

Addressing the Challenges Faced by Early Adolescents: A Mixed-Method Evaluation of the Benefits of Peer Support

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Abstract In this article, we describe a mixed-methods study used to examine the effectiveness of a widely-used peer support program designed to facilitate the transition to adolescence and high school by enhancing self-concept and other desirable outcomes. For the quantitative component, a longitudinal design was employed (930 Grade 7 students, 3 schools, 2 years), with control group and baseline (i.e., pre-program) data against which to compare the effects. Using a multilevel approach, the results provide evidence to suggest that the program was largely successful in achieving its aims of enhancing students' school self-concept, school citizenship, sense of self and possibility, connectedness, and resourcefulness. A sub-sample of students from the experimental group participated in the qualitative component, which included open-ended survey results ($n = 408$ Grade 7 students, $n = 75$ peer support leaders) and focus groups ($n = 119$ Grade 7 students, $n = 44$ peer support leaders) to identify students' personal perspectives of the program. The qualitative results confirmed the quantitative findings that the program has important benefits for Grade 7 students and provided rich and valuable insights into students' views of the intervention. The findings of this research have important

implications and suggest that the provision of peer support has the potential to make a significant contribution to schools' efforts to orchestrate positive outcomes for adolescents.

Keywords Peer support · Early adolescence · Transition · Mixed-methods

Introduction

Early adolescence has long been recognised as a pivotal stage of development that is marked by a confluence of biological, psychological, and social change (e.g., Heaven 2001; Wigfield et al 2005). During this period, adolescents simultaneously deal with physical and cognitive transformations, increases in peer pressure, greater interest in the opposite sex, and the desire for personal independence. Furthermore, social bonds with parents are transformed as relationships with peers take on new meaning and deepen in intensity. Around the same time that adolescents are undergoing these changes, many are also undergoing the transition from elementary to middle school or junior high. New high school students face a multitude of changes, such as differences in educational demands, teacher attitudes and grading systems, as well as a disruption of social networks (e.g., Eccles et al. 1998; Midgley et al. 2002; Wigfield and Eccles 2002).

As a result of the tremendous changes faced during early adolescence, this period has historically been described as a period of "storm and stress". Although it is now recognised that most individuals pass through adolescence without excessively high levels of turmoil (Arnett 1999; Wigfield and Eccles 2002), many do experience difficulty as a result of the transition. For example, declines in self-esteem

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(Wigfield and Eccles 1994; Hirsch and DuBois 1991), lower levels of motivation (Anderman et al. 1999; Harter et al. 1992), increases in psychological distress (Chung et al. 1998; Crockett et al. 1989), and a decline in grades (e.g., Alspaugh 1998; Felner et al. 1981; Reyes et al. 1994; Simmons and Blyth 1987) have been reported for students entering junior high school. Research also suggests that students who do not successfully negotiate the transition are at increased risk for academic failure and school drop out, as well as more serious forms of emotional dysfunction during adolescence and adult life (Reyes et al. 2000; Roderick 1995; Rudolph et al. 2001). While it is now clear that psychological turmoil is not characteristic of all adolescents, contemporary research supports the view that there is an increased tendency for psychological unrest in adolescence. As Arnett (1999) emphasised, “not all adolescents experience storm and stress...but adolescence is the period when storm and stress is *more likely* to occur than at other ages” (p. 317).

Awareness of the problems facing adolescents has led to the promotion of school-based intervention strategies to help facilitate the transition to adolescence and high school (see Roderick 1995). In recent times, peer-led interventions have been proposed as a possible solution to addressing students’ problems. Given adolescents’ inclination to prefer to be influenced by their peers, as well as the available pool of possible peers within school contexts, the potential role for peers helping peers appears both feasible and compelling. The potential of peer support programs was first emphasised by Wassef et al. (1995), p. 536, who stated:

Considering that the normal maturational process in adolescents leads to greater intimacy in relationships with peers, and the fact that adolescents frequently reach out to peers for help, more consideration should be given to assessing the use of peer support groups in high schools. If proven effective, they can serve as a more economical approach to reaching the majority of the students in distress before more serious problems arise.

As a result of such recommendations, various forms of peer support have proliferated over the past decade, including those emphasising emotional support such as befriending, peer-mediated conflict resolution and peer counselling and those focusing on education and information such as peer mentoring and peer tutoring (Cowie and Wallace 2000). Peer support, in all of its forms, are those planned practices where young people have been given, and often trained to undertake, a defined task of offering a learning experience to another young person or group. More often than not, the leaders (or tutors) are required to listen to, and provide support for their peers (Charlton

1998). Peer support has been used with students of all ages and has been directed to help address a range of problems, including academic support in classrooms, elementary-high school transfer, bullying, race inequality and isolation. While peer support is recognised as a useful approach, it is often restricted to students with academic, emotional or behavioural problems, and not applied to all students.

Peer tutoring, arguably the oldest and most widely researched form of peer support (Kaye and Webb 1996), is an educational strategy used to facilitate students’ skills in reading, mathematics and other curriculum areas (Cowie and Wallace 2000). The Chance to Succeed Program is one such intervention, developed at a school in New York, in which preadolescent students are paired with older students who have been carefully selected and trained for two weeks to be tutors (Berry 2002; Walker 1991). The tutors guide the younger students through their homework and help them with their reading for 4 h per week over 8 months. Although this program has not been studied extensively, there is evidence to suggest that it has positive effects in the academic performance on those who receive tutoring. For example, Walker (1991) reported that, in its first year, the academic performance of all 25 tutees involved in the program increased substantially, with an average overall gain of 68 percentage points.

On the whole, research on peer tutoring has found that there are positive cognitive benefits for those being tutored (for meta-analytic reviews see: Cohen et al. 1982; Cook et al. 1985; Rohrbeck et al. 2003; Ryan et al. 2004). The most comprehensive review of studies in the field is Rohrbeck et al.’s (2003) meta-analysis of 90 independent evaluations of school tutoring programs, which showed that these programs have significant positive effects on academic achievement. The unweighted mean effect size of achievement was 0.59, which is considered a moderate effect (Cohen 1977) and is similar to the 0.48 mean effect size typical of social science meta-analyses (Lipsey and Wilson 1993).

While prior research has established the academic benefits of peer tutoring, there is a paucity of research on the effectiveness of other forms of peer support, and the research that has been conducted has largely been descriptive and informal (Cowie and Wallace 2000; Dillon and Swinbourne 2007). In the United Kingdom, peer support interventions are widely used as a means of combating bullying in schools (Cowie and Hutson 2005). These interventions have typically occurred in the form of: befriending schemes, where peer supporters are trained to offer friendship or support in everyday interaction with their peers; conflict resolution/mediation schemes, where peer supporters are trained to work through the process of mediation in order to address common interpersonal concerns; and counselling based schemes, where peer

supporters are trained to use active listening skills to support peers in distress (Cowie and Hutson 2005; Naylor and Cowie 1999). In the largest study conducted to date, Naylor and Cowie (1999) surveyed 2,313 high school students from 51 schools, where a peer support system had been well established for at least one year. Four out of five students who had taken part in their school's peer support system reported that it was helpful in giving them the strength to cope with bullying. A 2-year follow-up study of a sample of the same cohort of students (Cowie et al. 2002) found continued widespread support for the systems and a strong sense that students had become increasingly confident with their value. An overwhelming number of students stated that they liked the peer support system being used in their school, that they would use it if they needed to, and would recommend it to a friend in need.

Apart from research on peer tutoring, there is a paucity of large-scale studies on the effectiveness of peer support and these interventions have yet to be evaluated beyond participant satisfaction. Kotloff et al. (1993) expressed concern over the quality of evaluative studies on peer support interventions, arguing that there is little hard data with which to judge the effectiveness of peer support, as previous research has not collected "the kinds of systematic data that lend themselves to tracking program effects" (p. 33). More recently, Cowie et al. (2002) acknowledged that peer support remains an area greatly in need of rigorous research, noting in particular the need to "discover more precisely the outcomes for [program] users" (p. 465).

The present investigation is part of a large research project investigating the effectiveness of a peer support intervention designed to assist students through the instability of adolescence and the transition to high school. The Peer Support Program was first developed in Australia by the Peer Support Foundation in 1984, and has since been revised in 2001. The overarching aim of the Program is to foster the physical, social and mental well-being of young people (Peer Support Foundation 2001). It aims to do this by developing crucial values, skills, and attitudes that will not only assist them through the transition to adolescence but also throughout their lifelong journey ahead. Specifically, the Peer Support Foundation (2001) claims that the Program assists students by enhancing school competence, school citizenship, sense of self and possibility, and resourcefulness. This program is popular in Australia with over 1,600 schools currently adopting the Peer Support Foundation's programs in New South Wales alone. Similar models have also been adopted by schools in the United States, the United Kingdom, New Zealand, and Singapore.

The Peer Support program is designed to train senior Year 10/11 high school students to work regularly with small groups of seventh grade students. Each group consists of eight to ten Grade 7 students and two Grade 10/11

leaders. The leaders are responsible for directing the Year 7 students through the program content and activities. Program content covers a variety of issues relevant for early adolescents, such as goal setting, group decision making, problem solving, and the development of support networks. The Program is designed to be experiential and to encourage as much participation as possible. The Program consists of twelve sessions, each of which is designed to run for 45 min and take place once per week. The Peer Support Foundation has compiled a manual for the Program, outlining in detail each of the session plans (Peer Support Foundation 2001). The aims of the sessions are clearly defined, guidance is given as to what preparation and materials may be needed, and the format of the activities is thorough, including suggested timing.

To date, there has been no large scale studies on the effects of the Australian designed Peer Support Program and the studies that have been conducted are plagued with methodological flaws, including the use of anecdotal evaluations, the absence of control groups, and a deficiency of evaluation and follow-up. The study of Kaye and Webb (1996) is the only published study on this program, in which Year seven students were asked to complete questionnaires on only one occasion—at the completion of the peer support program. In this study, 96% of Year seven students reported that the intervention had helped them settle into secondary school. Although these results appear impressive, researchers have suggested that testing conducted immediately after an intervention can distort students' responses. Marsh et al. (1986) discussed the phenomenon of "post-group euphoria" (temporary elation at the end of an intervention), which can inflate post-intervention test scores. As a result, Marsh et al. (1986) stressed the imperative of collecting later follow-up data to ensure that the initial effects of the program have been maintained over time.

The aim of the present investigation was twofold: firstly, test the impact of the Program on espoused program outcomes and other aspects of students' psychological well-being and adjustment to the high school context that may have been affected by participating in the intervention; and secondly, to identify students' personal perspectives of the benefits of the Program. A combination of quantitative and qualitative methods were used in recognition of recent developments which demonstrate that mixed methods studies can help elucidate various aspects of the phenomenon under investigation, providing a more holistic understanding of it, and resulting in better-informed recommendations (Davies 2000; Marsh et al. 2005b; Steckler et al. 1992). The present investigation was designed to address key deficits that have occurred in previous research on peer support by: (a) employing a strong longitudinal quasi-experimental design with control groups and baseline data against which to

compare the effects; (b) including a large sample size and participation from several high schools; and (c) conducting sophisticated statistical analyses in the context of a strong, methodologically sound research design.

Method

Quantitative Design and Sample

We considered responses from a large sample of 930 students in Grade 7 (aged 11–14) from three high schools located in New South Wales, Australia. Data was collected from Grade 7 students over a 2 year period. In the first year of the study, all Grade 7 students from the three participating schools were assigned to the within-school (baseline) control group. Quantitative data was collected from the control group ($n = 478$) on three occasions during the school year (near the start of the year, 6 months later, and towards the end of the year). In the second year of the study, new Grade 7 students from the same three schools participated in the peer support program and served as the experimental group. As with the control group, quantitative data was collected from the experimental group ($n = 452$) on three occasions during the school year (prior to the introduction of the program, at the end of the program, and towards the end of the year). Data collection times were matched for the experimental and control groups across the 2-year period. Results for Grade 7 students in the experimental group were compared with: (a) the control students from the previous (baseline) year; and (b) the pre-test results from the experimental group immediately prior to the intervention at Time 1 (T1). This design also provided a basis for analysing the short-term and enduring effects of the intervention on the experimental group, while controlling for the effects of the control group.

The central aim of the quantitative component of the present investigation was to test the effectiveness of a widely used Australian peer support program on espoused program outcomes and other aspects of students' psychological well-being and adjustment to the high schooling context that may have been affected by participation in the intervention. A survey instrument (see [Appendix 1](#) for a summary of scales, scale reliabilities, and sample items), was completed by experimental and control group participants. The measures included in the survey are outlined below.

Quantitative Measures

Self-Concept

The Self-Description Questionnaire II—Short (SDQII-S; Marsh 2000) is a measure of multiple facets of self-concept

designed for use with adolescents aged 12–18 years. The SDQII-S contains half of the original items from the SDQII (Marsh 1990), though retains strong psychometric properties (Marsh et al. 2005a) and all 11 of its self-concept factors (Physical Abilities, Physical Appearance, Same-Sex Relationships, Opposite-Sex Relationships, Honesty/Trustworthiness, Parent Relationships, Emotional Stability, Verbal, Math, General School and Global Self-Esteem). Respondents are asked to use a 6-point response scale to indicate the degree to which they agree or disagree with each of 51 statements, 31 of which are positively worded. The response format and scoring of the SDQII-S are based on the original SDQ-II.

Life Effectiveness

The revised version of the Review of Personal Effectiveness Scale (ROPE; Richards and Neill 2000) is a measure of key psychological and behavioural domains that constitute 'life fitness' or 'life effectiveness'. The ROPE was originally developed from the Life Effectiveness Questionnaire (Neill et al., 1997, The life effectiveness questionnaire: Development and psychometrics, unpublished) and was specifically designed to be sensitive to the types of personal changes likely to occur as a result of taking part in experience-based intervention programs. The ROPE consists of 39 items and measures 12 specific areas of personal effectiveness including personal abilities and beliefs (Self-Confidence, Self-Efficacy, Stress Management, Open Thinking), social skills (Social Effectiveness, Cooperative Teamwork, Leadership Ability), organisational skills (Time Management, Quality Seeking, Coping with Change), an 'energy' scale called Active Involvement, as well as a measure of overall effectiveness in all aspects of life. Each ROPE item is a simple declarative statement and participants respond using an 8-point true-false response scale. Research conducted with the ROPE has demonstrated good support for its psychometric properties in terms of reliability and factor structure (Ellis 2004; Richards et al. 2002).

Coping

A new short form of the Coping Strategy Indicator (CSI-S) based on the work of Amirkhan (1990) was used to measure three coping strategies commonly used by adolescents when faced with difficulties: problem solving, seeking support, or problem avoidance. The CSI-S contains 15 of the original 33 items from the CSI (Amirkhan 1990) and has strong psychometric properties (Ellis 2004). For each item, respondents rate how they react to difficulties or problems on a 6-point scale (1 = never to 6 = always).

Perceptions of Bullying

The Bullying Attitude scales of the Adolescent Peer Relations Instrument (APRI-A; Parada 2000; Marsh et al. 2004) are designed to measure two fundamental attitudes in relation to bullying: Pro-Bully and Pro-Victim. The APRI-A contains 12 items and asks students to rate on a 6-point scale how much they agree or disagree (1 = completely agree to 6 = disagree) with each of the statements reflecting either pro-bully or pro-victim ideals.

Qualitative Design and Sample

The purpose of the qualitative study component was to enrich key quantitative findings, giving voice and life to the results, as well as providing an insight into the personal perspectives of both Grade 7 students and their peer support leaders. The intention was to “put flesh on the bones of the quantitative results, bringing the results to life through in-depth case elaborations” (Patton 1990, p. 132). The second aim of the qualitative component was to provide insight into issues that may not have been identified by the quantitative methods.

Two methods were used to gather qualitative data for the present study, the first through open-ended questionnaire items and the second through focus group discussions. This data was collected from both Grade 7 students and their peer support leaders at the post-intervention test occasion (T2, Year 2). Several open-ended questions were included at the end of the quantitative questionnaire so that students could convey their perceptions of the Peer Support Program in their own words (see Appendix 2). This method was selected as it is considered to be a highly economical way of collecting qualitative data (Robson et al. 2001). The open-ended questions gave students the opportunity to express their views about the benefits of the program, perceptions of the program in general, and the effectiveness of the peer support leaders. All Grade 7 students from the experimental group and their peer support leaders were invited to offer responses to this questionnaire. A total of 408 Grade 7 students (representing 90.3% of the experimental year sample) and 75 peer support leaders (representing 75.8% of the participating peer support leaders) responded to the open-ended questionnaire items.

In recognition of several limitations related to open-ended questionnaire items (e.g., limitations related to the writing skills of respondents, the impossibility of probing or extending responses, and the effort required of the persons completing the questionnaire; Patton 1990), a second method was used to gather qualitative information, namely, focus group discussions. Focus groups have the advantage of allowing the researcher to interact directly with respondents. They provide opportunities for the clarification of

responses, for follow-up questions, and for the probing of responses (Stewart and Shamdasani 1990). Furthermore, the social setting of this method provides a measure of validation of information, since extreme or false views tend to be challenged by others in the group (Robson et al. 2001). On completion of the qualitative questionnaire, students were invited to take part in discussion groups on the strengths and weaknesses of the Peer Support Program. Almost all students indicated that they would be willing to participate. A random selection of 119 Grade 7 students and 44 peer support leaders were invited to participate. A semi-structured interview guide formed the basis of discussion (see Appendix 3). Each focus group consisted of six to eight students and lasted approximately 20 min.

The Peer Support Program

Aims and Objectives

The Peer Support Foundation advocates that the overarching aim of the Peer Support Program is to foster the physical, social, and mental well-being of young people. It aims to do this by developing crucial values, skills, and attitudes that will not only assist students through the instability of adolescence and the transition to high school but also throughout their adult lives. More specifically, the Program aims to assist students by enhancing the following key areas (see Ellis 2004, for further detail):

- *School competence*—The Peer Support Program is proposed to have a “cross-curricular focus”, that is particularly relevant to the following key learning areas: English; Personal Development, Health and Physical Education (PDHPE); Human Society and its Environment (HSIE). The program has been designed to contribute to competence in these areas by encouraging students to: share their ideas, feelings and information with others; listen critically and offer constructive responses to others; respect different viewpoints (Peer Support Foundation 2001).
- *School citizenship*—The program has been designed to develop skills for positive, socially responsible participation in the school community. Throughout the program, students are encouraged to explore choices in behaviour, think about how their choices may affect others, and choose positive patterns of behaviour. The program endeavours to create a safe and caring school environment, free from violence or harassment, and to encourage students to act in a fair and responsible manner (Peer Support Foundation 2001).
- *Sense of self and possibility*—The program aims to enhance students’ self-perceptions of their general self-worth and sense of possibility by encouraging students

to feel more confident, capable, and satisfied with the way they are; and by fostering the belief that positive outcomes can be achieved in the future. According to the Peer Support Foundation (2001), students learn to: accept themselves as they grow and change; develop a sense of their own worth and dignity; and value themselves as important members of various groups.

- *Connectedness*—The program is designed to enhance student relations and promote a sense of connectedness among students. It seeks to improve student relations by encouraging students to: share ideas, feelings and information with others; be sensitive to the need for shared responsibility and decision making; negotiate with others and respect different viewpoints; develop support networks; and make a commitment to developing and maintaining positive relationships (Peer Support Foundation 2001).
- *Resourcefulness*—Resourceful individuals are portrayed as having the ability to reflect on and learn from their experiences, as well as to creatively turn challenges into opportunities for continued growth and learning. The program promotes resourcefulness by: teaching students how to cope with problems so that they can be proactive and resilient in dealing with life experiences; encouraging students to be open and adaptable in their thinking and ideas so that they may increase their opportunities for growth and learning; helping students cope with changes in friendships and new teacher expectations following the transition to high school; assisting students to become more organized and less stressed at school (Peer Support Foundation 2001).

In sum, the Peer Support Program is designed to foster the promotion of multiple desirable psychological outcomes. By enhancing school competence, school citizenship, sense of self, connectedness, resourcefulness, and sense of possibility, it is anticipated that students will become young people who can “take responsibility for their own well-being”, as well as “deal positively, proactively and resiliently with their life experiences” (Peer Support Foundation 2001, p. i).

Teacher Roles and Training

A team of three to four teachers are selected by their high school principal to run the program. The role of this team is to facilitate the training of the peer leaders, provide support for the leaders via briefing and debriefing, and oversee all aspects of program implementation. These newly selected teams join teachers from other schools in their region for an intensive two-day training workshop conducted by the Peer

Support Foundation. The workshop includes training sessions on the Peer Support Program itself, so that they become familiar with its aims and intended benefits, understand the operational requirements of running the program in their school, and learn about their roles and responsibilities. Teachers learn how to select and train the peer leaders, and how to run the briefing and debriefing process. The Peer Support Foundation emphasise the importance of making time available before and after each peer support session to brief and debrief the peer leaders. The briefing process is considered to be imperative for the leaders so that they are aware of the aims and procedures of each of the sessions, as well as being supplied with all the necessary resources and materials required. The Peer Support Foundation suggests that, as soon as possible after each session, teachers should spend 15–20 min discussing any concerns or problems that may have arisen during the session and go through details of the forthcoming session.

Leader Selection and Training

Grade 10/11 students interested in taking part in the program are asked to apply for the position. As part of the application process, students are asked to answer essay questions about their reasons for wanting to participate in the program and what they hope to gain from the experience. The Peer Support Foundation advocates that those students who are selected should, as a group, include an equal number of males and females who come from ethnically and racially diverse backgrounds. They also recommend that selected students ought to have demonstrated that they are responsible and caring individuals who can serve as positive role models for their peers. Selected students should have a history of contributing to the school community, display strong and appropriate social skills, are enthusiastic, and possess the capability to serve as leaders.

Selected students are required to attend an intensive 2-day course to prepare them for their roles and instruct them on the nature and scope of their responsibilities. Training is recommended to take place on two consecutive days, away from the school environment, no more than 4 weeks before the program begins. Through a series of carefully designed games and exercises, students learn skills and behaviours that will enable them to be effective group leaders. The key areas of focus during training are: (a) how to identify and empathise with the needs of group members; (b) group management techniques; (c) effective leadership characteristics; (d) instruction giving; and (e) techniques for planning a peer support session. Peer leaders are placed in pairs and learn how to work together, sharing responsibilities for running the sessions.

Quantitative Predictions

Based on the major objectives of the Program (as outlined above), we anticipated that the experimental group would show significant improvements in the following domains: school competence, school citizenship, sense of self and possibility, connectedness and resourcefulness. The specific scales used to match each of these specified objectives are as follows (see [Appendix 1](#) for scale descriptions): (a) three self-concept scales measured school competence—verbal, maths, and general school self-concept (verbal and general-school self-concept were considered to be more relevant to the intended outcomes of the program than maths self-concept, which was included to provide a construct validity approach to the study of intervention effects whereby facets of self-concept less relevant to the intervention are measured; see [Craven et al. 2003](#) for an overview); (b) three scales were used to assess school citizenship—pro-bully attitudes, pro-victim attitudes, and honesty/trustworthiness self-concept; (c) a global self-esteem scale and self-confidence scale were used to assess change in students' general sense of self and a self-efficacy scale was used to measure future outcome expectancies; (d) three scales were examined to assess change in connectedness—same-sex relations self-concept, opposite-sex relations self-concept, and cooperative teamwork; and (e) a total of seven scales were used to assess student resourcefulness—problem solving, seeking support, problem avoidance, open thinking, coping with change, time efficiency, and stress management. We predicted significant improvements for the experimental group, in comparison to the control group, for each of the scales outlined above after the conclusion of the intervention and that these improvements would be maintained over time (i.e., from T2 to T3).

Quantitative Data Analyses

The quantitative analyses were conducted using multilevel modeling procedures. Multilevel modeling (also known as hierarchical linear modeling) has emerged over the past decade as a highly flexible and useful approach to analysing hierarchically structured data ([Goldstein 1995](#); [Kreft and De Leeuw 1998](#); [Snijders and Bosker 1999](#)). This technique is advantageous over traditional statistical procedures because it allows researchers to consider multiple units simultaneously within the same analysis, as well as to avoid the problems related to dependence, aggregation bias, and unbalanced data structures (e.g., [Goldstein 1995](#); [Hox 1995, 1998](#); [Raudenbush and Chan 1993](#); [Snijders and Bosker 1999](#)). For this study, the data were conceptualised as a three-level model, consisting of time at the first level, student at the second level, and school at the third level (see [Ellis 2004](#), for more statistical details). Multi-level

modeling is particularly useful in this case as the same statistical models can be used to estimate overall program effects, as well as to determine whether the degree of the effect in a particular school deviated from the overall average. The multilevel analyses were conducted using MLwiN version 1.20 ([Rasbash et al. 2002](#)).

A set of multilevel, longitudinal path models was used to test the effects of participation in the peer support program on change in various outcome measures. The data was arranged so that the two post-intervention test occasions (T2 and T3) were specified at the first level and T1 measures were treated as covariates in models examining the effects of the program. Using this approach, outcome measures were controlled for T1 measures to assess residual change that could then be related to other variables. [Goldstein \(1995\)](#) refers to this as the *conditional* approach, noting that earlier measures are treated as covariates so that the approach is often appropriate when data are available from a small number of discrete occasions. [Marsh et al. \(2002\)](#) have identified the conditional approach as being particularly well suited to evaluating the presence and causes of change.

Several data transformations were conducted so that the effects found in the multilevel analyses could be easily interpretable ([Hox 1995](#); [Raudenbush and Bryk 2002](#)). Following the advice of [Marsh and Rowe \(1996](#); also see related discussions by [Aiken and West 1991](#); [Bryk and Raudenbush 1992](#)) we began by mean centering and standardizing ($M = 0$, $SD = 1$) all T1 scale scores. T2 and T3 variables were then standardised in terms of the mean and standard deviation at T1 so that the change over time was not lost through standardisation and all measures were scaled in relation to a common metric. Other explanatory variables, such as Group (1 = control, 2 = experimental) and Time (T2 = 1, T3 = 2), were also standardised to assist with the interpretation of results. The product of individual standardised variables was used to construct interaction effects. The product terms that were formed were not re-standardised.

For each dependent variable in the present investigation, a multilevel longitudinal path model was considered with four predictor variables including the corresponding T1 outcome measure, T2vT3 (immediate post-test versus follow-up), Group (experimental versus control), as well as the Group by Time interaction. Here the parameter estimates for Group and the Group by Time interaction were of prime importance. The estimate for Group was used to test the difference between the experimental and control groups across T2 and T3 (i.e., the average score across the post-intervention test occasions) for a particular outcome measure, while controlling for the corresponding T1 outcome. As Group was standardised to have $M = 0$ and $SD = 1$, the direction of the parameter estimate was used to determine which group of students (i.e., experimental or control)

was higher than the other. A significant result in the positive direction would indicate that across T2 and T3 students in the experimental group scored higher on a particular outcome measure than students in the control group. Alternatively, a significant result in the negative direction would suggest that students in the experimental group scored lower on particular outcome measure than students in the control group. A non-significant result would imply that across T2 and T3 scores on the outcome measure were not significantly different for students in the experimental and control groups.

The Group by Time interaction was used to test the stability of outcomes between T2 and T3. Stable effects would be demonstrated by the presence of a non-significant interaction effect, which would indicate that the effect of the intervention did not differ significantly from T2 (immediate post-test) to Time 3 (follow-up). For all “positive” scales (i.e., scales where high scores are more desirable than low scores), a significant result in the negative direction would suggest that the beneficial effects of the intervention at T2 were not maintained at T3. On the other hand, for these scales, a significant result in the positive direction would show that the effect of the intervention became more evident at T3 than T2, and hence, suggest the possibility that a delayed positive effect (i.e., a sleeper effect) had occurred.

Preliminary Quantitative Data Analyses

The experimental and control groups were initially examined for differences at T1. Analyses were conducted using multilevel modeling procedures, with Group (i.e., experimental versus control) added to each of the baseline components models as an independent variable, with a separate analysis being conducted for each T1 outcome measure. A two level model was specified, with individual student at the first level and school at the second level. The results from these analyses showed that pre-test differences between the experimental and control groups were consistently small and—despite the large sample sizes—were statistically significant for only 5 of the 28 outcomes considered. Significant differences were found for: physical appearance, parent relations, cooperative teamwork, time efficacy, and problem avoidance. However, it is important to emphasise that even these small differences at pre-test were controlled in subsequent analyses, using T1 pre-test measures as a covariate in the analyses of T2 post-test and T3 follow-up measures.

In preliminary analyses, a *baseline variance component model* (Rasbash et al. 2002) or *intercept-only model* (Hox 1995) was used to evaluate how much variation in each of the outcome measures could be attributed to the school (level 3), the individual students (level 2) and time (level 1). Most of

the variance could be explained by differences at the individual student level and a considerable portion between test occasions. The variance associated with individual students and test occasions was significant for all outcome measures (see Appendix 4). However, the school-level variance was small for each of the outcomes considered with none of the school effects being statistically significant.

Qualitative Data Analyses

Content analysis was used to group the qualitative information into a small number of sets of themes or constructs. Separately, two researchers systematically identified themes within the data and assigned them to categories. The results were then compared and discussed until the generated themes were agreed upon (Patton 1990). This procedure was applied to ensure that the generated themes were identified and clustered in a way that was consistent with the views of more than one person and not simply a reflection of one researcher’s subjective interpretation. Concordance between the two researchers was over 90% on all questions.

Preliminary Qualitative Data Analyses

Students’ responses on the open-ended questionnaire were first coded as either positive, negative, or neutral (neither positive nor negative). The results from this preliminary analysis indicated that the program had been a positive experience for the vast majority of Grade 7 students. Positive comments were made by 80% of Grade 7 students and 81% of peer support leaders. Respondents reported, for example, that the program was “fun”, “enjoyable”, “great”, and “helpful”. A total of 18% of Grade 7 students and 19% of leaders indicated that the program had not been of benefit to Grade 7 students. The most common reasons given as to why Grade 7 students received no benefit was absence for the majority of the sessions or previous participation in a similar program. Two percent of Grade 7 students were neutral, not being able to ascertain whether the program had been able to help them or not.

Results

Effectiveness of the Program on Espoused Program Outcomes

Tables 1–5 summarise the results of multilevel, longitudinal path models. The results served two main purposes: One was to identify the size and direction of the effects for the experimental group compared with those of the control group (see effects for Group), and the second was to detect

Table 1 Multilevel path models for school self-concept variables

Parameter	Verbal	Math	General school
Fixed effects			
Intercept	.069	-.057	-.040
T1(covariate)	.584 (.027)**	.717 (.025)**	.602 (.028)**
T2vT3	.012 (.013)	-.028 (.013)*	-.029 (.015)
Group	.079 (.026)**	-.013 (.025)	.059 (.028)*
Group × T2vT3	-.006 (.013)	.001 (.013)	.012 (.015)
Random effects			
σ_v^2 : between school variance	.025 (.022)	.013 (.012)	.044 (.038)
σ_u^2 : between student variance	.395 (.027)**	.394 (.027)**	.440 (.032)**
σ_e^2 : between test occasion variance	.234 (.013)**	.214 (.012)**	.295 (.016)**

Note: T1(covariate) = corresponding T1 variable; T2vT3 = T2 (post-test) versus T3 (follow-up); Group = experimental versus control (positive values indicate higher values for the experimental group); Standard errors are given in parentheses

* $p < .05$; ** $p < .01$

Table 2 Multilevel path models for school citizenship variables

Parameter	ProBully	ProVictim	Honesty/trustworthiness
Fixed effects			
Intercept	.017	-.031	-.035
T1(covariate)	.463 (.031)**	.287 (.030)**	.613 (.029)**
T2vT3	-.046 (.018)*	.032 (.020)	-.007 (.016)
Group	-.070 (.031)*	.030 (.029)	.060 (.029)*
Group × T2vT3	-.036 (.019)	.053 (.020)**	.022 (.016)
Random effects			
σ_v^2 : between school variance	.008 (.009)	.000 (.000)	.007 (.008)
σ_u^2 : between student variance	.468 (.039)**	.368 (.037)**	.497 (.036)**
σ_e^2 : between test occasion variance	.417 (.025)**	.490 (.029)**	.324 (.018)**

Note: T1(covariate) = corresponding T1 variable; T2vT3 = T2 (post-test) versus T3 (follow-up); Group = experimental versus control (positive values indicate higher values for the experimental group); Standard errors are given in parentheses

* $p < .05$; ** $p < .01$

Table 3 Multilevel path models for sense of self and possibility variables

Parameter	Self-confidence	Global self-esteem	Self-efficacy
Fixed effects			
Intercept	-.173	-.084	-.150
T1(covariate)	.536 (.031)**	.579 (.030)**	.559 (.029)**
T2vT3	-.033 (.017)	-.039 (.016)*	.031 (.018)
Group	.017 (.031)	-.020 (.030)	.028 (.029)
Group × T2vT3	.047 (.017)**	.021 (.016)	.056 (.018)**
Random effects			
σ_v^2 : between school variance	.008 (.009)	.024 (.022)	.017 (.016)
σ_u^2 : between student variance	.545 (.040)**	.526 (.037)**	.415 (.035)**
σ_e^2 : between test occasion variance	.390 (.022)**	.320 (.018)**	.422 (.023)**

Note: T1(covariate) = corresponding T1 variable; T2vT3 = T2 (post-test) versus T3 (follow-up); Group = experimental versus control (positive values indicate higher values for the experimental group); Standard errors are given in parentheses

* $p < .05$; ** $p < .01$

Table 4 Multilevel path models for connectedness variables

Parameter	Same-sex relations	Opposite-sex relations	Cooperative teamwork
Fixed effects			
Intercept	-.001	.079	-.180
T1(covariate)	.435 (.027)**	.600 (.024)**	.627 (.030)**
T2vT3	-.040 (.017)*	.018 (.014)	-.045 (.016)**
Group	-.003 (.028)	.072 (.024)**	-.001 (.030)
Group × T2vT3	.014 (.017)	.009 (.014)	.046 (.017)**
Random effects			
σ_v^2 :between school variance	.003 (.004)	.000 (.000)	.003 (.004)
σ_u^2 :between student variance	.380 (.033)**	.300 (.025)**	.502 (.037)**
σ_e^2 :between test occasion variance	.398 (.022)**	.278 (.015)**	.365 (.020)**

Note: T1(covariate) = corresponding T1 variable; T2vT3 = T2 (post-test) versus T3 (follow-up); Group = experimental versus control (positive values indicate higher values for the experimental group); Standard errors are given in parentheses

* $p < .05$; ** $p < .01$

Table 5 Multilevel path models for resourcefulness variables

Parameter	Problem solving	Seeking support	Avoidance	Open thinking	Coping with change	Time efficiency	Stress management
Fixed effects							
Intercept	-.077	.001	-.159	-.089	-.088	-.148	-.056
T1(covariate)	.439 (.031)**	.470 (.027)**	.508 (.027)**	.531 (.030)**	.483 (.030)**	.510 (.028)**	.524 (.029)**
T2vT3	-.052 (.017)**	-.002 (.017)	-.039 (.016)*	-.026 (.016)	.003 (.017)	.016 (.017)	.048 (.018)
Group	.017 (.030)	.038 (.027)	.009 (.027)	.067 (.030)*	.019 (.030)	.044 (.028)	.059 (.029)*
Group × T2vT3	-.033 (.017)	.021 (.017)	-.046 (.016)*	.011 (.016)	.028 (.017)	.049 (.017)**	.017 (.018)
Random effects							
σ_v^2 :between school variance	.017 (.016)	.000 (.000)	.000 (.000)	.006 (.007)	.027 (.024)	.018 (.017)	.011 (.011)
σ_u^2 :between student variance	.497 (.039)**	.372 (.031)**	.358 (.030)	.518 (.037)**	.470 (.037)**	.426 (.034)**	.415 (.037)**
σ_e^2 :between test occasion variance	.371 (.022)**	.341 (.020)**	.326 (.019)	.341 (.019)**	.400 (.022)**	.368 (.020)**	.458 (.025)**

Note: T1(covariate) = corresponding T1 variable; T2vT3 = T2 (post-test) versus T3 (follow-up); Group = experimental versus control (positive values indicate higher values for the experimental group); Standard errors are given in parentheses

* $p < .05$; ** $p < .01$

the stability of these effects between T2 and T3 (see the effects for Group × T2vT3). The models also tested for differences between post-test and follow-up (see effects for T2vT3); though since these effects averaged across Group, these results are not very interesting on their own. The effects of the intervention on espoused program outcomes are summarised below.

School Self-Concept

Based on the major objectives outlined by the Peer Support Foundation, it was anticipated that the program would have a positive impact on students' general and verbal self-concepts. Consistent with the aims of the program, students

in the experimental group reported significantly higher general school and verbal self-concepts at the conclusion of the intervention compared to students in the control group (see effects for Group, Table 1). The effects on verbal and general school self-concepts were also retained over time (i.e., from T2 to T3; see effects for Group × T2vT3, Table 1). As we anticipated, maths self-concept, which was less relevant to the goals of the program, was unaffected by the intervention.

School Citizenship

The intervention was anticipated to impact favourably on students' perceptions of bullying and honesty/trustworthy.

As predicted, students in the experimental group reported significantly lower pro-bully attitudes and higher honesty/trustworthiness following the intervention than students in the control group (see effects for Group, Table 2). Further, the findings demonstrated that the benefits of the program on pro-bully attitudes and honesty/trustworthiness were maintained over time (i.e., from T2 to T3; see effects for Group \times T2vT3, Table 2).

Although the results of the present investigation do not provide evidence for an immediate impact of the intervention on pro-victim attitudes, the Group by T2vT3 interaction was significant (Table 2), which indicates that there was an increase in pro-victim attitudes for the experimental group 3 months later at post-intervention follow-up (i.e., T3). These results are suggestive of a *sleeper effect* (i.e., a delayed positive effect), whereby changes in pro-victim attitudes were initiated during the program and developed gradually over time. Thus, perhaps time was needed for students to internalise and apply new pro-victim attitudes.

Sense of Self and Possibility

It was anticipated that the pattern of responses would indicate significantly higher scores for the experimental than for the control group on measures of self-confidence, self-esteem, and self-efficacy. However, the results of the present investigation suggest that the intervention had no significant immediate impact on any of these measures (see effects for Group, Table 3). The deficiency of significant effects for these three measures is not surprising given the recent research which has identified that intervention programs are less likely to produce significant immediate effects on global measures rather than specific components of self-concept (O'Mara et al. 2006). Further, perhaps increases in self-confidence, global self-esteem, and self-efficacy only occur after a prolonged period of time, whereby changes in sense of self and possibility are initiated during the program and continue to grow gradually afterwards. In support of this contention, significant Group by T2vT3 interactions were found for the self-confidence and self-efficacy scales, which indicates that the effects of the intervention on these two scales became evident over time (i.e., at T3).

Connectedness

In accordance with the aims of the program, we anticipated that students in the experimental group would report significantly higher same-sex relations self-concept, opposite-sex relations self-concept, and cooperative teamwork scores than those of the control group. Partial support was

found for the capacity of the intervention to enhance student connectedness. Following the intervention, students in the experimental group reported higher opposite-sex relations self-concept scores than the control group (see effects for Group, Table 4). Furthermore, positive effects of the intervention on opposite-sex relations were maintained over time (see effects for Group \times T2vT3, Table 4). Enhancements in opposite-sex relations were to be expected, as the majority of peer support groups in this investigation consisted of a combination of male and female participants, which gave students the opportunity to interact and form friendships with members of the opposite sex. Further, the Peer Support Foundation (2001) indicates that its Program promotes “gender equity” and develops students’ “competencies which enhance the quality of their relationships with others” (p. 6).

In addition to enhancements in opposite-sex relations, we found that between the end of the program and follow-up, students reported significant gains in cooperative teamwork (see effects for Group \times T2vT3, Table 4). This apparent sleeper effect suggests that the program triggered improvements in cooperative teamwork, though future research needs to clarify this finding.

In contrast to the aims of the program, the quantitative findings provided little evidence for enhanced same-sex relations self-concept following the intervention. It is possible that by the time of commencement of the program in the present research, a number of the Grade 7 students had already formed friendships with members of their own sex within their year group, and so reported little change in same-sex relations self-concept at the conclusion of the program.

Resourcefulness

The results provide some evidence to suggest that the intervention had a positive impact on students’ resourcefulness, particularly for open-thinking and stress management (see effects for Group, Table 5). In accordance with the aims of the program, students in the experimental group reported significantly higher open thinking and stress management scores following the intervention than the control group. Furthermore, increases in these domains are shown to be stable over time (i.e., between T2 and T3; see effects for Group \times T2vT3, Table 5).

The results suggest that the intervention may have initiated positive changes in time efficiency and problem avoidance scores (see effects for Group \times T2vT3, Table 5). The results are suggestive of a sleeper effect, whereby changes in time efficiency and problem avoidance were initiated during the program and became evident after a few months. Perhaps time was needed for students to

develop and apply what they had learnt from the program. Future research needs to elucidate this issue.

Remaining Outcomes

The effects of the program on all other measured outcomes not explicitly predicted to be affected by the intervention were also examined through multilevel procedures (see Appendix 5). The results of our investigation showed that the intervention had no immediate impact on any of the other remaining outcome measures. However, there was evidence for delayed positive effects on the emotional stability self-concept and active involvement scales. The results suggest that the experimental group reported an increase in emotional stability and active involvement scores 3 months later at post-intervention follow-up (i.e., T3). Thus, these findings suggest that the intervention may also be promising for enhancing other adaptive psychological outcomes.

Students' Personal Perspectives on the Benefits of the Program for Grade 7 Students

The following five higher order themes emerged from the qualitative data: student connectedness, problem solving ability, sense of self and possibility, school citizenship, and

adjustment to high school (see Table 6). These recurrent themes were woven throughout the written and verbal responses of both Grade 7 students and their peer support leaders. We begin by presenting a preliminary overview of the results based upon content analysis, followed by detailed findings of each of the higher order themes that emerged from the open-ended questionnaire and focus discussion groups.

Preliminary Examination of Content Analysis Results

Table 6 provides a summary of the identified themes (from open-ended questionnaire responses and focus group discussions) regarding ways in which students perceived the program to be of benefit to Grade 7 students. Importantly, these results demonstrate that there was a variety of identified benefits reported for Grade 7 students. Furthermore, it is apparent that the results from the open-ended questionnaire items and focus discussion groups produced generally equivalent themes. It is noticeable, however, that comparatively more themes were produced from the focus group discussions than from the open-ended survey items. On average, between five and six themes were reported for each discussion group, while only one or two themes were given by each student in the open-ended survey. This was to be anticipated, as the focus discussions consisted of six to eight people, each

Table 6 Perceived program benefits for Grade 7 students: response themes identified from Grade 7 students and peer support leaders in the open-ended questionnaire and focus group discussions

Theme	Open-ended questionnaire items		Focus group discussions	
	Grade 7 (<i>n</i> = 408)	Leaders (<i>n</i> = 75)	Grade 7 (<i>n</i> = 17)	Leaders (<i>n</i> = 7)
Student connectedness				
Made new friends/became closer to old friends (T1.1)	81 (19.9)	24 (32.0)	16 (94.1)	5 (71.4)
Making friends with, gaining support and help from older students (T1.2)	25 (6.1)	20 (26.7)	9 (52.9)	5 (71.4)
Understanding others and their feelings (T1.3)	51 (12.5)	17 (22.7)	9 (52.9)	1 (14.3)
Teamwork (T1.4)	24 (5.9)	15 (20.0)	10 (58.8)	3 (42.9)
Communication and social skills (T1.5)	29 (7.1)	12 (16.0)	6 (35.3)	3 (42.9)
Problem solving ability				
Problem solving and decision making skills (T2.1)	38 (9.3)	11 (14.7)	10 (58.8)	4 (57.1)
Stress management (T2.2)	4 (1.0)	2 (2.7)	1 (5.9)	0 (0.0)
Sense of self and possibility				
Self-understanding (T3.1)	25 (6.1)	2 (2.7)	6 (35.3)	1 (14.3)
Self-confidence (T3.2)	28 (6.9)	3 (4.0)	8 (47.1)	3 (42.9)
Optimistic thinking (T3.3)	27 (6.6)	2 (2.7)	9 (52.9)	3 (42.9)
School citizenship				
Bullying (T4.1)	13 (3.2)	1 (1.3)	6 (35.3)	0 (0.0)
Help others (T4.2)	14 (3.4)	1 (1.3)	1 (5.9)	0 (0.0)
Adjustment to high school				
Helped settle in and learn about high school (T5.1)	8 (2.0)	17 (22.7)	4 (23.5)	2 (28.6)

Note: Percentages are given in parentheses

of whom had their own perceptions of the benefits of the program. Furthermore, as emphasised by Stewart and Shamdani (1990), the social setting of focus group discussions encourages respondents to react to and build upon the responses of other group members. Thus, the synergistic effect of the group setting can produce more ideas or responses than what would be uncovered in individual survey items.

Higher Order Theme 1: Student Connectedness

The strongest finding to emerge from the open-ended questionnaire responses and the focus group discussions was that the program helped strengthen student connections (see Table 6). The most frequently reported benefit by Grade 7 students, as well as the peer support leaders, was that the program encouraged students to make new friends and become closer to old friends (Theme 1.1). In addition, a considerable number of students stated that the program helped Grade 7 students to form friendships with older students (Theme 1.2). The following quotations by Grade 7 students and peer support leaders are illustrative of these two themes:

It has helped me gain stronger friendships with my peers. Also, I am no longer worried or embarrassed to talk to students in other grades (Grade 7 open-ended questionnaire; Themes 1.1 and 1.2).

It gave them the opportunity to interact with each other, to get to know someone they didn't know before and to interact with an older student. (Peer leader open-ended questionnaire; Themes 1.1 and 1.2).

Some students went on to say that, not only had the program given them the opportunity to interact with (and form friendships with) older students, but they also had been provided with a mentor, someone who they could look up to and turn to for help and advice (Theme 1.2). The following quote is illustrative of this view:

The Grade 7 students knew that the peer support leaders were there as a guide to help them settle into Grade 7. The Grade 7 students have more confidence to know that there is a Year 10 student who is a peer support leader willing to help in any way (Peer leader open-ended questionnaire; Theme 1.2).

Another important theme to surface from the qualitative data, particularly among Grade 7 students, was that the program helped Grade 7 students to understand others and their feelings (Theme 1.3). Students observed that the intervention encouraged participants to accept others for who they are and to be thoughtful of their feelings, as illustrated by the following comments:

I got an idea of what other people were feeling not just myself (Grade 7 open-ended questionnaire; Theme 1.3).

It helped me to understand others and their feelings (Grade 7 open-ended questionnaire; Theme 1.3).

We learnt to respect others for who they are and not what they look like (Grade 7 focus group discussion; Theme 1.3).

Both Grade 7 and peer support leaders reported that the program improved teamwork among group members (Theme 1.4). Students stated that the intervention had increased teamwork by promoting cooperation among the group members, respect for different viewpoints and increased patience when working with others. The following quotes reported by Grade 7 and peer support leaders are illustrative of this theme:

We learnt to work as a team and be cooperative (Grade 7 open-ended questionnaire, Theme 1.4).

Within a team situation, more people are volunteering to do things and help each other than before (Grade 7 focus group discussion; Theme 1.4).

They are now more friendly and patient when working in a group (Peer leader open-ended questionnaire; Theme 1.4).

Another finding that surfaced from the qualitative data was that the program enhanced students' communication and social skills (Theme 1.5). Respondents explained that the intervention made Grade 7 students feel more comfortable talking about their ideas, opinions and problems to others, as illustrated by the following responses:

It taught me to communicate with others a lot more and to be more open (Grade 7 open-ended questionnaire; Theme 1.5).

The Grade 7 group began to feel comfortable and secure around their peers within the homeroom and the group...the students began to respect one another and communicate better with their new friends (Peer leader open-ended questionnaire; Theme 1.5).

Higher Order Theme 2: Problem-Solving Ability

A clear finding which surfaced from the open-ended questionnaire and the focus discussion groups was that the program enhanced Grade 7 students' problem solving and decision-making skills (Theme 2.1). Grade 7 students and their peer support leaders indicated that the program taught them to cope and deal with difficult situations and, in particular, to seek assistance if required, as illustrated in the following quotes:

It helped me understand to look towards others for help instead of just trying to ignore it (Grade 7 open-ended questionnaire; Theme 2.1).

It helped them make better decisions and more aware of how to deal with difficult situations (Peer leader open-ended questionnaire; Theme 2.1).

We learnt that we could go to our peers and talk about things (Grade 7 focus group discussion; Theme 2.1).

A small number of students also mentioned that the program was beneficial in teaching them how to cope with stress (Theme 2.2). The following comments from Grade 7 and peer support leaders are examples:

I have not been so stressed out (Grade 7 student open-ended questionnaire; Theme 2.2).

They are more able to cope with stressful situations (Peer leader open-ended questionnaire; Theme 2.2).

We learnt how to prepare and study for exams so that we are not so stressed (Grade 7 focus group discussion; Theme 2.2).

Higher Order Theme 3: Sense of Self and Possibility

A finding that surfaced from the open-ended questionnaire and the focus group discussions was that the program increased self-understanding (Theme 3.1) and self-confidence (Theme 3.2). These themes became apparent, particularly in the responses of Grade 7 students, who indicated that the program helped them to value themselves for who they are and to have the confidence to be themselves and not to be influenced negatively by others. These themes were also identified in the responses of the peer support leaders but generally to a lesser extent than the responses of Grade 7 students. The following quotes made by Grade 7 students are characteristic of themes relating to sense of self:

It made me understand myself more than I did before (Grade 7 open-ended questionnaire; Theme 3.1).

It has helped me to see the individual in myself and become a leader not a follower (Grade 7 open-ended questionnaire; Theme 3.2).

It gave me more confidence to try new things (Grade 7 focus group discussion; Theme 3.2).

Another important theme that became apparent, particularly in the focus group discussions, was that the program enhanced optimistic thinking (Theme 3.3). Students explained that the program taught them to think positively rather than negatively and the important benefits of this way of thinking on their lives:

Learnt to be optimistic. It is better to think on the positive or bright side (Grade 7 focus group discussion; Theme 3.3).

Taught them to be positive at all times (Peer leader focus group discussion; Theme 3.3).

This theme was also identified in the open-ended questionnaire, especially in the responses of Grade 7 students:

It was helpful because I learned how being optimistic is better than pessimistic (Grade 7 open-ended questionnaire, Theme 3.3).

It has helped me understand that being optimistic is a better thing to be as you want to get through life a more successful and happier person in the future (Grade 7 open-ended questionnaire; Theme 3.3).

It has taught me to look on the bright side of bad situations (Grade 7 open-ended questionnaire; Theme 3.3).

Higher Order Theme 4: School Citizenship

A fairly important theme identified in the responses of Grade 7 students was that the program improved students' perceptions of bullying (Theme 5.1). This theme surfaced in Grade 7 students' open-ended questionnaire responses and focus group discussions. Students explained that the intervention encouraged them not to bully others and suggested who to turn to for assistance if bullying occurs:

It has taught me to have the right attitude and to be nice to other people because you wouldn't like it if someone continuously bullied you (Grade 7 open-ended questionnaire; Theme 4.1).

It has helped me become friends with a person in the group who was a bully to me (Grade 7 open-ended questionnaire; Theme 4.1).

Taught us how to handle bullying without violence (Grade 7 focus group discussion; Theme 4.1).

Grade 7 students also reported that the program taught them to be more caring and helpful towards others (Theme 4.2). This theme became apparent particularly in Grade 7 students' open-ended responses:

I've learnt to be more caring towards others (Grade 7 open-ended questionnaire; Theme 4.2).

I'm able to give advice to others in need (Grade 7 open-ended questionnaire; Theme 4.2).

However, neither of these themes emerged as dominant themes in the responses of the peer support leaders in either the open-ended questionnaire or the focus group discussions.

Higher Order Theme 5: Adjustment to High School

A dominant theme identified, particularly by peer support leaders, was that the program helped students settle in and learn about high school (Theme 5.1).

Here, the peer support leaders could well be demonstrating their own experiences in having to adapt to the high school environment with no such program. The following comments made by the peer support leaders are demonstrative of this theme:

The Grade 7 students were firstly very scared when they made their step into high school. The pressure of assignments and exams was very stressful and peer support helped them deal with difficulties (Peer leader open-ended questionnaire; Theme 5.1).

The Peer Program has been helpful to Grade 7 students as they have been able to establish a good understanding and a comfortable environment when being at high school for the first time (Peer leader open-ended questionnaire; Theme 5.1).

Similar, though not so frequent, supporting quotes were made by Grade 7 students:

They have helped me settle in and become happy to ensure I will have a safe and fun learning time at school (Grade 7 open-ended questionnaire; Theme 5.1).

It helped me through the start of high school (Grade 7 open-ended questionnaire; Theme 5.1).

This theme was also identified by the Grade 7 students, particularly in the focus group discussions.

They showed us around the school—where everything was (Grade 7 focus group discussion; Theme 5.1).

Scary being the smallest at the school. The program made it less scary and threatening (Peer leader focus group discussion; Theme 5.1).

Discussion

School-based peer support programs have been endorsed as a potentially strong solution in addressing problems faced by young adolescents on transition to the high school context. Given that there is a paucity of empirical research on the effectiveness of peer support, the present investigation sought to examine the effectiveness of a widely-used peer support program in high schools designed to ease the transition to adolescence and junior high school. A mixed-methods approach was employed in view of recent developments in program research that have highlighted the value of combining quantitative and qualitative methods.

The central finding that emerged from the current investigation was clear support for the capacity of the Peer Support Program to enhance specific aspects of students' psychological well-being and adjustment to the high school

context. The results of the quantitative component of the study demonstrated that the program had a significant immediate impact on students' school self-concept, perceptions of bullying, honesty/trustworthiness self-concept, opposite-sex relations self-concept, open-thinking, and stress management scores. Furthermore, the results demonstrate that the benefits of the program in each of these domains were retained over a three-month follow-up period (i.e., from T2 to T3) following the completion of the intervention. The demonstration of the maintenance of gains is important, because research on many other educational interventions has detected a steady loss of benefits once a program has concluded. Furthermore, a particularly noteworthy finding was the detection of significant increases in various outcome measures between the end of the program and follow-up. Evidence of sleeper effects was present for pro-victim attitudes, self-confidence, self-efficacy, cooperative teamwork, time efficiency, and problem avoidance. These results are very promising as they suggest that peer support programs have the potential to generate an ongoing cycle of personal growth in participants over time.

The qualitative component of the present investigation provided participants with the opportunity to express their views about the benefits of the program in their own words. The qualitative results found benefits for the Grade 7 students in a variety of domains: Student connectedness, problem solving ability, sense of self, optimistic thinking, school citizenship, and adjustment to high school. These findings, coupled with the findings of the quantitative component provide complementary evidence that the program has important benefits for Grade 7 students. These synergistic findings provide strong evidence of the value of combining quantitative and qualitative research methods in intervention research.

Limitations and Strengths

The present study has several notable strengths and limitations. The first limitation to consider is that the data used in the study were derived from self-report. While questionnaires were administered on a number of occasions so as to avoid reliance on a one-off snapshot, the accuracy of students' responses could not be guaranteed. Nevertheless, research has shown that self-reports about self-related constructs are usually in broad agreement with objective ratings made by others (e.g., see Marsh 1990, for a review in relation to self-concept). The qualitative results also showed that the leaders' perceptions of the program were generally consistent with the perceptions of Grade 7 students, providing some evidence to suggest that students' self-reports were accurate.

Another limitation is that a sample was drawn from one Australian State and thus, the results may not be generalize

to adolescents and schools in other parts of the world where the culture, structure and style of education may be very different. Furthermore, due to financial constraints only three schools were included in the study. Hence, the results need to be interpreted cautiously in regard to their generalizability. Despite this, however, it is recognised that most studies in the area of peer support are based on only one school. Thus, demonstration that the results generalized over three schools is a positive finding, even though it would have been preferable to have incorporated more schools in the study.

The strengths of the study include a strong research design, the use of standardised measures, and incorporation of a large sample size. The study also utilised multilevel modelling to analyse the results, allowing for powerful tests of the effects of the intervention on the experimental versus control groups over time, while controlling for TI measures. This approach was selected as it provides a much richer and more appropriate way of testing longitudinal data than would be possible with single-level approaches which ignore the hierarchical data structure. Another notable strength was the use of both quantitative and qualitative research methods. The qualitative open-ended survey questions and interviews gave students the opportunity to convey their perceptions of the peer support program in their own words without being dictated by the structure and content of a likert-type, quantitative approach.

Conclusions

Facilitating student's adjustment to adolescence and the high school context has become a priority for policy makers, researchers and educators. This study provides solid evidence to suggest that the provision of peer support has the potential to make a significant contribution to schools' efforts to orchestrate positive outcomes for early adolescents. In concordance with the contention of Charlton (1998), the results infer that schools which fail to capitalise on peer support may be forfeiting valuable opportunities to help facilitate students' psychological well-being and adjustment to adolescence and high school.

This study also endeavoured to deliver a new standard of research that would effectively evaluate the peer support intervention and generate further quality research. Research in the area of peer support has been plagued by anecdotal evaluations, absence of control groups, as well as a deficiency of evaluation and follow-up. This study was designed to incorporate a sound research design and avoid major methodological limitations that have pervaded previous research. The findings of this study hold substantive and methodological implications for researchers studying the effects of interventions. As asserted by Durlak and Wells (1997), a priority for future research is to conduct systematic program evaluations that: include assessment of program implementation, include multiple outcome measures with demonstrated psychometric properties, utilize control groups to compare the effects of the program, and employ longitudinal designs with follow-up assessments. The ultimate aim of adopting these measures is for studies to further contribute to the development of knowledge about the types of interventions that are most efficacious in generating successful outcomes.

The findings of the current investigation also serve as a catalyst for guiding future research. First, the present investigation suggests that the peer support program can initiate ongoing personal growth in participants, as evidenced by the positive follow-up findings. Clearly, this interesting finding warrants further research. Second, although the results of the present investigation are a positive endorsement of the legitimacy and effectiveness of peer support methods in high schools, our research is based on only one type of program. A number of different peer support methods have been described in the literature, such as befriending, peer mentoring, and counseling-based interventions. Future research is needed to identify differentiation in effectiveness between these different methods.

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Appendix 1

See Table 7.

Table 7 Scales considered in the present investigation: description and reliability

Scale	Description	Example item	Scale reliability
Summary description of the 11 SDQII-S scales			
Physical abilities	Student ratings of their skills and interest in sports, games and physical activities	"I enjoy things like sports, gym, and dance"	.75

Table 7 continued

Scale	Description	Example item	Scale reliability
Physical appearance	Student ratings of their physical attractiveness, how their appearance compares with others, and how others think they look	"I am good looking"	.88
Same-sex relationships	Student ratings of their popularity with members of the same sex and how easily they make friends with members of the same sex	"I make friends easily with members of my own sex"	.78
Opposite-sex relationships	Student ratings of their popularity with members of the opposite sex and how easily they make friends with members of the opposite sex	"I am not very popular with members of the opposite sex"	.85
Honesty/trustworthiness	Student ratings of their honesty and trustworthiness	"I sometimes tell lies to stay out of trouble"	.80
Parent relationships	Student ratings of how well they get along with their parents, whether they like their parents, and the quality of their interactions with their parents	"I get along well with my parents"	.74
Emotional stability	Student ratings of themselves as being calm and relaxed, emotional stability, and how much they worry	"I worry about a lot of things"	.79
Verbal	Student ratings of their skills and ability in English	"I learn things quickly in English classes"	.90
Math	Student ratings of their skills and ability in mathematics	"I do badly in tests in Mathematics"	.89
General school	Student ratings of their skills and ability in school subjects in general	"I am good at most school subjects"	.82
Global self-esteem	Student ratings of themselves as effective, capable individuals, who are proud, and satisfied with the way they are	"Most things I do, I do well"	.82
Summary description of the 12 ROPE scales			
Self-confidence	Confidence and belief in personal ability to be successful	"I am confident in my ability to be successful"	.80
Self-efficacy	Ability to handle things and to find solutions in difficult situations	"No matter what the situation is I can handle it"	.86
Stress management	Self-control and calmness in stressful situations	"I am calm when things go wrong"	.80
Open thinking	Openness and adaptability in thinking and ideas	"I am open to new thoughts and ideas"	.80
Social effectiveness	Competence and effectiveness in communicating and operating in social situations	"I communicate effectively in social situations"	.86
Cooperative teamwork	Cooperating in team situations	"I am good at cooperating with team members"	.88
Leadership ability	Leadership capability	"I am seen as a capable leader"	.89
Time efficiency	Efficient planning and utilisation of time	"I am efficient and do not waste time"	.84
Quality seeking	Put effort into achieving the best possible results	"I try to get the best possible results when I do things"	.80
Coping with change	Ability to cope with change	"I cope well with changing situations"	.85
Active involvement	Use action and energy to make things happen	"I like being active and energetic"	.71
Overall effectiveness	The overall effectiveness of a person in all aspects of life	"Overall, in my life I am an effective person"	.79
Summary description of the 3 CSI scales			
Problem solving	Attempts to work out the problem by carefully planning a course of action or trying different ways to solve the problem until one works	"I make a plan of action about what I will do"	.83

Table 7 continued

Scale	Description	Example item	Scale reliability
Seeking support	Turns to others for comfort or advice	“I tell my fears and worries to a friend”	.87
Avoidance	Physically or psychologically (i.e., through fantasy or distraction) withdraws from the problem	“I avoid the problem by watching television more than usual”	.80
Summary description of the 2 APRI-A scales			
Pro-bully	Students who believe that bullying is acceptable	“Bullying is OK if done in fun”	.69
Pro-victim	Students who believe that bullying is unacceptable and should be stopped	“People who are bullied deserve our help”	.64

Appendix 2

Student Evaluation of the Peer Support Program

Three open-ended questions were included at the end of the quantitative questionnaire so that students could convey their perceptions of the peer support program in their own words. The qualitative student evaluation for Grade 7 students comprised the following questions:

1. How has the peer support program been helpful to you?
2. Any other comments you would like to make about the peer support program?
3. Any other comments you would like to make about your peer support leaders?

These questions gave all Grade 7 students the opportunity to express their views about the benefits of the program and their perceptions of the program in general, and express their perceptions about the peer support leaders. Participating leaders were also invited to identify the ways in which the program was of benefit to the Grade 7 students as well as to themselves. The qualitative student evaluation for the peer support leaders comprised the following questions:

1. How has the peer support program been helpful to Grade 7 students?
2. What skills did you develop by being involved in the peer support program?
3. Any other comments you would like to make about the peer support program?

Table 8 Variance components models

	Between school variance (σ_v^2)	Between student variance (σ_{ii}^2)	Between test occasion variance (σ_e^2)
SDQII-S			
Physical abilities	.000 (.000)	.750 (.044)**	.276 (.015)**
Physical appearance	.045 (.039)	.747 (.045)**	.284 (.015)**

Appendix 3

Semi-Structured Interview Guide

The following questions were used as a guide to interview participants. The interview process was semi-structured to allow the interviewer to pursue relevant topics in more detail and probe as necessary to enrich descriptions of particular events and experiences shared by participants. Texts in parentheses are alternative phrases to encourage discussion.

Q1: What was good about the peer support program? (What did you like about the program?)

Q2: What was not good about the peer support program? (What didn't you like about the program?) (How could the program be improved in the future?)

Q3: What value did you get out of it personally? (How was the program helpful to you?) (In what ways was the program of benefit to you?)

Examples of probing questions:

“What did you mean when you said”

“You said ... Tell me more about that.”

Appendix 4

See Table 8.

Table 8 continued

	Between school variance (σ_v^2)	Between student variance (σ_u^2)	Between test occasion variance (σ_e^2)
Same-sex relations	.000 (.000)	.588 (.041)**	.401 (.022)**
Opposite-sex relations	.007 (.008)	.645 (.039)**	.272 (.015)**
Honesty/trustworthiness	.007 (.009)	.868 (.052)**	.332 (.018)**
Parent relations	.058 (.051)	.973 (.062)**	.487 (.026)**
Emotional stability	.000 (.000)	.728 (.044)**	.310 (.017)**
Verbal	.080 (.068)	.710 (.041)**	.244 (.013)**
Math	.023 (.022)	.911 (.050)**	.217 (.012)**
General school	.067 (.058)	.818 (.048)**	.297 (.016)**
Global self esteem	.032 (.029)	.889 (.053)**	.326 (.018)**
ROPE			
Self-confidence	.010 (.012)	.818 (.052)**	.401 (.022)**
Self-efficacy	.028 (.025)	.721 (.048)**	.429 (.023)**
Stress management	.024 (.023)	.669 (.048)**	.477 (.026)**
Open thinking	.009 (.010)	.789 (.049)**	.355 (.019)**
Social effectiveness	.009 (.010)	.787 (.050)**	.391 (.021)**
Cooperative teamwork	.008 (.010)	.897 (.054)**	.373 (.020)**
Leadership ability	.000 (.000)	.738 (.048)**	.390 (.021)**
Time efficiency	.031 (.028)	.694 (.045)**	.371 (.020)**
Quality seeking	.028 (.026)	.849 (.056)**	.491 (.026)**
Coping with change	.039 (.035)	.702 (.046)**	.399 (.022)**
Active involvement	.002 (.005)	.722 (.048)**	.415 (.022)**
Overall effectiveness	.007 (.009)	.789 (.050)**	.402 (.022)**
CSI			
Problem solving	.034 (.030)	.678 (.046)**	.380 (.021)**
Seeking support	.010 (.011)	.594 (.040)**	.343 (.019)**
Avoidance	.007 (.008)	.630 (.042)**	.343 (.019)**
APRI-A			
Pro-bully	.002 (.004)	.669 (.047)**	.431 (.024)**
Pro-victim	.001 (.003)	.411 (.039)**	.536 (.030)**

Note: Standard errors are given in parentheses

** $p < .01$

Appendix 5

See Table 9.

Table 9 Multilevel path models for additional variables

Parameter	Physical abilities	Physical appearance	Parent relations	Emotional stability	Open thinking	Social effectiveness	Leadership ability	Quality seeking	Active involvement	Overall effectiveness
Fixed effects										
Intercept	-.053	.058	-.136	.139	-.089	-.050	-.070	-.269	-.158	-.115
T1(covariate)	.663 (.024)**	.586 (.027)**	.587 (.034)**	.579 (.027)**	.531 (.030)**	.547 (.030)**	.530 (.028)**	.556 (.033)**	.596 (.028)**	.527 (.030)**
T2vT3	-.014 (.015)	.059 (.014)**	-.049 (.019)**	-.002 (.015)	-.026 (.016)	.006 (.017)	-.014 (.017)	-.049 (.019)	-.060 (.017)**	.022 (.017)
Group	.032 (.024)	.037 (.027)	-.006 (.034)	.005 (.027)	.067 (.030)*	.026 (.030)	.054 (.029)	.012 (.032)	.000 (.028)	.034 (.031)
Group × T2vT3	.029 (.015)	-.018 (.015)	.011 (.019)	.039 (.015)**	.011 (.016)	.017 (.017)	.017 (.017)	.037 (.019)	.038 (.017)*	.015 (.017)
Random effects										
σ^2_{ϵ} : between school variance	.000 (.000)	.008 (.008)	.033 (.030)	.003 (.004)	.006 (.007)	.005 (.006)	.007 (.007)	.022 (.020)	.003 (.005)	.007 (.008)
σ^2_{ϵ} : between student variance	.305 (.025)**	.411 (.030)**	.618 (.048)**	.394 (.030)**	.518 (.037)**	.500 (.038)**	.426 (.035)**	.572 (.045)**	.401 (.034)**	.515 (.040)**
σ^2_{ϵ} : between occasion variance	.285 (.016)**	.278 (.016)**	.496 (.028)**	.306 (.017)**	.341 (.019)**	.376 (.021)**	.393 (.022)**	.472 (.026)**	.400 (.022)**	.407 (.023)**

Note: T1(covariate) = corresponding T1 variable; T2vT3 = T2 (post-test) versus T3 (follow-up); Group = experimental versus control (positive values indicate higher values for the experimental group); Standard errors are given in parentheses

* $p < .05$; ** $p < .01$

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