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The Impact of Parental Attachment on Adolescent Perception of the School
Environment and School Connectedness.

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Abstract

School connectedness (i.e., the extent to which students feel accepted, valued, respected and included in the school) has recently surfaced as one of the most important predictors of adolescent mental health (particularly depressive symptoms). Thus it is now vital to understand predictors of school connectedness. The school environment is an established predictor, but we set out to examine whether parental attachment predicts both the perception of the school environment and school connectedness and whether the perception of school environment mediates the relation between parent attachment and school connectedness. A study of 171 high school students from years 8 to 12 showed that parent attachment strongly predicted both the experience of the school environment and school connectedness. We also confirmed the mediation hypothesis that suggests that the relationship between parent attachment and school connectedness is not a direct one but largely carried through individual differences in the perception of the school environment that is influenced by parent attachment. This finding has important clinical implications in terms of shedding some insight on how multiple systems might be interlinked in influencing wellbeing in adolescents and confirms the importance of intervening at the double platform of both the family and the school system.

Adolescence is a time of considerable increase in risk in a range of psycho-social problems. These include substance use or abuse, school misconduct, academic failure, juvenile crime, self-injury and suicide (Simons-Morton, Crump, Haynie & Saylor, 1999) as well as mental health disorders. For example, a Australian National Survey of Mental Health and Well-being (Sawyer et al., 2000) indicated that 14% of young people in Australia suffered mental health problems. Under these circumstances it is considered one of the Australian National Mental Health priorities to explore further the risk and protective factors for teenage mental health problems in order to inform prevention and treatment efforts.

More recently the construct of school connectedness defined by Goodenow (1993b, p.80) as “the extent to which students feel personally accepted, respected, included, and supported by others in the school social environment” has emerged as a potential major predictor of adolescent psycho-social and mental health problems, particularly depression (Shochet, Dadds, Ham & Montague, 2006). Thus attachment to the school is now surfacing as a vital systemic variable that needs to be factored into treatment and prevention of adolescent mental health problems.

We know that attachment to parents plays an important role in the adolescent’s construction and evaluation of self-identity which in turn influences their psychological well-being (Wilkinson, 2004) and that adolescents with an insecure attachment style are generally most susceptible to mental health problems (Essau, 2004). It would appear that attachment to schools might even bear a stronger relationship to teenage depression than attachment to parents (Shochet, Homel, & Montgomery, 2006) but it may well be that attachment to parents may predispose people to difficulties in attaching to schools. At this stage we have very little information about predictors of school connectedness and it is vital to tease out whether the school environment can impact on school connectedness or whether the predisposition to

attachment gained from parental attachment history determines this connection. The aim of this study is to examine the interactions between attachment to parents and school environment on predicting school connectedness in adolescents.

School Connectedness and Adolescent Well-being

More than a decade ago, school connectedness was identified as the critical factor in the participation and retention of potentially at-risk students (Goodenow, 1993b; Wehlage & Rutter, 1986). Subsequently the research has shown that school connectedness plays a broader and crucial role in healthy youth development (Catalano, Haggerty, Oesterle, Fleming & Hawkins, 2004). Connecting with school helps the adolescent to develop a sense of direction and purpose, protects against feelings of psychological distress (Roeser, Eccles & Sameroff, 1998), increases self-esteem (Hagborg, 1994; Osterman, 2000) and decreases the likelihood of an adolescent starting to engage in a pattern of problem behaviour (Dornbusch, Erikson, Laird & Wong, 2001). School connectedness reduces barriers to learning such as delinquency and violence, gang membership, substance use and school dropout (Catalano et al., 2004). Adolescents who feel that their teachers are fair and care about them are less likely to engage in drug use, suicidal ideation or attempts, and weapon-related violence (McNeely & Falci, 2004).

School connectedness has also been associated with mental health in young people. Jacobson and Rowe (1999) found depressed mood was significantly correlated with both family connectedness and school connectedness. In a cross-sectional study using hierarchical linear modeling, Anderman (2002) found that students' higher individual levels of school connectedness were related to increased optimism and lower levels of depression and problem behaviour as well as improved academic performance. Kuperminc, Leadbetter, and Blatt (2001) examined the relationship between school connectedness and internalizing and externalizing symptoms in year 6 and 7 students in one large school with a sample of 460

students. They found that school connectedness accounted for an additional 2% and 5% respectively of the variance in internalizing and externalizing problems one year later after controlling for prior levels of emotional problems and other background variables (e.g., vulnerability to criticism and interpersonal efficacy). In a recent study of a sample of over 2000 adolescents, Shochet, Dadds, Ham & Montague (2006) found school connectedness predicted mental health symptoms of depression, anxiety and general functioning one year later after controlling for prior symptoms. Most importantly the study showed that school connectedness appears to predict future mental health problems rather than mental health predicting future school connectedness. In addition the study showed a much stronger than previously reported link to adolescent depression with correlations showing between 38% and 55% covariation with depressive symptoms and school connectedness. If this result is replicated it would strongly suggest that school connectedness is shaping up to be one of the most important predictors of teenage depressive symptoms (with the exception of previous depressive symptoms).

The findings above would suggest that we need to take an urgent look at predictors of school connectedness. At first glance it would appear that altering the school environment to create a more friendly and engaging school would impact on school connectedness. Research suggests that a significant proportion of the differences in school connectedness can be predicted by classroom management and inclusion in extra-curricular school activity (McNeely, Nonnemaker, & Blum 2002), and that an intervention targeting teachers to promote a climate of warmth, acceptance, inclusion and equity may indeed prove successful, particularly in the prevention of future depressive and other mental health symptoms. However our own research has shown that within the same school environment there are vast individual differences in school connectedness and that the differences between schools in relation to school connectedness are not as vast as one would expect. This raises the question of whether

school connectedness is a marker for general attachment style as suggested by attachment theory. Is school connectedness predicted by attachment to parents or is it the actual school experience that accounts for school connectedness. How do these variables interact in predicting school connectedness?

Adolescent Parental Attachment and School connectedness

Attachment behaviours are proposed to be established in infancy and activated throughout childhood. Bowlby (1969) asserts that attachment behaviours are reinforced through interaction with the primary caregiver, which contributes to the child's formation of cognitive "internal working models" that provide representations of the self, others and the environment. Working models are thought to contain processes that influence interpretation and memory of experiences, and to become more elaborate and stable as the child grows older and learns to extend the models for use in novel situations. In this way, internal working models are said to form the basis for attachment styles, which contain expectations of responsiveness and stability in future interpersonal relationships, for coping with stress and seeking social support (Bowlby, 1969; Kenny, Moilanen, Lomax & Brabeck, 1993).

While attachment theory proposes an inherent bias for attachment behaviour to be directed toward one person, it also suggests that during adolescence, attachment changes to include other adults who may assume equal or greater importance than that of parents (Bowlby, 1969). This proposition is also asserted by Salter Ainsworth et al. (1978), who stated that the nature of attachment changes in adolescence during the individuation process, which is characterised by increases in periods when parental accessibility does not contribute to an adolescent's feelings of security (Salter Ainsworth et al. 1978). Salter Ainsworth et al. (1978) have suggested that during this time adolescents acquire the ability to become attached to other figures, such as their peers and other adults.

Evidence for the long-term stability of attachment style has been obtained from studies that have assessed discourse and emotional integration of attachment experiences. Individuals who are securely attached are believed to demonstrate integration of attachment experiences in their representation of their self in relationships, whereas other attachment styles show an incoherent discourse characterised by either idealisation or being dismissive of caregivers (Allen, Moore, Kuperminc & Bell, 1998; Zimmerman & Becker-Stoll, 2002). A study by Zimmerman and Becker-Stoll (2004) found significant attachment representation stability of 77% from age 16 to 18, which supported the earlier findings by Kirkpatrick and Hazan (1994) that demonstrated high stability of attachment in adults over a period of four years.

In contrast, however, Cook (2000) has argued that the conceptualisation of attachment relationships is ambiguous. One aspect concerns whether attachment is relationship-specific, as was demonstrated by Grossman, Grossman, Huber and Wartner (1981) and also whether an individual or dyadic level of analysis is appropriate. A second ambiguity identified by Cook (2000) concerned the direction of effects. Cook (2000) argued that as characteristics of the primary caregiver are fundamental to a child developing secure attachment, the internal working model of relationships can instead be described as a partner-effects model. It is therefore evident that some debate exists concerning the stability and operational processes of Bowlby's (1969) hypothetical internal working models. This debate would certainly have implications for the hypothesis that parent attachment would predict school connectedness.

Overall however the weight of evidence suggests that internal working models of attachment are relatively stable from infancy to adulthood and the adolescent's internal working model of self in relationship to others guides their expectations and behaviours (Allen, McElhaney, & Kuperminc, 2004). The level of security experienced in the child-parent relationship forms a template for the pattern of relationships the individual experiences throughout their life (Wilkinson, 2004). Therefore, an adolescent's ability to experience a

sense of school connectedness may be contingent on the nature of previous socialisation experiences in the family context (Barber & Olson, 1997).

A student's internal working model can affect their view of their teachers, the way the student and teachers behave toward each other, and the teachers' perceptions of the student (Pianta, 1999). Thus the attachment to parents may well predispose teenagers to respond differently to the school environmental factors. The research below sets out some of the school environment factors that have been identified as important in school connectedness, some of which would be more sensitive to a predisposition to attachment than others, but overall would suggest that parent attachment may impact on the perception of school environment which in turns impacts on school connectedness.

School environment factors

Not surprisingly school-related factors have been previously identified as having a significant impact upon adolescent's experience of school connectedness. These factors include relationships with school teachers and other school personnel, school activity involvement and general classroom environment (McNeely et al. 2002).

The necessary frequency of student-teacher interactions means that the student-teacher relationship is a critical aspect of the school environment. Studies have demonstrated that student perceptions of positive relations with teachers and other school staff contributed to their success in academic settings (Jacobsen & Hoffman, 1997; Marchant, Paulson, & Rothlisberg, 2001; Midgley, Feldlaufer, & Eccles, 1989). Research by Roeser et al. (2000) demonstrated that adolescents who perceived their teachers as caring and respectful showed improved academic, social and emotional functioning over time, while Cochran and Bo (1989) identified that support from non-related adults influenced school adaptive behaviour and academic performance. Similarly, Midgley et al. (1989) found evidence suggesting that the quality of the student-teacher relationship may be important during adolescence when seeking

adult role models outside the family. It is not difficult to see how the relationship with teachers might be influenced by attachment to parents. What is still unclear from this research is whether high school students in particular require a critical mass of teachers or school personnel to be warm and friendly or whether the predisposition to attachment would form an overall impression of friendly school environment or not, regardless of the number of teachers or other personnel that are perceived as friendly.

School activity involvement has been demonstrated to have positive effects for adolescent wellbeing (Eccles & Barber, 1999). In a study of the effect of participation in school activities upon adolescent well-being, Eccles and Barber (1999) examined the potential benefits of participation, including better GPA, lower rates of school absences, and lowering of potential risks (including delinquent behaviour). Evidence was found to indicate that participation in school activities was a protective factor in relation to academic performance and involvement in risk behaviours, and effects were maintained even after controlling for social class, gender and academic ability (Eccles & Barber, 1999). McNeely et al. (2002) also investigated the relationship between student participation and school connectedness, with results to indicate that those who participated in school activities experienced higher overall school connectedness. Thus it is evident that participation in school activities is an important contributing factor to school connectedness.

An additional major aspect of the school context is the general classroom environment. The classroom environment refers to the management of the classroom by school personnel, and has been conceptualised as including teacher control and responsiveness, and the quality of adolescent's relationships with teachers and peers (Marchant et al. 2001; McNeely et al. 2002). Classroom environment research has typically investigated the relationship between student perceptions of classroom environment and student outcomes (Hunt et al. 2002; Wehlage & Rutter, 1986). Such research has demonstrated that students' perceptions of

classroom environment account for a significant amount of the variance in student learning outcomes, beyond that associated with student background characteristics (Fraser, 1998; Wong, Young & Fraser, 1997). Findings such as this have led to and subsequently validated the promotion of prevention interventions targeting classroom environment factors (Hunt et al. 2002; Wehlage & Rutter, 1986).

Thus in sum there are a number of school environment factors that might account for the overall sense of school connectedness. Some of these factors might be influenced by parent adolescent attachment while others might be independent of this influence. It is absolutely vital to understand this relationship because there might be no point in placing efforts into changing the school environment to promote school connectedness if the perception of the school environment is eclipsed by an attachment predisposition that comes from parental attachments. Similarly interventions that focus on parental attachments to enhance school connectedness could be insufficient if the school environmental factors remain important predictors of school connectedness when taking attachment into account. The model of interaction between parent attachment, school environment and school connectedness that we propose here is known as a mediational model. We are suggesting here from the research above that parent attachment will affect school connectedness but that this impact is carried through the responsiveness to the school environment which serves as the mediator between parental attachment and school connectedness.

According to Baron and Kenny (1986) a variable is said to function as a mediator (school environment) to the extent that it accounts for the relationship between the independent variable (parent attachment) and the dependent variable (school connectedness). For school environment to act as a mediator between parental attachment and school connectedness, the following four hypotheses must be confirmed: 1. Parental attachment is significantly related to school connectedness; 2. School environmental variables are

significantly related to school connectedness; 3. Parental attachment is significantly related to perceptions of school environment; and 4. When the perception of school environment and parent attachment are examined together as a predictor of school connectedness, the relationship between parental attachment and school connectedness is no longer significant (full mediation) or the significance of parent attachment is substantially reduced (partial mediation). This study tests these hypotheses.

METHOD

Participants

A total of 171 students participated in the study and consisted of 88 females and 83 males. Participants' ages ranged from 12 – 18 years (grades 8 – 12), with a mean age of 15 years. The participants consisted of students from a Brisbane state high school drawn from an upper middle-class suburb. The recruitment rate for this study was 32 percent. The descriptive data would suggest that this is a representative sample. Eleven percent of the participants spoke a language other than English at home. Vietnamese and Cantonese were the most common other languages (4 participants each), followed by Samoan and Dutch (2 participants each), with other languages including Spanish, Malay, Serbian, Maltese, Yugoslavian and Bosnian.

Measures

Study participants were required to complete questionnaires which were provided by the researchers in a pen-and-paper format.

Psychological Sense of School Membership

The target variable of school connectedness, as defined by Goodenow (1993b), was measured by the Psychological Sense of School Membership (PSSM) questionnaire. The PSSM is a self-report scale intended for use as a research instrument for measuring individual differences in school belonging across diverse populations, and for identifying students 'at

risk' (Goodenow, 1993b). It includes 18 items, scored from 1 = not at all true, to 5 = completely true. Examples of questions on the scale include 'I feel like a real part of this school', 'Most of the teachers at this school are interested in me', 'I feel very different from most other students here', and 'I feel proud of belonging to this school'. The PSSM has demonstrated high internal consistency reliability with Cronbachs Alpha ranging from .77 to .88 across different samples (Goodenow, 1993b).

Parental Attachment Questionnaire

The predisposition factor of parent-adolescent attachment was measured using the Parental Attachment Questionnaire (PAQ) (Kenny, 1990). The PAQ is a self-report measure of adolescent attachment to their mother and father (individually or collectively). It consists of 41 items and provides scores on two scales: 'affective quality of relationship with parents' (PAQa), and 'parents as facilitators of independence' (PAQb) (Kenny, 1990). The 'affective quality of relationship with parents' assesses the connection component, while the 'parents as facilitators of independence' scale assesses the psychological autonomy element of attachment. Responses to questions are scored from 1 = not at all, to 5 = very much. The scales have demonstrated high levels of internal consistency, evidenced by Cronbachs Alpha of .96, .88, and .88 respectively (Kenny, 1990). Examples of items from this questionnaire include "In general, my parents are persons I can count on to listen to me when I feel upset", "In general, my parents support my goals and interests", "In general, my parents are too busy and otherwise involved to help me", "During time spent together, my parents were persons whom I enjoyed telling about what I have done and learned", and "After time spent together, I leave my parents with feeling let down and disappointed by my family" (Kenny, 1990). Higher scores on these scales denotes poorer attachment.

School environment variables

Involvement in school activities

This was measured by two key markers of school engagement rated on a 5 point scale. These were “Have you received an Academic Achievement Award in the last year?” and “Do you participate in any school activities such as sport, singing, music, etc”. Measuring these items gave an indication of the student’s involvement in school activities.

Classroom Environment Scale

In conjunction with these items, the Classroom Environment Scale (CES) was used to measure additional aspects of the classroom environment (Moos & Trickett, 1987). The CES is a self-report scale designed to measure nine dimensions of the classroom environment. These dimensions include involvement, affiliation, teacher support, task orientation, competition, order and organisation, rule clarity, teacher control, and innovation (Moos & Trickett, 1987). An important property of the CES is that it assesses dimensions reflective of the responsibility of the teacher to provide suitable learning conditions and support and systematically assesses student peer relationships (Moos & Trickett, 1987). The CES has demonstrated high internal consistencies ranging from .67 to .86 (Moos & Trickett, 1987). The questionnaire is a ‘true or false’ questionnaire, and examples of items include ‘The teacher will be more like a friend than an authority’, ‘Most students in class will really pay attention to what the teacher is saying’, ‘Very few students will take part in class discussions or activities’, ‘This teacher will want to know what students themselves want to learn about’ and ‘Students really enjoy this class’ (Moos & Trickett, 1987).

Perception of the Student Support Services

The variable of support services was measured by a home grown measure that required participants to rate statements concerning the school support services on a 5-point scale ranging from 1 (not at all true) to 5 (completely true). Statements included “I would recommend my friends to the Guidance Officer if they had a problem or crises”, and “My

friends will be positive if I go to speak to the Guidance Officer about a problem I have”. The support services scale demonstrated high internal reliability, with a Cronbachs Alpha of .86.

General Likeability of Teachers

To provide a robust measure, Likeability of Teachers was measured by an aggregate of items assessing students’ perceptions of their teachers and their degree of warmth, ability to include students, recognise their strengths and treat them fairly. Items were all measured on a five point scale. Response options for all the items included “All of them”, “Most of them”, “Half of them”, “One or two of them”, “None of them”, and items included “Thinking of my teachers this term, I really like...”, “Thinking of my teachers this term, my teachers are warm and friendly”. A reliability analysis was performed on this scale and was found to have moderately high internal reliability, with a Cronbachs Alpha of .75.

Attachment to Home Class

The home class in the school is an important source of pastoral care through a program called the House Support Group (HSG). This questionnaire contains items that assess the students’ experience of their HSG teacher and environment. Examples of items from this scale include “I have made some good friends in my HSG class”, “I think the HSG is a valuable part of the school program”. The Attachment to Home Class subscale of the HSG Scale demonstrated very high internal consistency, with a Cronbachs Alpha of .92.

Procedure

The study utilised only those students who had provided written parental consent and their own written assent to participate in the study. Students completed the questionnaires in one large group at a pre-arranged session time in a designated classroom at the participating high school. The researcher addressed the students collectively and provided an overview of the nature of the questionnaire items, instructions on how to complete the questionnaire and behaviour protocols, such as not talking to others, and raising their hand for help. The

researcher and several teachers were available to respond to student's queries and concerns throughout the data collection session. The time required for completing the questionnaires varied between approximately 40 minutes and one hour.

RESULTS

Data was screened for univariate outliers using the criterion of standardised scores 3.5 standard deviations above or below the mean, as recommended by Hair et al. (1998). As recommended by Hair et al. (1998), outliers were identified and removed from the study in order to avoid compromising the generalisability of the results. Data was then screened for multivariate outliers using a criterion of $p < .001$ for Mahalanobis Distance, as recommended by Hair et al. (1998). One case was found to have a Mahalanobis Distance value that exceeded this criterion, and as the case was determined to not be representative of the population it was deleted. Of the original sample of 171 students, only 155 cases were analysed.

Descriptive Statistics

A large majority of the participants' parents were living together, while 31 participants had parents who had separated or divorced, 4 participants had one or more parents who had died, 3 participants had parents who had never lived together, and 1 remaining participant did not fit into these categories. With regard to parental work status, 81 participants had mothers/stepmothers who were working full time, 37 participants had mothers who were working part time, and 33 participants had mothers who were not working, with the remainder of participants having mothers who had either retired or deceased. The majority of participants had fathers who were working full time (132 participants), followed by not working (9 participants) and working part time (7 participants), and the remainder being retired.

Correlations

Patterns of correlations and descriptive statistics between the relevant variables were examined. Table 1 presents the correlations between all variables assessed. As can be seen

parental attachment variables correlate significantly with school connectedness (hypothesis 1). The school environment variables also all correlate significantly with school connectedness (hypothesis 2). A further point of interest is that the parent attachment variable affective quality of relationship was moderately correlated with all of the school environment variables (hypothesis 3), while the parent attachment facilitator of independence variable was moderately correlated with all of the school environment variables with the exception of the involvement in school activity.

The variable of parent attachment – affective quality of relationships was found to be the most important variable of the two parent attachment variables and subsequent regression showed that when the two PAQ variables were considered simultaneously the facilitators of independence bore no significant link to either school connectedness or any of the school environment variables. Thus subsequent analyses only used the PAQ-affective quality of relationship when the hypotheses around parental attachment were further investigated.

Insert table 1 here.

With regard to hypothesis 1 it can be seen that the PAQ –affective quality of relationship accounts for 25% of the variance in school connectedness. To further examine hypothesis 2 that school environment factors would predict adolescents' level of school connectedness a regression analysis was performed. Attachment to Home Class, Support Services, Total Classroom Environment, Involvement in school activities, Likeability of Teachers were entered collectively as the independent variable and school connectedness entered as the dependent variable. The results of the analysis revealed that school environment significantly accounted for 55% (adjusted) of the variance in school connectedness ($F(5,130) = 34.05, p < .001$). This was a considerable overall level of prediction of school connectedness by school environment factors. Of additional interest is that the perception of classroom environment, when considered with the other variables, does not bear a significant prediction

to school connectedness, whereas the other variables all uniquely and powerfully add to the overall variance in school connectedness.

To further examine hypothesis 3 a regression analysis was performed with parent-adolescent attachment – affective quality of relationships as the dependent variable and school environment factors as the independent variables. The results revealed that parental attachment and school environmental factors were significantly inter-related ($F(5,131) = 9.29$, $p < .001$), with $R = .51$, explaining 26% of the variance. When considered together only the likeability of teachers and involvement in school activities remained independent predictors of parental attachment, with perception of support services approaching significance.

The fourth hypothesis proposed that school environment factors will mediate the impact of parent-attachment in predicting school connectedness. To test this hypothesis, a hierarchical multiple regression analysis was performed in order to demonstrate the contribution of parental attachment to the variance in school connectedness, and the difference in this contribution when the proposed mediating variables of school environment were added to the regression model. Thus parent attachment – affective quality of relationships was entered as the independent variable at step 1 of the regression, while parent attachment and school environment factors, including involvement in school activities, Classroom Environment, Support Services, Attachment to Home Class, and Likeability of Teachers, were entered at step 2 of the regression. According to the results, at step 1 of this analysis parent attachment significantly accounted for 26 % (adjusted) of the variance in school connectedness ($F(1,129) = 49.58$, $p < .001$). At step 2 of the analysis, parent attachment and school environment factors together significantly accounted for 56% of the variance in school connectedness ($F(6,124) = 28.13$, $p < .001$). The addition of the school environment factors represented a significant contribution to the variance in school connectedness ($\Delta R^2 = .30$, $F(5,124) = 17.50$, $p < .001$).

The unique contributions of each of the variables to the variance in school connectedness are reported in Table 2. Model 1 examines the prediction of parent attachment only and model 2 examines the combined prediction of parent attachment and the school environment variables. In model 2, the parent attachment variable remains a significant predictor but the strength of the prediction is substantially reduced from model 1. The Standardised Beta weight changes from $-.527$ to $-.182$. This represents a partial mediation effect. The clearest way to illustrate the strong partial mediation can be seen by the fact that the school environment adds almost 30% of the variance to school connectedness over and above parent attachment. However parent attachment only adds less than 3% additional variance to school connectedness over and above the school environment variables even though it contributed 25% variance before the mediators were taken into account.

The school environment factors of Likeability of Teachers, Support Services, and Attachment to Home Class, Involvement in school activities all significantly contributed to the variance in school connectedness. Total Classroom Environment was not a significant independent contributor to the variance in school connectedness when the other school environment variables are taken into account.

Insert Table 2 here.

In summary parent attachment (affective quality of the relationship) significantly predicts the adolescent's school connectedness. The perception of the school environment also predicts school connectedness with Likeability of Teachers, Involvement in school activities, Perception of the Support Services and the Home Class all independently making a substantial contribution, while class room environment loses its importance in the context of the other school environment variables. Parent attachment is strongly linked to the perception of the school environment and particularly in explaining the likeability of teachers and involvement in school activities. The school environment partially mediates the relationship between parent

attachment and school connectedness. This means therefore that a relationship between parental attachment and school connectedness is largely carried by the impact that parental attachment has on the likeability of teachers and the involvement in school activities. The overall model of mediation can be seen in figure 1 below.

Insert Figure 1 here.

DISCUSSION

Given the vital role that school connectedness plays in adolescent mental health and psycho-social development, it has become imperative for us to understand in greater depth how much of the individual differences in school connectedness is accounted for by the perception of the school environment and how much is a general predisposition to attachment that could be linked to parental attachment. In order to define this relationship further, it was hypothesised that level of school connectedness would be predicted by both parental attachment and school environment factors, and that the effect of parental attachment on school connectedness would be mediated (in whole or part) by school environment factors. The overall results of the study revealed support for these hypotheses.

The strong link between parent attachment and overall sense of school connectedness as well as the link between parent attachment and the perception of the school environment (both at approximately 25% of the variance) provides support for attachment theory and the continuity of attachment relationships through the developmental process. According to Bowlby (1969), through attachment to primary caregivers, a child forms cognitive internal working models that provide representations of the self, others and the environment. These representations are thought to assist the child to organise and predict the behaviour of others in response to the child, and form the basis of working models that influence interpretation and

memory of experiences. These working models are thought to form the basis of attachment and are used as the child learns to extend the models for use in new situations. It has also been proposed that during the individuation process, adolescents may learn to extend their attachments to include other adults and groups.

It is of interest to note that the likeability of teachers was one of the major school environment variables predicted by parent attachment. The attachment predisposition to liking an adult caregiver is clearly a factor in the extent to which teenagers will like their teachers and thus contribute to their overall connectedness to the school. This implies that while it is essential for teachers to be warm and engaging their likeability is not entirely in their control. There would be a significant individual difference in teacher likeability that is influenced by attachment predisposition or by “transference phenomena” to use the language of psychotherapy. This study would suggest that there is empirical support for this notion. Teachers are generally unprepared and untrained for understanding and dealing with this “transference phenomena”. The potential for reciprocal counter-transference and spiral of negativity is quite strong.

Similarly it is very interesting to note that involvement in school activity whether it be academic or extra-curricular was also strongly influenced by parent attachment. Bowlby has argued that the quality of children’s attachment to their caregivers has a strong influence upon their ability and willingness to explore their environment. The “secure base” provided by the attachment figure provides the jumping off point from which the developing child can safely explore their environment. It would seem from this study that adolescents more securely attached to their parents are better able to involve themselves in school activities. Alternatively the less securely attached adolescents either feel less confident to explore or are less able to explore because of their preoccupation with lack of attachment to their parents.

It was not surprising to find that school environment factors including classroom environment, involvement in school activities, support services, likeability of teachers, and attachment to home class predicted school connectedness. Previous research has yielded findings to suggest that participation in school activities is associated with higher rates of school connectedness, lower rates of school absences and lowering of potential risks such as delinquent behaviour (Eccles & Barber, 1999; McNeely et al., 2002). Given these results, it was expected that these variables would predict school connectedness. Overall, results in this study revealed that school connectedness was strongly predicted by the combined school environment factors. The degree to which a student is socially bonded to their school depends on (among other things) their attachment to school personnel and peers and involvement in school activities (Wehlage et al. 1989). The current findings also support the earlier findings by Roeser, Eccles and Sameroff (2000), who demonstrated that school-related factors such as attachment to personnel, school involvement and school environment have a significant impact upon adolescent's experience of school connectedness.

What was of interest to note however was that all the school environment variables, with the exception of general classroom environment variables added unique variance to the overall model. This suggests that there are multiple points within a school that contribute to an overall sense of connectedness. Support services, the home room teacher, the teachers in general and the involvement in school activities all are potential points to impact on the overall sense of school connectedness (and thus on the mental health and positive development of the teenager). Further, it suggests that interventions aimed at influencing factors within the school environment may have a positive effect on school connectedness. Given that a number of components add unique variance to school connectedness, interventions targeting a whole of school approach would seem most relevant. This research suggest that high school students do require a critical mass of teachers or school personnel to be warm and friendly. The

predisposition to attachment influences the overall impression of friendly school environment but the number of points of connectedness at school all add cumulative value.

The variable of Classroom Environment measured the students' experience of their typical class. It assessed student involvement, teacher support, task orientation, competitiveness within the class, class organisation and innovation, rule clarity and teacher control. These characteristics reflect the responsibility of the teacher to provide suitable learning conditions and support to students (Moos & Trickett, 1987). High levels of teacher support, student involvement and suitable learning conditions could be expected to positively contribute to higher levels of school connectedness, however, this variable did not make any contribution towards the variance in school connectedness when the other school environment variables were taken into account. This would suggest that as long as the teachers are liked and respected, issues of rule clarity and classroom organisation and task orientation become less important for school connectedness. (Of course they may well be important for academic outcomes).

The study supported the view that the perception of the school environment would mediate (carry) the relationship between parent attachment and school connectedness. Although this was a partial mediation only, its significance should not be understated. Parental attachment does affect school connectedness, but the effect occurs largely through the mechanisms of responsiveness to the school environment. This is an important finding, as it suggests that changing conditions within the school environment may be necessary, yet insufficient for enhancing school connectedness among adolescents. As such, interventions aimed at enhancing school connectedness may also need to address students' personal internal working models, so that even those students that do not have a secure attachment with their caregivers may engage in new attachment experiences and thus learn new, positive ways of

responding to aspects of the school environment. As it has been demonstrated that people continue the same attachment behaviours throughout adult life, these adapted responses may then also lead to the experience of further positive life outcomes (Bowlby, 1969).

The current study has utilised a widely-accepted method of investigation, using surveys with high internal reliability and an adequate sample size, however, there are some limitations to the current investigation. Although self-report measures are common and viable strategies for assessing attachment experiences, the current study was limited by a reliance on only the adolescents' perception of the attachment relationship (Lopez & Gover, 1993). To address this limitation, it is suggested that future research uses multiple assessments to obtain a more complete understanding of the variations inherent within the attachment relationship (Lopez & Gover, 1993). The study was also limited by the cross sectional design with all the usual limitations of ascertaining the directions of the relationship and this did also not allow for investigation of fluctuations in parental attachment quality and relationship with factors within the school environment. The reliance on one high school also meant that variations in school culture were not captured in this study, thus possibly restricting the range of the school environment experience.

While the current study has provided important information about the relationship between parent-adolescent attachment, school environment factors and school connectedness, there are still potential valuable research questions about these relationships that could be investigated. To develop interventions targeting individual internal working models, further research could begin to investigate the relationship between attachment specific styles and response to factors within the school environment. Further, future trials conducted should involve students from a greater number of high schools in order to improve the generalisability of the findings. Finally, there may be benefits in conducting a longitudinal study of the relationship between parental attachment, school environment factors and school

connectedness. Such a study may detect fluctuations in parental attachment, particularly during the individuation process of adolescence, and the effect of this upon ratings of the school environment factors and subsequent school connectedness.

In conclusion, the current study has conducted an investigation of the relationship between school and family environment characteristics in order to enhance current knowledge of factors that contribute to school connectedness among adolescents. Support was found for a mediational model in which it was proposed that factors within the school environment would mediate the impact of parent-adolescent attachment in predicting school connectedness. These findings were explained using Bowlby's (1969) attachment theory framework. According to this theoretical model, the apparent mediation of parent attachment by school environment factors may be evidence of internal working models, which form the basis of attachment styles and persist throughout the developmental process.

These findings represent a unique contribution, as they offer the new suggestion that individual background attachment characteristics influence perception of school environment and consequently impact on school connectedness. This has important practical implications, as it implies that interventions may need to target not only school environment factors, but also individual internal working models in order to improve their overall sense of school connectedness and mental health. Interventions need to be based on the double interactive systemic platform of home and school. In addition teacher training and teacher practices would benefit from the understanding that parental attachment influences the school experience such as teacher likeability and involvement in the schools. Parent interventions would also benefit from an understanding of the value of the attachment relationship for the perception of the school environment, although great care should be taken to not overstate this given that it accounts for only 25% of the variance in this regard.

In light of these findings, it can be considered that there is cause for both optimism and concern. We now know that attachment to schools is a vital risk and protective factor for adolescent mental health and probably the most important single risk factor. This course is somewhat determined by predisposing attachment factors and this is concerning. However the finding has also suggested that there are multiple points of opportunities for enhancing this important sense of school connectedness.

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Table 1

Correlations Between School Environment, School Connectedness and Parent-Adolescent Attachment Variables

Variable	PSSM	PAQ ^{afac}	PAQ ^b	School activity involvement	CES	Support services	Attachment to home class	Likeability of teachers
PSSM	-	-.458** <i>n</i> = 146	-.502** <i>n</i> = 144	.310** <i>n</i> = 148	.389** <i>n</i> = 141	.532** <i>n</i> = 146	.544** <i>n</i> = 148	-.625** <i>n</i> = 149
PAQ ^a			.834** <i>n</i> = 148	-.154 <i>n</i> = 151	-.225** <i>n</i> = 145	-.317** <i>n</i> = 149	-.240** <i>n</i> = 151	.402** <i>n</i> = 152
PAQ ^b				-.209* <i>n</i> = 149	-.291** <i>n</i> = 142	-.337** <i>n</i> = 147	-.345** <i>n</i> = 149	.423** <i>n</i> = 150
School activity involvement					.048 <i>n</i> = 146	.063 <i>n</i> = 151	.114 <i>n</i> = 153	-.125 <i>n</i> = 154
CES						.234** <i>n</i> = 144	.499** <i>n</i> = 146	-.492** <i>n</i> = 147
Support services							.426** <i>n</i> = 151	-.527** <i>n</i> = 152
Attachment to home class								-.490** <i>n</i> = 154
Likeability of teachers								
<i>M</i>	3.75	35.42	61.44	3.06	15.78	63.26	40.63	12.77
<i>SD</i>	.615	8.61	18.50	.74	5.72	12.37	10.88	4.18

Note. ^aParent-adolescent attachment – facilitators of independence. ^bParent-adolescent attachment – affective quality of relationships.
**p* < .05.

***p* < .01.

Table 2

Summary of Hierarchical Multiple Regression Analysis for School Connectedness and Parent-adolescent Attachment and School Environment Variables

Variable	<i>B</i>	<i>SE B</i>	<i>B</i>	Sig.
Step 1				
PAQ ^a	-.017	.002	-.527	.000**
Step 2				
PAQ ^a	-.006	.002	-.182	.010*
Attachment to home class	.011	.004	.204	.009*
Support services	.008	.003	.173	.018*
Total Classroom Environment	.004	.008	.043	.559
Involvement in school activities	.158	.046	.208	.001**
Likeability of teachers	-.044	.011	-.309	.000**

Note. Dependent variable = School Connectedness. ^aParent-adolescent attachment - affective quality of relationships.

* $p < .05$.

** $p < .001$.

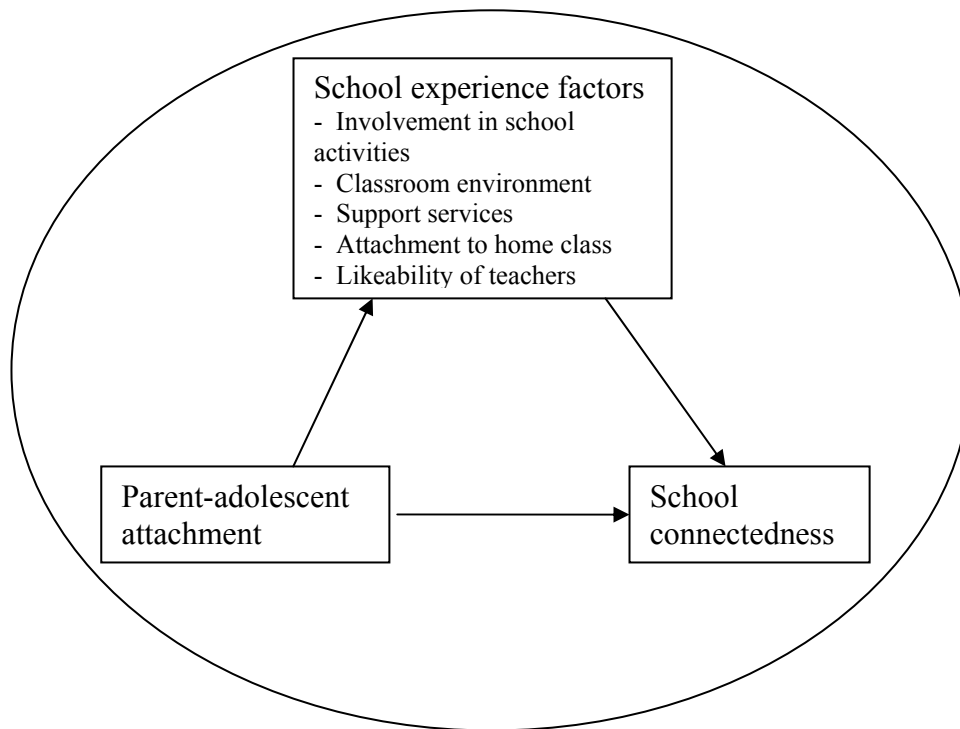


Figure 1. Mediation model of the relationship between school environment factors, parent-adolescent attachment, and school connectedness.