology: A multivariate solution. *Psychophysiology*, 24(4), 479-486.

Verhulst, F.C., & Van der Ende. (2002). Rating Scales. In M. Rutter & E. Taylor (Eds.), *Child and Adolescent Psychiatry* (4th ed.). Bath: Blackwell Science.

Waserman, T.H. (1984). The effects of cognitive development on the use of cognitive behavioral techniques with children. *Child and Family Behavior Therapy*, 5(3), 37-50.

Weinreb, L., Wehler, C., Perloff, J., Scott, R., Hosmer, D., Sagor, L., et al. (2002). Hunger: It's impact on children's health and mental health. *Pediatrics*, 110(4), 41-57.

Weissberg, R.P., Geston, E.L., Rapkin, E.L., Cowen, E.D., Flores deo Apodaca, R & McKim, B. (1981). Evaluation of a social-problem-solving training program for suburban and inner-city third-grade children. *Journal of Consulting and Clinical Psychology*, 49(2), 251-261.

Weisz, J.R., & Hawley, K.M. (2002). Developmental Factors in the Treatment of Adolescents. *Journal of Consulting and Clinical Psychology*, 70(1), 21-43.

Weisz, J.R., Weiss, B., Han, S., Granger, D.A., & Morton, T. (1995). Effects of psychotherapy with children and adolescents revisited: A meta-analysis of treatment and outcome studies. *Psychological Bulletin*, 117(3), 450-468.

Zubrick, S.R. (2001). The mental health of young people in Australia: Key findings from the child and adolescent component of the national survey of mental health and well-being. *Australian and New Zealand Journal of Psychiatry*, 35, 806-814.

CHAPTER 7

APPENDICES

APPENDIX A: Parent Consent Form

APPENDIX B: Social –Cognitive Skills Questionnaire (SSQ)

APPENDIX C: Module Evaluation

APPENDIX D: Parent Information Sheets

APPENDIX E: Child Information Sheets

APPENDIX F: Facilitator Questionnaire

APPENDIX G: Program Checklist

APPENDIX H: Printout of Histograms 1

APPENDIX I: Printout of Histograms 2

APPENDIX J: Clinical Case Discussions

APPENDIX K: Table 1 of Intercorrelations

APPENDIX L: Table 2 of Intercorrelations

APPENDIX A: Parent Consent Form



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School of Psychology

CONSENT FORM

I _____ being the parent/guardian
of _____ have read the information

above and been offered the opportunity to have any questions answered. I give permission for my child to take part in this study, however, I know that I may change my mind and withdraw my child at any time by simply informing my child's teacher. I understand that all information provided is treated as confidential and will not be released by the investigator unless required to do so by law. I agree that research data for this study may be published provided my child's name or other information which might identify him/her is not used.

Signed _____ Date _____
(Parent/Guardian)

Signed _____ Date _____
(Researcher, Kaye Mills)

Signed _____ Date _____
(Supervisor, Helen Davis)

Please provide your contact details so the researcher can contact you if necessary.

Contact Phone Numbers:

Home _____

Work _____

Mobile _____

Email _____

APPENDIX B: Social –Cognitive Skills Questionnaire (SSQ)

Questionnaire

The following questions ask for some information about you and what you feel and do in different situations. Try to give your best answer and think about examples that have happened in the last **one or two weeks**.

1. Age: _____

2. Male / Female

Think of some times during the last two weeks when you felt angry, worried, sad or happy and answer the questions below. (If you can't think of a time, write "NEVER" and move on to the next feeling.)

1. I felt HAPPY when:

2. Circle how happy you felt:

A little happy	Quite happy	Happy	Very happy	The happiest I've ever felt
1	2	3	4	5

3. I know I felt happy because: (please tick as many as you can think of)

my body gave me clues

What clues did it give? _____

what I did gave me clues

What clues? _____

I don't know.

4. I felt ANGRY when:

5. Circle the number that is closest to how angry you felt:

A little angry	Quite angry	Angry	Very angry	The angriest I've ever felt
1	2	3	4	5

6. I know I felt angry because: (please tick as many as you can think of)

my body gave me clues

What clues did it give? _____

what I did gave me clues

What

clues _____

I don't know

7. I felt WORRIED when:

8. Circle the number that is closest to how worried you felt:

A little worried	Quite worried	Worried	Very worried	The most worried I've ever felt.
1	2	3	4	5

9. I know I felt worried because (please tick as many as you can think of):

my body gave me clues

What clues did it give? _____

what I did gave me clues

What clues? _____

I don't know.

10. I felt SAD when:

11. Circle the number that is closest to how sad you felt:

A little sad	Quite sad	Sad	Very sad	The saddest I've ever felt.
1	2	3	4	5

Read the situation below and answer the questions.

15. Harrison was at school and he saw his friend, John. He walked over to him and asked him if he wanted to play soccer with him. John didn't say anything and kept on walking. "John doesn't want to play with me", thought Harrison. How do you think Harrison would feel in this situation?

16. Another reason why John might have kept on walking is that he didn't hear Harrison. Can you think of any other reasons?

17. What would be another way of thinking about this situation?

18. How do you think Harrison would feel if he thought about these other reasons?

19. People can think and feel differently about the same situation. Can you think of a real situation where two people may have thought and felt differently about the *same* situation? **For example,**

What was the situation?

Kieran and his grandfather are thinking about something they can do together on the weekend. Kieran suggests that he shows his grandfather how to play a game on the computer.

What did each person think? How did they feel?

Kieran

Thinks: I love playing games on the computer

Feels: Happy

Grandfather

Thinks: I don't know much about computers and I probably won't be able to play the game properly with Kieran .

Feels: Worried

Can you think of a real situation where two people may have thought and felt differently about the *same* situation? Write it here:

What was the situation?

20. What did each person think? How did they feel?

Person 1

Thinks _____

Feels: _____

Person 2

Thinks: _____

Feels: _____

21. Can you think of a time in the last two weeks when you were able to think some **thoughts** that made you feel **good** about a situation?

Yes

No

22. How often in the last two weeks did you think **helpful** thoughts that made you feel good about a situation? (**Circle the number below that is closest to how often**)

Never	Once or twice	Sometimes	A lot of the time	Almost all of the time
1	2	3	4	5

Write some helpful thoughts: _____

23. Can you think of a time in the last two weeks when your **thoughts** were **not helpful** and made you feel bad about a situation?

- Yes
- No

24. How often in the last two weeks did you think **unhelpful thoughts** that made you feel **bad** about a situation? (*Circle the number that is closest to how often below*)

Never	Once or twice	Sometimes	A lot of the time	Almost all of the time
1	2	3	4	5

Write some **unhelpful** thoughts:

25. Do you think you can **choose** whether to use helpful or unhelpful thinking? (*Circle the number that is closest to what you think below*):

Never	Once or twice	Sometimes	A lot of the time	Almost all of the time
1	2	3	4	5

26. Think of something that happened in the last two weeks that made you feel bad. Did you: (*tick the boxes that apply*)

- believe the first thought that came to your mind
- think about other reasons for what happened
- get angry
- look for more evidence for what you were thinking and feeling
- change your thinking
- think of what was most likely to happen
- try not to think about it
- think of some options for what to do
- pick the best option
- ignore the problem
- help yourself feel better by _____
- other _____

27. When you think about that situation now, can you think of some **helpful** thoughts?

- Yes
- No

Write any **helpful** thoughts you can think of:

28. Think about a situation that happened over the last two weeks when **you felt bad about a situation**. When you think about that situation **NOW** do you think about: *(tick the boxes that apply)*

- the worst thing that could happen
- the best thing that could happen
- what is most likely to happen
- other _____

29. When you think about the **WORST** thing that could happen in a situation, do you think about what **YOU** could do if that happened? *(Circle the number that is closest to what you think below):*

Never	Occasionally	Sometimes	A lot of the time	Almost all the time
1	2	3	4	5

30. When you think about the **BEST** thing that could happen, do you think about how **YOU** could help that to happen? *(Circle the number that is closest to what you think below):*

Never	Occasionally	Sometimes	A lot of the time	Almost all the time
1	2	3	4	5

31. I can think of some things that I do well and am good at. *(Circle the number that is closest to what you think below):*

Never	Occasionally	Sometimes	A lot of the time	Almost all the time
1	2	3	4	5

Write some things that you are good at:

32. How easy is it for you to think of things that you are good at?

Never	Occasionally	Sometimes	A lot of the time	Almost all the time
1	2	3	4	5

33. Write some goals that you have for yourself. For example, Breanne's goals might be to try hard to learn to swim and to read more books.

My goals are:

When you try to think of goals for yourself is it: *(Circle the number that is closest to what you think below):*

Very hard **Hard** **OK** **Easy** **Very easy**
1 **2** **3** **4** **5**

34. How easy is it to think of a **PLAN** to help with your goals? **Circle the number that is closest to what you think below:**

Very hard **Hard** **OK** **Easy** **Very easy**
1 **2** **3** **4** **5**

35. Think of a time in the last two weeks when you had to make a decision.

I had to decide:

36. When I had to make the decision, I: (tick the boxes that apply)

- | | |
|--|--|
| <input type="checkbox"/> Thought about it first | <input type="checkbox"/> Didn't know what to do |
| <input type="checkbox"/> Let someone else decide for me | <input type="checkbox"/> Put my plan into action |
| <input type="checkbox"/> Thought up some options | <input type="checkbox"/> Thought up a plan, but didn't actually put it into action |
| <input type="checkbox"/> Just did what I usually do without thinking about it | <input type="checkbox"/> Worked out if it was the best option |
| <input type="checkbox"/> Picked the best option | <input type="checkbox"/> If it didn't work, I gave up. |
| <input type="checkbox"/> Thought about it for so long that I ended up with no choice | <input type="checkbox"/> If it didn't work, I picked another option |

Other _____
 —

37. Think of a time this week when you had a conversation with someone. (If you can't think of any conversations, just tick the box below.)

- I didn't have any conversations this week.
- This week, when I had a conversation with someone I :(**tick the boxes that apply**)
- looked them in the eye
 - listened carefully
 - smiled at them or showed with my expression that I was interested
 - talked softly
 - didn't interrupt
 - thought about what to say before I said it
 - asked questions

- looked away from them
- talked to the person about what they were interested in
- stuck to the topic
- was rude
- threatened the person
- attacked the person
- other _____

38. This week, when I had a conversation with someone I was friendly and honest.
(circle the number that is closest below):

Never	Occasionally	Sometimes	A lot of the time	Almost all the time
1	2	3	4	5

39. This week when I had a conversation with someone I felt calm and in control of my feelings. *(circle the number that is closest below):*

Never	Occasionally	Sometimes	A lot of the time	Almost all the time
1	2	3	4	5

40. This week when I had a conversation with someone, I felt that I could explain what I thought. *(circle the number that is closest below)*

Never	Occasionally	Sometimes	A lot of the time	Almost all the time
1	2	3	4	5

41. The last time I said something nice to someone I: *(tick the boxes that apply)*

- | | | |
|--|---|--|
| <input type="checkbox"/> Really meant it | <input type="checkbox"/> Didn't look at the person | <input type="checkbox"/> Said it clearly |
| <input type="checkbox"/> Didn't really mean it | <input type="checkbox"/> Looked the person in the eye | <input type="checkbox"/> Mumbled it |

42. When someone says something nice to me, I thank them.
(circle the number that most applies)

Never	Occasionally	Sometimes	A lot of the time	Almost all the time
1	2	3	4	5

43. The last time I asked for something but I didn't get what I wanted, I: *(tick the boxes that apply):*

- got angry
- listened to the other person's point of view
- thought about whether my what I'd asked was fair
- changed what I asked
- asked the person I was talking to if they understood what I wanted
- gave up
- asked questions

- called the other person names or insulted them
 - worked it out so we both got something we wanted
 - thought about how the other person was thinking or feeling
 - other _____
-

44. In the last two weeks I could tell when I felt worried or stressed because:
(please tick as many as you can think of)

- my body gave me clues. Write down some of the clues you get:

- what I did gave me clues. Write what you did:

- other _____
-

45. In the last two weeks when I felt stressed or worried, I made myself feel calmer by

46. I can think of someone who can help me when I need help or support.

- Yes
- No

47. In the last two weeks I asked for help or support from someone I trust.

- Yes
- No

48. Can you think of a difficult situation for your family? (For example, your Mum and your brother are arguing a lot and you feel sad about it).

- Yes
- No

APPENDIX C: Module Evaluation






ID NO.

Module Evaluation

What time is it now?

The following questions are to find out a little bit about you and how you are feeling.

1. Please circle one of the following numbers to indicate how you were feeling **before** you started the *Aussie Optimism* module today:

				
Very Good	Good	O.K	Not so good	Poor
1	2	3	4	5

2. Did you eat breakfast this morning?

YES NO

2. If you answered YES, what did you eat for breakfast?

3. Have you eaten lunch yet today?



YES NO

4. If you answered YES, what did you eat for lunch?

5. Did you feel tired when you woke up this morning?

YES NO

7. Please circle one of the following to indicate how tired you feel **now**?






				
Not tired at all	A little tired	O.K	Quite tired	Very tired
1	2	3	4	5

8. Think about the **exercise** you have done in the last week for example, playing sport at school or after school, dancing, doing karate, soccer or swimming. What exercise did you do? (*If you haven't done any exercise write "NONE"*).

9. How many days last week did you do some exercise? (**Please circle the number below**):

0 1 2 3 4 5 6 7

10. Please circle one of the following numbers to indicate how you are feeling **now**:

				
Very Good	Good	O.K	Not so good	Poor
1	2	3	4	5

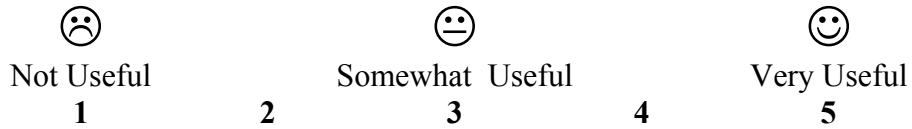
11. In the **last week** have you had any problems that you feel really worried about?

YES NO

If Yes, what were they? _____

The next questions are about today's Aussie Optimism module.

1. Please circle on the following scale the number which best describes how **useful** you thought today's module was:



2. What part of today's session was **most useful**?

3. What part of today's session was **least useful**?

4. Why wasn't it useful? _____

5. Were you easily able to **understand** what today's module was about?

YES NO

6. What was today's module about? (Pretend you are explaining it to a friend who missed the class.)

7. Was there anything in today's module that **didn't really make sense**?

YES NO

8. If Yes, what didn't make sense? _____

9. What part of today's module was **most fun**?

10. Why was it fun? _____

11. What part of today's module was **least fun**?

12. Why wasn't it fun? _____

APPENDIX D: Parent Information Sheets



South Street, Murdoch.
Western Australia 6150
Telephone. (08)93602570
Facsimile: (08) 93606492
<http://www.murdoch.au/>

PARTICIPANT

School of Psychology

Project Title: A Mixed Method Evaluation of the Aussie Optimism Program for Western Australian Regional School Children

Dear Parent/Guardian,

I am in my final year of a Master of Applied Psychology Degree at Murdoch University and have been asked by South Bunbury Primary School to work with teachers to evaluate the *Aussie Optimism* program, which the school will be running for your child this year. As part of this evaluation, I would like to measure changes in social and interpersonal skills as a result of the program.

The development of social skills in children helps them prepare for adolescence and adulthood. I am interested in determining how effective the *Aussie Optimism* program is in helping children to develop these skills and resilience to stressful situations. I am also interested in whether factors such as tiredness or daily stressors impact on children's ability to profit from the program.

This research is important because the information obtained will help with the implementation of such programs in regional schools and provide some guidelines for enhancing children's learning of social skills.

You can help with this study by consenting for your child to be part of the evaluation project. It is anticipated that children will be required to answer some short questionnaires before the program commences, regularly throughout the program, at the end of the program and again three to six months later. The questionnaires will assess children's recall of the skills taught in the program and their success in applying them in real life. They will also assess children's feelings of well-being and ask children about the aspects of the program that were and were not helpful. In addition, your child's teacher will also be asked to fill out a checklist assessing the social behaviour of participating children. Please note that all responses will be completely confidential and no identifying information will be used in the analysis or reporting of the research. However, if your child's responses indicate the need to do so, I will contact you and the necessary school personnel.

Your child's involvement in this evaluation project is voluntary and they will be told about the nature and aims of the project. If you would prefer your child not to participate in the evaluation, this decision will not affect your child's involvement in the *Aussie Optimism* program.

If you are willing for your child to participate in this project please complete the details overleaf and return these to your child's teacher. If you have any questions about this study please feel free to either contact myself, Kaye Mills, or my supervisor Dr Helen Davis on 9360 2859. My supervisor and I are happy to discuss with you any concerns you may have on how this study will be conducted or alternatively you can contact Murdoch University's Human Research Ethics Committee on (08) 93606677.

Yours Sincerely,

Kaye Mills

Dr Helen Davis (Supervisor)



South Street, Murdoch.
Western Australia 6150
Telephone. (08)93602570
Facsimile: (08) 93606492
<http://www.murdoch.au/>

CONTROL

School of Psychology

Project Title: A Mixed Method Evaluation of the Aussie Optimism Program for Western Australian Regional School Children

Dear Parent/Guardian,

I am in my final year of a Master of Applied Psychology Degree at Murdoch University and have been asked by South Bunbury Primary School to work with teachers to evaluate the *Aussie Optimism* that the school will be running for some children this year. As part of this evaluation, I would like to measure changes in social and interpersonal skills as a result of the program. In order to test whether the program is effective, I need to compare children participating in the program to children who do not participate.

The development of social skills in children helps them prepare for adolescence and adulthood. I am interested in determining how effective the *Aussie Optimism* program is in helping children develop these skills.

This research is important because the information obtained will help with the implementation of such programs at the school in the future and provide some guidelines for enhancing the learning of social skills for children. Even though your child will not be participating in the program this term, you can help with this study by consenting for your child to be part of the evaluation project. Children who are not participating in the *Aussie Optimism* program on this occasion will be asked to fill in some short questionnaires on two occasions during the term and again three to six months later. The questionnaires will ask children about how they deal with social situations and about their feelings of well-being. In addition, your child's teacher will also be asked to fill out a checklist assessing the social behaviour of participating children. Please note that all responses will be completely confidential and no identifying information will be used in the analysis or reporting of the research. However, if your child's responses indicate the need to do so, I will contact you and the necessary school personnel. It is anticipated that children who do not take part in the *Aussie Optimism* program this term will be offered the opportunity to take part in the future.

Your child's involvement in this evaluation project is voluntary and they will be informed about the nature and aims of the project, that their participation is voluntary and that they are free to withdraw at any time. If you are willing for your child to participate in this project please complete the details overleaf and return these to your child's teacher.

If you have any questions about this study please feel free to either contact myself, Kaye Mills or my supervisor Dr Helen Davis on 9360 2859. My supervisor and I are happy to discuss with you any concerns you may have on how this study will be conducted or alternatively you can contact Murdoch University's Human Research Ethics Committee on (08) 9360 6677.

Yours Sincerely,

Kaye Mills

Dr Helen Davis (supervisor)

Please keep this letter for future reference.

APPENDIX E: Child Information Sheets

**Primary School
SOCIAL SKILLS
AND
THINKING SKILLS**

Dear Parents

Social skills and thinking skills help children learn how to deal with situations that happen at school and at home. They can help them relate to other people more effectively. A program called the Aussie Optimism program has been developed for Western Australian children to help children learn these skills. Children currently in year 7 at this school are doing the program.

My name is Kaye Mills and I am currently completing a Master of Applied Psychology degree at Murdoch University. As part of my thesis for that degree, I am collecting data at ----- Primary School to assess how effective the Aussie Optimism program is at teaching social skills to children. This will help me work out the best way to help children learn these skills and what parts of the program are most effective and why. This is important because the information obtained can help with the implementation of the program at this school in the future. In order to determine this, I need to compare children who participate in the program to children who do not participate.

Even though your child is not participating in the program this year, you can help by consenting to your child taking part in the evaluation study. Enclosed with this letter is an information letter for you to read and a consent form for you to complete and return to the school.

APPENDIX F: Facilitator Questionnaire

**Optimistic Thinking Skills
Facilitator Questionnaire**

The following questions ask for some brief information about the *Aussie Optimism* program in your classroom, any problems you encountered with the delivery of each module and suggestions for improvement that may help with future program delivery.

Which parts of this module did the class enjoy MOST? **(please read the options below and tick as many as necessary)**

- Whole class activities Small group activities Teacher demonstration
 Individual activities
 Class discussion Worksheets Paired activities Games
 Brainstorming Roleplays

Other _____

Which parts of this module did the class enjoy LEAST? **(please read the options below and tick as many as necessary).**

- Whole class activities Small group activities Teacher demonstration
 Individual activities
 Class discussion Worksheets Paired activities Games
 Brainstorming Roleplays

Other _____

Were you able to deliver this module in the time stated? **(please tick).**

_____ Yes _____ No If not, which parts could you not deliver and what was the main reason?

Please read the options below and indicate any difficulties with delivery of this module?

- organisation of materials
 preparation
 organising group activities in the classroom
 class interest
 other _____

Which parts of this module did you think were most relevant to this class? **(please read the options below and tick as many as necessary).**

- Whole class activities Small group activities Teacher demonstration
 Individual activities
 Class discussion Worksheets Paired activities Games
 Brainstorming Roleplays

Other _____

During the last week what changes (if any) have you noticed in the behaviour of the children in this class.

Please read the statement below and circle a number.

1 = behaviour is worse

2 = no change

3 = behaviour has improved

4 = behaviour is much better

5 = some childrens's behaviour has improved

6 = some childrens's behaviour has improved

NA = Not applicable

1 2 3 4 5 NA

Please specify some examples of specific behaviour change you have noticed if applicable _____

Do you have any suggestions for improving the delivery of this module in a classroom situation?

APPENDIX G: Program Checklist

Program Checklist

Module Number 3

Program type - Optimistic Thinking Skills

Time Taken

Module Overview
Introduction/Review

Module Processing

Notes

1.Introduction/Review

Whole Class activity- 1.2.3 and processing

Delivered Partly delivered Not delivered

Class attention

Full Some not attending Most not attending
 Number not attending

2.Activity Game and processing

Delivered Partly delivered Not delivered

Class participating

Full Some not participating Most not participating
 Number not participating

Linking feelings and thoughts– 1,2,3,4,5,6 and processing

Delivered Partly delivered Not delivered

Class participating

Full Some not participating Most not participating
 Number not participating

Application to challenging issues 1,2,3,4,5 and processing

Delivered Partly delivered Not delivered

Class participating

Full Some not participating Most not participating
 Number not participating

Module Processing

Delivered Partly delivered Not delivered

Class participating

Full Some not participating Most not participating
 Number not participating

Was the entire module delivered in the time stated?

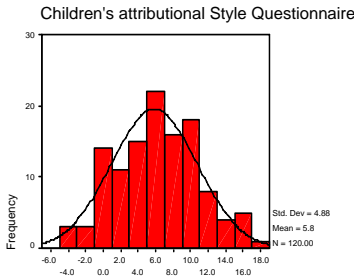
_____ Yes _____ No If not, which parts were not delivered and what was the main reason?

Please read the options below and indicate any difficulties with delivery of this module?

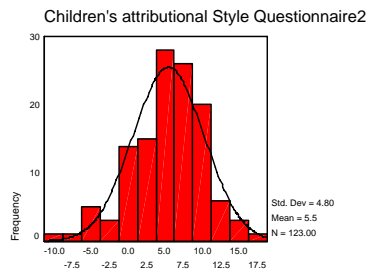
- organisation of materials
- preparation
- organising group activities in the classroom
- class interest
- other _____

APPENDIX H: Printout of Histograms 1

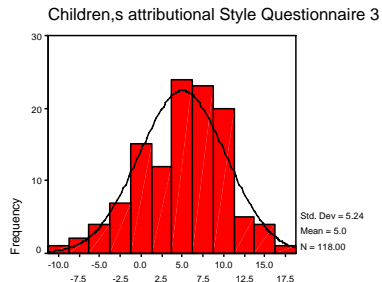
Histograms



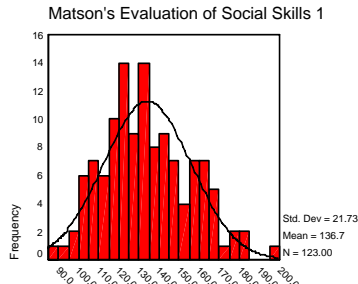
Children's attributional Style Questionnaire1



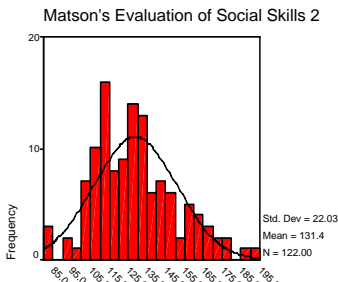
Children's attributional Style Questionnaire2



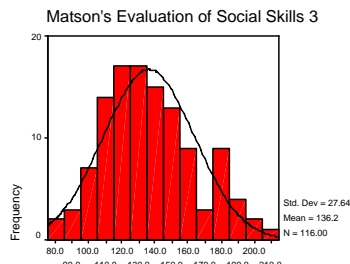
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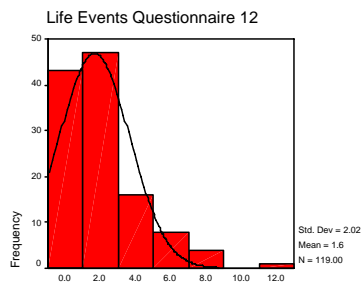
Matson's Evaluation of Social Skills 1



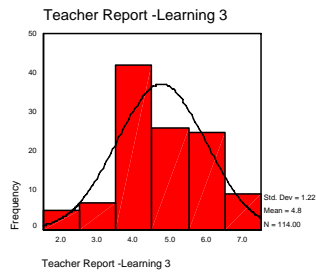
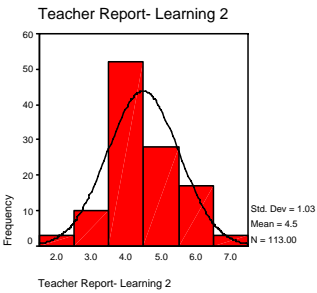
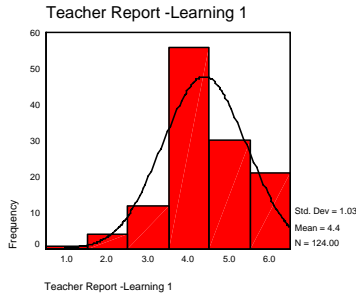
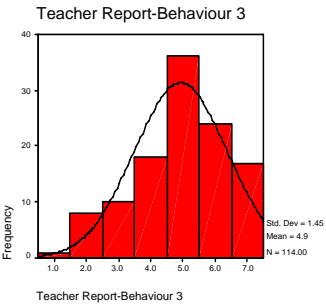
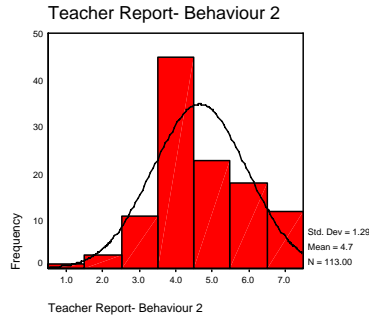
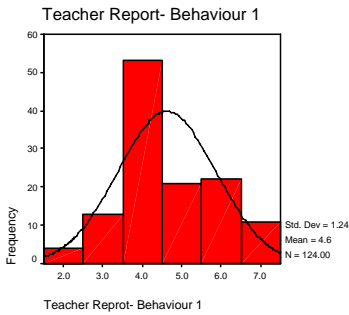
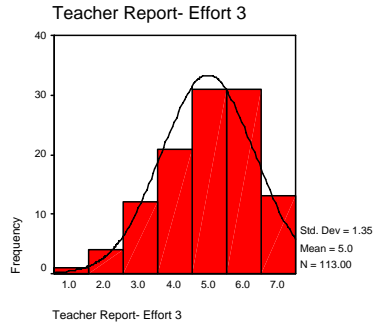
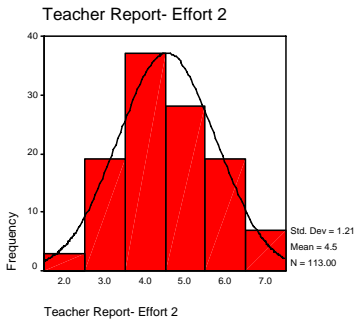
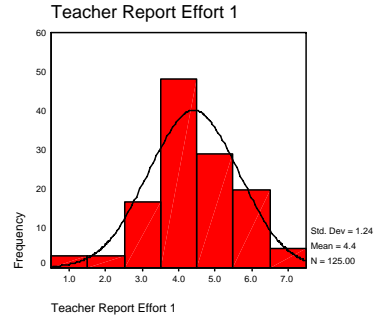
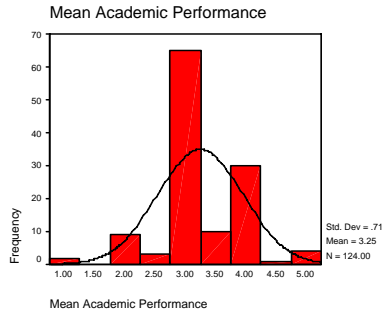
Matson's Evaluation of Social Skills 2



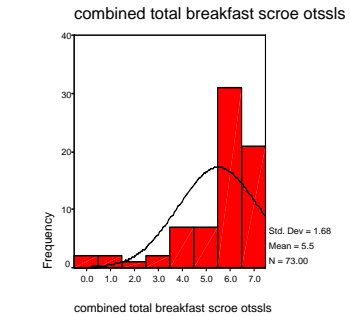
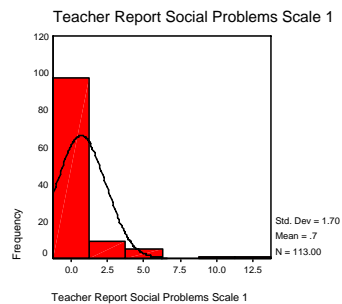
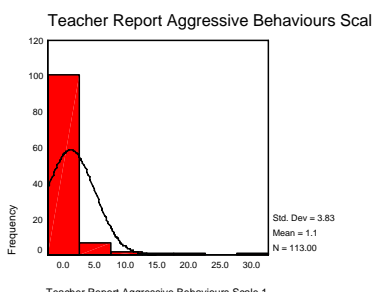
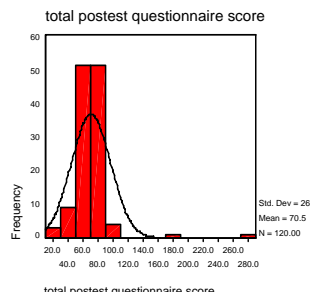
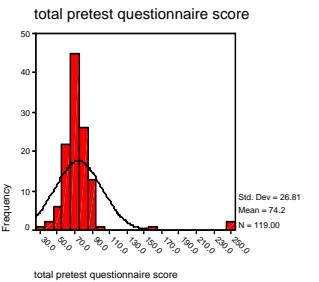
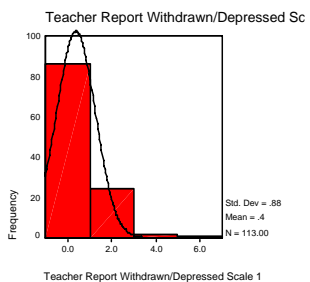
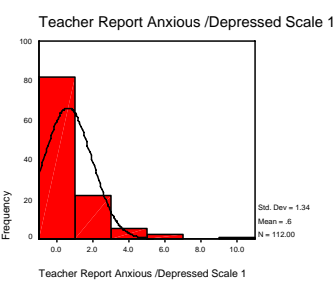
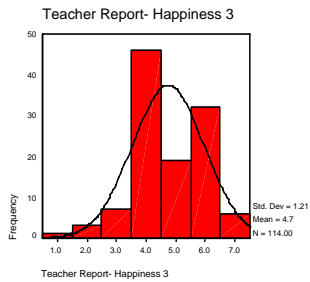
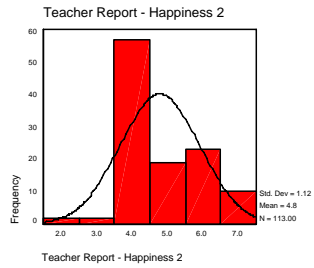
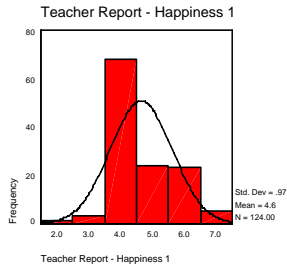
Matson's Evaluation of Social Skills 3



Life Events Questionnaire 12



APPENDIX I: Printout of Histograms 2



APPENDIX J: Clinical Case Discussions**Clinical Case Discussions**

Teachers completed the Social Problems syndrome scale of the TRF on all students at pretest and on students with elevated levels at posttest. Children whose scores were in the borderline clinical range from the 93rd to the 98th percentile and the clinical range above this, were used in the present study in order to examine the clinical changes as a result of the intervention groups. This data is summarised in Table 6.

Sample Means, Standard Deviations, and Pre-and Posttest Scores and Classification of Students With Elevated Scores on the Syndrome Scales of the TRF

Scale	M	SD	Student ID	Pretest	Posttest
Social problems	0.68	1.70	1*	12 (Clinical)	11(Clinical)
			22*	9 (Clinical)	9 (Clinical)
Aggressive Behaviour	1.13	3.83	1*	20 (Clinical)	21(Clinical)
			22*	29 (Clinical)	22 (Clinical)
			8*	7 (Normal)	15 (Borderline)
			6	14 (Borderline)	3 (Normal)
Anxiety/Depression	0.60	1.34	8*	9 (Borderline)	6 (Normal)
Withdrawal/Depression	0.38	0.88	22*	6 (Borderline)	3 (Normal)

*Note_** denotes students who are in the clinical or borderline range for other scales

Only one student from the optimistic thinking skills group had an elevated score on a syndrome scale at pre-test. This student in was in the borderline range for

social problems at pretest but was not tested again at posttest. This student's score on the MESSY was also below the normed mean at all three assessment times (Matson, 1994). As can be seen in Table 6, one student from the social life skills group was in the borderline range for aggressive behaviours at pretest and teachers reported that they had reduced these aggressive behaviours from 14 to 3 at posttest. This was accompanied by a reduction in MESSY scores at both posttest and follow-up.

Two students scored in the clinical range for social problems and aggressive behaviours and remained in the clinical range for both social problems and aggressive behaviours at posttest, although one of the two students student's teachers reported that their aggressive behaviours had reduced by seven and this same student had also been in the clinical range for symptoms of withdrawal and depression at pretest and was in the normal range at posttest. This student also reported much better social skills at posttest, but not at follow-up and six stressful life events in the last twelve months. The other student's score on the MESSY increased from pre-test and posttest to follow-up. One student's aggressive behaviours increased at posttest but teacher's reported that their symptoms of anxiety and depression were in the normal range.

One student who had been in the borderline range for teacher-rated symptoms of anxiety and depression at pretest was in the normal range at posttest and although this student's teachers reported that their aggressive behaviours had increased, they achieved a reduction in their MESSY scores which remained above the mean. Another student who was in the borderline range for symptoms of withdrawal and depression at pretest was in the normal range at posttest however teachers noted no change in social problems and although a reduction in aggressive

behaviours was reported, they remained in the clinical range. This student reported improved social skills at posttest but not at follow-up.

APPENDIX K: Table 1 of Intercorrelations

Table 1 Intercorrelations for Scores on Measures of Child Functioning

Measure	1	2	3	4	5	6	7	8	9	10	11	12
1. Children's Attributional Style	--											
2. Matson's Evaluation of Social skills	-.41**	--										
3. Life Events Questionnaire	-.16	.05	--									
4. Teacher Report Form-Effort	.38**	-.32**	-.14	--								
5. Teacher Report Form - Behaviour	.39**	-.23*	-.18	.70**	--							
6. Teacher Report Form -Learning	.37**	-.25**	-.17	.82**	.72**	--						
7. Teacher Report Form - Happiness	.37**	-.22*	-.22*	.57**	.75**	.63**	--					
8. Teacher Report- Academic Performance	.31**	-.21**	-.27**	.67**	.48**	.76**	.48**	--				
9. Total breakfast score	.27*	-.14	-.13	.27*	.23	.27*	.18	.37**	--			
10. Total exercise score	-.02	-.06	.14	.08	.12	.08	.20	.12	.29*	--		
11. Total tiredness score	-.03	-.07	-.05	-.05	.00	.01	.04	-.05	-.24*	-.14	--	
12. Social skills change ^a	.06	.18	-.02	.04	.07	.13	-.00	.07	.34**	.13	-.28*	--
13 Attributional Style change ^b	.49**	.04	-.02	.17	.16	.07	.13	.06	.13	-.10	.03	-.15

Note ^a Pretest MESSY score minus follow-up MESSY score. ^b Pretest CASQ score- Follow-up CASQ score *Correlations are significant at $p < .05$. Correlations are significant at $p < .01$

APPENDIX L: Table 2 of Intercorrelations

Table 2

Intercorrelations for Scores on the TRF Syndrome Scales at Pretest and Measures of Child Functioning

Measure	1	2	3	4
1 Anxious/Depressed	--			
2. Withdrawn/Depressed	.31**	--		
3.Social Problems	.39**	.38**	--	
4.Agressive Behaviour	.37**	.32**	.59**	--
5.Children's Attributional Style	-.16	-.22*	-.17	-.23*
6. Matson's Evaluation of Social skills	.05	.17	.16	.16
7. Life Events Questionnaire	.05	-.00	.15	.13
8. Teacher Report Form-Effort	-.24*	-.32**	-.52**	-.42**
9. Teacher Report Form - Behaviour	-.27**	-.31**	-.55**	-.52**
10.Teacher Report Form -Learning	-.33**	-.30**	-.53**	-.41**
11. Teacher Report Form - Happiness	-.28**	-.23**	-.42**	-.31**
12. Teacher Report- Academic	-.29*	-.29**	-.44**	-.25**
9. Total breakfast score	-.12	-.31**	-.11	-.01
10. Total exercise score	-.13	-.19	-.36**	-.06
11. Total tiredness score	.12	.10	.00	.06
12. Social skills change ^a	-.22*	-.05	-.06	.04
13. Attributional Style change ^b	.04	.03	-.02	-.10

Note. ^a Pretest MESSY score minus follow-up MESSY score. ^b Pretest CASQ score –follow-up CASQ score *Correlations are significant at $p < .05$; **Correlations are significant at $p < .01$