

**Life At School in Australia and Japan: The Impact of Stress and Support on
Bullying and Adaptation to School**

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Abstract

In this study path analysis was used to examine eight different aspects of Japanese and Australian students' experiences of school life in relation to their effect on adaptation to school. Adaptation was conceptualized in terms of enjoyment of school, feelings of belonging to school, and relationships with other students. Data from over 3000 Australian and over 5000 Japanese students (Years 5-10) were collected to test two country specific models of adaptation to school. A questionnaire was developed collaboratively by the authors to examine issues of common concern in both countries. Issues that related to the impact on adaptation to school of stress and support, namely, family, teachers, peers, and school work, as well as bullying, were of particular interest. Lack of support and the effect of stress were found to affect adaptation to school negatively, especially among high school students in Australia

and Japan. The finding of a strong relationship between bullying others and victimization is discussed in the paper. Finally, the differences and similarities between Japanese and Australian students' perceptions of school are extrapolated.

Background

Student adaptation to school has increasingly become the focus of research interest as educators are now more aware of the impact of adaptation to school on educational outcomes and the general health and wellbeing of students.

It is argued in the research literature (e.g., Bosworth, Espelage, & Simon, 1999) that a broad conceptualization of adaptation in terms of enjoyment of school, feelings of belonging to school, and relationships with other students, captures the essential nature of students' experience of school. Adaptation to school is of paramount importance at particular transition points in students' school life, when optimum coping strategies are needed to ensure positive student academic and social outcomes (Skinner & Wellborn, 1997, p. 416).

The Japanese/Australian study reported here adopted a systems framework for the research because it has become increasingly clear that students' adaptation to school is complexly determined. A systems perspective views the student as being nested within a complex web of inter-connected systems including parents, peers, teachers, and school. Thus, the purpose of the study was to develop a model that considered the influences most likely to affect Japanese and Australian school students' adaptation to school.

Negative perceptions of school are often indicative of other underlying problems. Although there exists a body of knowledge and research regarding the disparate factors related to school adjustment, the joint effects of multiple risk and protective factors are only rarely studied. Moreover, the information that can be used to guide school-based interventions is rather scarce. This is especially true for the period of early to middle adolescence, as most of the studies on risk and protection have been conducted on pre-adolescent and younger children.

Adolescence is a period in which numerous changes occur, both within the individual (e.g., physiological and cognitive changes) and outside (e.g., in terms of relationships with parents and peers). In addition to these developmental considerations, the issue of the heterotypical expression of adjustment problems is an issue. Research has generally focussed on the individual's externalizing behaviour (e.g., conduct problems) and overlooked internalizing behaviour (e.g., depression). Additionally, little attention has been given to these issues in the broader social context of school where students spend a considerable amount of time. Students' perceptions of school life, such as their feelings of belonging to, and enjoyment of school, are known to impact on school retention and academic achievement (Silins & Murray-Harvey, 2000). Finally, there is little research available which has covered an age-range of students from Year five (10 years old) to Year 10 (15 years old). Such research could identify issues associated with significant transitions e.g., from primary to middle school.

Stressful events are considered to have considerable potential for impacting on the adjustment of children (Cowen et al., 1997; Garmezy, 1983; Holmes, Yu, & Frentz, 1999; Murray-Harvey & Slee, 1998). Significantly though, the presence of one type of stressor is generally not sufficient to lead to significant maladjustment. Rather, research indicates that multiple stressors are associated with maladjustment (Holmes et al., 1999; Masten, Miliotis, Graham-Bermann, Ramirez, & Neeman, 1993; Murray-Harvey & Slee, 1998).

According to past research, risk factors associated with maladjustment may be identified under the headings of (a) individual, (b) family, and (c) peers. At the individual level, risk factors associated with negative outcomes (problem behavior) for students include low self-esteem (Jessor, Van Den Bos, Vanderyyn, Costa, & Turbin, 1995), depression (Bosworth et al., 1999), and wellbeing (Rigby & Slee, 1991). At the family level, lack of parental support and involvement are generally associated with students' problem behaviour (McCord, 1992).

The pivotal role of the peer group on children's lives was highlighted in the controversial writings of Harris (1999). Apart from the influence of deviant peers in children's problem behaviour it appears that more generally a strong peer orientation is associated with negative self-concept and problem behaviours (e.g., Wills, Vaccaro, & McNamara, 1992).

The basis for this comparative study has developed from shared interests in the commonalities and differences between students in the two countries. In Japan, research suggests that "Japanese children report much fatigue and stress in their lives" (Trembl, 2001, p. 109). The intense pressure of Japanese school life and the demands of the education system generally, are well known. Japanese school children typically attend school six days a week for a total of 240 days per year compared with approximately 220 days for Australian students. In Japan attendance at 'cram school' (juku) shows that, on average, eighth-grade students spend an additional 5-6 hours of school per week in addition to their regular school day (Fredman, as cited in Trembl, 2001). In addition, the group-oriented Japanese culture with its emphasis on conformity and group belonging is believed to further exacerbate school pressures. Presently, the Ministry of Education is implementing long reaching plans to address school attendance and curriculum issues. As Trembl (2001) has noted: "The pressure-cooker life-style of the Japanese adolescent can take its toll, with bullying as one of its unfortunate outcomes" (p. 109).

In Australia, current research (e.g., Connell, 2000; Murray-Harvey & Slee, 1999) indicates that school students also are experiencing significant levels of stress. For example, this is reflected in the suicide rates for 15-22-year-olds which until 2000 have been rising (ABS, 1998) resulting in Commonwealth Federal Government intervention. Given Australia's more individualistic orientation, it is possible that there are other pressures which bear on students and contribute to high levels of stress there. As reported by Rigby and Slee (1999), there certainly is a high degree of bullying, particularly in the primary school and amongst males. Further, bullying is more direct in comparison to the 'ijime' reported by Japanese students. Kikkawa (1987), noted that 'ijime' (as reported amongst secondary school students) is difficult to detect because it is frequently subtle and indirect.

In the present study consideration is given to the relationship between bullying and victimization. Haynie, Nansel, Eitel, Crump, Saylor, Yu and Simons-Morton (2001) found that more than half of the bullies in their research also reported being victimized. Further evidence that links between bullying and victimization are important to consider is highlighted in the work by Pellegrini & Bartini (2000) who found that the peer group is an important buffer in inhibiting victimization.

Two issues affecting students' schooling that have received attention from researchers and practitioners alike are stress and bullying. Until now, both have been studied independently of one another. In this study the possibility that student stress is a contributing factor in bullying behaviour is investigated. At the same time, other complex relationships that contribute to students' experience of school are examined.

Therefore, a range of factors influencing both bullying behaviour and the way students feel about school (adaptation to school) are proposed, and their possible relationships are described, in terms of the latent variables path model.

Method

The study was initiated by the Japanese Ministry of Education as part of an international, longitudinal project on bullying (Taki, 1997a, 1997b, 1998) coordinated by the National Institute for Educational Research (now expanded and renamed the National Institute for Policy and Education Research). Collaboratively, the survey instrument was developed with 54 common items. In addition to the common pool, the questionnaire also included items on issues that were not readily transferable across educational and social contexts. With the assistance of an interpreter, adjustments were made to the common items by back translation to account for the different nuances in meaning between the two languages. The models developed for testing in this study were based on 24 common items designed to elicit students' perceptions on a range of issues of joint concern to the researchers. In particular, the issue of bullying – bullying others and being bullied (victimized), and its relationship to stress (both sources of stress and symptomatic responses to stress), was of mutual interest. The items included in this study are listed in Table 1.

Australian participants. Twenty-two schools participated in the study, 11 primary and 11 secondary schools including rural, regional, and metropolitan areas in South Australia, and both the independent and government school sectors. Of the total sample population of 3145 students (46% males) who completed the 86-item Australian version of the survey, 35% of students were from primary schools and the remaining were secondary school students.

Japanese participants.

Students from 12 primary and 6 secondary schools in metropolitan Tokyo completed the Japanese version of the survey. The total sample comprised 5518 students (51% males; 48% primary). Japanese students' year level was recoded to account for the different year level structure in Japanese and Australian schools. In this way, Japanese Year 4, 5, and 6 students were matched with Australian Year 5, 6, and 7 students, and Year 1, 2, and 3 Japanese secondary students were matched with Year 8, 9, and 10 Australian students.

The selection of upper primary and lower secondary years of schooling is consistent with that of the larger scale, longitudinal study's focus on the middle years of schooling, of which this study is a part. The surveys were administered at approximately the same time in each country's respective academic year.

Each model (Figures 1 and 2) was built from seven hypothetical constructs. The eighth construct, Adaptation to School, represented the outcome variable. The eight constructs or latent variables (LVs) were formed from 24 measured or manifest variables (MVs). Table 1 summarizes the LVs, numbered as they are illustrated in the models with a description of the MVs that reflected them.

1. Sex. This LV represented the MV Sex of Student. By coding 0 = male and 1 = female, a path with a negative sign indicates a difference in favour of males, and vice versa for females.

2. Year Level. Data were obtained from students across six years of schooling, from Year 5 to Year 10. The MV Year Level represented Years 5, 6, and 7 as Primary School, and Years 8, 9, and 10 as Secondary School. The coding of 0 = primary school and 1 = secondary school produces a negative path coefficient sign to indicate the primary school years and a positive coefficient sign to indicate the secondary school years.

3. Stressors. Four Mvs represented possible sources of stress for students. They were family, teachers, peers and academic concerns (3 items for family, peers, academic; 2 items for teachers). Reliability analyses for each of the MVs demonstrated adequate internal consistency; for family, peers and academic, $\alpha = .73$; for teachers, $\alpha = .81$. Students were asked "Have you experienced any of the following during the last term?" and to rate the frequency of each experience on a 4-point scale for each group (1 = never; 2 = a little; 3 = sometimes; 4 = very often). Items within each set were summed to form a score for each source of stress.

4. Support. Three groups of people, Parents, Teachers, and Peers, represented possible sources of support for students. Students responded to the following request on the questionnaire: "The following statements are about how much support you get from parents, teachers and classmates. What do you think about the following statements? Using a 4-point scale (1 = strongly agree; 2 = agree a little; 3 = disagree a little; 4 = strongly disagree), for each group (parents, teachers, peers) separately, they then indicated their level of agreement on three items: (a) If I feel left out I am encouraged by..., (b) If I express my troubles/problems I am listened to by..., (c) These people usually try to understand my feelings... A total score was calculated for each set of three items. Reliabilities (alphas) for Parent support, Teacher support, and Peer support were .82, .86, and .85, respectively.

5. Symptoms of Stress (Wellbeing). The four MVs that comprised this LV were Apathy, Somatic Symptoms, Depression, and Aggression. A score for each MV was calculated by summing the three component items. Students rated how well each of the 12 items described how they feel (1 = not at all like me; 2 = not much like me; 3 = a little like me; 4 = a lot like me). Reliabilities (alphas) for Apathy, Somatic Symptoms, Depression, and Aggression were .68, .73, .73, and .82, respectively.

6. Victimization. Four items were associated with this construct. Victimization indicated frequency of having been bullied at school in the school term by being: (a) isolated, ignored, called names; (b) picked on by others; (c) pushed, hit, kicked on purpose (jokingly); and, (d) robbed, kicked, hit harshly (on purpose): 1 = never; 2 = once or twice; 3 = 2-3 times/month; 4 = more than once/week.

7. Bullying. Four items formed this LV. Bullying indicated frequency of having bullied someone at school in the school term by: (a) isolating, ignoring, calling them names; (b) picking on others; (c) pushing, hitting, kicking on purpose (jokingly); and, (d) stealing, kicking, hitting harshly (on purpose): 1 = never; 2 = once or twice; 3 = 2-3 times/month; 4 = more than once/week.

8. Adaptation to School. Three items were considered indicative of students' feelings about school and represented this LV. Students rated their feelings about school in terms of (a) enjoying my school life, (b) getting along with the other students, and (c) proud of belonging to my school (1 = yes, very much; 2 = yes, a little; 3 = not much; 4 = not at all).

All of the MVs in the analyses were coded so that low scores would reflect students' positive responses and high scores their negative responses. For example, in this model, a positive coefficient sign on the construct Support actually indicates lack of support. Similarly, a negative path coefficient for Adaptation to School indicates poor adaptation.

Preliminary inner model considerations

The main value of the model lies in investigating the direct and total relationships between the LVs and the criterion variable, and the relationships among the LVs themselves.

The effects of the Stressors variable (sources of stress from family, teachers, peers, and academic stressors), were of particular interest not only because of their relationship to adaptation to school, but also in terms of their impact on student' stress-related symptoms (wellbeing).

Support (teachers, parents, peers) was placed in the model to examine the extent to which this variable acted as a buffer, or moderated the effect of the stressors on the students' wellbeing as well as adaptation to school.

The impact of all the variables preceding the Symptoms of Stress variable permitted examination of the relationship between stress and support variables on students' wellbeing. The indicators of wellbeing in the model may be considered as symptomatic of stress which in turn may be manifested in various ways. The research on stress shows that apathy, depression, somatic symptoms, and aggressive behaviours may all be regarded as signs of stress. It was hypothesized that these stress-related behaviours would influence Victimization, Bullying and finally, Adaptation to School. In particular, stress was predicted to have an impact on bullying.

Several exploratory models were tested in order to gauge the interrelationships between bullying, victimization, and symptoms of stress. The researchers debated both the placement of victimization in relation to symptoms of stress, and the relationship between victimization and bullying, taking into account the current theory and research on the issue.

On the one hand, logic would suggest that experience of victimization would negatively affect a student's wellbeing. Or, put another way, being victimized would manifest itself in stress-related behaviours including apathy, depression, aggression, and/or somatic symptoms. On the other hand, these symptoms of stress (caused by poor support and stressors) may predispose a student to being victimized. The correlational analysis revealed a significant association between Victimization and Symptoms of Stress ($r = .33, p < .01$). Furthermore, the relative placement of these variables in the model did not affect the final model statistics. So, through logic and argument, it was decided that Symptoms of Stress should precede Victimization in this model.

As neither Bullying nor Victimization exerted any direct or indirect effect on the outcome of Adaptation to School, it was clear that the model outcome was not compromised by their placement in the model. So again, on the basis of logic and argument, we hypothesized that Victimization predicted Bullying.

The Japanese Model

Outer Model Results

Table 1 lists the means, standard deviations and manifest variable loadings (PLS estimates) for each of the latent variables in the model.

Sex and Year Level were estimated via Unity mode, i.e., the loadings of their associated MVs (Sex of Student and Primary/Secondary, respectively) were fixed at 1.0.

Stressors. The four MVs specified to reflect this LV, namely Family, Teacher, Peer, and Academic stressors produced factor loadings of .75, .63, .75, and .76, respectively. The relatively high loadings of the three MVs (all $> .70$) indicated that the effect of family, peer and academic stressors contributed most strongly to represent Stressors.

Support. The three MVs representing Support were Teachers, Parents, and Peers. All were found to contribute to the LV with factor loadings of .84, .80, and .64, respectively. Support of teachers most strongly reflected the LV and support of peers contributed least to the construct.

Symptoms of Stress (Wellbeing). All four MVs produced high loadings on this construct: Apathy .87, Somatic Symptoms .82, Depression .85, and Aggression .82. The relatively even strength of their contribution indicates that Symptoms of Stress can be interpreted as representing all four dimensions.

Victimization. Four MVs were considered to reflect Victimization ranging from indirect behaviours that included being ignored, isolated and called names (Isolated = .76), to increasingly more direct actions representing being picked on (Picked On = .77), pushed, hit, kicked on purpose jokingly (Jokingly Hurt = .79), and finally, robbed, kicked, hit harshly on purpose (Purposely Hurt = .70). The factor loadings indicate that all four strongly contributed to the LV with the indirect and direct actions of being isolated and ignored, and abused in fun or purposely, all representative of Victimization. Thus, Victimization can be seen to represent indirect as well as the more direct, physical acts of abuse.

Bullying. The four MVs representing the LV reflected the act of bullying by Isolating, Picking On, Hurting Jokingly, and Hurting Purposely. As for Victimization, the Bullying MVs represented an increasing severity of actions. In this model, all MVs loaded onto the Bullying construct with Picking On and Hurting Jokingly contributing most strongly to the construct with factor loadings of .80 and .78, respectively. Hurting Purposely contributed somewhat less, with a loading of .69 while Isolating contributed least to the LV (loading = .58). These results suggest that Bullying is best described by moderately intensive, direct, abusive behaviour.

Adaptation to School. Three MVs loaded strongly on this LV, as their factor loadings indicate: Enjoying my school life = .85; Getting Along With Other Students = .80; and Feeling Proud of Belonging to My School = .70. It can also be seen that not enjoying school and not getting along with other students were the most influential MVs on poor Adaptation to School.

The adequacy of the outer model may be assessed using the mean communality coefficient that indicates the explained variance of the manifest variables. Falk and Miller (1992, p. 82) argued that this coefficient should exceed .30 to be satisfactory. In the present model the coefficient equalled .69 indicating a robust outer model.

Inner model results

Relationships among the variables are represented graphically in Figure 1. Table 2 summarizes the direct and indirect effects of the LVs on each other and the outcome variable, Adaptation to School. The R^2 value for each LV is provided along with the residual variance. The R^2 value for the LV Adaptation to School in this model was .27. In other words, the LVs in the model explained 27% of the variability in Adaptation to School for students in the sample. The Mean R^2 in this model was .24. Both indices may thus be regarded as highly satisfactory.

Latent Variable Relationships

Sex. The LV Sex directly influenced two LVs in the model. Being female clearly predicted poorer wellbeing (.13), that is, symptoms of stress (apathy, depression, somatic symptoms, aggression), while bullying was associated with males (-.12).

Year Level. The positive sign of the path coefficient on all the variables influenced by Year Level indicates that secondary school students' responses contribute to the effects produced; the negative sign indicates the influence of primary school students. Thus, the relationship between Stressors and Year Level (.20) is best represented by

secondary school students while the relationship between Year Level and Victimization (−.26) indicated that it is the primary school students' experiences that have an influential effect on Victimization.

Year Level was found to directly influence Stressors, Support and Victimization, and indirectly to influence Adaptation to School. That is, poor adaptation to school was more evident in the secondary rather than the primary school years of school.

Stressors. The strength of the direct effects of Stressors on Support (.31), Symptoms of Stress (.58) Victimization (.43) and Bullying (.16) pointed to the critical influence of family, teachers, peers, and academic stress on students' (particularly high school students') experiences of school. Stressors also exerted an indirect effect on the outcome of Adaptation to School and thus, cannot be ignored.

Support. The influence of the Stressors path coefficient(.31) on Support confirms the hypothesized relationship between higher levels of stress from family, teachers, peers and academic stress with a lower level of support from these groups. Again, the positive sign on the Year Level path coefficient (.16) indicates that the effects were most pertinent for secondary school students. Support was placed in the model to test for the mediating effects of this variable on Symptoms of Stress, Victimization, Bullying, and Adaptation to School. In fact, Support was found to exert its own direct effect on Symptoms of Stress (.13), and on Adaptation to School (.30). Thus, less support (especially from parents and teachers) was likely to be associated with more symptoms of stress and poorer Adaptation to School.

Symptoms of Stress (Wellbeing). Students' wellbeing was found to be a pivotal variable in the model in spite of its lack of association with Bullying. As well as being influenced by 3 of the 4 preceding variables in the model, namely, Sex (females, .13), Stressors (.58), and Support (.13), Symptoms of Stress directly influenced Victimization (.11) and Adaptation to School (.34). Thus, it is clear that the stressful experiences associated with academic problems and non-supportive family, teacher, and peer interactions were manifested in symptoms of stress. In turn, these symptoms of stress were related to higher levels of victimization and linked to less optimal adaptation to school.

Victimization. The stress-related variables that were found to have an influential and direct effect on Victimization were Stressors (.43) and Symptoms of Stress (.11). In turn, Victimization was directly linked to Bullying (.34). Sex (of student) did not predict Victimization and neither did poor Support contribute to Victimization.

Bullying. A point of interest that emerged from the analysis was the failure to find a relationship between Bullying and the Symptoms of Stress. However, the negative impact of stress on bullying behaviour was linked to the effects of stress from family, peers, teachers, and schoolwork. Bullying was also influenced by Sex (male, −.12), which was anticipated, and by Victimization (.34). The strength of the relationship provided a further point of interest. In the specification of this model, the experience of having been victimized was hypothesized to have an effect on bullying behaviour. This was confirmed; yet, interestingly enough, neither Bullying nor Victimization influenced Adaptation to School.

Adaptation to School. This outcome LV was influenced by 4 of the 7 preceding LVs; two of these effects were direct and two indirect. The LVs representing lack of support (.30) and Symptoms of Stress (.34) emerged as strong, direct predictors of poor Adaptation to School. In addition, the LVs Year Level (representing secondary students, .12) and Stressors (.30) showed indirect effects. Clearly, stress and support are highly important factors in predicting poor Adaptation to School in the secondary years. In contrast, Sex (of the student), Victimization, and Bullying did not predict poor Adaptation to School in this model. The variance explained for this LV was $R^2 = .27$ (27%).

The Australian Model

For comparative purposes, an identical model to that tested on the Japanese data was used with the Australian data. Although the results of the Australian analysis were remarkably similar to the Japanese results, some differences did emerge as well.. Of these, only the noticeable differences will be highlighted here.

Outer model results

With regard to the MV loadings on the latent variables, poor adaptation to school in the Australian model was primarily represented by not enjoying school and less pride of belonging as these MVs contributed most to the LV. Relating well to peers contributed least in the Australian model compared with its stronger contribution in the Japanese model where pride of belonging was the least influential MV. The mean communality coefficient for the Australian MVs was .67, indicating a robust outer model (the corresponding value for the Japanese model was .69).

Inner model results

The same four LVs as in the Japanese model were found in the Australian model to influence the outcome LV Adaptation to School. However, in the Japanese model the effect of Year Level and Stressors was indirect, while in the Australian model, their effect was direct. Thus, for the Australian data, high scores on Symptoms of Stress (.31) and Stressors (.16), low scores on Support (.29), and being a secondary school student (.11) were all predictive of poor Adaptation to School.

A further variation in the Australian model was the direct effect of the LV Sex (-.12) on Adaptation to School suggesting that males were more likely than females to exhibit poor Adaptation to School. In fact, the sex of the student was a much more influential factor in the Australian model than it was in the Japanese model. Australian males were found to be more affected by both Stressors and lack of Support than their female counterparts. These paths were not detected in the Japanese data. On the other hand, in the Japanese model, Sex (indicating males) emerged as having a direct influence on Bullying, a finding not replicated in the Australian model.

Common to both models was the clear relationship between Victimization and Bullying, the path coefficient in the Japanese model (.34) pointing to a relatively stronger relationship between the two variables in Japanese data than in Australia data (.19). Similarly, both models highlighted the interrelationship of Stressors and lack of

Support, and the role of these variables in predicting Symptoms of Stress. Further, both models contained comparatively strong paths from stress factors (Stressors and Symptoms of Stress) to Victimization.

As discussed earlier, Victimization also may be considered to predict symptoms of stress. Previous model testing revealed an influential path coefficient (.10). Nevertheless, the attributes and indices established that the current model was more robust. The hypothesized relationship between Symptoms of Stress and Bullying did not emerge in either model because the indirect effects in both the Japanese model and the Australian model were only small (.04 and .02, respectively). In summary, in none of the exploratory analyses carried out in this study was Bullying found to be related to Symptoms of Stress. In contrast, the predicted relationship between Victimization and Symptoms of Stress was found in all models.

The impact of stress factors on students' lives should not, however be ignored. The influence of Stressors on Bullying was identified in both the Australian model (.30) and the Japanese model (.17). Also of note was that the strongest path effect in both models was the link between Stressors and Symptoms of Stress; the path coefficient estimates were .51 (Australian model) and .58 (Japanese model).

As revealed in the Japanese model and also in the Australian model, neither Bullying nor Victimization was found to predict poor Adaptation to School. The 43% of explained variance in Adaptation to School is considerably higher than the 27% in the Japanese model. A plausible explanation for this difference is that some of the potential predictors of Adaptation to School were not included in the Japanese model whereas the Australian model more comprehensively represented the range of factors that impact on poor Adaptation to School.

Further model testing

In view of the general concordance of other research on bullying and victimization that specifies links between these factors, namely the sex of the student, and year level, an additional set of group-specific models (four with each data set) was tested: males, females, primary students, and secondary students.

For the Japanese data, the males-only model confirmed the inclusive model's relationship between Symptoms of Stress and Victimization (.12 path coefficient in the male-only model) and additionally identified (for Japanese males), a predictive relationship between Symptoms of Stress and Bullying (.11). The females-only model replicated the link between Symptoms of Stress and Victimization shown in the inclusive model. In addition, a link not produced in the whole-sample model was revealed in the females-only model between Victimization and Adaptation (.10).

A test of the secondary school-only model found a predictive relationship between Victimization and Adaptation (.11); that relationship was not evident in the inclusive model. In the model for secondary students, no significant paths connected Victimization or Bullying to Adaptation, and no associations between Symptoms of Stress and either Victimization or Bullying were identified.

For the Australian data, there were two important deviations from the original model. First, a direct path coefficient (.12) between Victimization and Adaptation in the primary years model revealed that for this group, being bullied at school predicted poor Adaptation to School. Secondly, the females-only model did not contain a path between Symptoms of Stress and Victimization. In contrast, it was the association between these two variables that was stronger in the males-only model (.15) than in the whole-sample model (.10).

Discussion

A path modelling approach was employed in this study to describe and explain the complex interplay of factors that are understood to contribute to students' perceptions of school. Two identical models were developed in order to test hypothesized relationships between stress and support on students' lives at school in Japan and in Australia. Of particular interest was the influence of stress and support factors on bullying and adaptation to school.

Stress in students' lives has a powerful impact on their feelings about school, namely their enjoyment of school, feelings of belonging, and relationships with fellow students. These stressors stem from a variety of sources: perceived lack of support from family, teachers, and classmates, coupled with a sense of pressure from these groups around academic performance. External sources of stress, along with the students' own sense of not 'making the grade' academically and/or socially, elicits symptoms of stress (poor wellbeing). While this poor sense of wellbeing in and of itself predicts poor adaptation, the additive direct effects of lack of support and stressors combine to produce what must be an entirely miserable life at school for those students.

The value of testing for effects within specific groups was borne out by the finding for Japanese students that stress does impact on boys' bullying behaviour, and that being bullied is an issue for girls and for primary students in relation to their adaptation to school.

In view of the current attention in Australia being given to boys' experiences of school (Slade & Trent, 2000), what do the findings of this study reveal? First, there were marked similarities between both girls' and boys' perceptions of school in terms of their effect on adaptation to school. Perceived lack of support from parents, peers, and teachers, along with feelings of being pressured by these groups (Stressors), predicted symptoms of stress (poor wellbeing) and poor adaptation to school across cultures for boys and girls alike. Secondly, the strength of the relationship between Stressors and Bullying indicated that for Australian boys, the effect of perceived pressure (Stressors) on bullying behaviour was marginally stronger for Australian boys (.30) than it is for Australian girls (.28) and considerably stronger for Australian boys than for Japanese boys (.16) and Japanese girls (.12).

In any model, the strength and clarity of the relationships between constructs is dependent on the adequacy of the measures (MVs) that represent them. In this model, it is likely that Adaptation to School was not measured to its full potential. While the three indicators, enjoying school, relationships with peers, and feelings of belonging, proved to be important measures of Adaptation to School, it is possible that the

relationships between Bullying, Victimization, and Adaptation to School would be stronger if more comprehensive measures that included academic performance and social adjustment, were available.

Adaptation to school should be seen as the outcome of a complex set of relationships involving structures that include, but also extend beyond the individual. The effects of these structures - home and family, and relationships with peers and teachers, have shown themselves to be primary influences on adaptation. In fact, the individual's behaviour, evidenced through the general lack of effect of bullying and victimization on adaptation, indicates that the negative consequences for the individual of bullying and victimization are outweighed by the more pervasive stresses related to issues of support and expectations of home and school systems. In this study, bullying in particular has been shown to be a less influential source of poor adaptation to school than other sources of stress.

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Table 1

Means, Standard Deviations, and PLS Loadings for the Observed (Measured) Indicators of Latent Variables Affecting Student Adjustment to School (Australia and Japan)

<u>Latent variable</u>	Country					
	Australia ^a			Japan ^b		
	<u>Mean</u>	<u>SD</u>	<u>Loading</u>	<u>Mean</u>	<u>SD</u>	<u>Loading</u>
Observed (measured) variable						
1. <u>Sex</u> [unity mode] ^c	0.54	0.50	1.00	0.49	0.50	1.00
Sex of student						
2. <u>Year level</u> [unity mode] ^c	0.65	0.48	1.00	0.52	0.50	1.00
Primary/secondary						
3. <u>Stressors</u> ^d	6.11	2.49	0.61	5.34	2.38	0.75
Family (Items 37, 38, 39)	4.41	1.92	0.72	3.30	1.66	0.63
Teachers (Items 28 29)	5.03	2.20	0.65	5.13	2.22	0.75
Peers (Items 31, 32, 33)	6.24	2.15	0.69	6.30	2.30	0.76
Academic (Items 34, 35, 36)						
4. <u>Support</u> ^d	4.68	2.28	0.75	5.39	2.63	0.80
Parents (Items 51, 54, 57)	6.91	2.69	0.80	7.27	2.85	0.84
Teachers (Items 52, 55, 58)	5.78	2.56	0.72	5.78	2.53	0.64
Peers (Items 53, 56, 59)						
5. <u>Symptoms of stress</u> ^d	6.09	2.23	0.72	5.50	2.37	0.87
Apathy (Items 12, 13, 14)	5.67	2.28	0.76	5.96	2.51	0.82
Somatic symptoms (Items 15, 16, 17)	5.77	2.30	0.80	4.96	2.17	0.85
Depression (18, 19, 20)	6.41	2.69	0.77	5.94	2.68	0.82
Aggression (Items 21, 22, 23)						
6. <u>Victimization</u> ^d	1.69	0.89	0.81	1.72	0.95	0.76
Isolated (Item 42)	1.58	0.85	0.84	1.36	0.72	0.77
Picked on (Item 43)	1.69	0.91	0.63	1.43	0.84	0.79
Jokingly hurt (Item 44)	1.21	0.58	0.72	1.16	0.54	0.70
Purposely hurt (Item 45)						

7. <u>Bullying</u> ^d	1.62	0.79	0.83	1.74	0.90	0.58
	1.48	0.74	0.86	1.20	0.54	0.80
Isolating (Item 46)	1.59	0.86	0.67	1.24	0.61	0.78
Picking on (Item 47)	1.14	0.52	0.73	1.07	0.35	0.69
Hurting jokingly (Item 48)						
Hurting purposely (Item 49)						
8. <u>Adaptation to school</u> ^d	2.03	0.79	0.86	1.72	0.79	0.85
	1.53	0.64	0.64	1.48	0.70	0.80
Enjoy school (Item 3)	2.12	0.94	0.84	2.30	0.96	0.70
Relate well (Item 4)						
Proud of belonging (Item 8)						

Note. ^aN = 3145. ^bN = 5518. ^cUnity mode = factor loading fixed at 1.0. ^dOutward mode.

Table 2

Direct, Total, Indirect Effects, and Correlations of Latent Variables Affecting Japanese Students' Adjustment to School

Variable	Direct Effects	Total Effects	Indirect Effects	Correlation
<u>Stressors</u> $R^2 = .04$ residual variance = .96				
Year level	.20	.20	—	.20
<u>Support</u> $R^2 = .14$ residual variance = .86				
Sex	.16	.22	.06	.22
Stressors	.31	.31	—	.34
<u>Symptoms of stress</u> $R^2 = .41$ residual variance = .59				
Sex	.13	.13	—	.10
Year level	—	.15	.15	.19
Stressors	.58	.62	.04	.62
Support	.13	.13	—	.32
<u>Victimization</u> $R^2 = .27$ residual variance = .73				
Sex	—	.01	.01	-.07
Year level	-.26	-.16	.10	-.15
Stressors	.43	.50	.07	.45
Support	—	.01	.01	.11
Symptoms of stress	.11	.11	—	.32
<u>Bullying</u> $R^2 = .21$ residual variance = .79				
Sex	-.13	-.12	.00	-.15
Year level	—	-.02	-.02	.01
Stressors	.16	.33	.17	.32
Support	—	.00	.00	.13

Symptoms of stress	—	.04	.04	.24
Victimization	.34	.34	—	.42
<u>Adaptation to school</u> $R^2 = .27$ residual variance = .73				
Sex	—	.04	.04	.01
Year level	—	.12	.12	.14
Stressors	—	.31	.31	.35
Support	.30	.34	.04	.41
Symptoms of stress	.34	.34	—	.44

Table 3

Direct, Total, Indirect Effects, and Correlations of Latent Variables Affecting Australian Students' Adjustment to School

Variable	Direct Effects	Total Effects	Indirect Effects	Correlation
<u>Stressors</u> $R^2 = .03$ residual variance = .97				
Sex	-.13	-.13	—	-.12
Year level	.13	.13	—	.13
<u>Support</u> $R^2 = .24$ residual variance = .76				
Sex	-.12	-.18	-.05	-.17
Year level	.14	.20	.05	.19
Stressors	.42	.42	—	.45
<u>Symptoms of stress</u> $R^2 = .34$ residual variance = .66				
Sex	.15	.06	-.09	.06
Year level	—	.09	.09	.12
Stressors	.51	.57	.06	.56
Support	.14	.14	—	.35
<u>Victimization</u> $R^2 = .22$ residual variance = .78				
Sex	—	-.05	-.05	-.10
Year level	-.12	-.05	.06	-.05
Stressors	.41	.47	.06	.45
Support	—	.01	.01	.21
Symptoms of stress	.10	.10	—	.32
<u>Bullying</u> $R^2 = .18$ residual variance = .83				
Sex	—	-.05	-.05	-.15
Year level	—	.03	.03	.03
Stressors	.30	.39	.09	.39
Support	—	.00	.00	.23

Symptoms of stress	—	.02	.02	.25
Victimization	.19	.19	—	.33
Adaptation to school $R^2 = .43$ residual variance = .57				
Sex	-.11	-.17	-.05	-.16
Year level	.11	.22	.11	.22
Stressors	.16	.46	.30	.49
Support	.29	.34	.04	.51
Symptoms of stress	.31	.31	—	.51

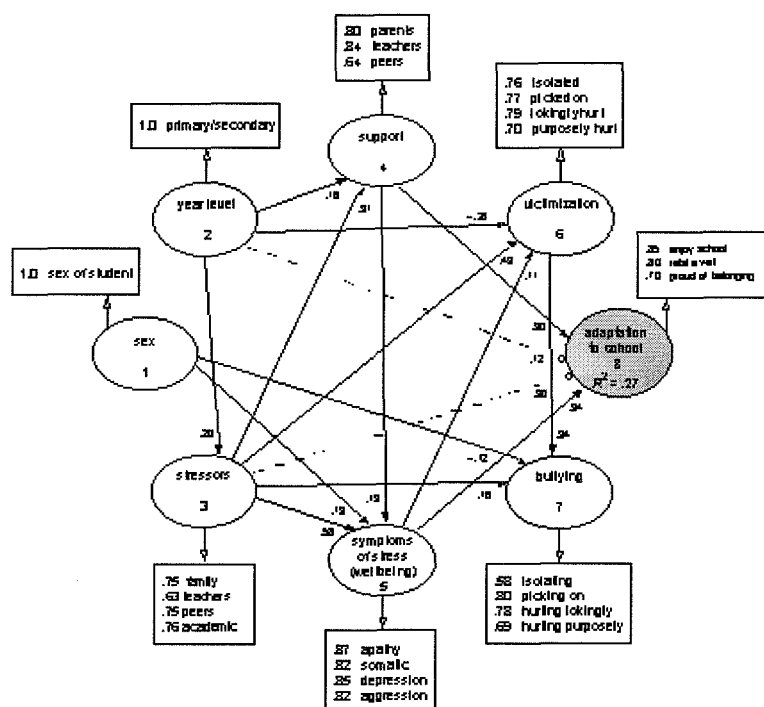


Figure 1. Final model of factors predicting Japanese students' adaptation to school.

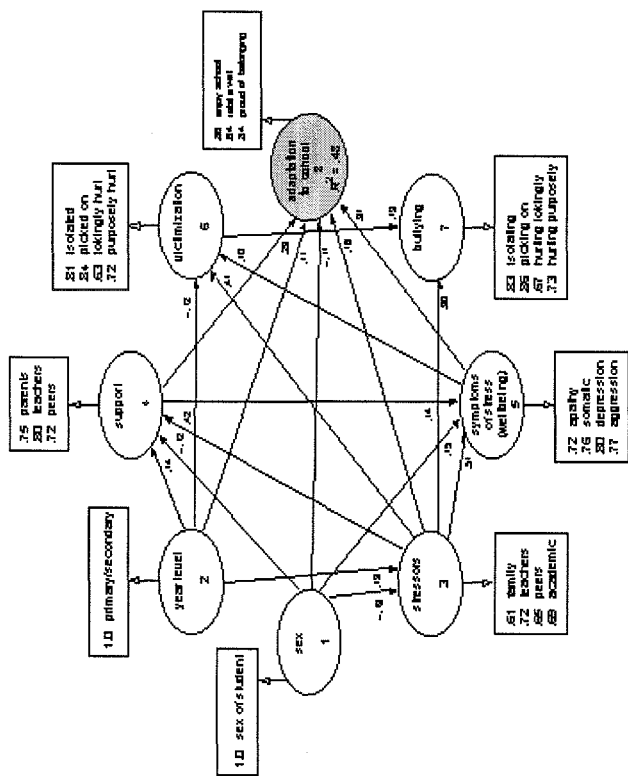


Figure 2. Final model of factors predicting Australian students' adaptation to school.