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Attributional Style, Depression and School Mobility : Assessing the Impact on Academic Achievement

Anne Grey
Edith Cowan University

Edith Cowan University

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Anne Gray

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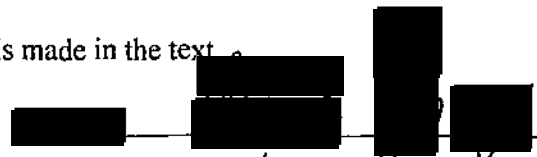
Abstract

Academic achievement can impact on psychological wellbeing and can have a profound impact on later educational and vocational opportunities. Failure to achieve well academically has been associated with a number of factors including depression, a pessimistic explanatory style and mobility. There is evidence too to suggest that the impact of these variables is greater on younger boys and older girls. One hundred and eight students (54 M, 54 F) from two Catholic metropolitan schools took part in this study into the impact of depressive symptomatology, attributional style and school mobility on academic achievement. It was hypothesised that lower levels of academic achievement would be associated with higher levels of depressive symptomatology, a pessimistic attributional style and increased school mobility. It was further hypothesised that there would be age and gender effects. Students completed the Children's Depression Inventory and Children's Attributional Style Questionnaire and three subtests on the Wide Range Achievement Test -3 . No significant differences were found between mobile and nonmobile children's academic achievement. The hypothesised age and gender effects were not evident. A range of protective factors thought to mediate the effects depressive symptomatology, attributional style and school mobility are suggested to account for the current findings. Limitations of the study are discussed and directions for future research are suggested.

Declaration

I certify that this thesis does not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any institution of higher education and that, to the best of my knowledge and belief, it does not contain any material previously published or written by another person except where due reference is made in the text.



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Introduction

Academic achievement can impact on psychological wellbeing with failure to achieve in academic settings affecting self-esteem and motivation as well as putting children at risk of being unable to compete in a world coming to rely increasingly on technological skill (Bempechat, Nakkula, Wu & Ginsburg, 1996). Individual levels of achievement, particularly as measured in academic settings, can have a profound impact on later educational and vocational opportunities.

Academic accomplishment is among a range of domains making up a subjective experience of psychological wellbeing (Marchant & Medway, 1987), with negative school experiences influencing later adult outcomes (Zubrick et al., 1997). Failure to achieve well academically is often associated with a number of factors including depression, a pessimistic explanatory style (Nolen-Hoeksma, Girgus & Seligman, 1986) family conflict (Stoneman, Brody, Churchill & Winn, 1999), mobility factors (Hendershott, 1989) and poor mental health (Zubrick et al., 1997). Links between the level of depression and achievement as reported by Nolen-Hoeksma et al. (1986) seem to indicate that there is a reciprocal relationship between achievement and other measures of psychological health, such as helpless behaviours and attributional style. The purpose of this study is to further examine the impact of depressive symptomatology, explanatory style and changing schools on young children's academic achievement.

Achievement

Definitions of achievement have stressed two aspects, (a) performance in achievement related roles and settings, for example academic grades or tests, and (b) in social roles or positions where the individual's performance or behaviour is subject to the imposition of internal or external criteria (Hetherington, Camara &

Featherman, 1983: Spence & Helmreich, 1983). Spence and Helmreich (1983) define achievement as task oriented behaviour that allows for evaluation according to internally or externally imposed criteria, involving competition with others or with some imposed standard of excellence. This definition of achievement is similar in many respects to that provided by Reeve (1997) who described the need for achievement as the desire to do well relative to some standard of excellence. This term encompasses competition against self, against others, or against some criterion measure or benchmark. Criterion referenced evaluation measures the degree to which an individual has achieved stated criteria (Mercer & Mercer, 1998).

Measures of achievement.

Achievement may be measured in various ways, according to context and the purpose of measurement. Measures of academic achievement may be used in assessing individual children's strengths and deficits to ensure education in the 'least restrictive environment' (Mercer & Mercer, 1998, p.15). Standardised and criterion testing are widely used in academic settings (Mercer & Mercer). Criterion testing may be conducted to highlight strengths and deficits in a student's performance according to some previously fixed criteria and may be used to guide the formulation of individualised education programmes (Mercer & Mercer). Standardised tests can be used to provide a measure of generalised intelligence, literacy or numeracy standards or to measure social competence and school adjustment (Mercer & Mercer). Standardised measures of achievement are used widely to determine placement in special education programmes, to highlight potential areas of strength or deficit and for special educational funding purposes (Mercer & Mercer). There are different tests designed for use in academic settings. One of the most popular instruments that is utilised is the Wide Range Achievement Test (WRAT – 3,

Wilkinson, 1993) which measures achievement in literacy and numeracy. Participants' performance is scored and compared to age-related normative data. A percentile rating gives an indication of performance relative to that of a similar cohort.

Many of the studies examining children's achievement have utilised children's performance in school settings as a measure of academic competence and compared children's scores on standardised academic tests in their assessment (Bempechat et al., 1996; Nolen-Hoeksma et al., 1986; Yates, Yates & Lippett, 1995). Others have used teacher, parent or self-report measures on achievement or some combination of these to assess competence (Cole, Martin, Powers & Truglio, 1996). Whether standardised test scores or report measures were used, children's level of academic achievement appears to have been judged relative to that of others within the particular cohort being assessed.

Factors impacting on achievement

According to Atkinson's theory (cited in Reeve, 1997, p. 138), achievement comprises four variables; achievement behaviour, the need for achievement, the probability of success and the incentive for success. Thus an individual's achievement will depend not only on how they approach a task, how much they want to succeed and the rewards of success but also on their perception of how likely they are to succeed.

Although the capacity for success in academic situations, as measured by intelligence and intellectual aptitude, may remain relatively stable over time (Garcia & Ramirez, 2001), achievement can be affected by a variety of other factors, including achievement related behaviours (Eccles, 1983), motivation (Reeve, 1997), attentional focus and self-efficacy beliefs (Yates et al., 1995), parental involvement

(Garcia &Ramirez, 2001) and the amount and quality of instruction (Fraser, 1987). Attributions for success in academic tasks (Bempechat et al., 1996) may also influence actual achievement. For example, in a study by Bempechat et al. that focused on mathematics achievement, an association between achievement levels and ability attribution was reported. Attributions of success were related to ability and attributions of failure were related to a lack of ability (Bempechat et al.). These findings were consistent across ethnic groups. Yates et al., (1995) also found links between attributional style and mathematics achievement, with a positive style being associated with higher levels of achievement.

Risk and protective factors for academic achievement

The level of academic achievement attained may be affected by genetic endowment, life events, family type and income (Zubrick et al.,1997). Lower levels of academic competence have been found in children whose parents had relatively low levels of educational attainment (Zubrick et al.). The academic competence of children was found to decrease as the number of significant life events, such as parental separation or family mobility increased (Zubrick et al.). Family mobility, particularly where this involves change of school has also been associated with poorer achievement outcomes for children (Heinlein & Shinn, 2000; Johnson & Lindblad, 1991). Students in one-parent families also fared less favourably academically when compared to those living with both parents (Zubrick et al.).

Higher levels of education in parents have been found to decrease the impact of other potential risks to children's achievement, such as that posed by residential instability (Long, 1975; Straits, 1987). Increased parental involvement and family socio-economic status have also been shown to impact favourably on children's educational achievement, albeit indirectly (Garcia & Ramirez, 2001).

Depression

Recent studies have demonstrated that the incidence of depression in the general population has been growing steadily since the early 1960s (Seligman, Reivich, Jaycox & Gillham, 1995). Nolen-Hoeksma, Girgus and Seligman (1992) state that approximately 10-15% of children will report moderate to severe levels of depressive symptoms, with as many as 20% reporting a depressive episode by the time they finish high school (Gillham, Reivich, Jaycox & Seligman, 1995). The Western Australian Child Health Survey issued by the Australian Bureau of Statistics (Kelly, 1995) conducted on children aged between 4 and 16 years, identified 18% of children as having mental health problems, including social problems and anxiety / depression. It was noted too that estimates of the prevalence of mental health problems showed boys to be at greater risk than girls (Kelly, 1995).

Some of the symptoms of childhood depression are similar to those experienced by depressed adults (Kennedy, Spence & Hensley, 1989). Major depressive episodes in adults are defined by a lengthy period of depressed mood or loss of interest in nearly all activities (Diagnostic and Statistical Manual of Mental Disorders–IV, American Psychiatric Association, 1994). In children, this may manifest as irritability rather than sadness. The individual must also experience additional symptoms of changes in appetite, weight, sleep or psychomotor activity and / or suicide ideation (DSM –IV, 1994). Ordinary daily events may be interpreted negatively and with an exaggerated sense of blame or guilt. The distinction is made between depression and depressive symptoms with Nolen-Hoeksma and Girgus (1994) indicating disagreement among researchers that depression and depressive mood simply represent different points on a continuum. Nolen-Hoeksma and Girgus (1994) posit that even though the symptoms experienced may not be sufficient to

meet the criteria for formal assessment of depression, depressive symptoms in children should be of concern.

Many of the studies into childhood depression (Kennedy et al.,1989; Nolen-Hoeksma et al., 1986; Puura et al., 1998) have measured the severity of depressive symptoms using the Children's Depression Inventory (CDI: Kovacs, 1992). Although the measurement of depression using solely self-report measures has received some criticism on the grounds of their potential for bias due to existing negative affect (Nolen-Hoeksma & Girgus 1994), Nolen-Hoeksma and Girgus (1994) acknowledge that many studies have been undertaken using self-report measures of depression. Cole and Turner (1993) also regard self-report measures as inferior to clinical interview and diagnosis but agree that where self-report measures are used, the CDI (Kovacs, 1992) is a highly reliable one. Such measures may therefore be of greater value in screening or testing situations.

Origins of depression.

Various factors have been highlighted as predisposing an individual to depression (Roberts, 1999) and explanations of the origins of depression in both adults and children fall into two main categories; those focussing on biological factors and those that address psychosocial processes (Carr, 1999). Some studies appear to support a genetic predisposition or vulnerability, with high concordance rates found in monozygotic twin studies (Kendler, Heath, Martin & Eaves, 1986). Although children in families where the mother is depressed are more likely to become depressed (Downey & Coyne, 1990), it may be the pattern of interactions between mother and child that is problematic rather than a genetic link (Roberts, 1999).

According to Beck's (1976) theory, the onset of depression can occur when children begin to experience some form of loss, for example as a result of family

breakdown, loss of a loved person or pet. Following this loss, they may begin to develop negative schemas as to why the loss occurred. Schemata that focus on attitudes about the self, the world and the future are of particular importance in depression (Beck, 1976).

Seligman et al. (1995) suggest that depression has reached almost epidemic proportions in spite of moves to foster children's self-esteem with children now experiencing increased levels of passivity, pessimism and sadness. The effects of early depression appear to be stable and a predictor of depression later in life (Nolen-Hoeksma et al., 1992). Although it has been argued that depressive periods in children may be brief and simply developmental phenomena (Lefkowitz & Burton, 1978), longitudinal studies by Nolen-Hoeksma et al. (1992) point to the relative stability and pervasive nature of depressive symptoms.

Risk factors associated with depression.

Following Beck's (1976) theory of the development of depression in children, depressed children who experience loss may perceive further loss as probable and so attend more to negative aspects of their environment, leading to cognitions and behaviours that may further entrench their depressed mood (Carr, 1999). A pessimistic outlook that focuses on the negative aspects of events and situations may predispose a person to depression. Adult monozygotic twin studies by Kendler, Karkowski and Prescott (1999), found that the experience of a stressful life event substantially increased the risk of a depressive episode.

Deficit in personal competence as judged by self and peer reports has also been associated with depression in children (Roberts, 1999). Kennedy, Spence and Hensley (1989) suggest that the key may be in how depressed children respond to their peers. Responding in a submissive, unassertive manner may lead to their being

judged unfavourably. This in turn may elicit further depressive reactions and so perpetuate the cycle (Kennedy et al., 1989). As Roberts (1999) points out, however, it is uncertain as to whether social skills deficits put the child at risk for developing depressive symptoms or depression impairs their interpersonal functioning.

Protective factors associated with depression.

The effects of potential risk factors for childhood depression can be mediated by family cohesiveness and support (Reinherz, Stewart-Berghauer, Pakiz, Frost Moeykins & Holmes, 1989). Strong social capital (Coleman, 1988), a network of interested family and community members can play a protective role for children at risk (Roberts, 1999).

The effects may also be mediated, albeit moderately, by an optimistic attributional style, which focuses on the positive aspects of an event (Cole and Turner, 1993). An optimistic attributional style has been associated with lower levels of depression and greater academic achievement (Nolen-Hoeksma et al., 1986).

Adult depression need not be an inevitable consequence of childhood depression. An understanding of the risk factors associated with depression can be used to assist with the identification of children at risk for developing depressive symptomatology and directing them into intervention programmes aimed at reducing their depressive symptoms. Assessment of individual risk and protective factors can assist in developing strategies to address individual needs. Programmes using cognitive–behavioural techniques have been shown to be effective (Jaycox, Reivich, Gillham & Seligman, 1994) and children who had been taught these techniques reported fewer depressive symptoms two years post intervention (Gillham, Reivich, Jaycox & Seligman, 1995).

In summary, depression in children has been associated with lower achievement (Cole et al., 1996), lower self-esteem (Bempechat et al., 1996), deficits in cognitive performance (Nolen-Hoeksma et al., 1986) and decreased persistence (Seligman, Kamen & Nolen-Hoeksma, 1988). Although links between depression and academic achievement in children have been noted (Nolen-Hoeksma et al., 1986) causality cannot be readily established (Zubrick, et al., 1997). Strong links between depressive symptoms and social competence have been found (Cole et al., 1996; Kennedy et al., 1988). Children who are depressed may behave in ways judged unfavourably by peers, resulting in rejection and so perpetuate the depressive cycle (Kennedy et al., 1988).

Attributional style.

Depression in children has also been linked to a pessimistic attributional style (Nolen-Hoeksma et al., 1986). The theory of explanatory or attributional style is a reformulation of the model put forward by Abramson, Seligman & Teasdale (1978) and the earlier model put forward by Seligman (1975) on learned helplessness or feelings that a person has no control over life events. According to this reformulation, the explanations people make about good and bad events that happen to them influence their beliefs about future outcomes (Seligman et al., 1988). These explanations form a consistent pattern of response, described as a characteristic explanatory style (Seligman et al., 1988).

In a study on the impact of explanatory style and depressive symptomatology, Nolen-Hoeksma et al. (1986) utilised the Children's Attributional Style Questionnaire (CASQ: Seligman et al., 1995) to measure explanatory style. This is a self-report questionnaire that requires children to respond to a set of hypothetical situations. According to Seligman et al. (1995), explanatory style comprises three

dimensions: firstly, people most at risk for depression are likely to see the causes of bad events as permanent and lasting over time and are likely to stem from character flaws, secondly, people are likely to predict that failure is global and thirdly, that people are likely to attribute their failure to internal or external causes, blaming themselves or other people or circumstances. Depressed individuals blame themselves and feel guilty about events that are not always their fault. The CASQ (Seligman et al., 1995) measures each of these dimensions.

Consequently, individuals who are depressed are likely to see negative events such as 'You fail a test' as being stable over time, internal in origin and global in their effect (Nolen-Hoeksma et al., 1992). For example, a child who does not do well in a test may think "I got a C on that test because I'm stupid", attributing their result to stable, global and internal causes (Seligman, 1995).

According to Seligman et al. (1988), explanatory style is believed to be unstable until eight or nine years of age. The cognitions associated with the failure of routine solutions has been cited as one possible source of its development, although its earliest roots may be when very young children begin to make causal explanations about events (Seligman et al., 1995). Seligman et al. (1995) also suggest that attributional style may even be inborn, developing during preschool years. The causal explanations parents and teachers make for children's successes and failures can also convey important information that can influence students' self-perceptions. These self-perceptions are seen as more powerful determinants of expectancies than other, objective indicators of performance, for example, previous grades (Spence & Helmreich, 1983). Parents' pessimistic explanatory style can also have an impact on children's academic adjustment and achievement (Vanden Belt & Peterson, 1991).

Thus it seems that explanatory style is established in childhood and remains stable throughout life (Seligman et al., 1995).

Abramson, Metalsky and Alloy (1989) have modified the reformulated model of helplessness theory and have labelled this the hopelessness model. Here, negative life events (stressors) influence the individual's ability to cope and produce a state of hopelessness. It also follows that they will develop an expectation that negative events occur and that positive events will not. In addition the individual is likely to believe that they have no resources to change outcomes. Abramson et al. (1989) argue that the aetiology of depression may begin when individuals experience an event they believe to be a negative life event, rather than an uncontrollable one. It is the inferences the individual makes about the event that may set in train a particular pattern of attribution. This is particularly so where these inferences relate to characteristics about the self (Abramson et al., 1989). Symptoms of hopelessness depression then are evident in the interaction between depressogenic attributional style and negative life events (Metalsky, Helberstadt & Abramson, 1987). Support for a diathesis-stress model of hopelessness depression has come from Hilsman and Garber (1995) who found that negative cognitions appeared to increase vulnerability to depression, even when stressful events were merely anticipated.

Seligman et al. (1995) have suggested that pessimism is an entrenched habit with wide-ranging consequences including depressed mood, underachievement and poor physical health. Strategies designed to cushion the impact of anxiety or failure may be the cause of pervasive feelings of helplessness when goals are not achieved (Seligman et al., 1995).

Relationship between achievement, depression and explanatory style

In a five-year longitudinal study by Nolen-Hoeksma et al. (1992) links were found between achievement, explanatory style and depression. Explanatory style was measured using the CASQ (Seligman et al., 1995). Children's depressive symptomatology was measured using the Children's Depression Inventory (CDI: Kovacs, 1992). Both of these were then compared with achievement in literacy and numeracy as measured by a standardised academic achievement test and with teachers' assessment of helpless behaviours. Moderate to strong correlations were found over several different testing periods between explanatory style, depression levels and achievement helplessness, with a maladaptive explanatory style and higher levels of depression being positively correlated with poorer achievement. At the conclusion of this study, a number of correlations were reported. Firstly, links between depression and explanatory style were found (.48 for the perception of negative events, for example 'You fail a test', -.29 for positive events, such as 'You make a new friend'). Secondly, a correlation of .32 was found between depression and life events. Thirdly, a correlation of .41 was reported between depression and achievement helplessness. Yates et al. (1995) found similar results in a study utilising Australian primary school children, recording moderate significant correlations between CASQ scores (-.31 for negative events, .20 for positive events) and mathematics achievement, with lower achievement being associated with lower scores on the CASQ (Yates et al., 1995).

The incidence of a pessimistic explanatory style and higher levels of depression seems to be greater in young boys than in girls (Yates et al., 1995). However, it has been found that this trend reverses during mid- to late adolescence (Nolen-Hoeksma, Girgus & Seligman, 1991). Nolen-Hoeksma et al. (1995) attribute their findings of gender and developmental differences to the methodology they employed. They felt

the anonymity afforded by the CASQ (Seligman et al., 1995) gave a truer picture than interview situations that have previously been used to assess attributions for success on purely cognitive academic tasks (Nolen-Hoeksma, et al., 1991). The switch to girls having a more depressive style may be partly explained by girls developing a more negative self-image throughout their teens while boys' self-image remains generally positive, (Nolen-Hoeksma et al., 1991). In a review of three developmental models to explain this phenomenon, Nolen-Hoeksma and Girgus (1994) provide a model they feel explains the emergence of gender differences in depression during adolescence. The proposed model acknowledges that gender differences in personality and behavioural style exist before puberty and pose risk factors that interact with the increased challenges that early adolescence may bring. Girls face greater social and biological challenges than boys do and so may be more prone to depression (Nolen-Hoeksma & Girgus, 1994). This may be particularly true for girls who enter early adolescence with a more passive style of coping, who are subject to abuse or harassment (real or threatened) or who experience restrictions or devaluation due to their gender (Nolen-Hoeksma & Girgus, 1994).

Mobility.

Australians are one of the most mobile populations in the world with approximately 15 % of the population estimated to be mobile, changing homes, changing employment and in some cases, schools (Fields, 1997; Rahami, 1986). The effect of changing schools and its impact on children's achievement is problematic. Studies in this area have used different measures of mobility. Some have assessed the impact of moves throughout the child's whole school career (Hendershott, 1989) or the impact of moves within two years (Fields, 1995) or four years (Rumberger & Larson, 1998). The Western Australian Child Health Study (Silburn et al., 1996)

found that almost 27 percent of families with children aged four to sixteen years had been in their present accommodation for less than two years. Fields (1995) however puts a somewhat higher figure on mobility. According to census data on relocation that was available at the time, Fields points to 46.1 % of children between five and nine years of age and 38.5% of 10 to 14 year olds relocating at least once in the five years since the previous census. Within Australia, increased mobility has been associated with military families, families of professional or managerial personnel (Blane, et al., 1985), geologists, construction and mine workers, doctors and bank personnel (Rahmani, 1986) in addition to families with economic or family issues, such as improved income prospects or family separation (Fields, 1997). Although mobility generally is defined in terms of residential mobility, Silburn et al. (1996) found that the average number of schools attended tended to increase with the number of residential moves.

However, there are circumstances when there are other reasons for changing school without changing residence. In a study by Rumberger and Larson (1998) in the United States, 30 % of students changed school but did not change residence. In these cases, parents may have moved their children for factors related to their wellbeing (to escape bullying, break up unwanted peer associations) or for academic reasons (teacher: student ratio, problems with teachers, better academic resources). Instances of bullying or problems with teachers may constitute another stress factor for children.

The impact of school and residential mobility may depend largely on Coleman's (1988) idea of social capital, which emphasises the importance of parental involvement in their children's lives. Parallelling the concept of social capital with those of financial, physical and human capital, Coleman (1988) stresses

the importance of social structures that allow for the exchange of benefits and mutual obligations. Here the relationships between parents and between parents and their child are the primary source of a child's social capital. This relies not only on the physical presence of adults in the family but also on the attention they give to the child. Social capital does not reside solely within the family structure however but can also be found within community institutions (Coleman, 1988). Together with teachers, neighbours and extended families, children may build up a strong network of interested supportive people who can help ease transitions between schools. Where families move often, the social relationships that constitute social capital are broken down and community support may not be available to these families (Coleman, 1988).

Mobility and achievement

Studies assessing the impact of family mobility have found that relocation involving a change of schools has a detrimental effect on achievement (Cole, Martin, Peeke, Seroczynski & Fier, 1999; Heinlein & Shinn, 2000; Simmonds, Burgeson & Carlton-Ford, 1987). The impact of non-normative changes of school, for example those other than the transition from primary to high school, has been found to differ according to gender. In particular, it has been found that boys' academic achievement is affected more than girls' when a number of changes in school have been experienced. (Simmons et al., 1987). The impact of changing schools is exacerbated when children move interstate because different states have adopted different teaching methodologies and curricula (Rahmani, 1986: Craig, 1989). Short distance moves, even where these occur more frequently, appear less problematic (Long, 1975).

Although the impact of educational mobility on achievement has been refuted (Blane et al., 1985), there is some evidence to suggest that it can result in increased depressive symptoms (Stoneman, Brody, Churchill & Winn, 1999). Silburn et al. (1996) suggest a link between mobility and child mental health problems. They found 33% of children in families who had moved in the two years prior to their survey had a mental health problem. Zubrick et al. (1997) found an association between the number of changes of dwelling children experienced and the number of schools they attended. Children who experienced a greater number of moves also experienced more changes of schools (Zubrick et al.). Fields (1997) reports on the perceived impact of changing schools, likening it to hospitalisation in terms of a stressful life event for children. It would be expected then that in light of Abramson et al.'s (1989) diathesis-stress model, children with a depressogenic pattern would experience the impact of changing schools more negatively than those with a more optimistic pattern. Indeed, Abramson et al. (1989) predict recurrences of hopelessness depression for people with cognitive diatheses when confronted with negative life events.

Risk factors for boys

It appears that it is not changing schools per se that has an adverse effect on children, but rather the extent to which the move deprives them of social support (Stoneman et al., 1999) or capital (Coleman, 1988). Boys have been found to be at greater risk when deprived of social support (Parish, 1990). Reduced social support, whether real or simply perceived, may lessen an individual's capacity to handle negative life events and so make them more susceptible to depression (Billings, Cronkite & Moos, 1983).

The impact of explanatory style, depression and changing schools seems to be greater for boys than for girls (Parish, 1990; Simmonds et al., 1987). For boys, the number of non-normative changes of school is implicated (Simmonds et al., 1987). The loss or changes in social capital (Coleman, 1988) resulting from frequent moves may present a risk factor. There is evidence too that the stress of family breakup and its aftermath, family dynamics and parental conflict can impact more severely on boys' achievement (Morrison & Cherlin, 1995).

Mobility of defence personnel

A strong social support network may help alleviate some of the stresses associated with changing schools (Parish, 1990; Simmonds et al., 1987). Defence personnel make up one group where children may retain a greater part of their supportive network following relocation and studies reported by Duffy (1986) have failed to prove conclusively that increased levels of mobility associated with Defence Force life had a negative impact on children's academic achievement. Rahmani (1986) reports that most studies on the effects of mobility have focussed on service families and that there is a need for greater research into the impact on civilian children. This was borne out by a later study by Marchant and Medway (1987) who qualify earlier results by suggesting that the finding of no significant differences in achievement may be related to the same curriculum being administered in base schools. A finding of no differences may not hold in military children attending local, off-post schools (Marchant & Medway, 1987). The Australian Defence Force Family Support Policy aims to provide support for defence personnel and their families, although it is felt that this policy would benefit from further addressing the diminishing of community relationships, inherent in high mobility occupations (Bull, 1999).

Links between depression, attributional style, school mobility and achievement

Several studies report the impact on academic achievement of depression (Nolen-Hoeksma et al., 1986), attributional style (Yates et al., 1995) and school mobility (Hendershott, 1989). Children transferring schools because of 'household considerations' (for example, being forced to move or the formation of a new household) were found to have lower levels of academic achievement (Warren-Sohlberg & Jason, 1992). Where children have experienced a number of changes in school, the impact seems to be moderated if they are living in families in which both biological parents are present (Parish, 1990; Tucker, Marx & Long, 1998). Entwisle and Alexander (1995) qualify this however, finding that the effects of intact family life only made a significant difference in achievement over the summer months during which time children presumably were exposed to differing levels of educational activity. Change necessitated through separation or divorce may mean another stressful life event for children with associated increased risks to their psychological wellbeing (Hetherington et al., 1983; Zubrick et al. 1997). In such cases too the decreased availability of parental time may result in lower achievement outcomes (Hetherington et al., 1983). The effects of mobility on achievement then may be more directly related to other familial variables, such as the presence of both parents (Johnson & Lindblad, 1991; Long, 1975; Rumberger & Larson, 1998; Zubrick et al., 1997).

The present study

This present study looks at the impact of explanatory style, depressive symptoms and school mobility on academic achievement and how this differs with gender and age. Although there is some concern that the use of evaluative testing in schools may decrease the value of school related achievement behaviours (Spence &

Helmreich, 1983) and that their predictive ability may not extend to a particular cohort (Hetherington et al., 1983), this study will use standardised tests as a measure of academic achievement. Standardised tests have been readily used in other studies on academic achievement (Nolen-Hoeksma et al., 1986; Yates et al., 1995). With moves interstate or between school systems, differences in grade level may be due to differences in school starting ages (Long, 1992). In using a standardised measure of academic achievement this study seeks to avoid differences due to school year levels in students who have moved interstate or who have migrated.

School mobility is defined here as the number of non-normative moves in a child's school career within the three year period preceding the study, since there is evidence to suggest that it is the number of changes which has the greatest impact on achievement, particularly for boys (Simmonds et al., 1987). Earlier studies have focused on changes within two years (Fields, 1995) or within four years (Rumberger and Larson (1998) used four years. For the purposes of the study however, only changes of school occurring in the last three years were considered for analysis as children may be expected to have established some degree of social support or social capital (Coleman, 1988) in their new setting within three years.

Lower levels of academic achievement have been associated with a pessimistic explanatory style (Yates et al., 1995), higher levels of depression (Nolen-Hoeksma et al., 1992) and increased school mobility (Stoneman et al., 1999). The impact of explanatory style, depression and changing schools seems to be greater for boys than for girls (Parish, 1990; Simmonds et al., 1987). There is evidence too that the impact of these variables on academic achievement is greater for young boys than for girls with this trend being reversed during adolescence (Nolen-Hoeksma & Girgus, 1994; Nolen-Hoeksma et al., 1992). Several studies assessing the impact of school and

residential mobility highlight the difficulties faced by children confronted with these issues (Fields, 1997, Silburn et al., 1996). The following hypotheses are proposed:

1. that lower levels of academic achievement will be found in children who have changed schools, have a pessimistic explanatory style and higher levels of depression and that
2. there will be both gender and developmental differences in this relationship, with the achievement of younger boys and older girls being more adversely affected by depressive symptomatology, explanatory style and school mobility.

Data relating to the recency of changing school and the reasons behind the move will be examined for evidence of any trend. However, due to the relatively small number of participants in the mobile group, no formal inferences will be drawn.

Method

Research design:

The research was a non-experimental, within-subjects design, examining the relationship between academic achievement, depressive symptomatology, explanatory style, gender, age and school mobility. Children's achievement level was the dependent variable. Independent variables were gender, age, explanatory style, depressive symptomatology and school mobility.

Participants

Participants were 108 students (54 males, 54 females) from two Catholic, non-government, metropolitan primary schools in Perth, Western Australia. Catholic primary schools in Western Australia receive Government funding. The Catholic Education Commission of Western Australia distributes this funding to schools on a needs basis. To determine funding requirements, a formula is applied that examines, among other variables, a record of the school's fee payments. These variables are used in determining a school's needs and provide an indication of the socio-economic status (SES) of the school. Schools are categorised, their funding category giving an indication of the SES of the area in which the school is situated. At the time of this study, the schools involved received funding at a level that indicated no significant economic hardship. Exact figures are not available. Both schools employed a social worker, had peer support programmes in place as well as policies for the social, emotional and psychological wellbeing of the school communities.

Children in years four to seven, aged eight to twelve years ($\underline{M}$ = 10.5 years) at the time of testing were included in the study. Year four was chosen as the lower end of the scale as it represents an age at which participants may be expected to have adequate reading skills to respond to questions. There is also evidence that

explanatory style may be unstable earlier than this age (Seligman et al., 1988). Year seven was chosen as the upper limit since the greatest impact of the independent variables seems to be in pre-adolescence. In addition students were classified as belonging to either a mobile group (at the current school for less than three years) or a non-mobile (at the current school more than three years). For the purposes of analysis, participants were further grouped according to school, number of schools attended in the previous three years, length of time at the current school, reason for the move, gender and age.

Demographic information is presented in Table 1.

Table 1
Demographic information on participants

	Mobile		Nonmobile		
Age	Male	Female	Male	Female	Total
	n	n	n	n	
8	1	-	-	-	1
9	11	2	13	10	36
10	-	2	5	10	17
11	2	3	3	8	16
12	4	2	15	17	38
Total	18	9	36	45	108

Note. n=108

Measures

Wide Range Achievement Test-3 (Wilkinson, 1993)

Academic achievement was assessed using the Wide Range Achievement Test-3 (WRAT 3; Wilkinson, 1993). The test consists of three subtests focusing on skills in reading, writing and arithmetic and is available in two alternate test forms, Blue and

Tan. The Tan form was utilised in this study. For the Reading subtest, participants are required to read increasingly complex words out of context from a printed list. In the Arithmetic subtest, participants are presented with a set of numeric calculations. As with the Reading subtest, these become increasingly more difficult as the test proceeds. The Spelling subtest asks participants to write words that are presented in isolation and then presented in the form of a sentence. One point is scored for each correct item with maximum scores of 55 for the Spelling and Arithmetic subtests and 57 for the Reading subtest. Participants must score a minimum of five correct responses on the subtests and each test is stopped after ten incorrect responses. Responses yield both a raw and a standardised score. For this study, standardised scores were used. Test – retest reliabilities of the WRAT-3 range from .92 to .95 (See Appendix A for information regarding WRAT – 3 Test).

Children's Attributional Style Questionnaire (Seligman et al., 1995)

Children's explanatory style was assessed using the Children's Attributional Style Questionnaire (CASQ: Seligman et al., 1995). This self-report questionnaire consists of 48 items that present hypothetical events and offer two possible reasons why that event occurred. Children are asked to imagine that event happening to them and to choose from the two explanations the one that best explains why that may have happened (See Appendix A for examples of CASQ items). There are 16 items relating to each of the three explanatory dimensions of global, stable and internal traits. Half of the test items are positive and half are negative, creating six subscales, which are composites of three dimensions (global, internal and stable traits). Composite scores for positive (CP) and negative (CN) events are each summed and an overall score is obtained by subtracting the score for positive events from the score for negative events (CP – CN). Internal consistency reliability data

show α =.47 -.73 for positive events, α = .42 -.67 for negative events and overall composite α = .62 (Thompson, Kaslow, Weiss, & Nolen-Hoeksma, 1998). This study used the overall CASQ score for analysis (CP - CN). This is consistent with earlier research (Nolen-Hoeksma et al., 1986). Higher scores on the CASQ are associated with a more optimistic attributional style.

The Children's Depression Inventory: Kovacs, 1992

The Children's Depression Inventory (CDI: Kovacs, 1992) is a 27 item self-report measure assessing such symptoms as low mood, behavioural problems and low self-worth. Each item presents a list of three statements representing varying degrees of severity of a common symptom of depression (See Appendix A for examples of CDI items). Statements are assigned a value from 0 to 2. Higher scores are indicative of the presence of depressive symptomatology. In this study, the item pertaining to suicidal ideation was omitted, to alleviate any concerns parents or school personnel may have had. Participants' scores then had a possible range of zero to 52. Internal reliability coefficients ranging from .71 to .89 have been reported, with test – retest reliability between .38 and .82 (Kovacs). The school principals were notified of children scoring above the cut-off point of 19 on the CDI, indicating an elevated level of depression. This is consistent with previous Australian studies that used this score to classify participants as potentially at risk of elevated depressive symptomatology (Kennedy et al, 1989: Knight Hensley & Waters, 1988).

Demographic information sheet

The literature demonstrates that pre-adolescent boys appear to be more vulnerable to depressive symptoms and a pessimistic explanatory style and to be affected negatively by changes of school. Since it seems that the effects of these variables are moderated where children are living with both parents, information was sought as to

whether children were living in an intact, split or blended family situation (See Appendix B). Parents of children participating in the study were asked to complete a family demographics form, providing details about the number of schools the child had attended, the length of time at the current school and whether the change was precipitated by family considerations (remarriage, employment). Information was also obtained about the reason for moving school, that is, if it was related to the child (peer / teacher issues) or was for academic reasons (better resources, teacher: student ratio). On the basis of this information, participants were assigned to mobile and non-mobile groups.

Procedure

The schools' Principals were approached and invited to participate in this study. Once permission had been obtained from the Principals (Appendix B), letters were sent home with all targeted students, seeking parental consent (Appendix B). The family demographics form accompanied the letter of invitation and the consent form. Two hundred and thirty letters were sent home to parents/guardians of children in the targeted groups. In the letters, parents were informed of the nature of the project and assured of confidentiality and that no individual or school would be identified. Both parents and participants were informed of their right not to answer any item on the questionnaires and that they could withdraw completely from the study at any time. Students in year seven were asked to sign an additional consent form, outlining the purposes of the study, assuring them of confidentiality and that they were free to withdraw from any part of the project at any time (Appendix B).

The CASQ and the CDI were administered in a group setting to those children whose parents had agreed to their participation in the study. The questionnaires were administered in school, during normal class time by the researcher. The tests of

academic achievement were administered in a separate session. The subtests for Spelling and Mathematics were conducted in one session and administered in a group situation. The Reading subtest was administered individually in later sessions. The standardised instructions for the administration of the tests were adhered to.

Results

Data screening

Data were analysed using SPSS Version 10 programmes. Initially data was screened for accuracy of input and missing values. Three cases were deleted from analysis due to missing values on several items on the CASQ and CDI questionnaires. Data from CDI and CASQ questionnaires and from the WRAT –3 achievement test were examined for distribution and for univariate and multivariate outliers. Descriptive data on the Reading, Spelling and Arithmetic subtests of the WRAT-3 showed a slight degree of negative skew but examination of the plots indicated a near-normal distribution of scores. There was also a moderate positive skew on CASQ scores. Scores on the CDI showed a strong positive skew with two univariate outliers. Substituting these scores with the next highest score (Tabachnik & Fidell, 1996) did not enhance the distribution and so scores on the CDI were transformed using a square root transformation, as recommended by Tabachnik and Fidell (1996). Subsequent examination of the Kolmogorov-Smirnov statistic indicated normality of distribution, with no univariate outliers. There were no multivariate outliers. Transformed scores on the CDI were utilised in the statistical analyses that were performed.

Group comparisons

Mean scores obtained by mobile and non-mobile (stable) groups on transformed CDI (SRCDI), CASQ and WRAT-3 subtests are shown in Table 2.

Table 2

Means and standard deviations of mobile and non-mobile group responses on CDI, CASQ, WRAT-3.

	Group			
	Mobile		Non---mobile	
Instrument	M	SD	M	SD
CDI[a]	8.60	5.26	7.74	5.72
CASQ[b]	5.78	4.68	5.73	4.58
WRAT-3[c]				
Arithmetic[d]	108.48	13.69	107.90	12.53
Reading[e]	105.80	14.63	108.29	13.27
Spelling[f]	111.54	11.79	111.56	13.28

Key a CDI = Children's Depression Inventory; *b* CASQ = Children's Attributional Style Questionnaire; *c* WRAT – 3 = Wide Range Achievement Test.
Note. d. n=108. *e.* n=104. *f.* n=107.

To test the hypotheses that there would be differences in the level of achievement between the mobile and non-mobile Groups and that there would be a Gender effect, a series of 2x2 analysis of variance (ANOVA) were conducted on the data with Group and Sex as main effects. Test assumptions of normality and homogeneity of variance were satisfied. A Bonferroni adjusted alpha of .01 was applied to decrease the chance of a Type 1 error. Tests comparing the mean scores for Groups found no significant differences between mobile and non-mobile groups for the WRAT-3 subtests of Arithmetic (F (1,107) = .043, p> .01), Reading (F (1,103)= .888, p >.01) or Spelling (F (1, 106)=.000, p > .01). Tests comparing the mean scores for Gender also found no significant differences between males and females across all three subtests; Arithmetic – F(1,107) = 1.98, p> .01; Reading – F(1,103) = .571, p >.01; Spelling – F(1,106) = .226, p>.01. No main effect for age was found (F (1,106) =

.556, p>.01. No significant effects were found for the transformed CDI on the data for Group (F (1,107) = .310, p>.01) or Gender (F (1,108) = .570, p >.01). In a comparison of the mean scores for the CASQ, no significant differences were found for Group (F (1,107) = .461, p >.01) or Gender (F (1,107) = 6.529, p>.01).

To check the validity of ANOVA results on between-groups scores on Arithmetic, Reading and Spelling, a Kruskal-Wallis Chi-Square approximation was conducted. This was considered appropriate since the mobile and non-mobile groups were of uneven size. The Kruskal-Wallis approximation, corrected for ties, χ^2 (1, N =108) =.008, p >.05, indicated that the Arithmetic scores were not significantly different between the two groups. A further Kruskal-Wallis approximation, corrected for ties, χ^2 (1, N = 104) = .913, p > .05, indicated no significant differences between the groups on Reading. A third approximation conducted on the data for Spelling also showed no significant difference between the groups; χ^2 (1, N=107) = .002, p >.05.

Table 3 shows the correlations between the variables.

Table 3

Correlations between Transformed CDI, CASQ and WRAT-3 subtests

			WRAT-3		
	Transformed CDI	CASQ	*Arithmetic*	*Reading*	*Spelling*
Transformed CDI		-.39*	-.18	-.36*	-.30*
CASQ			.06	.10	.18
WRAT-3					
Arithmetic				.52*	.57*
Reading					.80*
Spelling					

Key CDI = Children's Depression Inventory, CASQ = Children's Attributional Style Questionnaire, WRAT-3 = Wide Range Achievement Tests –3.
Note. * significantly correlated, $p < .01$

A significant negative correlation was found between the transformed variable CDI and CASQ (r = -.39), indicating that higher scores on the CASQ are related to lower levels of depressive symptomatology. Similar negative correlations were found between the transformed CDI and achievement scores on the Reading subtest (r =-.36) and the Spelling subtest (r = -.30). Significant positive correlations were also found between achievement in Arithmetic and Reading (r = .52) and between Arithmetic and Spelling (r = .57). Reading and Spelling scores were found to show a strong, positive correlation (r = .80). No significant correlations were noted between CASQ scores and any of the three subtests of the WRAT –3.

Regression analyses

To determine the influence of attributional style, depressive symptomatology and school mobility on achievement, three standard multiple regressions were performed with CASQ, transformed CDI, Group (mobile / non-mobile) Gender (sex) and Age

as predictor variables and with WRAT-3 scores for Arithmetic, Reading and Spelling as separate criterion variables. Assumptions for standard multiple regression were satisfied. No multivariate outliers were identified using a $p < .001$ criterion for Mahalanobis distance. Tables 4 a-c show the unstandardised regression coefficients (B), the standardised coefficients (β), the multiple correlation (R) and the squared multiple correlation (R^2) for the regression analyses.

Table 4 a

Summary of Standard Multiple Regression of Transformed CDI, CASQ, Study Group, Age and Sex on Arithmetic

Variable	B	β	
Transformed CDI	-2.07	-.17	
CASQ	5.11	-.18	
Study group	.58	.02	
Age	1.21	.12	
Sex	-4.46	-.18	
			Intercept 106.46
			$R^2 = .07$
			Adjusted $R^2 = .28$
			$R = .07$

Regression analysis of the transformed CDI, CASQ, Group, Age and Sex on the scores for Arithmetic accounted for 7.3% of the variance and was not found to be a significant model for prediction.

Table 4 b

Summary of Standard Multiple Regression of Transformed CDI, CASQ, Study Group, Age and Sex on Reading

Variable	B	β
Transformed CDI [a]	-4.73	-.38*
CASQ	-5.75	-.02
Study group	-2.31	-.07
Age	-.15	-.02
Sex	-2.23	-.08
		Intercept 128.18
		$R^2 = .14$
		Adjusted $R^2 = .10$
		R=.38

Note * $p<.01$

A similar standard multiple regression conducted on the data for Reading scores showed the variables of the transformed CDI, CASQ, Group, Age and Sex to be significant predictors of Reading achievement, accounting for 14.3% of the variance.

Table 4c

Summary of standard multiple regression of Transformed CDI, CASQ, study group, age and sex on Spelling

Variable	B	β	
Transformed CDI	-3.28	-.27*	
CASQ	.20	.07	
Study group	.25	.02	
Age	.14	.01	
Sex	.47	.02	
			Intercept 116.71
			$R^2 = .09$
			Adjusted $R^2 = .05$
			$R = .31$

Note *$p < .01$

A third regression analysis on the data for Spelling showed this model to be an inadequate predictor of achievement in Spelling, accounting for 9% of the variance in scores. For both Reading and Spelling regression analyses, only the transformed CDI was shown to be a significant predictor of achievement score ($p < .05$). Although no formal inferences were to be drawn from the data relating to the reasons for changing schools a series of non-parametric tests were conducted on the data on mobile children to see whether particular trends emerged. A Kruskal-Wallis approximation, corrected for ties, χ^2 (4, N= 28) = .808, $p > .05$, indicated that there were no significant effects for reason for the change of school on Arithmetic scores. A second Kruskal-Wallis approximation, corrected for ties, χ^2 (4, N= 26) = .632, $p > .05$, indicated no significant differences among the groups on Reading scores. A

third approximation conducted on the data for Spelling also showed no significant difference among the groups; χ^2 (4, N = 27) = .632, p >.05.

Discussion

It was hypothesised that lower levels of academic achievement would be found in children who had changed schools, had a pessimistic explanatory style and higher levels of depression. It was further hypothesised that there would be gender and development differences with younger boys and older girls being most adversely affected by these variables.

Impact of explanatory style, depressive symptomatology and mobility factors

The results of this study indicate that there was no significant difference in the academic achievement of children who had changed schools and those who had not, although the Spelling and Reading scores of children in the stable group were slightly higher than those of mobile children. The lower levels of achievement attained by children in the mobile group may be due to differences in teaching methodologies employed by different schools. Rahmani (1986) and Craig (1989) have highlighted the impact of different methodologies and curricula on children who change schools. Different approaches to the development of early literacy skills may account for differences in mean achievement levels. These group differences were not found on the Arithmetic subtest scores and children in the mobile group achieved slightly higher scores. This may indicate that whereas there may be several approaches to the teaching of literacy, programmes for the development of numeracy are fairly consistent in their approach.

Although it was hypothesised that younger boys would display higher levels of depressive symptomatology, no significant effects were found for either age or gender. It is noted however, that the mean score for boys on the CDI was higher

than for girls, indicating elevated levels of depressive symptoms. It may be that the girls in this sample had not yet encountered the difficulties associated with adolescence (Nolen-Hoeksma & Girgus, 1994). Since most of the children in this study were in middle to late childhood, the girls may have been too young for the gender effects reported by Nolen-Hoeksma and Girgus (1994) to have emerged.

There were no significant differences in depressive symptomatology, as measured by the CDI (Kovacs, 1991), between mobile and non-mobile groups, although the mean score for the mobile group was somewhat higher. In light of previous research (Parish, 1990; Simmonds et al., 1987), such differences might be expected. It is speculated that the differences between the mobile and non-mobile group scores on the CDI may be accounted for by the reasons motivating the change of school. Familial variables such as family stability (Reinherz et al., 1989), parental involvement (Garcia & Ramirez, 2001) have been shown to moderate the effects of school mobility. It may be that for the mobile children in this group, some of these protective factors applied. In the current study, most changes of school were necessitated by a change of residence. Only three cases were directly related to instances of separation or remarriage. The Kruskal-Wallis approximations indicated that the reasons for the change of school did not impact on children's scores in any of the three areas examined in this study. The assumption that all other children in the mobile group were from intact families is a tenuous one however, as only the reason for the most recent change of school was requested and recorded. The number of mobile families stating a particular reason for the change of school is also too small to draw any conclusions. Although family cohesion has been cited as a possible protective factor in cushioning the impact of mobility on depressive symptomatology (Reinherz et al., 1989), the figures here do not provide sufficient

evidence to cite this as a reason for there being no significant differences between the two groups.

In this study, attributional style and depressive symptomatology were not significantly related to academic achievement. These findings contradict earlier reports on the significance of these variables on academic achievement (Nolen-Hoeksma et al., 1986; Yates et al., 1995). It is noted however that the mean CASQ score of the children in the current study was higher than that found by Yates et al. (1995), indicating a more optimistic attributional style in the current group of children. Similarly, the mean CDI score of the children in this study was lower than the mean score of the participants in the study by Nolen-Hoeksma et al. (1986). It appears then that as a group, the children in this study were generally more optimistic and had fewer depressive symptoms that their counterparts in previous studies.

The significant gender-related difference in scores on the CASQ is similar to the finding by Yates et al. (1995) who found that pre-adolescent boys tended to have a more pessimistic explanatory style than girls of a similar age.

Increased depressive symptomatology was significantly related to lower levels of achievement in Reading and Spelling, two highly correlated skills. As was the case in previous studies (Nolen-Hoeksma et al., 1986), a more optimistic attributional style was associated with lower levels of depressive symptomatology. This study failed however to find the correlation between attributional style and Arithmetic achievement previously reported by Yates et al. (1995). This may be explained by the fact that although both studies used a standardised measure of achievement, the measures themselves were different. Although in the present study

a more pessimistic explanatory style was associated with lower levels of achievement in Arithmetic, the impact was not significant.

The regression analyses revealed that the combined variables of explanatory style, depressive symptomatology, age, gender and school mobility were not significant predictors of academic achievement in Spelling or Arithmetic. Although these variables account for a significant amount of the variance in Reading scores, depressive symptomatology appeared to be the only significant predictor variable. However, the issue of causality cannot be established as it is uncertain whether the poor achievement in Reading tasks caused more depressive symptoms or whether being depressed impaired Reading competence.

The Kruskal-Wallis approximations on the reasons for changing schools were conducted to see whether any trends were apparent. These found that academic achievement as measured by the WRAT-3 tests was not affected by familial variables of moving house and separation / remarriage or by peer / academic issues. However, the impact of separation / remarriage appears to be somewhat greater on Reading and Spelling achievement. It is important though that these be viewed simply as an indication of possible trends as the number of participants within each of these groups was too small to make valid inferences based on these data.

Protective factors

The findings of no significant differences between mobile and non-mobile groups on measures of academic achievement may be partially explained by examining various protective factors reported to moderate the effects of mobility and depressive symptoms. Reviewing the extent to which such factors may have influenced the results presented here may provide some insight. The concept of social capital (Coleman, 1988) mentioned in the literature review may be important here.

Coleman (1988) and Parish (1990) both highlight the importance of social structures that can provide for the mutual exchange of benefits. These are not restricted to family contacts but rather encompass a range of community and social groups that can provide support for an individual. Both of the schools in the present study were Catholic schools where it may be expected that a common ethos would prevail. Children moving between schools with similar beliefs or philosophies may recognise these similarities and be protected from some of the impact of change.

Both schools have peer mediation and support programmes in place to help children experiencing difficulties with peers and those experiencing loss through death or family break-up. Intervention programmes have been shown to be effective in moderating the effects of depressive symptoms (Jaycox et al., 1995). The programmes currently available for the children attending these schools may provide additional social support for children as well as alleviating the development of depressive symptoms.

Standardised measures of achievement are often used to determine placement in specialised programmes (Mercer & Mercer, 1998). Both schools in this study routinely test new students on entry and each year thereafter using standardised assessments of literacy and numeracy. Information from these tests is then used to stream students into specialised educational programmes of remediation or extension. The students in this present study, tested in the later part of the school year, would be expected to have received at least nine months education in an appropriate educational setting. This may have helped to improve the academic achievement of some students since the amount and quality of instruction has been found to affect the academic achievement levels (Fraser, 1987).

Higher levels of academic achievement have been associated with greater parental income (Zubrick et al., 1997) and parents' educational achievements (Long, 1992; Straits, 1987). The schools in the present study are in fairly affluent areas according to the funding formula referred to earlier and this may have had a bearing on the results found in the present study. Parents' educational attainment was not measured so it is difficult to assess its impact on children's achievement. However, increased mobility has been associated with the families of professional and managerial personnel (Blane et al., 1985).

Limitations of this study

This study was limited in that the participants were recruited from similar academic institutions. All participants were enrolled in Catholic schools in a metropolitan area. SES was fairly similar in both cases and both had clearly defined policies regarding the social, emotional and psychological wellbeing of students. This may limit the generalisation of the findings to other populations.

Information regarding family composition was not directly sought or assessed. The finding of no significant group differences may have been influenced by the presence or involvement of both biological parents, previously found to serve a protective function when children changed schools (Tucker, Marx & Long, 1998). Only those parents whose children had changed schools were asked to provide information regarding the reason for the move, which was the only opportunity to assess whether children were living with their biological parents. It was difficult to accurately gauge the extent to which particular factors may have affected the impact of mobility and / or depression.

In general, the scores of the participants in this study were fairly well distributed however there was no formal measure of general intelligence. It may be that the children in this particular study had relatively high general intelligence.

Future research

Since the impact of general intelligence was not assessed in this current study, similar studies with other groups of students, controlling for general intelligence may help isolate other factors contributing to individual differences in academic achievement. Since parental income, education and socio-economic status have been associated with improved academic outcomes for children (Zubrick et al., 1997), future research could examine the impact of explanatory style, depressive symptomatology and mobility, controlling for socio-economic status and level of parental achievement. For this reason too, similar studies assessing the impact of the independent variables in this study could be undertaken in schools in areas of different socio-economic status. A comparison of the results may help isolate specific protective influences.

Similarly, this study could be replicated, directly assessing levels of parental involvement and family cohesion, both previously cited as protective factors (Garcia & Ramirez, 2001; Zubrick et al., 1997).

Conclusion

Although the variables of depressive symptomatology, explanatory style and mobility were not found to have a significant effect on children's academic achievement in this sample, the findings do raise some important issues. Generally the results found in this study concur with some of the findings from previous

research although the relationships here are not statistically significant. Depressive symptomatology was associated with lower levels of academic achievement. In some areas of academic achievement, mobility may also have had an impact on academic competence. The measures already in place for the emotional and academic wellbeing of children in the schools in this study may have had a moderating effect on the variables under review. If this were to be shown to be the case, then other schools should strive to provide similar support programmes for their students. The fact that depression can impact on children's achievement demands that educators look beyond general intelligence levels when seeking to address educational difficulties.

Academic achievement levels can have a profound impact on psychological wellbeing and later vocational opportunities. Children need to be assisted to achieve to their full academic potential. This study identified some of the variables that may impede children's academic development and other protective factors that may act to reduce their impact.

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Appendix A

Sample items from the Children's Attributional Style Questionnaire (Seligman et al., 1995)

The CASQ is a 48-item questionnaire. Of these items, 24 relate to negative events and 24 to positive events, reflecting attributions that are stable across time; global, affecting all aspects of functioning; internal, attributed to self. Events are presented as statements, for example " A team you are on loses a game." The child has to choose between two possible attributions: "The team does not play well together" and "That day the team did not play well together". The six subsets examined and example statements are presented below.

Positive, global events

You get an A on a test.

a. I am smart

b. I am good in the subject that the test was in

Negative global events

A person steals money from you.

a. That person is dishonest

b. People are dishonest

Positive stable events

All of your friends catch a cold except you

a. I have been healthy lately

b. I am a healthy person

Negative stable events

You miss the ball and your team loses the game.

a. I didn't try hard while playing ball that day

b. I usually do not try hard when I am playing ball.

Positive internal events

You get very good grades.

a. Schoolwork is simple

b. I am a hard worker

Negative internal events

A good friend tells you that he hates you

a. My friend was in a bad mood that day

b. I wasn't nice to my friend that day

Appendix A

Sample items from the Children's Depression Inventory (Kovacs, 1991)

The CDI consists of 27 items, presenting varying degrees of severity of common symptoms of depression. Students indicate which of the three statements best applies to them. Items are scored from zero to two, with higher scores indicating higher levels of depression.

Item 1

- I am sad once in a while
- I am sad many times
- I am sad all the time

Item 12

- I like being with people
- I do not like being with people many times
- I do not want to be with people at all

Item 25

- Nobody really loves me
- I am not ure if anybody loves me
- I am sure that somebody loves me

Appendix A

Wide Range Achievement Test - 3

The Wide Range Achievement Test tests children's ability in three subsets of skills.

Reading : recognizing and naming letters and pronouncing words out of context

Spelling : Writing name, writing letters and words to dictation

Arithmetic : counting, reading and writing number symbols, solving oral problems and performing written computations.

Appendix B

Introductory letter to school Principals

Date

Dear Principal

I am an Honours student in Psychology at Edith Cowan University, working under the supervision of Dr. Elizabeth Kaczmarek. I am writing to ask whether I might approach parents of the students in years four to seven in your school with a view to their children participating in a research project I am undertaking. The purpose of the study is to see if there are links between children's beliefs about success, their mood, changing schools and their achievement. This study has met the ethical requirements of the School of Psychology Ethics Committee at Edith Cowan University.

Children will be asked to complete the following questionnaires under my supervision, in normal class time:
Children's Attributional Style Questionnaire
Child Depression Inventory
Wide Range Achievment Test
Completion of the first two tests should take approximately 45 minutes in total. The third test will be administered to each child individually and in group settings and should take approximately 45 minutes . You will be informed of the results of this test.

Parents will be informed of the purpose of the study in a letter that the children will take home from school. An information sheet and consent form will be included with this letter and parents will be asked to complete and return the consent form in an envelope provided which then may be left in a box I will leave in the Administration office or given to the class teacher. Participants and parents will be informed that their participation is voluntary and that they are free to withdraw from the study at any time. Names of students are required only to inform you of any

whose results show cause for concern. Neither the school nor any of the children participating will be identified in the report other than in general terms.

The results will be made available and a copy of the report sent to you. You will also be informed of any children whose scores on the tests show cause for concern. These children can be referred to your school social worker, support teacher or to the Non-Government Schools' Psychology Service as appropriate.

If you have any concerns or questions, you are welcome to contact me on 0407 518 308 or my supervisor, Dr Elizabeth Kaczmarek on 9400 5193.

Yours sincerely

Anne Gray (B.Ed.)

Appendix B

Introductory letter to parents

Date

Dear Parents,

I am an Honours student in Psychology at Edith Cowan University. Your principal has given permission for students in years four to seven to take part in a research project I am conducting under the supervision of Dr. Elizabeth Kaczmarek. This study has been approved by the School of Psychology Ethics Committee at Edith Cowan University. I hope this research will provide some insight into the relationship between how children feel about themselves and their achievement in school. I am also interested in seeing if changing schools has an impact on achievement.

If you and your child agree to participate, your child will complete a questionnaire in class time at a period set aside for this purpose. The survey includes questions on how they feel about themselves and their mood after everyday events they may experience. They will also be asked to complete a short test of achievement in Reading, Spelling and Mathematics under my supervision. This will be completed in school during normal class time.

Your child may choose not to answer any question they do not want to and are free to stop or withdraw from the study at any time. The information gathered will be treated in strict confidence. Neither the school nor individual children will be identified at any time and will be referred to only in very general terms. However, if any of the children show cause for concern, information will be discussed confidentially with the school and parents will be contacted.

If you agree to your child participating in this study, please fill out the accompanying form and return it in the envelope provided to the class teacher or leave it in the box marked 'Achievement study' in the school's Administration office. Please keep this letter for your information. If you have any questions, please feel free to contact me on 0407 518 308 or my supervisor, Dr. Elizabeth Kaczmarek on 9400 5193. Your help with this project would be greatly appreciated.

Yours Sincerely,

Anne Gray

Parent consent form for achievement study

Dear Parent,

Your Child's Name: _____ Year at school_____

Please complete the following questions. Your answers will be useful in assessing whether changing schools has an effect on achievement

1. Which school is your child currently attending?

_____

2. How many years and months has your child attended this school?

_____

3. Has your child attended any other schools? Yes No

4. If your child has attended other schools, please list them below.

_____

_____

_____

5. Please indicate the reasons for your child's change of schools, whether due to family changes (separation, remarriage, moving home), related to your child's welfare (to give them a fresh start) or any other reason.

_____

_____

_____

_____

Achievement Study

Dear Parent,

Please return this form either to your child's class teacher or place in the box marked 'Achievement study' in the school's administration area.

- ☐ I consent to my child participating in the study

Parent / Guardian signature

Name_____

Signature_____

Child's Name_____

Telephone Number_____

Year 7 Student Introductory Letter

Date

Dear Student,

I am a student studying psychology at Edith Cowan University. Your principal and your parents have agreed to your taking part in this study. I hope this research will provide some insight into how children feel about themselves and how this may affect their achievement.

If you consent to participate, you will be asked to complete a survey in class at a time set aside for this. The survey includes questions on how you feel about yourself and your mood after everyday events you may experience. You will also be asked to complete short tests of Reading, Spelling and Mathematics under my supervision. These will also be completed in normal class time.

You may choose not to answer any question you do not want to and may stop of withdraw from the study at any time. The information you give will be strictly confidential. Your parents and principal will only be informed of any results that are a concern. Neither the school nor any student will be identified and will only be referred to in general terms.

If you wish to take part, please fill out the consent form.

Yours Sincerely,

Anne Gray

Year 7 Student consent form for achievement study

☐ I agree to take part in this study

Name _____

Signature_____

Appendix C
Univariate Analysis of Variance

Univariate Analysis of Variance

Tests of Between-Subjects Effects

Dependent Variable: READ

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	17396.654[a]	97	179.347	.671	.810
Intercept	677269.929	1	677269.929	2534.219	.000
AGE	708.240	3	236.080	.883	.501
CASQ	3568.457	17	209.909	.785	.679
SRCDI	4326.992	21	206.047	.771	.699
AGE * CASQ	52.900	1	52.900	.198	.672
AGE * SRCDI	6.250	1	6.250	.023	.883
CASQ * SRCDI	1121.104	10	112.110	.419	.892
AGE * CASQ * SRCDI	.000	0	.	.	.
Error	1603.500	6	267.250		
Total	1225154.000	104			
Corrected Total	19000.154	103			

a. R Squared = .916 (Adjusted R Squared = -.449)

Tests of Between-Subjects Effects

Dependent Variable: SPELL

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	16200.056[a]	99	163.637	.832	.691
Intercept	726445.916	1	726445.916	3695.582	.000
AGE	327.854	3	109.285	.556	.661
CASQ	2836.557	17	166.856	.849	.635
SRCDI	3736.211	21	177.915	.905	.604
AGE * CASQ	32.400	1	32.400	.165	.697
AGE * SRCDI	25.000	1	25.000	.127	.732
CASQ * SRCDI	1180.997	11	107.363	.546	.822
AGE * CASQ * SRCDI	.000	0	.	.	.
Error	1376.000	7	196.571		
Total	1354637.000	107			
Corrected Total	17576.056	106			

a. R Squared = .922 (Adjusted R Squared = -.186)

Tests of Between-Subjects Effects

Dependent Variable: ARITH

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	15533.269[a]	100	155.333	.569	.896
Intercept	674494.811	1	674494.811	2470.031	.000
AGE	538.036	3	179.345	.657	.604
CASQ	2570.564	17	151.210	.554	.849
SRCDI	3579.004	21	170.429	.624	.811
AGE * CASQ	129.600	1	129.600	.475	.513
AGE * SRCDI	182.250	1	182.250	.667	.441
CASQ * SRCDI	913.298	11	83.027	.304	.962
AGE * CASQ * SRCDI	.000	0	.	.	.
Error	1911.500	7	273.071		
Total	1278237.000	108			
Corrected Total	17444.769	107			

a. R Squared = .890 (Adjusted R Squared = -.675)

Appendix C
Univariate Analysis of Variance

Tests of Between-Subjects Effects

Dependent Variable: SRCDI

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	1.591[b]	3	.530	.455	.714	.013
Intercept	521.214	1	521.214	447.331	.000	.811
GRP	.361	1	.361	.310	.579	.003
SEX	.664	1	.664	.570	.452	.005
GRP * SEX	1.479E-03	1	1.479E-03	.001	.972	.000
Error	121.177	104	1.165			
Total	859.000	108				
Corrected Total	122.768	107				

Tests of Between-Subjects Effects

Dependent Variable: CASQ

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	139.335[b]	3	46.445	2.296	.082	.062
Intercept	2677.314	1	2677.314	132.376	.000	.560
GRP	9.318	1	9.318	.461	.499	.004
SEX	132.055	1	132.055	6.529	.012	.059
GRP * SEX	14.140	1	14.140	.699	.405	.007
Error	2103.406	104	20.225			
Total	5802.000	108				
Corrected Total	2242.741	107				

Appendix C
Univariate Analysis of Variance

Tests of Between-Subjects Effects

Dependent Variable: READ

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	219.748[a]	3	73.249	.390	.760	.012
Intercept	821935.549	1	821935.549	4376.559	.000	.978
GRP	166.748	1	166.748	.888	.348	.009
SEX	107.327	1	107.327	.571	.451	.006
GRP * SEX	51.425	1	51.425	.274	.602	.003
Error	18780.406	100	187.804			
Total	1225154.000	104				
Corrected Total	19000.154	103				

Tests of Between-Subjects Effects

Dependent Variable: SPELL

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	58.718[a]	3	19.573	.115	.951	.003
Intercept	919084.222	1	919084.222	5404.113	.000	.981
GRP	1.762E-02	1	1.762E-02	.000	.992	.000
SEX	38.505	1	38.505	.226	.635	.002
GRP * SEX	6.174E-02	1	6.174E-02	.000	.985	.000
Error	17517.338	103	170.071			
Total	1354637.000	107				
Corrected Total	17576.056	106				

Tests of Between-Subjects Effects

Dependent Variable: ARITH

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	367.347[a]	3	122.449	.746	.527	.021
Intercept	866728.792	1	866728.792	5278.302	.000	.981
GRP	6.994	1	6.994	.043	.837	.000
SEX	326.453	1	326.453	1.988	.162	.019
GRP * SEX	19.857	1	19.857	.121	.729	.001
Error	17077.421	104	164.206			
Total	1278237.000	108				
Corrected Total	17444.769	107				

Appendix C
Correlation Table

Correlations

Correlations

		CDI	CASQ	READ	SPELL	ARITH	SRCDI
CDI	Pearson Correlation	1	-.385**	-.359**	-.290**	-.165	.961**
	Sig. (2-tailed)	.	.000	.000	.002	.088	.000
	N	108	108	104	107	108	108
CASQ	Pearson Correlation	-.385**	1	.101	.179	.060	-.390**
	Sig. (2-tailed)	.000	.	.306	.065	.538	.000
	N	108	108	104	107	108	108
READ	Pearson Correlation	-.359**	.101	1	.799**	.522**	-.364**
	Sig. (2-tailed)	.000	.306	.	.000	.000	.000
	N	104	104	104	103	104	104
SPELL	Pearson Correlation	-.290**	.179	.799**	1	.568**	-.302**
	Sig. (2-tailed)	.002	.065	.000	.	.000	.002
	N	107	107	103	107	107	107
ARITH	Pearson Correlation	-.165	.060	.522**	.568**	1	-.182
	Sig. (2-tailed)	.088	.538	.000	.000	.	.059
	N	108	108	104	107	108	108
SRCDI	Pearson Correlation	.961**	-.390**	-.364**	-.302**	-.182	1
	Sig. (2-tailed)	.000	.000	.000	.002	.059	.
	N	108	108	104	107	108	108

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix C
Non-Parametric Tests

NPar Tests

Kruskal-Wallis Test

Ranks

	study group	N	Mean Rank
READ	stable one school	79	54.09
	mobile	25	47.48
	Total	104	

Test Statistics[a,b]

	READ
Chi-Square	.913
df	1
Asymp. Sig.	.339

a. Kruskal Wallis Test

b. Grouping Variable: study group

Ranks

	study group	N	Mean Rank
SPELL	stable one school	81	53.93
	mobile	26	54.21
	Total	107	

Test Statistics[a,b]

	SPELL
Chi-Square	.002
df	1
Asymp. Sig.	.968

a. Kruskal Wallis Test

b. Grouping Variable: study group

Ranks

	study group	N	Mean Rank
ARITH	stable one school	81	54.65
	mobile	27	54.04
	Total	108	

Test Statistics[a,b]

	ARITH
Chi-Square	.008
df	1
Asymp. Sig.	.929

a. Kruskal Wallis Test

b. Grouping Variable: study group

Appendix C
Non-Parametric Tests

NPar Tests

Kruskal-Wallis Test

Ranks

	reason for shift	N	Mean Rank
READ	separation or remarriage	2	21.00
	peer issues at school	3	10.17
	academic and resource issues	5	13.50
	parents employment	5	13.80
	shifting house	11	12.91
	Total	26	

Test Statistics[a,b]

	READ
Chi-Square	2.573
df	4
Asymp. Sig.	.632

a. Kruskal Wallis Test

b. Grouping Variable: reason for shift

Ranks

	reason for shift	N	Mean Rank
SPELL	separation or remarriage	3	16.83
	peer issues at school	2	15.50
	academic and resource issues	5	13.30
	parents employment	5	18.50
	shifting house	12	11.46
	Total	27	

Test Statistics[a,b]

	SPELL
Chi-Square	3.342
df	4
Asymp. Sig.	.502

a. Kruskal Wallis Test

b. Grouping Variable: reason for shift

Appendix C
Non-Parametric Tests

Ranks

	reason for shift	N	Mean Rank
ARITH	separation or remarriage	3	12.33
	peer issues at school	3	10.33
	academic and resource issues	5	14.10
	parents employment	5	17.20
	shifting house	12	15.13
	Total	28	

Test Statistics[a,b]

	ARITH
Chi-Square	1.602
df	4
Asymp. Sig.	.808

a. Kruskal Wallis Test

b. Grouping Variable: reason for shift