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**Development of population based resilience measures in the primary
school setting**

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Abstract

Purpose – The purpose of this population based study is to report on progress in formulating instruments to measure children’s resilience and associated protective factors in family, primary school and community contexts.

Design/methodology/approach - A total of 2794 students, 1558 parents/caregivers, and 465 staff were surveyed in October 2003. A cross sectional research method was used for the data collection. Three surveys (Student Survey, and Parent/Caregiver Survey, and Staff Survey) were developed and modified to measure student resilience and associated protective factors. Exploratory factor analysis with Oblimin rotation and confirmatory factor analysis were used to analyse the reliability and validity of the scales of the three surveys.

Findings - The surveys indicate good construct validity and internal consistency for the Social Support Scale of Parent/Caregiver Survey, which had been modified from previous studies. Confirmatory factor analysis indicated a goodness of fit for the following scales: 1) Student Resilience Scale of the Student Survey, the School Organisation of the Parent/Caregiver Survey, 2) Climate Scale and Family Functioning Scale of the Parent/Caregiver survey and 3) the Health Promoting School Scale and Social Capital Scale of the Staff Survey.

Practical implications - The current study specifies aspects of the resilience concept within a holistic or socio-ecological setting. Measures of validity and reliability indicate that these instruments have the sensitivity to elucidate the complexity of both the resilience concept and the intricacy of working within the multi-layered world of the school environment.

Originality/value – This study provides health educators and researchers with reliable and valid resilience measures which can be used as guidelines in implementing evaluation programmes for the Health Promoting School project and the prevention of mental health problems in children.

Keywords – resilience, reliability, validity, exploratory factor analysis, confirmatory factor analysis.

Development of population based resilience measures in the primary school setting

Introduction

The concept of Resilience

Originally described in the 1950s, research regarding concepts of vulnerability, coping and stress resistance have been carried out in the fields of psychopathology, developmental and abnormal psychology. This research has contributed to development of the construct of resilience. An early attempt to study resilience was published in the early 1980's with Werner and Smith's (1982) 30 year ethnographic study of high-risk children on the Hawaiian Island of Kauai. Resilience has been used to characterise individuals who overcome difficult and challenging life circumstances and risk factors (Garmezy et al., 1984; Rutter, 1984; Werner, 1992). This perspective has conceptualised resilience as successful adaptation despite risk. Risk factors have been defined as hazards relating to the individual, or to the individual's environment, that increase the likelihood of a problem occurring (Rutter, 1987).

Resilience has been described as the interaction between risk and protective factors, specifically a process that results from individual reaction to risk factors, or vulnerabilities, that are present in the environment (Luthar, 2003; Luthar and Cicchetti, 2000). Studies on resilience in terms of adaptation despite risk often cite protective factors to explain why only the minority of children living in adverse conditions manifest problem behaviours and symptoms of psychopathology (Rutter, 1987). Protective factors have been referred to as those factors in the individual, or the environment, that enhance an individual's ability to resist problems and deal with

life's stresses. Thus, protective factors exert their effect only when a risk is present (Rutter, 1987). Protective factors have been considered to either compensate the risk, or buffer the effect of risk on child development.

Recently there has been a change in the direction of research focus away from the negative outcomes and damage caused by risk factors. Current research directions tend towards an emphasis on the socio-ecological context in which people experience risk factors and the identification of resources used for coping. These concepts have been captured in relation to resilience in Antonovsky's salutogenic model (Antonovsky, 1987; Antonovsky, 1996) and Bronfenbrenner's ecological model (Bronfenbrenner, 1979).

Salutogenic perspective on resilience

A salutogenic model side-steps the whole notion of risk exposure as a prerequisite for being labelled "resilient" and places the emphasis on factors that contribute to health and wellbeing. The salutogenic model focuses on factors that help identify coping resources of children which may contribute to resilience and effective adjustment, notwithstanding adversity and risk. The concepts implicit in the salutogenic model have relevance in health promotion and practice. Whilst a salutogenic model emphasizes competence and healthy children functioning in multiple domains (e.g. social, emotional and academic), it emphasises enhancing protective factors in the lives of all children, irrespective of the risk present. Implicit in this approach is the idea that resilience in children can be fostered and promoted by establishing protective factors in the environment (Benard, 2005).

Ecological perspective on resilience

The emphasis on resilience toward an ecological approach takes into account the influences of social context, both proximal and distal, to children (McLoyd, 1998). This advance is formalized in Bronfenbrenner's ecological model (Bronfenbrenner, 1979; Bronfenbrenner, 1989). It specifies that wellbeing is affected substantially by the social contexts in which children are embedded and is a function of the quality of relationships among individual, family and institutional systems. The factors reside within the individual include a variety of coping skills; for example self-efficacy. Also to be considered are positive factors external to the individual. External protective factors include parental support, adult mentoring, or organizations that promote positive youth development. The term external emphasizes the social environmental influences on child health and development, helps place resilience in a more ecological context, and moves away from conceptualization of resilience as a static, individual trait.

Although there is not a single consensus regarding the definition of the resilience paradigm, there is a general agreement regarding its construct and components. These include individual characteristics of the child, family structures and the external environment (Werner, 1989). Werner argues that resilient children have the following characteristics: a high level of autonomy, empathy, better problem solving skills and supportive peer relationships. He also found that variables relating to resilience are protective factors embedded in the family, the school and the community (Werner, 1992). Protective factors modify, ameliorate, or alter a person's response to the negative effects of risk (Smith and Carlson, 1997). Family protective factors are those

that shape the family's ability to endure in the face of adversity and risk. Key characteristics of family protective factors include warmth, affection, cohesion, commitment and emotional support for one another (McCubbin et al., 1987b) These factors have also been found to be associated with resilience in children (Smith, 1999; Werner, 1995). School experiences that include a safe and supportive environment, positive peer relationships, positive teacher influences, and opportunities for success, have also been found to be positively related to children's resilience (Rutter, 1987; Werner, 1995). Such variables may have a decisive impact on a child's ability to cope with stress or challenge and may be crucial in determining the extent to which a stressful situation will escalate into harm or resolve itself into adjustment and resilience. Thus, the presence of protective factors may determine a child's ability to adjust and cope with adversity in the family, school or community.

Researchers have commonly assigned resilience related factors into two broad categories: 1) those falling within the domains of individual personality attributes or dispositions (Rutter, 1990; Werner, 1992) such as social competence, problem solving, autonomy, and sense of future and purpose, 2) those relating to environmental influences such as peers, family, school and local community (Rutter, 1987; Werner, 1995).

Components of resilience

This discussion considers resilience in a broad context and comprised of the individual characteristics; family, school and community. It maintains that resilience is affected substantially by social relationships and is a function of the quality of those

relationships. Individuals are interconnected within and across multiple contextual systems that engage in ongoing transactions, thereby mutually influencing each other.

This paper attempts to apply both an ecological and a salutogenic approach in developing indicators of resilience at the population level in primary school settings. Within this framework, we aim to identify and test instruments that measure resilience at the individual, family, school and community levels and to develop instruments to reflect the perceptions of all school members.

Student-level variables in relation to the personal characteristics examined in this study are drawn from the relevant literature. They include self-esteem, self-efficacy, capacity to solve problems, willingness to cooperate and communicate, sense of purpose in life, autonomy, and perceptions of family, peers, school and community (Rutter, 1990; Werner, 1992). Family-level variables examined, centre on family functioning, family coherence, and how the family as a unit copes with the stresses of life. Family coherence pertains mainly to the elements of coping, problem solving, support, communication and understanding (Rutter, 1990; Werner, 1992). Resilient families generally have the resources to access support from the community, friends, and kinship network. School-level variables examined include parents' perceptions of the school organisational environment, its capacity to provide good structure, clear rules and regulation, and the extent to which a supportive psychosocial environment is present in the school. Numerous studies have indicated that social support has the ability to moderate the effects of family stress (DuBois et al., 1994; Murata, 1994; Spilman, 2006); hence, community level variables in the study examine social support as perceived by parents/caregivers. The family stress and coping literature is replete

with emphasis on the importance of social support both as a protective factor and as a recovery factor. Such community, friend and kinship networks can help to give meaning to a situation, help to develop coping strategies, and, more importantly, foster the family's ability to face challenge and change situations (McCubbin et al., 1987a).

A number of school factors have been identified as being able to influence children's mental health. Specifically noted are the school environment, its climate or ethos, the curriculum, the rules and discipline regarding management of student behaviour, expectations of the staff and parents, and opportunity for positive relationships with adult models in the school (Baker et al., 2003). In this paper the school-level variables examined also included staff perceptions of the school's health promoting nature and social capital. Other researchers have identified similar health promoting school factors including school policy, school physical environment, and school social environment but have also identified personal skill building, access to health service, and school-community relations (Booth and Samdal, 1997; Deschesnes et al., 2003; Loureiro, 2004; Lynagh et al., 2002; Rogers et al., 1998; Scriven and Stiddard, 2003). to be important aspects of the health promoting school environment.

Method

Study design and population

Data were collected from 2794 students, 1558 parents/caregivers, and 465 teaching and non-teaching staff attending 20 primary schools in Brisbane's northern urban

corridor and southern urban corridor, in the state of Queensland, Australia. The schools comprised 16 state schools and four Catholic schools.

Data collection for students, parents/caregivers and staff was carried out in November and December in 2003. Data from the student sample were collected in the school classrooms by teachers. Parents/caregivers completed the questionnaire at home and returned the survey to school. Data collection for the primary school staff sample was carried out through distribution of the questionnaire at staff meetings organised by the school principals.

Specific written instructions were issued to teachers describing the administrative procedures to be followed. Students, parents/caregivers and school staff were asked to give written informed consent, participation was voluntary and a guarantee of anonymity was given. Ethics approval was obtained from the Queensland University of Technology's Human Research Ethics Committee, Education Queensland Ethics Committee, and Catholic Education Ethics Committee in October 2003 (ethics approval number: QUT Ref No 3058H).

Selection of Instruments

After review, a selection of instruments that drew on ecological and health promotion perspectives from previous studies was made. A synthesis of the various scales and subscales considered, is presented in Table 1.

Insert

Table 1

After comparing independent listings by the researchers, Three surveys (Student Survey, Parent/Caregiver Survey, and Staff Survey) were derived from the instruments presented in Table 1. The Resilience Scale of the Student Survey, the School Organisation and Climate Scale, the Family Functioning Scale, and the Social Support Scale of the Parent/Caregiver Survey, the Health Promoting School Scale, and the Social Capital Scale of the Staff Survey reflect the perceptions of all members of the school community including staff, parents/caregivers and students. The scales focused on student individual characteristics, protective resources from family, school and community, and health promoting initiatives and characteristics within a school which may promote these protective resources. The proposed measures were designed to investigate student resilience including student perceptions of their individual characteristics, protective resources from family, peer, school and community; parent/caregiver perceptions of the school environment, family functioning, and social support; and staff perceptions of the school as a health promoting setting and overall school climate (school social capital).

The proposed measures were designed to investigate student resilience using the following 3 surveys: 1) Student Survey: student perceptions of their individual characteristics, protective resources from family, peer, school and community, 2) Parent/caregiver Survey: parent/caregiver perceptions of the school environment, family functioning, and social support and 3) Staff Survey: staff perceptions of the school as a health promoting setting and overall school climate (school social capital).

Student Survey

Student Survey consist of one scale only: Resilience Scale.

Resilience Scale: The Resilience scale was completed by students. There is some variation in the definition of resilience across studies and not all surveys include the same array of protective factor components for each group. The California Healthy Kids Survey (California Department of Education, 2004) for example, identifies adult support and pro-social peer and group as important protective factors for student resilience. Not explicitly specified in this scale, however, is peer support at school. As this factor was considered an important protective factor by us, the Peer Support Scale derived from the Perception of Peer Support Scale (Ladd et al., 1996) was incorporated in the Student Survey as a school protective resource indicator relating to peer support for students. Items for the Student Survey were tested in a pilot study in 4 primary schools for 189 students in Years 3, 5 and 7 to ensure they satisfied the primary school children's comprehension and literacy level. High reliability was achieved for the scales ($\alpha = .92$). The items with low levels of item-correlation were deleted from the questionnaire. This resulted in two items being either reworded or deleted. A final pool of 47 items was determined.

Parent/Caregiver Survey

The Parent/Caregiver Survey consists of three scales: the Family Functioning Scale, the School Organisation and Climate Scale, and the Social Support Scale.

The Family Functioning Scale: This scale was completed by parents/caregivers and assessed family and community quality of life and resilience. Twelve items selected from Zubrick et al. (2000) 'Indicators of Social and Family Functioning' scale as well as 4 items from the 'Family Hardiness Index' (McCubbin et al., 1987b) comprised this scale. The Family Functioning questionnaire (Zubrick et al., 2000) provides limited information about the characteristics of hardiness as a stress resistance and

adaptation resource in the family. This has been identified as an important protective factor to cope with stress at family level (McCubbin et al., 1987b); we therefore added four items from the Family Hardiness Index, to the Family Functioning Scale.

The School Organisation and Climate Scale: This scale was also addressed to parents/caregivers. In its development, items were selected from the School Organisational Health Questionnaire (Hart et al., 2000). This questionnaire had 54 items. The goodness-of-fit statistics using confirmation factor analysis approach showed the questionnaire had satisfactory reliability and validity, with the root-mean-square errors of approximation being .08 or less, the root-mean-square residuals being .05 or less, and the relative noncentrality indices being .98 or better.

This questionnaire was originally designed to reflect teacher morale and school climate from a school staff point of view. The items chosen from the School Organisational Health Questionnaire were modified to reflect the perceptions of parents/caregivers. Examples of typical modifications made were: “I am able to approach the school’s manager to discuss concerns and grievances” from the staff perspective; to: “I am able to meet the school staff to discuss concerns and grievances” from the parent/caregiver’s perspective. Moreover, “I have the opportunity to be involved in cooperative work with other members of staff”, became, “I have the opportunity to help teachers with classroom activities”. Items for each scale were examined for clarity and conceptual overlap and this resulted in a number of items being added, reworded or discarded. A final pool of 36 items was determined.

The Social Support Scale: The Social Support Scale was addressed to parents/caregivers to assess the degree to which families are integrated into the community, view the community as a source of support, and feel that the local community can provide emotional, self-esteem and networking support. This scale consisted of 17 items from the Social Support Index (McCubbin et al., 1987a, p. 839) and showed a high level of reliability (McCubbin et al., 1987a, p. 839).

Staff Survey

Staff Survey consists of two scales: Health Promoting School Scale and Social Capital Scale.

Health Promoting School Scale: the structure of Health Promoting School scale was based on indicators identified in a number of studies (Booth and Samdal, 1997; Deschesnes et al., 2003; Loureiro, 2004; Lynagh et al., 2002; Rogers et al., 1998; Scriven and Stiddard, 2003). Items for the Staff Survey were based on a review of the literature to find the key features of a health promoting school that best describe Ottawa Charter factors (WHO, 1986). This scale was initially tested in a study of 797 teachers in 39 schools in Queensland, Australia by Lemerle (2005). It shows a high level of reliability with alpha levels of .80 for the whole scale and levels ranging from 0.77 to 0.82 for the six subscales.

Social Capital Scale: The social capital scale also addressed to school staff was developed by Onyx and Bullen (2000). This scale measures feelings of trust and safety, proactivity in a social context, tolerance of diversity, and work connection. The reliability of the social capital scale was high with alpha levels of 0.84 for the whole scale. Structural equation model indicates the good model fit with RMSEA

index of 0.05, AGFI of 0.90 and NNFI of 0.82. For the purpose of this paper to develop school based social capital scale, one new item relating to tolerance of diversity was added to the subscale. Two new items in relation to work connection were also added. Identification of issues recognized in the literature as related to both school health promotion and social capital were then oriented to the school unit level.

Final questionnaires

After a pilot study and reviewing all the selected scales and subscale, the final items and constructs (with exception of the Social Support Scale) were determined for each scale. The Student Survey was developed based on the resilience concept that used for this study. The survey consisted of individual characteristics of the child family, school support, and community connection and peer support.

The underlying assumption for the Parents/Caregivers Survey was that the family provides a protective environment that fosters the resilience of its individual members, including the children, and promotes the role of the family as a unit to help, cope with and overcome, stress, adversity and risk situations. Resilience in the family unit is fostered by: 1) cohesiveness, communication and understanding among family members and joint development of strategies to cope with problems, 2) accessible support such as social and community resources and social networks and 3) good relations between the family and school community in which parents perceive their child's school as a healthy and safe environment.

The underlying assumption for the Staff Survey is that the school, as a setting in which not only children but also many adults spend a very substantial part of their day,

is the best place to promote all school members' health and well-being. Factors that may contribute to resilience at the school community level are structural, such as explicit health policies, the physical and social environment, and access to health services and resources, personal skill development opportunities for school members and school-community partnerships. They also include the social climate, opportunities for personal development, and levels of participation of school members, mutual support and trust. Furthermore, high collective expectations of success in meeting challenges, and the capacity to cope with a crisis or significant adversity in a way that strengthens the community are factors that contribute to resilience at the school community level.

The final measures were incorporated into three questionnaires: Student Survey, Parents/Caregiver Survey, and Staff Survey. The details of each survey are presented in Table 2.

Insert

Table 2

Student Survey. Thirty-four of the total 47 items were from California Healthy Kids Survey (2004), while the remaining 13 items were developed from Perceptions of Peer Support Scale by Ladd et al. (1996). The items from the California Healthy Kids Survey were modified to make them more accessible to Australian primary school students, for example, "Outside of my home and school, I do these things: I am part of clubs, sports teams, church/temple, or other group activities", became "Away from school, I am a member of a club, sports team, church group, or other group."

The format of the Student Survey was different from both the California Healthy Kids Survey and the Perceptions of Peer Support Scale. The California Healthy Kids Survey asked students to rank each question on a 4-point Likert scale from “Not at all true” to “very much true”. The Perceptions of Peer Support Scale asked students to rank each question on 3 point Likert scale from “lots of times” to “never”. To make the format consistent throughout the survey and to avoid the ceiling effect of the questions, a 5-point Likert scale format was used for the Student Survey. Thus, students were asked to respond to the items using a rating continuum of 1-5 in which 1 indicated “never”, 5 indicated “always”, or “lots of times”, or “all the time”. Students were asked to read each statement and circle the number that best suited what they thought.

Examples of items regarding individual characteristics in the Resilience Scale included, “I can do most things if I try” and “There are many things I do well.” Items regarding adult support included examples such as, “Adults at home (or school or community) are interested in my (the student’s) school work, believe that I will be a success.” Items in relation to peer support included the examples, “Are there students at your school who would; choose you on their team at school?” or “...your friends tell you you’re good at doing things?”

Parents/Caregivers Survey. The Parents/Caregivers Survey consisted of three scales: the School Organisation and Climate Scale, the Family Functioning Scale, and the Social Support Scale. The School Organisation and Climate Scale consisted of 36 items derived from Hart et al. School Organisational Health Questionnaire (2000). The Family Functioning scale consisted of 16 items. The content of the items from the Family and Social Functioning Scale were not changed and kept as original, however,

to be consistent with other scales, the format of the Family Hardiness Index was changed from a 4-point Likert Scale to a 5-point Likert scale in which 1 indicates “strongly disagree” and 5 indicates “strongly agree”. The Social Support Scale consisted of 17 items from the Social Support Index (McCubbin et al., 1987a) to assess the degree to which families were integrated into the community, viewed the community as a source of support and felt that the local community could provide emotional, self-esteem and network support. The content of the items and 5-point Likert Scale format for the Social Support Index were not changed and were kept as in the original scale. Parents/caregivers were presented with each of the 65 items and asked to circle the number that best matched their level of agreement with each statement.

Staff Survey. This survey comprised a Health Promoting School Scale and Social Capital Scale at school scale. All items of the Health Promoting School Scale were designed to assess school health promoting characteristics, such as health policy, physical environment, social environment, school-community relations, personal skill building, and access to health services. The question, “To what extent is your school actively putting into place the following policies ...?”, followed by a series of options, such as: “...preventing the use of alcohol, tobacco and illicit drugs”, “...accident and injury risk reduction” is typical of items in the HPS scale. A 5-point Likert scale format was kept as in the original HPS scale, in which 1 indicated “not at all” and 5 indicated “a great deal”.

The Social Capital Scale consisted of 20 items selected from the original 36 item Social Capital Index (Onyx and Bullen, 2000). Subscales selected included, feelings

of trust and safety, pro-activity in a social context, tolerance of diversity, and work connection. Questions selected included items such as, “Do you feel valued by this school?” and “Is this school regarded as a safe place?” The format of the Social Capital Scale was changed from Onyx and Bullen’s original social capital measure (a 4-point Likert scale) to 5-point Likert scale in which 1 indicated “never” and 5 indicated “always”.

Analytical approach

Exploratory and confirmatory factor analyses (EFA and CFA) were used for analysis of the data. Exploratory factor analysis was used to identify the constructs of the questionnaire. In the current study, the constructs for the Social Support Scale of the Parent/Caregiver Survey were not identified in the previous studies (McCubbin et al., 1987a, p. 389), so exploratory factor analysis was used in the first instance to identify the constructs for the scale. In exploratory factor analysis, Eigen values greater than 1.0, and Cattell’s Scree test were used to determine the number of subscales extracted. Subsequently, alpha factoring with oblimin rotation was used to determine the items of the subscales. Internal reliability of the subscales derived from the factor analysis was assessed using Cronbach’s alpha coefficient.

Confirmatory factor analysis was used to examine whether the constructs of measurement identified by the previous studies fit to the current sample data. It could also be used to examine whether the theories proposed for the scales fitted to the sample in the current study.

Structures of the School Organisation and Climate Scale, Family Functioning Scale, and Social Support Scale of the Parent/Caregiver Survey, and Social Capital Scale of the Staff Survey were developed by previous studies. Additionally, the structure of the Health Promoting School Scale of the Staff Survey was theoretically well-articulated in the WHO documents. Thus, a confirmatory factor analysis was conducted to test the fit of these scales to the current sample data using LISREL version 8.71 for the five scales.

In structural equation modelling, a variance-covariance matrix of the raw data is analysed using a full-information maximum likelihood estimation procedure. In the CFA framework, the model can be tested, and the LISREL software provides goodness-of-fit indices to assess the adequacy of the models in matching the data. Goodness-of-fit indexes used in the present study included the following: χ^2 likelihood ratio statistic, root mean square error of approximation (RMSEA), comparative fit index (CFI), normed fit index (NFI), non-normed fit index (NNFI), Standardized Root Mean Square Residual (SMSR), and Goodness of Fit index (GFI). The χ^2 likelihood ratio statistic is often used to measure fit and for model comparisons. This absolute fit statistic evaluates the discrepancy between the implied covariance matrix and the sample covariance matrix. A *p*-value more than 0.05 generally indicates a good fit of the model. One limitation of this statistic is its tendency to reject the true model too frequently when variables follow slightly non-normal distributions, and the simultaneous use of other indexes is suggested. Comparative fit indexes (Bentler, 1980) are less susceptible to bias caused by non-normality. The NFI, NNFI, CFI, and GFI as indices of fit, vary between 0 and 1; values greater than 0.95 are indicative of a good fit. RMSEA compares the model optimal parameter values

with the population covariance matrix. Values less than 0.05 indicate good fit, and values between 0.05 and 0.08 indicate reasonable fit. RMSR (Joreskog and Sorbom, 2004) were also used, because these are commonly reported in the literature.

Results

Participation and sample characteristics

The mean age of this student sample was 8.09 years (SD = 0.55) for Year 3 students, 10.05 years (SD = 0.04) for Year 5 students, and 12.02 years (SD = 0.04) for Year 7 students. There were no differences in mean ages of boys and girls, or in the response rates across the school years (Year 3: 32.7 %, Year 5: 32.7 %, Year 7: 34.5 %). Most of the students (86.3 %) were born in Australia.

Most of the parent/caregiver sample was female (88.5 %). Over 43 % (43.2 %) had education level to year 12, over a third were engaged in full-time home duties, and 29.2 % had a family annual income of less than AUD 30 000. Dual-parent families were the most common, comprising 74.1 % of the sample.

The staff sample was predominantly female (85.2 %) and most were teaching staff (63.5 %). The distribution of teaching staff across the school years was similar (Year 3: 12.9 %, Year 5: 12.7 %, Year 7: 15.4 %). Most of the staff had worked in the same school for between 3-10 years.

Exploratory Factor Analysis results for Social Support Scale of the Parent/Caregiver Survey

Tables 3 shows the items, loadings, and alpha coefficients of the subscales for the Social Support Scale. Salient structure loadings (> 0.40) are included.

Insert Table 3

Factor analysis on the Social Support Scale resulted in four factors. Factor 1, “community as a source of support”, reflects that the community has resources that can provide support when people need help or have an emergency; as well, it reflects that people feel secure living in the community. Factor 2, “emotional, esteem and friendship network support”, includes friends in the community who can provide emotional support and support for self-esteem. Factor 3, “family-community connection”, indicates the understanding and mutual support between community members and family members. Factor 4, “family affection and commitment”, represents how family members show affection and help each other. The internal consistency analysis for factors 1 to 4 indicates Cronbach’s alpha coefficients ranging from 0.67 to 0.84. The correlation between subscales indicates modest inter-correlations between subscales (absolute mean, $r = 0.45$).

Evaluation of Model Fit Using Confirmatory Factor Analysis

The results of the CFA for five scales including Resilience Scale from student survey, School Organisation and Climate Scale, Family Functioning Scale from the parent/caregiver survey, and Health Promoting School Scale and Social Capital Scale from the staff survey are provided in Table 4.

Insert Table 4

Insert Figure 1

Insert Figure 2

Insert Figure 3

Insert Figure 4

Insert Figure 5

Figures 1 to 5 as indicated in factor loadings and measurement errors confirm the structure of 12 factors for the Resilience Scale from the Student Survey, 14 factors for the School Organisation and Climate Scale, and two factors for the Family Functioning Scale from the Parent/Caregiver Survey, six factors for the Health Promoting School Scale, and four factors for the Social Capital Scale from the Staff Survey.

The item reliabilities shown in the figures suggest that each item for each subscale for each scale was adequately defined. The item reliabilities were all significant at the .001 level, and 94% were equal to, or greater than .55 ($M = .63$, $SD = .10$). This indicates that, in the vast majority of cases, there was at least 30% shared variance between each item and its underlying factor.

Table 3 depicts all five scales as having RMSEA values less than 0.08, and CFI values of more than 0.94. As can be seen by the chi-squares and the different fit statistics

(RMSEA, CFI, NFI, NNFI, RMSR), the hypothesised 12 factors for the Student Survey, 14 factors for the School Organisation and Climate Scale, two factors for the Family Functioning Scale, six factors for the Health Promoting School scale, and four factors for the Social Capital Scale, fit the model. The findings from the CFA confirm that the structure of the Resilience Scale of the Student Survey, the School Organisation and Climate Scale, the Family Functioning Scale of the Parent/Caregiver Survey, the Health Promoting School Scale and Social Capital Scale of the Staff Survey is optimal for the sample of students, parents/caregivers, and staff in the current study.

Discussion

The findings of both the exploratory and confirmatory factor analyses reported above, indicate that the measures represented in the Student Survey, the Parent/Caregiver Survey, and the Staff Survey are valid instruments for measuring resilience and associated protective factors. Such an approach reflects not only the perceptions of the student sample, but also those of the broader school community, including parents/caregivers and school staff.

Exploratory Factor Analysis: Structure of the Social Support Scale of the Parent/Caregiver Survey

EFA revealed a four-factor structure in the Social Support Scale of the Parent/Caregiver Survey. The internal reliability analysis shows a high level of internal consistency of the items for the whole scale (0.87) and the four subscales (0.84, 0.80, 0.67, and 0.73 respectively from factor 1 to 4), indicating each of the subscales represents the concept, or construct, of social support for families.

Confirmatory Factor Analysis: Evaluation of Model fit for five scales

In terms of the Resilience Scale of the Student Survey, the CFA shows a good model fit for the 12 subscale construct. This confirms that the construct identified in previous studies (Waring and Hazell, 2002) fits in the student sample in the current study. This also confirms the hypothesis for the California Healthy Kids Questionnaire (California Department of Education, 2004) that resilience consists not only of individual characteristics, such as communication, cooperation, self-esteem, empathy, problem solving, and goals and aspirations; but also includes protective factors embedded in the environment, including adult support at school, adult support at home, adult support in the community, autonomy experience, prosocial peers, and meaningful participation in community activities, and peer support.

In the Health Promoting School Scale of the Staff Survey, the CFA indicates a good model fit for the six subscale construct. This confirms that the construct articulated by WHO (1986) fits the staff sample in the current study. The six subscales which are derived from health policy, physical environment, social environment, school community relations, personal skill building, and access to health services are consistent with the five areas of the Ottawa Charter proposed by WHO (1986). Healthy school policies, a supportive school environment, school community action, development of personal skills, and reorienting services were all emphasized. Such healthy school policies as sun protection, student medication management, and injury prevention are reflected in subscale 1. A supportive school environment in terms of strategies which focus on the improvement of a school's social and physical environment is reflected in subscales 2 and 3. School community action in terms of enabling equitable participation and empowerment of all sectors of the school

community in decision making and implementation of health programs, is reflected in subscale 4. Development of personal skills including strategies for the improvement of knowledge and attitudes; skills which promote healthy lifestyles, interpersonal skills, and opportunities for staff to attend training and/or courses on health issues, are reflected in subscale 5. Finally, the reorientation of health services which includes strategies to provide health promotion and counselling services for staff and students is reflected in subscale 6.

Theoretical Structure

The theoretical structure of the scales derived from the EFA and CFA for resilience measure development, fit well with a socio-ecological approach. Not only are individual student traits such as empathy, communication and cooperation, self-efficacy and problem solving emphasised, but also, an equal focus is placed on assets, resources, and contextual elements as protective factors in the family, school and community context (Fergus and Zimmerman, 2005; Luthar and Cicchetti, 2000). This reflects the socio-ecological framework of the resilience measure.

The three surveys were constructed on Antonovsky's (1996) principle of a positive or 'salutogenic' notion of health which sees health as created, rather than a concept which is measured by reduction in risk factors alone. Based on this positive health concept, the measures include assessing the extent to which the primary school setting is healthy and supportive, with family and community similarly supportive and collaborative through partnerships. Key school contextual factors are identified in the School Organisation and Climate Scale of the Parent/Caregiver Survey, the HPS Scale and the Social Capital Scale of the Staff Survey. These school contextual factors

reflect not only the school organization and structure, curriculum content, school rules and regulations and physical environment, but also the school climate including school-family relationships, staff and student relations, teacher and peer support for students, school networks, norms, trust, coordination and cooperation, that are of benefit to all concerned.

Understanding of family and community contexts may enable schools to make learning and health more relevant and sensitive to family and community circumstances. Parents, on the other hand, will be more likely to reinforce such activities in the home if the family environment is more supportive and family members understand each other. The measures of the family and community context factor are identified in the Family Functioning Scale and Social Support of the Parents/Caregiver Survey. This focus on the family climate and community social support includes emotional, and self-esteem support for each family member.

Limitations and future directions

The three surveys with six scales in relation to resilience capture protective factors from students, parent/caregivers and staff perspectives. These surveys, however, were tested in Australia and there may be additional, culture-specific questions that would better assess migrant children. As these surveys are philosophically based in salutogenic theory, they do not contain questions that would enable responders to address risk factors in their individual circumstances and environments. For example, achievement-oriented questions such as learning specific and culture adjustment questions were not included in the surveys. Additionally, the surveys were not tested against populations who have mental health problems. Thus, an association between these protective factors and prevalence of mental health problems, such as depression

or behavioural problems, has not been tested. Future research could address whether these surveys could be utilised in populations of varying cultures for early identification of children who may be pre-disposed to, or be at high risk, for mental health problems.

Conclusion

The instruments discussed above provide a significant addition to the tools available to measure the critical mental health construct of resilience. Increasing numbers of policy statements and mental health promotion plans identify this construct as central to reform initiatives (Veenstra et al., 2005), but few specify the components of the concept and even fewer locate it within a holistic, or ecological setting. An attempt has been made here to provide validated and reliable instruments that have the sensitivity to recognise the complexity both of the concept of 'resilience' and also of the intricacy of working within the multi-layered world of the school environment. The Resilience Scale of the Student Survey provides a validated tool for collecting data regarding the perception of students about resilience factors. The Parent/Caregivers Survey provides a tool both for measurement and to engage them in a dialogue about their perceptions of the school environment, family functioning, and social support for the family. These elements have been widely recognised as critical protective and contextual factors for student and family resilience. The Staff Survey provides an appropriate tool to evaluate organisational social capital and the extent to which staff perceive their school to be a health promoting school.

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Table 1.
Selection of resilience measures

STUDENT SURVEY	AUTHORS	SCALES	SUBSCALES
California Healthy Kids Survey (2004)	California Department of Education (2004)	Resilience scale	1. Communication and cooperation 2. self-esteem 3. self-empathy 4. effective help-seeking 5. goals and aspirations
		Protective factor scale	1. family connection 2. school connection 3. community connection 4. autonomy experience 5. pro-social peers 6. pro-social group
Perceptions of Peer Support Scale,	Ladd et al. (1996)	Perception of peer support	7. Peer support
PARENT/ CAREGIVER SURVEY	AUTHORS	SCALES	SUBSCALES
Indicators of social and family functioning	Zubrick et al. (2000)	Family coherence	1. Coping and problem solving 2. Family coherence and support 3. Communication and understanding
Family hardiness index	M.McCubbin and H. McCubbin (1987a)	Family hardiness	1. Hardiness
School Organisation Questionnaire	Hart et al., (2000)	School Organisation and climate	1. School morale 2. Appraisal and recognition 3. Curriculum coordination 4. Effective discipline policy 5. Excessive work demands 6. Goal congruence 7. Participative decision-making 8. Professional growth 9. Professional interaction 10. Role clarity 11. Student orientation 12. Supportive leadership
Social Support Index	(McCubbin et al., (1987a)	Social Support Index	No constructs have been identified

STAFF SURVEY	AUTHORS	SCALES	SUBSCALES
Measuring social capital in five communities in NSW	Onyx and Bullen (2000)	Social Capital	<ol style="list-style-type: none"> 1. Feelings of trust and safety 2. Proactivity in a social context 3. Tolerance and diversity 4. Work connection
Health Promoting School Scale	Deschesnes et al.(2003); (Loureiro) 2004; Lynagh et al. (2002); Rogers et al. (1998); Scriven and Stiddard (2003)	Health Promoting School Audit	<ol style="list-style-type: none"> 1.Health policies 2.School physical environment 3.School social environment 4.School-community relations 5.Personal skills building 6.Access to health service

Table 2
Final questionnaires

Measures	SCALES	SUBSCALES
Student Survey	Resilience Scale	<ol style="list-style-type: none"> 1. communication and cooperation 2. self-esteem 3. empathy 4. problem solving 5. goals and aspirations 6. family connection 7. school connection 8. community connection 9. autonomy experience 10. pro-social peers 11. meaningful participation in community activity 12. peer support
Parent/Caregiver Survey	Family Functioning Scale	<ol style="list-style-type: none"> 1. family coherence 2. family coping
	School Organisation and Climate scale	<ol style="list-style-type: none"> 1. school morale 2. supportive leadership 3. parental participation in decision making 4. professional interaction 5. appraisal and recognition of students 6. professional growth 7. goal congruence 8. curriculum coordination 9. effective discipline policy 10. school orientation towards students 11. less school pressure 12. student behaviour 13. excessive work demands 14. others
	Social Support Scale	To be confirmed by Exploratory Factor Analysis (See Table 3)
Staff Survey	Social Capital Scale	<ol style="list-style-type: none"> 1. feelings of trust and safety 2. proactivity in a social context 3. tolerance and diversity 4. work connection
	Health Promoting School Scale	<ol style="list-style-type: none"> 1. health policies 2. school physical environment 3. school social environment 4. school-community relations 5. personal skills building 6. access to health service

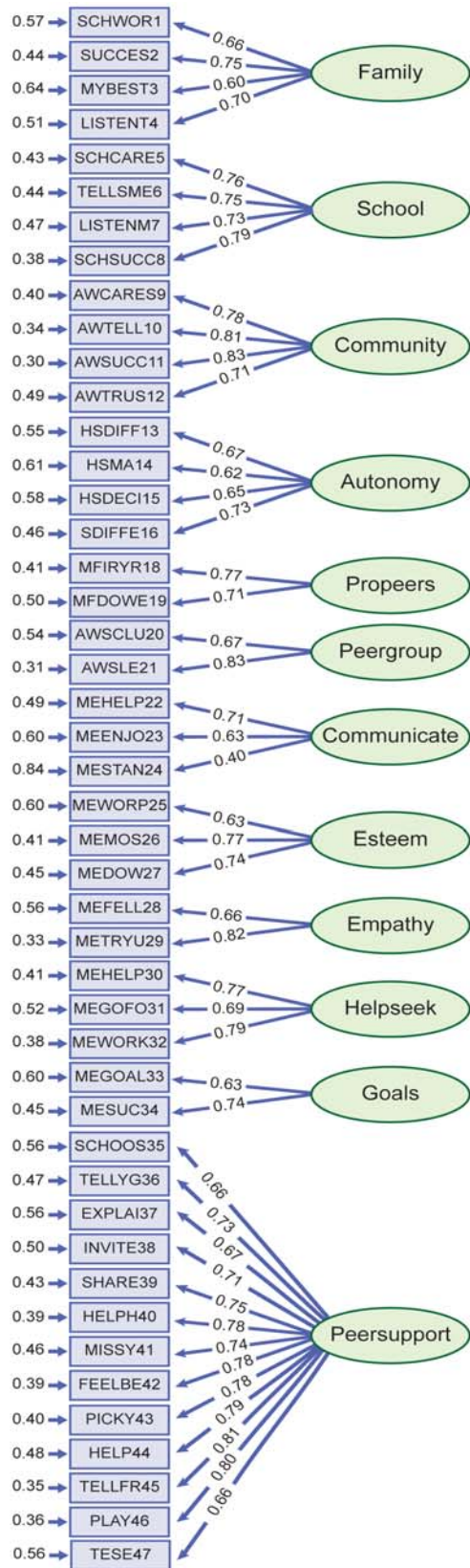
Table 3. Exploratory Factor analysis for Social Support Scale of Parents/Caregiver Survey

	Factor loading	Eigen Value	% variance	Alpha Coefficient
Social Support Scale			60.65	.87
Factor 1: Community as a source of support		3.29	19.36	.84
58. People can depend on each other in this community	.79			
56. People here know they can get help from the community if they are in trouble	.77			
53. If I had an emergency, even people I do not know in this community would be willing to help	.76			
63. Living in this community gives me a secure feeling	.72			
65. There is a feeling in this community that people should not get too friendly with each other	.55			
Factor 2: Emotional, esteem and friendship network support		2.46	14.49	.80
68. I have some very close friends outside the family who I know really care for me and love for me	.84			
67. I feel secure that I am as important to my friends as they are to me	.77			
57. I have friends who let me know they value who I am and what I can do	.72			
60. My friends in this community are a part of my every day activities	.45			
Factor 3: Family-community connection		2.44	14.34	.67
69. Members of my family do not seem to understand me, I feel taken for granted	.75			
59. Members of my family seldom listen to my problems or concerns, I usually feel criticized.	.67			
62. I need to be very careful how much I do for my friends because they take advantage of me	.66			
66. This is not a very good community to bring children up in	.55			
61. There are times when family members do things that make other members unhappy	.46			
Factor 4: Family affection and commitment		2.12	12.46	.73
55. The things I do for members of my family and they do for me make me feel part of this very important group	.77			
54. I feel good about myself when I sacrifice and give time and energy to members of my family	.75			
64. The members of my family make an effort to show their love and affection to me	.61			

Table 4.
Summary of fit indices for confirmatory factor analyses for the five scales

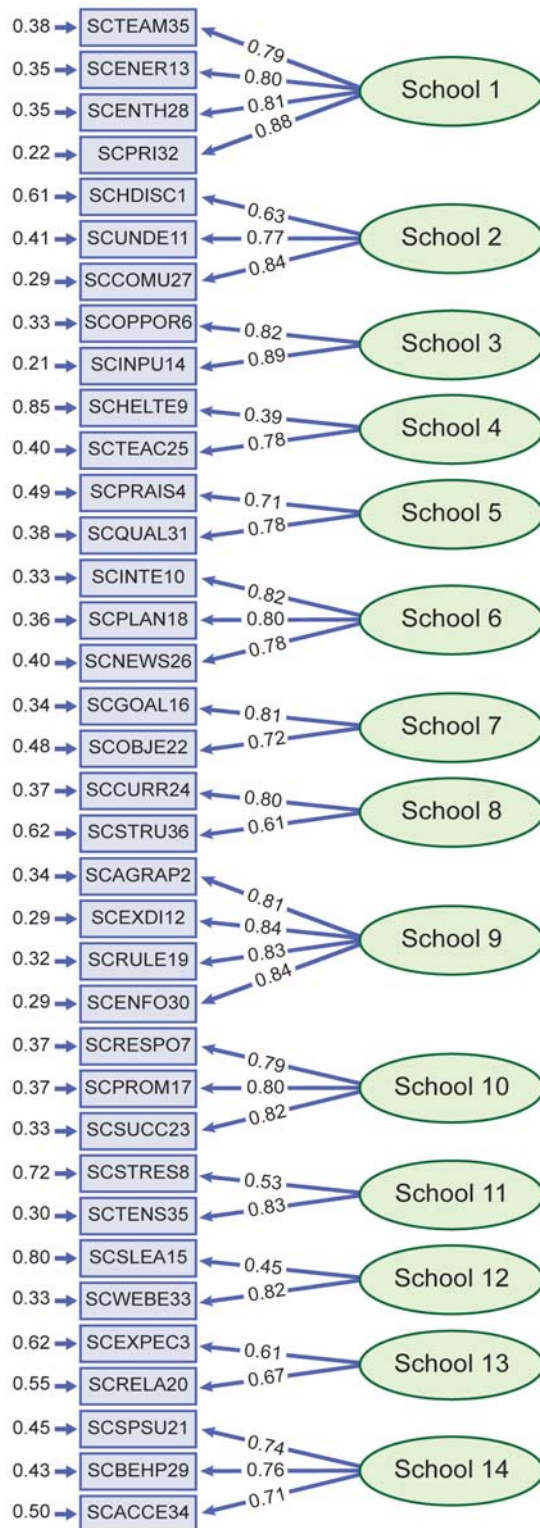
	Scale	Number of factors	<i>df</i>	χ^2/df	RMSEA	CFI	NFI	NNFI	RMSR	GFI
Student Survey	Resilience Scale	12 factors	923	2.79	.03	.99	.99	.99	.04	.89
Parent/ Caregiver Survey	School Organisation and Climate Scale	14 factors	503	4.28	.05	.99	.99	.99	.04	.87
	Family functioning Scale	2 factors	76	5.84	.06	.99	.98	.98	.05	.88
Staff Survey	Health Promoting School Scale	6 factors	458	2.68	.06	.98	.96	.98	.06	.86
	Social Capital Scale	4 factors	164	3.89	.08	.94	.92	.93	.08	.99

Note. RMSEA = Root Mean Square Error of Approximation. CFI = comparative fit index. NFI = normed fit index; NNFI = non-normed fit index; RMSR= standardized root mean square residual. GFI=Goodness of Fit Index.



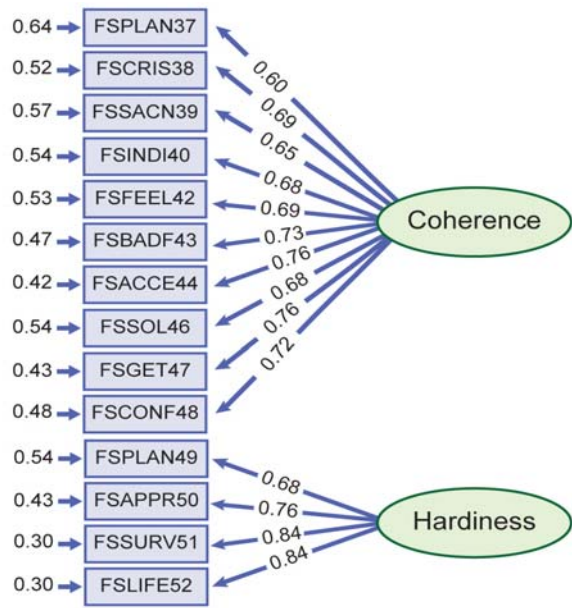
Chi - Square = 2579.14 , df = 923 , P - value = 0.00000 , RMSEA = 0.028

Figure 1. Confirmatory factor analysis: Factor loadings for items of the Resilience Scale



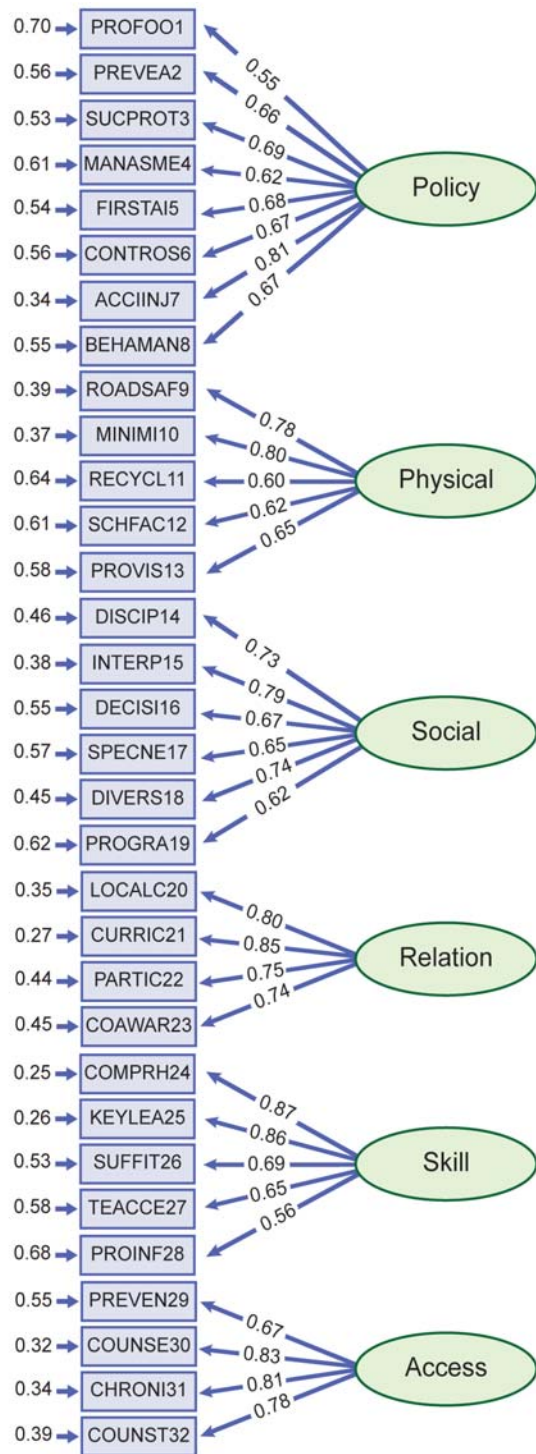
Chi - Square = 2157.26 , df = 503 , P - value = 0.00000 , RMSEA = 0.053

Figure 2 Confirmatory factor analysis: Factor loadings for items of the School Organisation and Climate Scale



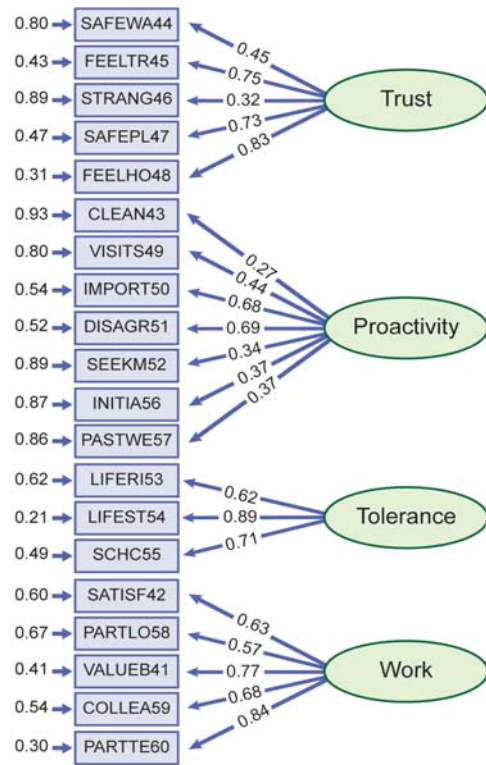
Chi - Square = 444.50 , df = 76 , P - value = 0.00000 , RMSEA = 0.061

Figure 3 Confirmatory factor analysis: Factor loadings for items of the Family Functioning Scale



Chi - Square = 1179.48 , df = 449 , P - value = 0.00000 , RMSEA = 0.063

Figure 4 Confirmatory factor analysis: Factor loadings for items of the Health Promoting School Scale



Chi - Square = 638.04 , df = 164 , P - value = 0.00000 , RMSEA = 0.085

Figure 5 Confirmatory factor analysis: Factor loadings for items of the Social Capital Scale

Table 5 (Figure 1)
 Factor loading for confirmatory factor model of Student Resilience Scale of Student Survey

Subscales	Items no in questionnaire	Factor loading	Measurement error	
Protective factors	Family connection	At home, there is an adult who:	.66	.57
		1. Is interested in my school work		
		2. Believes that I will be a success	.75	.44
		3. Wants me to do my best	.60	.64
		4. Listens to me when I have something to say	.70	.51
	School connection	At school, there is an adult who:	.76	.43
		5. Really cares about me		
		6. Tells me when I do a good job	.75	.44
		7. Listens to me when I have something to say	.73	.47
		8. Believes that I will be a success	.79	.38
	Community connection	Away from school, there is an adult who:	.78	.40
		9. Really cares about me		
		10. Tells me when I do a good job	.81	.34
		11. Believes that I will be a success	.83	.30
		12. I trust	.71	.49
	Participation in home and school life	Home and school	.67	.55
		13. I do things at home that make a difference (i.e., make things better)		
	14. I help my family make decisions	.62	.61	
	15. At school, I help decide things like class activities or rules	.65	.58	
	16. I do things at my school that make a difference (i.e. make things better)	.73	.46	
Peer relationship	My friends:	.77	.41	
	18. Try and do what is right			
	19. Do well in school	.71	.50	
Participation in community life	Away from school	.67	.54	
	20. I am a member of a club, sports team, church group, or other group			
	21. I take lessons in music, art, sports, or have a hobby	.83	.31	
Peer support	Are there students at your school who would:	.66	.56	
	35. Choose you on their team at school			
	36. Tell you you're good at doing things	.73	.47	
	37. Explain the rules of a game if you didn't understand them	.67	.56	
	38. Invite you to play at their home	.71	.50	
	39. Share things like stickers, toys and games with you	.75	.43	
	40. Help you if you hurt yourself in the playground	.78	.39	
	41. Miss you if you weren't at school	.74	.46	
	42. Make you feel better if something is bothering you	.78	.39	
	43. Pick you for a partner	.78	.40	
	44. Help you if other students are being mean to you	.79	.38	
	45. Tell you you're their friend	.81	.35	
	46. Ask you to play when you are all alone	.80	.36	
	47. Tell you secrets	.66	.56	

Individual characteristics	Communication	About me	.71	.49
		22. I help other people		
		23. I enjoy working with other students	.63	.60
		24. I stand up for myself	.40	.84
	Self-esteem	25. I can work out my problems	.63	.60
		26. I can do most things if I try	.77	.41
		27. There are many things that I do well	.74	.45
	Empathy	28. I feel bad when someone gets their feelings hurt	.66	.56
		29. I try to understand what other people feel	.82	.33
	Problem solving	30. When I need help, I find someone to talk to	.77	.41
	31. I know where to go for help when I have a problem	.69	.52	
	32. I try to work out problems by talking about them	.79	.38	
Goals and aspiration	33. I have goals and plans for future	.63	.60	
	34. I think I will be successful when I grow up	.74	.45	

Table 6 (Figure 2)

Factor loading and measurement error for confirmatory factor analysis of School Organisation and Climate Scale: Parent Survey

	Subscales	Items in questionnaire	Factor loading	Measurement error
School organisation and climate	1. School morale	5. There is a good team spirit in this school	.79	.38
		13. There is a lot of energy in this school	.80	.35
		28. Staff go about their work with enthusiasm	.81	.35
		32. The staff and students take pride in this school	.88	.22
	2. Supportive leadership	1. I am able to meet the school's staff to discuss concerns and grievances	.63	.61
		11. The school staff really understand the problems faced by parents and families	.77	.41
		27. There is good communication between staff and parents in this school	.84	.29
	3. Parental participation in decision making	6. There are opportunities provided for me to give my views and opinions about the school	.82	.33
		14. I am happy with the opportunities for input into decision-making at this school	.89	.21
	4. Professional development	9. I have the opportunity to help teachers with classroom activities	.39	.85
		25. Teachers frequently discuss and share teaching activities with parents	.78	.40
	5. Student appraisal and recognition	4. Children are encouraged in their work by praise, thanks or other recognition	.71	.49
		31. I am happy with the quality of feedback I receive on my child's performance	.78	.38
	6. Professional growth	10. Staff in the school take an active interest in the children's development and personal growth	.82	.33

	18. The planning for children's personal development in this school takes account of their individual needs and interests	.80	.36
	26. There are opportunities in this school for children to develop new skills.	.78	.40
7. Goal congruence	16. The goals of this school are easily understood	.81	.34
	22. The school has written objectives and goals available to everyone	.72	.48
	24. The curriculum in this school is well planned	.80	.37
8. Curriculum coordination	36. There are structures and processes in this school which enable parents to be involved in curriculum planning	.61	.62
	2. There is an agreed approach to discipline in this school	.81	.34
	12. My own expectations about discipline are the same as the staff in this school	.84	.29
9. Effectivediscipline policy	19. The rules and regulations about discipline in this school are well understood by staff, parents and students	.83	.32
	30. The rules and regulations relating to discipline are enforced evenly and consistently in this school	.84	.29
	7. Students in this school are encouraged to be successful	.79	.37
10. School orientation towards students	17. The school promotes the idea of students being individuals	.80	.37
	23. Students are treated as responsible people in this school	.82	.33
11. Less school pressure	8. There is a lot of tension in this school	.53	.72
	35. Staff in this school seem to be under a lot of stress	.83	.30
	15. Students who do not want to learn are a problem in this school	.45	.80
12. Student behaviour	33. Students are generally well behaved in this school	.82	.33
	3. Children do not have enough time to relax in this school	.61	.62
13. Excessive work demand	20. There is too much expected of children in this school	.67	.55
	21. Staff and parents in this school support one another when dealing with student misbehaviour	.74	.45
	29. There is enough support in this school to deal with students with behavioural problems	.76	.43
Others	34. Students at this school have adequate access to support services and counselling	.71	.50

Table 7 (Figure 3)

Factor loading and measurement error for confirmatory factor analysis of Family Functioning scale: Parent Survey

	Subscales	Items in questionnaire	Factor loading	Measurement error
Family functioning	Family coherence	37. Planning family activities is difficult because we misunderstand each other.	.60	.64
		38. In times of crisis we can turn to each other for support.	.69	.52
		39. We cannot talk to each other about sadness we feel.	.65	.57
		40. Individuals (in the family) are accepted, for what they are.	.68	.54
		42. We express feelings to each other.	.69	.53
		43. There are lots of bad feelings in our family.	.73	.47
	Family coping	44. We feel accepted for what we are.	.76	.42
		46. We are able to make decisions about how to solve problems.	.68	.54
		47. We don't get on well together.	.78	.43
		48. We confide in each other.	.72	.48
		49. It is not wise to plan ahead and hope because things do not turn out anyway.	.68	.54
		50. Our work and efforts are not appreciated no matter how hard we try and work.	.76	.43
		51. We do not feel we can survive if another problem hits us.	.84	.30
		52. Life seems dull and meaningless.	.84	.30

Table 8 (Figure 4)

Factor loading and measurement errors for Health Promoting School scale: Staff Survey

	Subscales	Items in questionnaire	Factor loading	Measurement error
HPS	Health policy	1. Promotion of healthy food and eating habits.	.55	.70
		2. Preventing the use of alcohol, tobacco and illicit drugs.	.66	.56
		3. Sun protection.	.69	.53
		4. Management of student medications.	.62	.61
		5. First aid, emergency or critical incident response management (including regular rehearsals).	.68	.54
		6. Control and safe management of HIV/AIDS, Hep C and other blood-borne diseases.	.67	.56
		7. Accident and injury risk reduction.	.81	.34
		8. Behaviour management (including truancy and bullying).	.67	.55
	Physical environment	9. Promotion of road safety in school grounds and immediate surroundings e.g. by supporting police in local traffic speed-reducing measures.	.78	.39
		10. Minimisation of injury hazards to students and staff in playground, classrooms and offices e.g. ergonomic seating, safe play equipment, training for use of sports resources.	.80	.37

	11. Recycling and waste reduction practices.	.60	.64
	12. Caring for and improving the school facilities and grounds e.g. painting murals, planting and caring for gardens.	.62	.61
	13. Provision of adequate ventilation, lighting, heating/cooling, and noise reduction strategies.	.65	.58
Social environment	14. Discipline practices that promote moral and ethical consciousness.	.73	.46
	15. Programs and activities to develop and support positive interpersonal communication skills.	.79	.38
	16. Student involvement in school decision-making.	.67	.55
	17. Support, resources or programs for students with special needs (e.g. economic disadvantage, behavioural problems, or special talents).	.65	.57
	18. Recognition of cultural, religious and ethnic diversity (e.g. availability of appropriate food; exhibitions; cultural festivals).	.74	.45
	19. Provision of programs for parents and caregivers (e.g. literacy, parenting skills, drug education).	.62	.62
School-community relations	20. Involvement of local community organisations, including health and non-health services, in delivery of programs or services to the school.	.80	.35
	21. Development of curriculum activities that encourage children's active involvement in the local community.	.85	.27
	22. Participation by students' parents, caregivers or extended families in all school activities (e.g. policy development, program planning, school cultural activities).	.75	.44
	23. Raising local community awareness about school-based health promotion initiatives (e.g. through the local media, school open days, newsletters).	.74	.45
Skill building	24. Development of a comprehensive school based health curriculum.	.87	.25
	25. Integration of relevant health curriculum across key learning areas.	.86	.26
	26. Provision of sufficient time each week for health enhancing activities (e.g. physical activity, social skills)	.69	.53
	27. Teachers have access to adequate professional development specifically relevant to their roles in health education and promotion (e.g. in-service courses)	.65	.58
	28. Provision of information, resources and services to support the <u>personal</u> health, welfare and lifestyle needs of staff (e.g. access to quit smoking programs; staff sporting competitions).	.56	.68
Access to health service	29. Regular access by students to school-based preventative health services (e.g. immunisation programs, health screenings, and oral health care).	.67	.55
	30. Access to counselling and support services for children with acute social, emotional or behavioural problems.	.83	.32
	31. Access to counselling and support services for children with chronic medical conditions (e.g. asthma, diabetes, and epilepsy).	.81	.34
	32. Access to basic health promotion and counselling services for staff (e.g. Employee Assistance Programs, health benefit schemes).	.78	.39

Table 9 (Figure 5)

Factor loading and measurement errors for Social Capital Scale: Staff Survey

	Subscales	Items in questionnaire	Factor loading	Measurement error	
Social capital	Trust and safety	44. Do you feel safe walking around this school after dark?	.45	.80	
		45. Do people in this school feel trusted?	.75	.43	
		46. How often would a stranger needing help be invited into this school and offered assistance?	.32	.89	
		47. Is this school regarded as a safe place?	.73	.47	
	Proactivity	48. Does this school community feel like "home"?	.83	.31	
		43. How often do you help with cleaning up communal areas in the school, e.g., playground, tuckshop, corridor?	.27	.93	
		49. How often do people in this school go to visit other schools?	.44	.80	
		50. Can you find important information in this school?	.68	.54	
		51. If you disagreed with people in this school about an important issue, would you feel free to speak out?	.69	.52	
		52. Would you ever seek mediation if you had a dispute with a staff member at this school?	.34	.89	
		56. How often do you take the initiative to do what needs to be done even if no one asks you to do it at this school?	.37	.87	
		57. How often in the past week, have you helped another staff member in this school?	.37	.86	
		Tolerance of diversity	53. Life in this school is richer because of the variety of cultures represented within the school community?.	.62	.62
			54. Are people of different lifestyles valued in this school?	.89	.21
	55. If someone a bit "different" joins your school, would the school community accept them?		.71	.49	
	Work connection	42.. Do you feel valued by this school?	.63	.60	
		58. Are you satisfied with your participation in this school?	.57	.67	
		41. Do you feel part of the local community (neighbourhood) where you work?	.77	.41	
		59. Do you regard your colleagues at this school also as friends?	.68	.54	
		60. Do you feel part of a team at work?	.84	.30	