

## APPENDIX A

### ANALYTIC STRATEGY

To describe the psychometric properties of the secondary and elementary school resilience and youth development modules, this report examines

- The dimensionality of scales by using exploratory and confirmatory factor analysis models.
- Measurement equivalence across demographic subgroups by estimating confirmatory factor analysis models with covariates (such as multiple indicator, multiple cause structural equation models).
- Scale reliability by estimating internal consistency and test-retest reliability coefficients.
- Construct validity by examining the relationship of scales to other theoretically related constructs and mean differences across demographic subgroups.

#### Data

*Statewide data from the local administration of the Healthy Kids Survey.* The data for the analyses in this report are from local administration of the Healthy Kids Survey (HKS) in elementary, middle, and high schools. These data were drawn from a database of all local HKS data processed between 1998 and spring 2005 by WestEd’s Health and Human Development Program (approximately 2.1 million observations). Analyzing such a large sample size would, however, make almost every parameter estimate statistically significant, would inflate chi-square values of model fit, and would make assessing substantive significance more difficult. Thus, two mutually exclusive analytic samples were used in the analyses: a main sample and a validation sample. The samples were drawn from the aggregate data file that included all HKS data processed between the spring 2003 and the spring 2005 administrations of the Healthy Kids Survey. For the secondary school analysis, separate samples were drawn for each grade (7, 9, and 11),

gender, and ethnicity (Chinese American, African American, Mexican American, and white European American)—with 500 respondents randomly sampled per cell (12,000 total). Equal numbers were used for each gender and ethnic group so that models that do not adjust for gender and/or ethnicity would not be affected by gender/ethnic differences in the sample.

The elementary school Healthy Kids Survey is administered only to fifth graders and does not ask students about their ethnic/racial group. Random samples of 1,000 males and 1,000 females (2,000 total) were drawn from the aggregated HKS data file. Thus, for the elementary school resilience and youth development module, only gender differences in measurement structure were examined. Respondents with missing data on more than half the resilience items were excluded from the analysis. For estimating models with missing data, maximum likelihood estimation with missing at random (MAR) assumptions were used, which assume that values are missing at random conditional on the other observed items in the data (Little & Rubin, 2002; Muthén & Muthén, 2006). (See section on missing data patterns.)

The same procedures were used to draw the validation samples for both the secondary school and elementary school samples—except that respondents included in the main sample were excluded from the validation sample. The data were weighted by grade, race/ethnicity, and gender to represent the characteristics of HKS respondents surveyed from spring 2003 to spring 2005.

*Local evaluation HKS data.* Statewide data was supplemented with two sets of HKS data originally collected for local evaluation. Data collected in 2006 from a large urban school district in Southern California were used to describe the temporal stability of the derived scales (test-retest reliability). The elementary school Healthy Kids Survey and the secondary school core module and resilience and youth development module were administered two times in two weeks to 132 fifth-grade students and 90 ninth-grade students. Data collected in 2004/05

from students in a large county in Southern California were used to examine the relationship between the RYDM constructs and standardized test scores. Standardized test score and school/community asset data were available for 2,898 students, while test score and home and internal asset data were available for 651 students.<sup>6</sup> English Language Arts and Mathematics California Standards Test scale scores were used as criterion variables.

*Missing data patterns.* Approximately 0.5 percent of respondents in the elementary and secondary modules were excluded from the sampling pool because of missing data on more than half the resilience items (table A1). In the secondary school samples, approximately 65 percent of respondents provided answers to all the survey items in the resilience and youth development module; an additional 18 percent had missing values on one or two items; 8 percent had missing values on 3 to 10 items; and 8 percent had missing values on 11 or more items. Respondents with missing values on 11 or more items had lower scores on about one-quarter of the secondary RYDM items—scoring approximately 9–12 percent of a standard deviation lower on these items. These results held for both the main and validation samples. Differences in item means were diminished significantly after controlling for one or two of the remaining items,

suggesting that the missing at random assumption is reasonable.

Approximately 81 percent of elementary students provided valid answers to all the RYDM items and 15 percent answered all but one or two items. Respondents with missing values on two or more items had lower scores on seven of the elementary RYDM items (averaging 0.24 standard deviations). These differences were no longer apparent after controlling for any two of the remaining items, again suggesting that maximum likelihood estimation with missing at random assumptions will yield unbiased parameter estimates.

### Exploratory and confirmatory factor analyses

Analyses were conducted to test empirically whether the factor structure of the resilience instrument is consistent with current usage and with its underlying conceptual model. For each sample and subsample (grade, gender, ethnicity), the measurement structure of the resilience instrument was established by fitting a series of exploratory and confirmatory factor analysis models. Exploratory factor analysis (EFA) models were estimated to determine roughly the number of factors underlying the data and the measurement structure of the latent factors. A combination of factors was

TABLE A1  
**Missing data patterns for secondary and elementary samples from the resilience and youth development module**

Number of missing items	Secondary				Elementary			
	Main sample		Validation sample		Main sample		Validation sample	
	Number of respondents	Percent	Number of respondents	Percent	Number of respondents	Percent	Number of respondents	Percent
0	7,819	65.2	7,865	65.5	1,627	81.4	1,622	81.1
1	1,634	13.6	1,615	13.5	266	13.3	249	12.5
2	585	4.9	545	4.5	55	2.8	59	3.0
3–5	497	4.1	539	4.5	33	1.7	45	2.3
6–10	445	3.7	437	3.6	15	0.8	14	0.7
11 or more	1,020	8.5	999	8.3	4	0.2	11	0.6
Total	12,000	100	12,000	100	2,000	100	2,000	100

Note: Analytic samples randomly drawn from students surveyed between spring 2003 and spring 2005. Secondary school resilience and youth development module has 51 survey items. The elementary school module has 21 survey items.

used to determine the number of factors to retain in the EFAs, including fit indices, scree plots, the number of eigenvalues greater than 1, conceptual clarity, and simplicity. Models with the fewest possible factors and models with no cross-loadings were favored over more complex models.

The results of the exploratory factor analysis models were then used as a starting point for a series of nested confirmatory factor analysis (CFA) models. Measures of model fit, correlations among the latent constructs (factors), and factor-loading patterns were used to make decisions about models. This process was replicated for each grade, gender, and ethnic group, and for the main sample and the validation sample.

To derive estimates for the EFA and CFA models, Muthén and Muthén's (2006) *Mplus* statistical modeling program was used. Because all the items used to measure resilience assets are ordinal, Muthén's (1984) approach to exploratory and confirmatory factor analysis with ordinal indicators was used.

In the general factor analysis model, the relationship between the indicators ( $y^*$ ) and the underlying constructs ( $\eta$ ) can be represented by:

$$(A1) \quad y^* = \nu + \Lambda\eta + \varepsilon$$

where  $\nu$  is a vector of measurement intercepts,  $\Lambda$  is a matrix of measurement slopes (factor loadings), and  $\varepsilon$  is a matrix of residuals, assumed to be independent of  $\eta$  and with zero expectation. The model implies the following covariance matrix of  $y^*$ :

$$(A2) \quad \Sigma = \Lambda \Psi \Lambda' + \Theta$$

where  $\Psi$  is the covariance matrix of  $\eta$  and  $\Theta$  is the covariance matrix of  $\varepsilon$  (see Long, 1983).

In general, the indicators  $y^*$  are assumed to be normally distributed, latent continuous variables. A person's observed score on item  $y$  depends on her/his position on  $y^*$ . If the observed item is continuous,  $y^*$  is directly observed ( $y = y^*$ ). However,

if the observed item is dichotomous or ordinal, the observed categorical variable ( $y$ ) is linked to the latent continuous variable ( $y^*$ ) in a nonlinear way through a model of thresholds (see Muthén, 1984). The relationships between an observed ordinal or dichotomous item  $y$  with  $c$  categories to  $y^*$  can be expressed as:

$$(A3) \quad y = c, \text{ if } \tau_c < y^* \leq \tau_{c+1}$$

for  $c = 0, 1, 2, \dots, c-1$ . The  $\tau$ s represent threshold parameters. Muthén's (1987) approach models the relationships among these more fundamental latent  $y^*$  variables. With ordinal items, polychoric correlations represent the correlations of the underlying continuous  $y^*$  variables.

The measurement model is estimated by minimizing the weighted least squares (WLS) fitting function

$$(A4) \quad WLS = \frac{1}{2} (s - \sigma)' W^{-1} (s - \sigma)$$

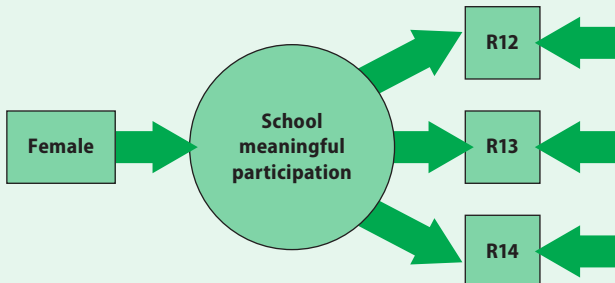
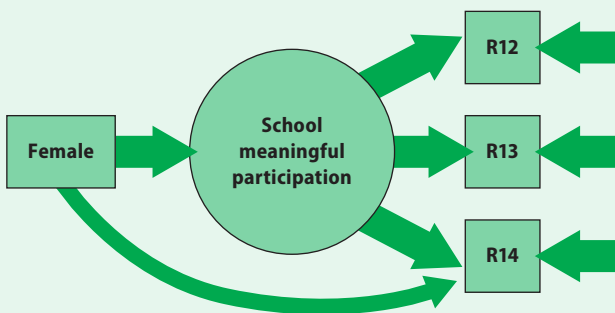
where  $s$  is a matrix of sample statistics (probit thresholds and polychoric correlations),  $\sigma$  is a matrix of the population counterparts to  $s$  implied by equation [A2], and  $W$  is the covariance matrix for the vector or sample statistics.<sup>7</sup>

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### Confirmatory factor analysis models with covariates

MIMIC modeling—multiple indicator, multiple cause structural equation models—was used to test for differential item functioning across school grade, gender, and ethnicity. A simple graphical example of this approach is presented in figure A1. Panel A shows a classic MIMIC model that assumes there are no female/male differences in measurement intercepts. The three arrows connecting school meaningful participation to items R12, R13, and R14 are factor loadings and represent the strength of the relationships between the underlying constructs and the items used to measure them. The arrows pointing from right to left toward the items (R12, R13, R14) are residuals and represent true measurement error and item-specific variation. Finally, the arrow pointing from

FIGURE A1

**Hypothetical example of MIMIC approach for testing for measurement equivalence****Panel A** MIMIC modeling—no measurement invariance**Panel B** MIMIC modeling—hypothetical gender measurement intercept invariance (differential item functioning for R14)

Note: MIMIC refers to multiple indicators multiple causes structural equation models.

female to school meaningful participation indicates that the means of the underlying construct are allowed to be different for males and females. The factor loadings are not allowed to be different for males and females, and there is no direct effect of female on the individual items. The model assumes that the items function identically for males and females in measuring school meaningful participation.<sup>8</sup>

The measurement model in panel B allows for female/male nonequivalence in the measurement intercept for item R14. That is, it allows for a direct effect of female on R14 that is not “dependent” on the underlying construct. This is indicated by the arrow going directly from female to R14. A significant female/male difference in measurement

intercept indicates that the item functions differently for females and males in measuring the underlying construct. For example, if the measurement intercept for R14 is 25 percent of a standard deviation (female → R14) lower for females than males, then for a given level of school meaningful participation, females score 25 percent of a standard deviation lower on R14. In this example, a given score on item R14 does not mean the same thing for males and females—at least not with reference to the school meaningful participation construct.

An applied strategy was used to ascertain whether group differences in measurement intercepts have implications for evaluation research. Recommendations for item changes are made only when the measurement intercepts are substantively different across groups ( $\pm 0.20$  standard deviations) in both the main sample and the validation sample.

### Fit indices

A mean- and variance-adjusted  $\chi^2$  test of model fit is obtained by multiplying the minimum function by twice the total sample size and dividing by a scaling correction factor (for more details, see Muthén, 1984, 1987; Muthén & Muthén, 2006). After adjusting for the scaling correction factor (see Satorra, 2000; Satorra & Bentler, 1999; Muthén & Muthén, 2006), the difference in  $\chi^2$  tests for two nested models follows a  $\chi^2$  distribution and can be used to test whether a model results in a statistically significant improvement in fit. However,  $\chi^2$  difference tests are sensitive to sample size and can be influenced by substantively meaningless parameter differences in large samples. For this reason, the analysis also relied on several other indices of model fit.

For EFA models, root mean square residual (RMSR) and root mean square error of approximation (RMSEA) values were used to assess model fit (Hu & Bentler, 1999). RMSR is the square root of the mean of the squared residuals and indexes the difference between the sample variance/covariance matrix and the variance/covariance matrix predicted by the model. Hu and Bentler (1999)

suggest that RMSR values less than 0.05 indicate good fit. The RMSEA is also based on differences between the observed and predicted variance/covariance matrices, but penalizes for model complexity. RMSEA is computed by:

$$(A5) \quad \text{RMSEA} = \sqrt{\chi^2 / (n \cdot df) - (1/n)}$$

where  $\chi^2$  is the model chi-square value,  $n$  is the total sample size, and  $df$  is the degrees of freedom. RMSEA penalizes for model complexity by dividing  $\chi^2$  by  $(n \cdot df)$ . Hu and Bentler (1999) recommend RMSEA values of 0.06 or less as the cut-off for good model fit. Based on Hu and Bentler's recommendations, more emphasis is placed on RMSEA than on RMSR in EFA model selection.

In addition to RMSEA, several additional fit indices were used to assess CFA models, including Bentler's comparative fit index (CFI), the Tucker-Lewis index (TLI), and Muthén and Muthén's (2006) weighted root mean square residual (WRMR). As implemented in Mplus, both the CFI and TLI compare estimated CFA models to baseline models with uncorrelated variables (independence model). CFI and TLI are calculated as follows:

$$(A6) \quad \text{CFI} = \frac{1 - \max(\chi_{Ho}^2 - df_{Ho}, 0)}{\max(\chi_{Ho}^2 - df_{Ho}, \chi_B^2 - df_B, 0)}$$

$$(A7) \quad \text{TLI} = \frac{\left( \frac{\chi_B^2}{df_B} - \frac{\chi_{Ho}^2}{df_{Ho}} \right)}{\left( \frac{\chi_B^2}{df_B} - 1 \right)}$$

where  $\chi_{Ho}^2$  and  $df_{Ho}$  denote the chi-squared value and degrees of freedom of the estimated model and  $\chi_B^2$  and  $df_B$  denote the same for the baseline model. Both CFI and TLI are not appreciably influenced by sample size. By convention, CFI and TLI values greater than 0.95 indicate good fit (Hu & Bentler, 1999).

Yu and Muthén (2001) recently developed WRMR to identify good-fitting models with categorical outcomes. It is defined as follows:

$$(A8) \quad \text{WRMR} = \sqrt{\frac{\sum_r^e (s_r - \sigma_r)}{v_r} / e}$$

where  $s_r$  is an element in the sample variance/covariance (or probit threshold/polychoric correlation) matrix,  $\sigma_r$  is the element in the variance/covariance matrix predicted by the model,  $v_r$  is an estimate of the variance of  $s_r$ , and  $e$  is the number of elements in the variance/covariance matrix. According to Muthén, WRMR is suitable for models where sample statistics have widely varying variances, when sample statistics are on different scales, and in models with categorical outcomes. Yu and Muthén (2001) suggest WRMR values less than or equal to 1.00 for good models with categorical outcomes. Because WRMR has been tested for models with categorical outcomes, greater weight is placed on this index in CFA model selection.

Modification indices and  $\chi^2$  difference testing were also used to compare nested confirmatory factor analyses models, particularly for testing measurement intercept invariance.

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#### Additional reliability and validity analyses

Internal consistency estimates of reliability of the derived scales were calculated using Cronbach's alpha for each grade, gender, and ethnic group in both the main sample and the validation sample. Nunnally's (1978) criterion of 0.70 was used as the cutoff for determining acceptable internal consistency reliability for the secondary school survey. Because of the notoriously low internal consistency evident in surveys of elementary school students, this criterion was relaxed slightly to 0.60 for the elementary school resilience and youth development module. To examine test-retest reliability, RYDM survey data collected from a small sample of fifth and ninth graders who took the resilience and youth development module twice in two weeks was used.

Differences in resilience scale scores across the demographic subgroups were also examined. To make demographic differences in the resilience scales more interpretable, effect sizes were calculated to represent the magnitude of such differences (Cohen, 1988). With two groups (male/female), the difference in scale means between each group was divided by the pooled standard deviation (Cohen's  $d$ ). Thus, the standardized difference represents the difference between each group in standard deviation units. With more than two groups (race/ethnicity), the standardized differences were represented by multiplying Cohen's  $f$  by 2—which is roughly equivalent to the standardized difference calculated for two groups when the number of observations in each cell is equal (Cohen, 1988). Cohen's  $f$  was calculated by

$$(A9) \quad f = \sqrt{\frac{\sum_{i=1}^k \frac{(m_i - m)^2}{k}}{\sigma}}$$

where  $m_i$  represents the mean for each subgroup  $i$ ,  $m$  represents the population mean,  $k$  the number of subgroups, and  $\sigma$  the pooled standard deviation.

Construct validity was assessed by examining the relationship of the derived resilience scales to other theoretically related constructs—including substance use, school violence, school-related behavior, and standardized test scores. To examine these relationships using a common metric, correlations between resilience constructs and criterion variables from confirmatory factor analysis models were estimated using the main and validation samples. Latent constructs represent continuous variables, while the criterion variables are either dichotomous or ordinal. Thus, polyserial correlations are presented, which represent the correlation between a continuous variable and a dichotomous or ordinal variable that reflects an underlying continuous variable (Bedrick & Breslin, 1996).



## APPENDIX B RESULTS

This appendix presents the results of the analyses conducted to evaluate the psychometric properties of the resilience and youth development module.

### Secondary school environmental resilience assets

*Exploratory factor analysis results.* EFA models were estimated for each subpopulation and for the main and validation samples to determine the number of factors underlying the items. The EFA models suggested that the environmental resilience assets items measure eight factors.<sup>9</sup> The factor pattern and loadings for the main sample and cross-validation sample are displayed in tables B1 and B2, respectively. The 8-factor EFA solutions show conceptually clear factor-loading patterns that are mostly consistent with the underlying theory guiding the development of the instrument. The pattern of factor loadings across all the demographic subgroups is consistent with those displayed in tables B1 and B2.<sup>10</sup> Distinct factors are apparent for support and meaningful participation in the school, community, and home environments, as well as caring and pro-social relationships in the peer environment.

However, the factor pattern evident in the 8-factor solution is inconsistent with how the instrument currently is being used in California because the results suggest that caring relationships and high expectations at school, in the home, and in the community are *not* distinct factors.

*Confirmatory factor analysis results.* A CFA model equivalent to the 8-factor EFA models in tables B1 and B2 was estimated—except that all but the highest magnitude loadings from the EFA model were constrained to be zero.<sup>11</sup> That is, each item was forced to load on only one factor. As with the EFA models, the results were consistent across each sample. The CFA models indicated that item R45 (“My friends get into a lot of trouble”) has a relatively small factor loading—suggesting that an association with peers who get into a lot of trouble is a less sensitive indicator of pro-social peers

than the other two items assessing this construct. Moreover, there was a relatively high correlation between home support and home meaningful participation (0.78 and 0.79), which suggests that these two constructs may not be distinct.

The CFA models were re-estimated to include covariates to detect differences in measurement intercepts across demographic subgroups. Several measurement intercepts differed by demographic subgroup:

- The results for R23 (“I help other people”) suggest that for a given level of community meaningful participation, female and Mexican American youth report between one-fifth and one-third of a standard deviation higher for “helping other people.” The item thus has a different meaning for these two populations.
- For R54 (“I do fun things or go fun places with my parents”), 11th graders report substantially lower levels of participation in fun activities with parents for a given level of home meaningful participation than do seventh and ninth graders (0.29 to 0.33 standard deviations). This represents a developmental difference in the appropriateness of this item.
- Female and Chinese American youth report lower frequencies on R45 (“My friends get into a lot of trouble”) for a given level of pro-social peers—reflecting the different meaning attached to this item by these populations.

Each of these measurement intercept differences is substantively significant. That is, these particular items assess the underlying constructs differently for demographic subgroups and thus should not be used as indicators. Dropping these items, however, leaves three subscales with only two items, which is far from ideal. Table B3 presents revised CFA models after dropping the items with non-invariant measurement intercepts. Table B4 reports latent factor correlations.<sup>12</sup> Note that the correlations between home support and home meaningful participation remain relatively high (0.73), indicating a high degree of overlap between these two factors.

TABLE B1  
**Secondary school environmental resilience asset exploratory factor analysis results, main sample, 8-factor solution**

Item	Original construct	Item description	Factors							
			1	2	3	4	5	6	7	8
R6	SchlCare	School—adult who really cares about me.	<b>0.75</b>	0.08	0.02	-0.02	-0.07	0.03	0.06	-0.01
R8	SchlCare	School—adult who notices when I’m not there.	<b>0.79</b>	0.02	0.01	-0.03	-0.03	0.04	0.04	-0.06
R10	SchlCare	School—adult who listens to me when I have something . . .	<b>0.86</b>	-0.02	0.01	-0.01	0.02	0.04	-0.02	0.00
R7	SchlHigh	School—adult who tells me when I do a good job.	<b>0.82</b>	0.02	0.00	0.01	0.02	-0.01	0.02	-0.02
R9	SchlHigh	School—adult who always wants me to do my best.	<b>0.92</b>	-0.05	-0.02	0.03	0.05	-0.06	-0.03	0.02
R11	SchlHigh	School—adult who believes that I will be a success.	<b>0.83</b>	0.01	0.05	0.00	0.03	-0.01	-0.05	0.04
R12	SchlPart	School—I do interesting activities.	0.08	<b>0.57</b>	-0.01	0.19	0.08	-0.06	-0.01	-0.01
R13	SchlPart	School—I help decide things like class activities or rules	0.02	<b>0.91</b>	-0.02	-0.09	-0.01	-0.02	0.00	0.00
R14	SchlPart	School—I do things that make a difference.	0.04	<b>0.79</b>	0.04	0.01	-0.02	0.05	0.00	0.04
R15	ComCare	Community—adult who really cares about me.	0.04	-0.05	<b>0.95</b>	0.03	-0.04	-0.04	0.02	0.00
R17	ComCare	Community—adult who notices when I am upset about . . .	-0.02	0.03	<b>0.90</b>	-0.05	0.01	0.07	0.05	-0.04
R20	ComCare	Community—adult whom I trust.	0.02	-0.04	<b>0.82</b>	0.02	0.03	0.08	0.00	0.00
R16	ComHigh	Community—adult who tells me when I do a good job.	0.01	0.01	<b>0.90</b>	0.02	0.03	0.04	-0.01	-0.01
R18	ComHigh	Community—adult who believes that I will be a success.	0.02	0.05	<b>0.90</b>	-0.02	0.10	-0.05	-0.02	0.03
R19	ComHigh	Community—adult who always wants me to do my best.	0.04	0.01	<b>0.95</b>	0.00	0.05	-0.08	-0.03	0.04
R21	ComPart	I am part of clubs, sports teams, church/ temple, or other . . .	-0.03	0.06	0.02	<b>0.82</b>	0.01	0.03	-0.04	-0.03
R22	ComPart	I am involved in taking lessons in music, art, literature . . .	0.02	-0.07	-0.03	<b>0.97</b>	0.00	0.01	-0.01	-0.06
R23	ComPart	I help other people.	0.05	0.10	0.09	<b>0.46</b>	-0.09	0.19	0.08	0.07
R49	HomeCare	Home—adult who is interested in my school work.	-0.02	0.07	-0.03	0.00	<b>0.86</b>	0.01	0.01	-0.02
R51	HomeCare	Home—adult who talks with me about my problems.	-0.03	0.08	0.02	-0.12	<b>0.77</b>	0.27	0.01	-0.10
R53	HomeCare	Home—adult who listens to me when I have something . . .	0.02	0.01	0.03	-0.12	<b>0.76</b>	0.32	-0.03	-0.06
R48	HomeHigh	Home—adult who expects me to follow the rules.	0.01	-0.02	0.01	0.13	<b>0.76</b>	-0.18	0.06	0.09
R50	HomeHigh	Home—adult who believes that I will be a success.	0.04	-0.02	0.07	0.03	<b>0.83</b>	0.02	0.00	0.03
R52	HomeHigh	Home—adult who always wants me to do my best.	0.03	-0.08	0.05	0.09	<b>0.89</b>	-0.08	-0.01	0.06
R54	HomePart	I do fun things or go fun places with my parents or other . . .	0.01	-0.08	-0.01	0.04	0.30	<b>0.63</b>	-0.02	0.04
R55	HomePart	I do things at home that make a difference.	-0.02	0.11	0.00	0.08	0.09	<b>0.68</b>	0.00	0.08
R56	HomePart	I help make decisions with my family.	0.03	-0.02	-0.02	0.01	0.23	<b>0.70</b>	0.03	0.01
R42	PeerCare	A friend who really cares about me.	0.02	-0.04	0.04	0.05	0.04	-0.04	<b>0.83</b>	0.06
R43	PeerCare	A friend who talks with me about my problems.	-0.02	0.03	-0.01	-0.03	-0.01	0.01	<b>0.96</b>	0.00
R44	PeerCare	A friend who helps me when I’m having a hard time.	0.00	0.00	0.00	-0.03	0.02	0.02	<b>0.92</b>	0.02
R45	PeerHigh	My friends get into a lot of trouble.	-0.05	0.05	0.03	0.03	0.01	0.01	0.02	<b>-0.45</b>
R46	PeerHigh	My friends try to do what is right.	-0.02	0.02	0.02	-0.07	-0.03	0.05	0.04	<b>0.92</b>
R47	PeerHigh	My friends do well in school.	0.02	0.03	-0.01	0.01	0.05	0.05	-0.02	<b>0.68</b>

Note: Analytic samples consist of 12,000 7th-, 9th-, and 11th-grade respondents sampled from surveys administered between spring 2003 and spring 2005. Weighted data. Loadings with largest absolute values **bolded**.



TABLE B2

**Secondary school environmental resilience asset exploratory factor analysis results, validation sample, 8-factor solution**

Item	Original construct	Item description	Factors							
			1	2	3	4	5	6	7	8
R6	SchlCare	School—adult who really cares about me.	<b>0.76</b>	0.03	0.03	0.01	-0.10	0.06	0.05	-0.03
R8	SchlCare	School—adult who notices when I'm not there.	<b>0.78</b>	0.03	0.02	-0.03	-0.04	0.04	0.03	-0.04
R10	SchlCare	School—adult who listens to me when I have something . . .	<b>0.85</b>	0.02	-0.02	-0.03	0.04	0.04	-0.01	-0.01
R7	SchlHigh	School—adult who tells me when I do a good job.	<b>0.82</b>	-0.02	0.01	0.01	0.01	0.01	0.01	0.02
R9	SchlHigh	School—adult who always wants me to do my best.	<b>0.90</b>	-0.07	0.01	0.03	0.05	-0.05	-0.04	0.01
R11	SchlHigh	School—adult who believes that I will be a success.	<b>0.84</b>	0.07	0.01	-0.03	0.06	-0.05	-0.01	0.02
R12	SchlPart	School—I do interesting activities.	0.11	<b>0.59</b>	-0.01	0.18	0.06	-0.07	-0.04	0.03
R13	SchlPart	School—I help decide things like class activities or rules	0.03	<b>0.88</b>	-0.03	-0.09	-0.01	0.01	0.00	0.00
R14	SchlPart	School—I do things that make a difference.	0.02	<b>0.80</b>	0.04	0.00	-0.02	0.04	0.01	0.03
R15	ComCare	Community—adult who really cares about me.	0.02	-0.06	<b>0.95</b>	0.03	-0.08	-0.01	0.03	0.02
R17	ComCare	Community—adult who notices when I am upset about . . .	-0.01	0.01	<b>0.89</b>	-0.06	0.02	0.08	0.03	-0.03
R20	ComCare	Community—adult whom I trust.	0.00	-0.02	<b>0.83</b>	0.01	0.04	0.06	-0.02	0.03
R16	ComHigh	Community—adult who tells me when I do a good job.	0.03	-0.01	<b>0.89</b>	0.02	0.01	0.07	0.00	-0.01
R18	ComHigh	Community—adult who believes that I will be a success.	0.02	0.08	<b>0.89</b>	-0.02	0.11	-0.07	-0.01	0.00
R19	ComHigh	Community—adult who always wants me to do my best.	0.04	0.02	<b>0.95</b>	0.01	0.07	-0.12	-0.03	0.01
R21	ComPart	I am part of clubs, sports teams, church/ temple, or other . . .	-0.03	0.06	0.02	<b>0.83</b>	0.02	0.01	-0.02	-0.03
R22	ComPart	I am involved in taking lessons in music, art, literature . . .	0.00	-0.07	-0.01	<b>0.97</b>	0.02	0.03	-0.02	-0.05
R23	ComPart	I help other people.	0.04	0.13	0.08	<b>0.47</b>	-0.08	0.16	0.09	0.05
R49	HomeCare	Home—adult who is interested in my school work.	-0.03	0.05	-0.03	0.03	<b>0.85</b>	0.03	-0.01	0.00
R51	HomeCare	Home—adult who talks with me about my problems.	-0.05	0.08	0.04	-0.12	<b>0.74</b>	0.30	0.02	-0.09
R53	HomeCare	Home—adult who listens to me when I have something . . .	0.02	0.03	0.06	-0.12	<b>0.73</b>	0.32	-0.02	-0.07
R48	HomeHigh	Home—adult who expects me to follow the rules.	0.01	-0.03	0.00	0.11	<b>0.75</b>	-0.20	0.07	0.12
R50	HomeHigh	Home—adult who believes that I will be a success.	0.06	-0.02	0.07	0.03	<b>0.81</b>	0.04	-0.01	0.03
R52	HomeHigh	Home—adult who always wants me to do my best.	0.08	-0.08	0.05	0.08	<b>0.85</b>	-0.05	0.03	0.03
R54	HomePart	I do fun things or go fun places with my parents or other . . .	0.04	-0.07	-0.01	0.05	0.23	<b>0.67</b>	-0.06	0.06
R55	HomePart	I do things at home that make a difference.	-0.03	0.15	-0.03	0.10	0.06	<b>0.68</b>	0.04	0.05
R56	HomePart	I help make decisions with my family.	0.02	-0.02	0.00	-0.01	0.16	<b>0.77</b>	0.02	0.02
R42	PeerCare	A friend who really cares about me.	0.04	-0.05	0.04	0.04	0.03	-0.02	<b>0.83</b>	0.05
R43	PeerCare	A friend who talks with me about my problems.	-0.02	0.03	-0.02	-0.03	0.00	0.02	<b>0.96</b>	-0.01
R44	PeerCare	A friend who helps me when I'm having a hard time.	0.01	0.01	0.01	-0.03	0.03	0.01	<b>0.91</b>	0.03
R45	PeerHigh	My friends get into a lot of trouble.	-0.07	0.07	0.04	-0.01	-0.02	-0.03	0.09	<b>-0.42</b>
R46	PeerHigh	My friends try to do what is right.	-0.02	0.02	-0.01	-0.04	-0.01	0.02	0.07	<b>0.85</b>
R47	PeerHigh	My friends do well in school.	-0.01	0.04	0.04	-0.05	-0.02	0.05	-0.01	<b>0.77</b>

Note: Analytic samples consist of 12,000 7th-, 9th-, and 11th-grade respondents sampled from surveys administered between spring 2003 and spring 2005. Weighted data. Loadings with largest absolute values **bolded**.

TABLE B3

**Final secondary school environmental assets model, main sample**

Item	Original construct	Construct and associated items	Estimated loadings	Standard loadings
<i>School support</i>				
R6	SchlCare	School—adult who really cares about me.	1	0.80
R8	SchlCare	School—adult who notices when I'm not there.	0.98	0.79
R10	SchlCare	School—adult who listens to me when I have something . . .	1.08	0.86
R7	SchlHigh	School—adult who tells me when I do a good job.	1.05	0.84
R9	SchlHigh	School—adult who always wants me to do my best.	1.09	0.87
R11	SchlHigh	School—adult who believes that I will be a success.	1.10	0.88
<i>School meaningful participation</i>				
R12	SchlPart	School—I do interesting activities.	1	0.78
R13	SchlPart	School—I help decide things like class activities or rules.	0.98	0.77
R14	SchlPart	School—I do things that make a difference.	1.12	0.88
<i>Community support</i>				
R15	ComCare	Community—adult who really cares about me.	1	0.92
R17	ComCare	Community—adult who notices when I am upset about . . .	0.99	0.91
R20	ComCare	Community—adult whom I trust.	0.97	0.88
R16	ComHigh	Community—adult who tells me when I do a good job.	1.03	0.94
R18	ComHigh	Community—adult who believes that I will be a success.	1.04	0.95
R19	ComHigh	Community—adult who always wants me to do my best.	1.04	0.95
<i>Community meaningful participation</i>				
R21	ComPart	I am part of clubs, sports teams, church/temple, or other . . .	1	0.88
R22	ComPart	I am involved in taking lessons in music, art, literature . . .	0.97	0.86
<i>Home support</i>				
R49	HomeCare	Home—adult who is interested in my schoolwork.	1	0.84
R51	HomeCare	Home—adult who talks with me about my problems.	1.03	0.87
R53	HomeCare	Home—adult who listens to me when I have something . . .	1.05	0.89
R48	HomeHigh	Home—adult who expects me to follow the rules.	0.93	0.78
R50	HomeHigh	Home—adult who believes that I will be a success.	1.10	0.92
R52	HomeHigh	Home—adult who always wants me to do my best.	1.10	0.92
<i>Home meaningful participation</i>				
R55	HomePart	I do things at home that make a difference.	1	0.85
R56	HomePart	I help make decisions with my family.	1.02	0.86
<i>Peer caring relationships</i>				
R42	PeerCare	A friend who really cares about me.	1	0.92
R43	PeerCare	A friend who talks with me about my problems.	1.01	0.92
R44	PeerCare	A friend who helps me when I'm having a hard time.	1.03	0.94
<i>Pro-social peers</i>				
R46	PeerHigh	My friends try to do what is right.	1	0.86
R47	PeerHigh	My friends do well in school.	0.91	0.78

Note: Analytic samples consist of 12,000 7th-, 9th-, and 11th-grade respondents sampled from surveys administered between spring 2003 and spring 2005. Weighted data.

TABLE B4  
**Correlations among secondary school environmental resilience assets, final confirmatory factor analysis model**

Main sample	Factors							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) School support	1.00							
(2) School meaningful participation	0.59	1.00						
(3) Community support	0.54	0.42	1.00					
(4) Community meaningful participation	0.42	0.58	0.46	1.00				
(5) Home support	0.47	0.37	0.59	0.44	1.00			
(6) Home meaningful participation	0.48	0.59	0.51	0.38	0.73	1.00		
(7) Peer caring relationships	0.41	0.35	0.46	0.34	0.46	0.44	1.00	
(8) Pro-social peers	0.42	0.40	0.38	0.39	0.49	0.50	0.54	1.00

Note: Analytic samples consist of 12,000 7th-, 9th-, and 11th-grade respondents sampled from surveys administered between spring 2003 and spring 2005. Weighted data.

TABLE B5  
**Elementary school environmental resilience asset exploratory factor analysis results, main sample, 4-factor solution**

Item	Original construct	Item description	1	2	3	4
10	SchlCare	Do the teachers . . . at school care about you?	<b>0.74</b>	0.05	0.01	-0.01
13	SchlCare	Teachers . . . listen when . . . have something to say?	<b>0.62</b>	0.07	0.00	0.05
11	SchlHigh	Teachers . . . tell you when you do a good job?	<b>0.56</b>	-0.02	0.17	-0.07
14	SchlHigh	Teachers . . . believe that you can do a good job?	<b>0.67</b>	0.10	-0.02	0.03
52	HomeCare	Parent . . . care about your school work?	0.00	<b>0.81</b>	0.01	0.01
55	HomeCare	Parent . . . listen when you have something to say?	0.06	<b>0.51</b>	0.20	0.01
53	HomeHigh	Parent . . . believe that you can do a good job?	0.11	<b>0.79</b>	0.00	0.02
54	HomeHigh	Parent . . . at home want you to do your best?	0.10	<b>0.77</b>	-0.03	0.00
9	SchlPart	Do you make class rules/choose things to do at school?	0.14	-0.16	<b>0.48</b>	-0.05
15	SchlPart	Do you do things to be helpful at school?	0.16	-0.11	<b>0.50</b>	0.15
56	HomePart	Do you help out at home?	-0.17	0.21	<b>0.48</b>	0.03
56	HomePart	Do you make rules or choose things to do at home?	-0.10	0.05	0.37	-0.03
50	PeerHigh	Do your best friends get into trouble?	0.03	-0.01	-0.07	<b>0.63</b>
51	PeerHigh	Do your best friends try to do the right thing?	-0.02	0.04	0.18	<b>0.68</b>

Note: Analytic samples consist of 2,000 fifth-grade respondents sampled from surveys administered between spring 2003 and spring 2005. Weighted data. Loadings with largest absolute values **bolded**.

### Elementary school environmental resilience assets

*Exploratory factor analysis results.* An identical strategy was used to analyze the elementary school RYDM environmental resilience items. EFA models suggested that a 4-factor model best represents the environmental resilience items,

with distinct factors for school support (caring relationships and high expectations), home support, meaningful participation (in the school and home domains), and pro-social peers (tables B5 and B6). These results were found for both the main sample and the validation sample and for both boys and girls.

TABLE B6

**Elementary school environmental resilience asset exploratory factor analysis results, validation sample, 4-factor solution**

Item	Original construct	Item description	1	2	3	4
10	SchlCare	Do the teachers . . . at school care about you?	<b>0.73</b>	0.03	0.03	-0.01
13	SchlCare	Teachers . . . listen when . . . have something to say?	<b>0.65</b>	0.02	0.03	-0.01
11	SchlHigh	Teachers . . . tell you when you do a good job?	<b>0.51</b>	-0.05	0.18	-0.02
14	SchlHigh	Teachers . . . believe that you can do a good job?	<b>0.71</b>	0.14	-0.07	0.02
52	HomeCare	Parent . . . care about your school work?	0.01	<b>0.73</b>	0.00	0.01
55	HomeCare	Parent . . . listen when you have something to say?	0.07	<b>0.48</b>	0.22	0.01
53	HomeHigh	Parent . . . believe that you can do a good job?	0.10	<b>0.90</b>	-0.09	-0.01
54	HomeHigh	Parent . . . at home want you to do your best?	0.07	<b>0.81</b>	0.01	0.04
9	SchlPart	Do you make class rules/choose things to do at school?	0.05	-0.20	<b>0.62</b>	-0.06
15	SchlPart	Do you do things to be helpful at school?	0.10	-0.05	<b>0.50</b>	0.18
56	HomePart	Do you help out at home?	-0.07	0.16	<b>0.36</b>	0.08
56	HomePart	Do you make rules or choose things to do at home?	-0.16	0.16	0.38	-0.09
50	PeerHigh	Do your best friends get into trouble?	0.02	-0.03	0.00	<b>0.51</b>
51	PeerHigh	Do your best friends try to do the right thing?	-0.02	0.03	0.05	<b>0.77</b>

Note: Analytic samples consist of 2,000 fifth-grade respondents sampled from surveys administered between spring 2003 and spring 2005. Weighted data.

*Confirmatory factor analysis results.* The CFA results also supported the 4-factor model. The analyses of differential item functioning suggested that the measurement intercepts for item 15 (“Do you do things to be helpful at school?”) and item 51 (“Do your best friends try to do the right thing?”) differ for boys and girls. For a given level of meaningful participation, females report between 20 and 36 percent of a standard deviation higher frequencies of “doing things to be helpful at school” for a given level of meaningful participation. In addition, females are substantially less likely to report that their “best friends try to do the right thing” (0.43 standard deviations). Because of the magnitude of these measurement intercept differences, these items should not be used to measure the underlying constructs. Because dropping item 51 means that only one item is left to measure pro-social peers, item 50 (“Do your best friends get into trouble?”) should also be dropped. The elementary school module thus would not assess pro-social peer assets.

After dropping the pro-social peer items, a 3-factor model is left—with factors for school support, home support, and meaningful participation.

Because meaningful participation is measured with only three items, a 2-factor model was also estimated by forcing the relevant meaningful participation items to load on the school and home factors. The fit of the 2-factor model is relatively close to that of the 3-factor model, although the latter resulted in a statistically significant improvement in model fit (see  $\Delta\chi^2$  values for Model 4 versus Model 3 in appendix C). Moreover, an inspection of the standardized loadings in the 2-factor model for items 9, 56, and 57 indicates that these meaningful participation items are only weakly related to underlying school and home factors (0.26, 0.37, and 0.24, respectively). Thus the 3-factor model has the most support.

Table B7 presents the results for the final CFA model. A look at the standardized factor loadings reveals that the relationships between meaningful participation and its items are still weak (0.40, 0.53, and 0.30 for items 9, 56, and 57, respectively), suggesting that the items are insensitive indicators of meaningful participation. Overall, however, the results are consistent with those reported for the secondary school resilience and youth development

TABLE B7

**Final elementary school environmental resilience assets model, main sample**

Item	Original construct	Construct and associated items	Estimated loadings	Standard loadings	
<i>School support</i>					
10	SchlCare	Do the teachers . . . at school care about you?	1	0.76	
13	SchlCare	Teachers . . . listen when you have something to say?	0.90	0.68	
11	SchlHigh	Do the teachers . . . tell you when you do a good job?	0.79	0.60	
14	SchlHigh	Do the teachers . . . believe that you can do a good job?	0.95	0.72	
<i>Home support</i>					
52	HomeCare	Does a parent . . . care about your school work?	1	0.78	
55	HomeCare	Does a parent . . . listen when you have something to say?	0.89	0.69	
53	HomeHigh	Does a parent . . . believe that you can do a good job?	1.11	0.86	
54	HomeHigh	Does a parent . . . at home want you to do your best?	1.01	0.79	
<i>Meaningful participation</i>					
9	SchlPart	Do you make class rules or choose things to do at school?	1	0.40	
56	HomePart	Do you help out at home?	1.36	0.53	
57	HomePart	Do you get to make rules or choose things to do at home?	0.77	0.30	
			<b>Latent factor correlations</b>		
			(1)	(2)	(3)
(1)	School support		1.00		
(2)	Home support		0.64	1.00	
(3)	Meaningful participation		0.48	0.62	1.00

Note: Analytic samples consist of 2,000 fifth-grade respondents sampled from surveys administered between spring 2003 and spring 2005. Weighted data.

module—with the exception that meaningful participation is global, rather than domain-specific, for the elementary school items and that pro-social peers cannot be measured adequately.

### Secondary school internal resilience assets

**Exploratory factor analysis results.** The EFA models indicated that two of the three items used to assess cooperation and communication—R36 (“I enjoy working together with other students my age”) and R37 (“I stand up for myself without putting others down”)—either load on more than one factor or do not load significantly on any factor. For simplicity, these items were dropped from the analysis, and EFA and CFA models were estimated on the remaining set of items. The EFA results suggested that five factors underlie the observed items—self-efficacy, empathy, problem solving, self-awareness, and goals/aspirations (tables B8

and B9). The 5-factor solution is conceptually clear and is consistent with how the instrument is currently used in California.

**Confirmatory factor analysis results.** CFA models consistent with the 5-factor EFA model were estimated, with all but the highest loadings from the EFA models constrained to be zero. Several consistent, substantively significant differences in measurement intercepts across racial/ethnic groups were evident when covariates were included:

- Female youth are between 0.22 and 0.34 of a standard deviation less likely to endorse item R27 (“I know where to go for help with a problem”) for a given level of problem solving.
- African American and Mexican American youth report higher levels of “having goals and plans for the future” (R24) than white

TABLE B8

**Secondary school internal resilience asset exploratory factor analysis results, main sample, 4-factor model**

Item	Original construct	Item description	Factors			
			1	2	3	4
R31	Coop	I can work with someone who has different opinions than mine.	<b>0.39</b>	0.16	0.08	0.23
R36	Coop	I enjoy working together with other students my age.	Items dropped because of cross-loadings			
R37	Coop	I stand up for myself without putting others down.				
R29	SelfEff	I can work out my problems.	<b>0.66</b>	-0.09	0.15	0.11
R30	SelfEff	I can do most things if I try.	<b>0.50</b>	-0.11	0.16	0.35
R32	SelfEff	There are many things that I do well.	0.32	-0.02	0.21	0.37
R33	Empathy	I feel bad when someone gets their feelings hurt.	0.06	<b>0.71</b>	-0.02	0.15
R34	Empathy	I try to understand what other people go through.	0.02	<b>0.88</b>	0.02	0.09
R38	Empathy	I try to understand what other people feel and think.	0.11	<b>0.70</b>	0.12	0.03
R35	ProbSolv	When I need help I find someone to talk with.	<b>0.64</b>	0.33	0.07	-0.18
R27	ProbSolv	I know where to go for help with a problem.	<b>0.68</b>	-0.01	0.07	0.11
R28	ProbSolv	I try to work out problems by talking or writing about them.	<b>0.80</b>	0.24	-0.14	-0.12
R39	SelfAware	There is a purpose to my life.	0.12	0.06	<b>0.46</b>	0.28
R40	SelfAware	I understand my moods and feelings.	0.01	0.05	<b>0.91</b>	-0.07
R41	SelfAware	I understand why I do what I do.	0.01	0.03	<b>0.86</b>	-0.04
R24	Goals	I have goals and plans for the future.	0.11	0.02	0.10	<b>0.64</b>
R25	Goals	I plan to graduate from high school.	-0.09	0.07	-0.02	<b>0.98</b>
R26	Goals	I plan to go to college or some other school after high school.	0.01	0.09	-0.11	<b>0.88</b>

Note: Analytic samples consist of 12,000 7th-, 9th-, and 11th-grade respondents sampled from surveys administered between spring 2003 and spring 2005. Weighted data.

European American and Chinese American youth, even after accounting for ethnic group differences in the latent construct.

- Chinese American youth report substantially lower levels of “having goals and plans for the future” than the other ethnic groups for a given score on the underlying construct. In addition, Chinese American youth also are about 25–30 percent of a standard deviation less likely to report that they plan to go to college after high school (R26) for a given level on goals.

With such pronounced racial/ethnic group measurement intercept differences, items R24 and R26 should be dropped, and so goals would not be assessed on the secondary school module. Item R27 should not be used to assess problem solving.

Table B10 shows the final recommended CFA model for the secondary school internal resilience

items after dropping items R24, R25, R26, and R27 from the analysis. Overall, the latent constructs are consistent with current usage of the RYDM, except that the communication and cooperation construct is dropped because two of the items for this scale did not uniquely load on one factor, the goals construct is dropped because of measurement slope invariance, and the problem-solving construct is measured with just two items.

**Elementary school internal resilience assets**

*Exploratory factor analysis results.* The elementary school resilience and youth development module was designed to measure three internal resilience traits—empathy, problem solving, and goals and aspirations—with seven items. Although exploratory factor analyses of these items suggest that a 2-factor solution was appropriate for both the main and validation samples, the factor patterns were different for the two samples as well as for



TABLE B9

**Secondary school internal resilience asset exploratory factor analysis results, validation sample, 4-factor model**

Item	Original construct	Item description	Factors			
			1	2	3	4
R31	Coop	I can work with someone who has different opinions than mine.	<b>0.45</b>	0.11	0.06	0.22
R36	Coop	I enjoy working together with other students my age.	Items dropped because of cross-loadings			
R37	Coop	I stand up for myself without putting others down.				
R29	SelfEff	I can work out my problems.	<b>0.65</b>	-0.06	0.13	0.12
R30	SelfEff	I can do most things if I try.	<b>0.55</b>	-0.10	0.10	0.36
R32	SelfEff	There are many things that I do well.	<b>0.46</b>	-0.10	0.16	0.36
R33	Empathy	I feel bad when someone gets their feelings hurt.	0.12	<b>0.68</b>	-0.03	0.14
R34	Empathy	I try to understand what other people go through.	0.02	<b>0.84</b>	0.03	0.11
R38	Empathy	I try to understand what other people feel and think.	0.09	<b>0.70</b>	0.12	0.09
R35	ProbSolv	When I need help I find someone to talk with.	<b>0.63</b>	0.31	0.10	-0.21
R27	ProbSolv	I know where to go for help with a problem.	<b>0.66</b>	0.02	0.09	0.07
R28	ProbSolv	I try to work out problems by talking or writing about them.	<b>0.81</b>	0.26	-0.15	-0.14
R39	SelfAware	There is a purpose to my life.	0.17	0.05	<b>0.45</b>	0.27
R40	SelfAware	I understand my moods and feelings.	-0.02	0.07	<b>0.94</b>	-0.07
R41	SelfAware	I understand why I do what I do.	0.09	0.01	<b>0.79</b>	-0.01
R24	Goals	I have goals and plans for the future.	0.11	0.04	0.10	<b>0.63</b>
R25	Goals	I plan to graduate from high school.	-0.09	0.11	-0.03	<b>0.97</b>
R26	Goals	I plan to go to college or some other school after high school.	0.01	0.11	-0.08	<b>0.85</b>

Note: Analytic samples consist of 12,000 7th-, 9th-, and 11th-grade respondents sampled from surveys administered between spring 2003 and spring 2005. Weighted data.

males and females. The items measure empathy and goals/aspirations, but item 40 (“Do you try to work out your problems by talking or writing about them?”) either cross-loads or does not load significantly on the two factors, depending on the analytic sample (see tables E124a–E132). The EFA factor patterns were still ambiguous after dropping item 40, most likely because so few items remained to be analyzed (tables B11 and B12). After moving to a CFA framework, two nested models were estimated—a 1-factor model measuring overall internal assets and a 2-factor model measuring empathy and goals/aspirations.

**Confirmatory factor analysis results.** The 2-factor CFA model—which includes distinct factors for empathy and goals/aspirations—exhibited a significantly better fit to the observed data than the 1-factor model. Table B13 presents the factor loadings and factor correlations for this CFA model based on the main sample. An examination of the

standardized item loadings for goals/aspirations indicates that two of the four items are weakly associated with the underlying construct. Although goals/aspirations is poorly measured by the included items, this scale should be retained so that its reliability and relationship to other constructs can be further investigated.

#### Reliability of the secondary and elementary school scales

**Internal consistency.** The internal consistency of the RYDM scales was estimated using Cronbach’s alpha coefficient for the main sample, the validation sample, and each demographic subsample (tables B14 and B15). The secondary school RYDM scales (table B14) demonstrate acceptable levels of reliability, with all scales exhibiting reliabilities greater than 0.70, and 11 of 13 scales demonstrating reliabilities greater than 0.75. The school support, community support, and peer caring relationships scales exhibit the highest internal

TABLE B10  
**Final secondary school internal resilience assets model, main sample**

Item	Original construct	Construct and associated items	Estimated loadings	Standard loadings		
<i>Self-efficacy</i>						
R31	Coop	I can work with someone who has different opinions . . .	1.00	0.77		
R29	SelfEff	I can work out my problems.	1.04	0.80		
R30	SelfEff	I can do most things if I try.	1.09	0.84		
R32	SelfEff	There are many things that I do well.	1.04	0.80		
<i>Empathy</i>						
R33	Empathy	I feel bad when someone gets their feelings hurt.	1.00	0.82		
R34	Empathy	I try to understand what other people go through.	1.11	0.91		
R38	Empathy	I try to understand what other people feel and think.	1.09	0.90		
<i>Problem solving</i>						
R35	ProbSolv	When I need help I find someone to talk with.	1.00	0.85		
R28	ProbSolv	I try to work out problems by talking/writing about them.	0.94	0.80		
<i>Self-awareness</i>						
R39	SelfAware	There is a purpose to my life.	1.00	0.84		
R40	SelfAware	I understand my moods and feelings.	1.02	0.86		
R41	SelfAware	I understand why I do what I do.	0.99	0.83		
			Latent factor correlations			
			(1)	(2)	(3)	(4)
(1)	Self-efficacy		1.00			
(2)	Empathy		0.73	1.00		
(3)	Problem solving		0.78	0.82	1.00	
(4)	Self-awareness		0.82	0.69	0.62	1.00

Note: Analytic samples consist of 12,000 7th-, 9th-, and 11th-grade respondents sampled from surveys administered between spring 2003 and spring 2005. Weighted data.

TABLE B11  
**Elementary school internal resilience asset exploratory factor analysis results, main sample, 2-factor model**

Item	Original construct	Item description	Factors	
			1	2
37	Empathy	Do you try to understand how other people feel?	<b>0.70</b>	0.04
38	Empathy	Do you feel bad when someone gets their feelings hurt?	<b>0.73</b>	0.03
39	ProbSolv	Do you know where to go to get help with a problem?	-0.06	<b>0.63</b>
40	ProbSolv	Do you try to work out your problems by talking/writing . . . ?	0.31	0.36
41	Goals/Asp	Do you try to do your best?	0.17	<b>0.52</b>
42	Goals/Asp	Do you have goals and plans for the future?	-0.03	<b>0.38</b>
16	Goals/Asp	Do you plan to go to college . . . after high school?	-0.07	<b>0.34</b>

Note: Analytic samples consist of 2,000 fifth-grade respondents sampled from surveys administered between spring 2003 and spring 2005. Weighted data.

consistency, with alphas all exceeding 0.90. The problem-solving (alpha = 0.73) and pro-social peers (alpha = 0.74) scales exhibit moderate but acceptable levels of internal consistency, especially

considering that the scales have only two items. Internal consistency does not differ markedly by student grade, gender, or race/ethnicity. However, the problem-solving scale shows lower reliability

TABLE B12

**Elementary school internal resilience asset exploratory factor analysis results, validation sample, 2-factor model**

Item	Original construct	Item description	Factors	
			1	2
37	Empathy	Do you try to understand how other people feel?	<b>0.80</b>	-0.13
38	Empathy	Do you feel bad when someone gets their feelings hurt?	<b>0.80</b>	-0.06
39	ProbSolv	Do you know where to go to get help with a problem?	0.20	<b>0.42</b>
40	ProbSolv	Do you try to work out your problems by talking/writing . . . ?	<b>0.38</b>	0.22
41	Goals/Asp	Do you try to do your best?	0.34	0.36
42	Goals/Asp	Do you have goals and plans for the future?	-0.17	<b>0.76</b>
16	Goals/Asp	Do you plan to go to college . . . after high school?	-0.08	<b>0.56</b>

Note: Analytic samples consist of 2,000 fifth-grade respondents sampled from surveys administered between spring 2003 and spring 2005. Weighted data.

TABLE B13

**Final elementary school internal resilience asset model, main sample**

Item	Original construct	Construct and associated items	Estimated loadings	Standard loadings
<i>Empathy</i>				
37	Empathy	Do you try to understand how other people feel?	1	0.71
38	Empathy	Do you feel bad when someone gets their feelings hurt?	1.07	0.76
<i>Goals/aspirations</i>				
39	ProbSolv	Do you know where to go to get help with a problem?	1	0.50
41	Goals/Asp	Do you try to do your best?	1.56	0.78
42	Goals/Asp	Do you have goals and plans for the future?	0.69	0.35
16	Goals/Asp	Do you plan to go to college . . . after high school?	0.50	0.25
			Latent factor correlations	
			(1)	(2)
(1)	Empathy		1.00	
(2)	Goals/aspirations		0.64	1.00

Note: Analytic samples consist of 2,000 fifth-grade respondents sampled from surveys administered between spring 2003 and spring 2005. Weighted data.

for African American students than for other ethnic groups.

Internal consistency reliabilities for the elementary school RYDM scales are noticeably lower than those for the secondary school instrument (see table B15). These low reliabilities are typical of instruments administered to elementary school students. The school support, home support, and empathy subscales demonstrate adequate reliability—with alphas ranging from 0.63 to 0.65 for empathy to 0.70 to 0.72 for school and home support. The elementary school meaningful participation

and goals/aspirations scales exhibit low levels of reliability. These scales should not be used in research or local evaluation activities requiring precise measurement.

*Stability.* Tables B16 and B17 show construct- and item-level test-retest stability coefficients for the secondary school RYDM asset measures. Unlike the internal consistency estimates, the resilience scales evidence fairly low levels of stability, with 8 of the 12 scales exhibiting pre-post correlations of less than 0.60. Only the community meaningful participation, home support, peer caring relationships, and

TABLE B14

**Secondary school internal consistency reliability coefficients by demographic subgroup**

	Grade			Gender		Race/ethnicity				
	All	7	9	11	Male	Female	African American	Chinese American	Mexican American	White
<i>Environmental resilience assets</i>										
School support	0.90	0.89	0.91	0.92	0.90	0.91	0.89	0.90	0.90	0.91
School meaningful participation	0.78	0.76	0.77	0.80	0.77	0.78	0.74	0.79	0.78	0.79
Community support	0.95	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Community meaningful participation	0.75	0.73	0.76	0.77	0.76	0.75	0.76	0.72	0.77	0.73
Home support	0.89	0.89	0.89	0.88	0.89	0.88	0.90	0.86	0.90	0.88
Home meaningful participation	0.78	0.76	0.78	0.79	0.78	0.78	0.75	0.79	0.77	0.79
Peer caring relationships	0.90	0.88	0.90	0.92	0.89	0.90	0.89	0.90	0.91	0.89
Pro-social peers	0.74	0.73	0.75	0.74	0.72	0.74	0.72	0.71	0.75	0.73
<i>Internal resilience assets</i>										
Self-efficacy	0.82	0.81	0.82	0.82	0.83	0.80	0.82	0.82	0.82	0.81
Empathy	0.85	0.86	0.85	0.85	0.85	0.83	0.84	0.85	0.85	0.86
Problem solving	0.73	0.73	0.73	0.72	0.73	0.69	0.68	0.74	0.73	0.76
Self-awareness	0.81	0.80	0.81	0.82	0.82	0.80	0.81	0.82	0.80	0.81

Note: Analytic samples consist of 12,000 7th-, 9th-, and 11th-grade respondents sampled from surveys administered between spring 2003 and spring 2005. Results are based on main sample. Cronbach’s alpha coefficients were almost identical in the validation sample.

TABLE B15

**Elementary school internal consistency reliability coefficients by gender**

	Main sample			Validation sample		
	All	Male	Female	All	Male	Female
<i>Environmental resilience assets</i>						
School support	0.71	0.70	0.72	0.70	0.71	0.69
Home support	0.71	0.70	0.71	0.72	0.71	0.73
Meaningful participation	0.34	0.32	0.35	0.32	0.30	0.34
<i>Internal resilience assets</i>						
Empathy	0.63	0.64	0.57	0.65	0.63	0.64
Goals/aspirations	0.36	0.41	0.27	0.39	0.43	0.33

Note: Analytic samples consist of 2,000 fifth-grade respondents sampled from surveys administered between spring 2003 and spring 2005. Weighted data.

self-awareness scales demonstrate adequate stability. In the context of relatively high levels of internal consistency, these comparatively low levels of stability suggest that the resilience assets assessed by the secondary school module demonstrate adequate reliability at a single point in time.

A look at the item-specific stability coefficients in tables B16 and B17 shows the variation across

items. Although several are particularly unstable, the individual item test-retest reliabilities have a negligible impact on the total scale test-retest reliabilities. For example, the pre-post correlation of item R8 (“There is a teacher or some other adult who notices when I am not there”) is only 0.29. However, dropping this item from the school support scale does not markedly improve the stability of the scale score (0.54 versus. 0.55).

TABLE B16

**Test-retest reliability of secondary school environmental resilience asset constructs and items**

Item	Original construct	Construct and associated items	Stability coefficient (r)
<i>School support</i>			0.54
R6	SchlCare	School—adult who really cares about me.	0.50
R8	SchlCare	School—adult who notices when I'm not there.	0.29
R10	SchlCare	School—adult who listens to me when I have something . . .	0.51
R7	SchlHigh	School—adult who tells me when I do a good job.	0.43
R9	SchlHigh	School—adult who always wants me to do my best.	0.47
R11	SchlHigh	School—adult who believes that I will be a success.	0.46
<i>School meaningful participation</i>			0.53
R12	SchlPart	School—I do interesting activities.	0.33
R13	SchlPart	School—I help decide things like class activities or rules.	0.56
R14	SchlPart	School—I do things that make a difference.	0.37
<i>Community support</i>			0.44
R15	ComCare	Community—adult who really cares about me.	0.33
R17	ComCare	Community—adult who notices when I am upset about . . .	0.41
R20	ComCare	Community—adult whom I trust.	0.53
R16	ComHigh	Community—adult who tells me when I do a good job.	0.44
R18	ComHigh	Community—adult who believes that I will be a success.	0.39
R19	ComHigh	Community—adult who always wants me to do my best.	0.46
<i>Community meaningful participation</i>			0.82
R21	ComPart	I am part of clubs, sports teams, church/temple, or other . . .	0.83
R22	ComPart	I am involved in taking lessons in music, art, literature . . .	0.64
<i>Home support</i>			0.68
R49	HomeCare	Home—adult who is interested in my schoolwork.	0.57
R51	HomeCare	Home—adult who talks with me about my problems.	0.62
R53	HomeCare	Home—adult who listens to me when I have something . . .	0.60
R48	HomeHigh	Home—adult who expects me to follow the rules.	0.53
R50	HomeHigh	Home—adult who believes that I will be a success.	0.52
R52	HomeHigh	Home—adult who always wants me to do my best.	0.63
<i>Home meaningful participation</i>			0.49
R55	HomePart	I do things at home that make a difference.	0.52
R56	HomePart	I help make decisions with my family.	0.43
<i>Peer caring relationships</i>			0.73
R42	PeerCare	A friend who really cares about me.	0.52
R43	PeerCare	A friend who talks with me about my problems.	0.62
R44	PeerCare	A friend who helps me when I'm having a hard time.	0.76
<i>Pro-social peers</i>			0.51
R46	PeerHigh	My friends try to do what is right.	0.51
R47	PeerHigh	My friends do well in school.	0.46

Note: Results are based on a sample of 90 ninth-grade respondents from seven classrooms in two schools in a large urban school district. Two weeks separated the first and second administrations of the survey instruments.

TABLE B17

**Test-retest reliability of secondary school internal resilience asset constructs and items**

Item	Construct and associated items	Stability coefficient (r)
<i>Self-efficacy</i>		0.58
R31	I can work with someone who has different opinions . . .	0.36
R29	I can work out my problems.	0.58
R30	I can do most things if I try.	0.37
R32	There are many things that I do well.	0.50
<i>Empathy</i>		0.57
R33	I feel bad when someone gets their feelings hurt.	0.44
R34	I try to understand what other people go through.	0.45
R38	I try to understand what other people feel and think.	0.45
<i>Problem solving</i>		0.52
R35	When I need help I find someone to talk with.	0.48
R28	I try to work out problems by talking/writing about them.	0.66
<i>Self-awareness</i>		0.71
R39	There is a purpose to my life.	0.59
R40	I understand my moods and feelings.	0.48
R41	I understand why I do what I do.	0.66

Note: Results are based on a sample of 90 ninth-grade respondents from seven classrooms in two schools in a large urban school district. Two weeks separated the first and second administrations of the survey instruments.

The elementary school RYDM scales exhibit higher stability than the secondary school scales (table B18). Only two of the five elementary school scales exhibit pre-post correlations below 0.60. The stability coefficients in table B18 are similar or higher than the internal consistency reliability estimates presented in table B15 for elementary school students.

### Validity of the secondary and elementary school scales

**Scale means.** To assess construct validity, demographic differences in resilience scale scores were examined across grade, gender, and racial/ethnic groups. Secondary school RYDM scale means, standard deviations, and standardized differences across groups are presented in table B19. With the exception of caring relationships with peers, 9th and 11th graders report marginally lower environmental resilience assets than seventh graders. Caring relationships with peers increases with school grade, consistent with the notion that adolescents become more involved with peers (although not necessarily pro-social ones) as they age. Student internal

resilience asset scores do not differ markedly by grade, although empathy increases with school grade, and self-awareness declines with grade.

Gender differences in resilience assets generally favor females, who report marginally higher school and community support and substantially higher peer caring relationships and exposure to pro-social peers. Females also report considerably higher levels of empathy and problem solving. These differences are consistent with expectations—girls often have more extensive social support resources than boys (Colarossi & Eccles, 2000; Crosnoe, Johnson, & Elder, 2004; Frey & Röthlisberger, 1996) and evidence higher empathy (Eisenberg & Lennon, 1983).

White students generally report the highest environmental assets in each area except for pro-social peers. Chinese American students report the highest affiliation with pro-social peers. Mexican American students report the lowest environmental resilience assets in the school and peer domains and the lowest meaningful participation in the community.



TABLE B18

**Test-retest reliability of elementary school resilience asset constructs and items**

Item	Construct and associated items	Stability coefficient (r)
<i>Environmental resilience assets</i>		
<i>School support</i>		
10	Do the teachers . . . at school care about you?	0.53
13	Do the teachers . . . listen when you have something to say?	0.52
11	Do the teachers . . . tell you when you do a good job?	0.38
14	Do the teachers . . . believe that you can do a good job?	0.39
<i>Home support</i>		
52	Does a parent . . . care about your school work?	0.56
55	Does a parent . . . listen when you have something to say?	0.65
53	Does a parent . . . believe that you can do a good job?	0.53
54	Does a parent . . . at home want you to do your best?	0.29
<i>Meaningful participation</i>		
9	Do you make class rules or choose things to do at school?	0.39
56	Do you help out at home?	0.34
57	Do you get to make rules or choose things to do at home?	0.44
<i>Internal resilience assets</i>		
<i>Empathy</i>		
37	Do you try to understand how other people feel?	0.55
38	Do you feel bad when someone gets their feelings hurt?	0.56
<i>Goals/aspirations</i>		
39	Do you know where to go to get help with a problem?	0.30
41	Do you try to do your best?	0.49
42	Do you have goals and plans for the future?	-0.04
16	Do you plan to go to college . . . after high school?	-0.03

Note: Results are based on a sample of 136 fifth-grade respondents from eight classrooms in three schools in a large urban school district. Two weeks separated the first and second administrations of the survey instruments.

Chinese American students exhibit the lowest environmental resilience assets in the home domain and the lowest reported community support.

White students also report the highest level of internal assets in self-efficacy, empathy, and problem solving. Mexican American and Chinese American students report the lowest self-efficacy, African American students exhibit the lowest empathy scores.

Table B20 presents elementary school RYDM scale means for males and females. Overall, the gender differences for elementary school students are

consistent with those for secondary school students. Compared with boys, girls report marginally higher school support, meaningful participation, and goals/aspirations and substantially higher empathy.

*Relationships with other constructs.* To further assess construct validity, the relationship of each resilience asset construct to other theoretically related constructs assessed on the Healthy Kids Survey was examined—including substance use, violence, harassment, depression, and self-reported school grades and truancy. The relationships of resilience assets to California Standardized English Language Arts and Mathematics

TABLE B19  
**Secondary school subscale means by demographic subgroup**

	Grade			Standardized difference <sup>a</sup>	Male	Female	Standardized difference <sup>a</sup>	African American	Chinese American	Mexican American	White	Standardized difference <sup>a</sup>
	7	9	11									
<i>Environmental resilience assets</i>												
School support	2.91 (0.80)	2.74 (0.82)	2.83 (0.81)	0.17	2.77 (0.83)	2.89 (0.80)	0.14	2.84 (0.85)	2.79 (0.76)	2.74 (0.82)	2.96 (0.80)	0.20
School meaningful participation	2.32 (0.86)	2.20 (0.84)	2.21 (0.87)	0.12	2.24 (0.85)	2.26 (0.85)	0.02	2.28 (0.88)	2.22 (0.81)	2.13 (0.84)	2.36 (0.86)	0.20
Community support	3.24 (0.92)	3.15 (0.94)	3.17 (0.95)	0.08	3.11 (0.96)	3.26 (0.90)	0.16	3.19 (0.97)	3.00 (0.96)	3.12 (0.95)	3.44 (0.81)	0.34
Community meaningful participation	2.93 (1.10)	2.81 (1.12)	2.81 (1.12)	0.11	2.86 (1.11)	2.82 (1.12)	-0.05	2.84 (1.13)	2.89 (1.05)	2.51 (1.16)	3.16 (1.01)	0.42
Home support	3.45 (0.71)	3.36 (0.74)	3.33 (0.74)	0.14	3.35 (0.76)	3.40 (0.71)	0.07	3.35 (0.80)	3.27 (0.70)	3.34 (0.75)	3.55 (0.64)	0.28
Home meaningful participation	2.88 (0.94)	2.72 (0.94)	2.71 (0.94)	0.17	2.73 (0.96)	2.81 (0.93)	0.09	2.76 (0.98)	2.65 (0.93)	2.72 (0.95)	2.94 (0.91)	0.23
Peer caring relationships	3.10 (0.93)	3.17 (0.91)	3.26 (0.89)	0.15	2.92 (0.96)	3.44 (0.78)	0.58	3.13 (0.95)	3.15 (0.87)	3.07 (0.96)	3.37 (0.84)	0.25
Pro-social peers	3.05 (0.85)	2.95 (0.82)	2.96 (0.78)	0.11	2.84 (0.83)	3.13 (0.77)	0.35	2.89 (0.85)	3.18 (0.73)	2.83 (0.84)	3.04 (0.79)	0.33
<i>Internal resilience assets</i>												
Self-efficacy	3.24 (0.72)	3.18 (0.72)	3.22 (0.72)	0.08	3.19 (0.74)	3.23 (0.67)	0.06	3.22 (0.76)	3.15 (0.68)	3.12 (0.73)	3.36 (0.64)	0.25
Empathy	3.10 (0.87)	3.17 (0.82)	3.23 (0.78)	0.13	2.97 (0.88)	3.36 (0.71)	0.46	3.03 (0.90)	3.22 (0.74)	3.10 (0.85)	3.31 (0.77)	0.26
Problem solving	2.87 (0.99)	2.85 (0.96)	2.87 (0.95)	0.02 <sup>ns</sup>	2.64 (1.00)	3.08 (0.88)	0.45	2.82 (1.00)	2.82 (0.93)	2.81 (0.99)	2.99 (0.94)	0.15
Self-awareness	3.31 (0.78)	3.21 (0.80)	3.21 (0.79)	0.12	3.22 (0.82)	3.27 (0.76)	0.06	3.27 (0.83)	3.16 (0.78)	3.23 (0.79)	3.32 (0.76)	0.14

a. Standardized difference represents the difference between groups divided by the pooled standard deviation (*Cohen's d*). With more than two groups, the standardized difference is represented by multiplying *Cohen's f* by 2—which is generally equivalent to the standardized difference calculated for two groups (see appendix A).

ns = not statistically significant from 0 ( $p < .05$ )

Note: Standard deviations in parentheses. Analytic samples consist of 12,000 7th-, 9th-, and 11th-grade respondents sampled from surveys administered between spring 2003 and spring 2005.

test scores were examined using data previously collected by WestEd.

Table B21 shows the relationships between environmental resilience assets and theoretically related constructs for secondary school students. All but one of the assessed dimensions of environmental assets are correlated with student substance use. Students who report high environmental resilience

assets are less likely to report that they engage in substance use. The exception is peer caring relationships, which is weakly correlated with most of the substance use indicators except substance use on school property.

Environmental resilience assets are also negatively associated with student depression and truancy, and positively associated with students'

TABLE B20

**Elementary school subscale means by gender**

	All	Male	Female	Standardized difference <sup>a</sup>
<i>Environmental resilience assets</i>				
School support	3.32 (0.61)	3.28 (0.62)	3.37 (0.59)	0.15
Home support	3.72 (0.44)	3.70 (0.46)	3.74 (0.42)	0.07 <sup>ns</sup>
Meaningful participation	2.50 (0.60)	2.46 (0.60)	2.54 (0.60)	0.12
<i>Internal resilience assets</i>				
Empathy	3.01 (0.79)	2.84 (0.84)	3.18 (0.71)	0.42
Goals/aspirations	2.24 (0.35)	2.21 (0.39)	2.26 (0.31)	0.15

a. Standardized difference represents the difference between groups divided by the pooled standard deviation (*Cohen's d*).

ns = not statistically significant from 0 ( $p < .05$ )

Note: Standard deviations in parentheses. Analytic samples consist of 2,000 fifth-grade respondents sampled from surveys administered between spring 2003 and spring 2005. Weighted data.

self-reported school connectedness and grades. The environmental resilience asset scales are less consistently related to indicators of violence, harassment, and perceptions of school safety.

The criterion variables—California Standards Test (CST) English Language Arts and Mathematics test scores—are associated with school and community assets, as well as home support. The associations are weak, however, with school support showing the strongest relationship to test scores. Test scores are not significantly associated with meaningful participation in the home environment, peer caring relationships, and pro-social peers.

Table B21 suggests that the secondary school RYDM instrument provides a valid assessment of environmental resilience assets because these constructs are associated with student substance use, depression, self-reported grades, truancy, and test scores in expected ways. Although the correlations with school connectedness and self-reported grades are moderate and have medium effect sizes, the correlations for most of the criterion variables are small.

Table B22 shows correlations between internal resilience assets and the criterion variables for

secondary school students. The results are similar to those for environmental assets. With the exception of standardized test scores, each dimension of internal resilience—self-efficacy, empathy, problem solving, and self-awareness—is correlated with most of the considered criterion variables, which supports construct validity.

Table B23 presents correlations between the elementary school resilience assets and the criterion variables of substance use, aggression, perceived safety, and self-reported academic performance. Both the environmental resilience and internal resilience scales are positively associated with most of the criterion variables, which supports construct validity. Although the criterion variables are different in the two samples, the correlations are stronger for the elementary school resilience instrument than for the secondary school instrument.

#### Comparison of current and recommended measures of resilience assets

Tables B24–B27 compare the current use of items to measure resilience assets among secondary and elementary students with this study's recommended use.

TABLE B21

**Correlations between secondary school environmental resilience assets and criterion variables**

	School support	School meaningful participation	Community support	Community meaningful participation	Home support	Home meaningful participation	Peer caring relationships	Pro-social peers
<i>Substance use</i>								
Lifetime tobacco use	-0.17	-0.20	-0.14	-0.25	-0.21	-0.20	-0.02 <sup>ns</sup>	-0.30
30-day tobacco use	-0.17	-0.18	-0.15	-0.27	-0.24	-0.23	-0.02 <sup>ns</sup>	-0.33
Tobacco use at school	-0.18	-0.23	-0.25	-0.26	-0.33	-0.29	-0.16	-0.37
Lifetime alcohol use	-0.16	-0.15	-0.07	-0.16	-0.20	-0.20	0.03 <sup>ns</sup>	-0.28
30-day alcohol use	-0.16	-0.14	-0.06	-0.17	-0.20	-0.20	0.03 <sup>ns</sup>	-0.28
30-day binge drinking	-0.13	-0.14	-0.05	-0.16	-0.19	-0.18	0.03 <sup>ns</sup>	-0.29
Alcohol use at school	-0.16	-0.10	-0.14	-0.18	-0.23	-0.21	-0.11	-0.27
Lifetime marijuana use	-0.16	-0.16	-0.08	-0.19	-0.18	-0.19	0.00 <sup>ns</sup>	-0.29
30-day marijuana use	-0.20	-0.19	-0.10	-0.22	-0.20	-0.20	-0.04 <sup>ns</sup>	-0.32
Marijuana use at school	-0.19	-0.18	-0.13	-0.22	-0.20	-0.24	-0.14	-0.33
<i>Violence</i>								
Been pushed, shoved, etc.	-0.10	-0.06	-0.08	-0.04 <sup>ns</sup>	-0.09	-0.08	-0.14	-0.15
Afraid of being beat up	-0.08	-0.08	-0.06	-0.08	-0.10	-0.08	-0.07	-0.08
Physical fight	-0.14	-0.07	-0.10	-0.09	-0.14	-0.12	-0.16	-0.26
Mean rumors about you	-0.04 <sup>ns</sup>	0.00 <sup>ns</sup>	0.02 <sup>ns</sup>	0.00 <sup>ns</sup>	-0.10	-0.09	0.06	-0.11
Sexual jokes, comments	-0.04 <sup>ns</sup>	-0.03 <sup>ns</sup>	0.01 <sup>ns</sup>	0.00 <sup>ns</sup>	-0.10	-0.11	0.09	-0.14
Had property stolen	-0.06	-0.02 <sup>ns</sup>	-0.06	0.02 <sup>ns</sup>	-0.09	-0.07	-0.07	-0.11
Offered drugs	-0.12	-0.10	-0.05	-0.10	-0.16	-0.17	0.00 <sup>ns</sup>	-0.33
Damaged school property	-0.18	-0.08	-0.14	-0.09	-0.22	-0.17	-0.12	-0.29
Feel unsafe at school	-0.12	0.00 <sup>ns</sup>	-0.09	-0.01 <sup>ns</sup>	-0.15	-0.12	-0.09	-0.21
<i>Psychological well-being</i>								
Depressed	-0.16	-0.16	-0.10	-0.15	-0.21	-0.23	-0.05	-0.17
<i>School-related factors</i>								
School connectedness	0.49	0.38	0.30	0.26	0.32	0.29	0.28	0.30
School grades (self-report)	0.24	0.26	0.13	0.29	0.20	0.19	0.13	0.29
Truancy	-0.15	-0.15	-0.08	-0.15	-0.23	-0.22	0.01 <sup>ns</sup>	-0.27
<i>Standardized test scores<sup>a</sup></i>								
CST English Language Arts	0.15	0.04	0.12	0.12	0.12	0.00 <sup>ns</sup>	0.02 <sup>ns</sup>	0.02 <sup>ns</sup>
CST Mathematics	0.11	0.04	0.09	0.10	0.09	-0.03 <sup>ns</sup>	-0.02 <sup>ns</sup>	0.01 <sup>ns</sup>

a. Analytic sample for standardized test score results based on local evaluation data obtained from a large county in Southern California. Standardized test score and school/community asset data were available for 2,898 students, while test score and home and internal asset data were available for 651 students.

CST = California Standards Test

ns = not statistically significant from 0 ( $p < .05$ )

Note: Analytic sample for substance use, violence, psychological well-being, and school-related factors based on 12,000 7th-, 9th-, and 11th-grade respondents sampled from HKS surveys administered between spring 2003 and spring 2005.

TABLE B22

**Correlations between secondary school internal resilience assets and criterion variables**

	Self-efficacy	Empathy	Problem solving	Self-awareness
<i>Substance use</i>				
Lifetime tobacco use	-0.22	-0.14	-0.17	-0.24
30-day tobacco use	-0.19	-0.11	-0.14	-0.22
Tobacco use at school	-0.20	-0.13	-0.17	-0.21
Lifetime alcohol use	-0.20	-0.14	-0.16	-0.22
30-day alcohol use	-0.20	-0.13	-0.12	-0.20
30-day binge drinking	-0.17	-0.17	-0.14	-0.18
Alcohol use at school	-0.22	-0.20	-0.22	-0.25
Lifetime marijuana use	-0.29	-0.23	-0.14	-0.19
30-day marijuana use	-0.20	-0.16	-0.08	-0.14
Marijuana use at school	-0.25	-0.23	-0.20	-0.21
<i>Violence</i>				
Been pushed, shoved, etc.	-0.13	-0.14	-0.12	-0.11
Afraid of being beat up	-0.12	0.01 <sup>ns</sup>	-0.02 <sup>ns</sup>	-0.10
Physical fight	-0.16	-0.25	-0.22	-0.13
Mean rumors about you	-0.11	0.03 <sup>ns</sup>	0.02 <sup>ns</sup>	-0.12
Sexual jokes, comments	-0.09	0.04	0.01 <sup>ns</sup>	-0.15
Had property stolen	-0.11	-0.05	-0.08	-0.15
Offered drugs	-0.19	-0.14	-0.16	-0.22
Damaged school property	-0.23	-0.26	-0.26	-0.23
Feel unsafe at school	-0.25	-0.17	-0.21	-0.24
<i>Psychological well-being</i>				
Depressed	-0.26	0.02	-0.11	-0.30
<i>School-related factors</i>				
School connectedness	0.33	0.29	0.28	0.32
School grades (self-report)	0.29	0.22	0.21	-0.20
Truancy	-0.20	-0.15	-0.17	-0.19
<i>Standardized test scores<sup>a</sup></i>				
CST English Language Arts	0.05 <sup>ns</sup>	0.09	-0.03 <sup>ns</sup>	0.02 <sup>ns</sup>
CST Mathematics	0.05 <sup>ns</sup>	0.05 <sup>ns</sup>	-0.05 <sup>ns</sup>	0.02 <sup>ns</sup>

a. Analytic sample for standardized test score results based on local evaluation data obtained from a large county in Southern California. Standardized test score and school/community asset data were available for 2,898 students, while test score and home and internal asset data were available for 651 students.

CST = California Standards Test

ns = not statistically significant from 0 ( $p < .05$ )

Note: Analytic sample for substance use, violence, psychological well-being, and school-related factors based on 12,000 7th-, 9th-, and 11th-grade respondents sampled from HKS surveys administered between spring 2003 and spring 2005.

TABLE B23

**Correlations between elementary school resilience assets and criterion variables**

	Environmental assets			Internal assets	
	School support	Home support	Meaningful participation	Empathy	Goals and aspirations
<i>Substance use</i>					
Lifetime tobacco use	-0.25	-0.31	-0.20	-0.20	-0.28
Lifetime alcohol use	-0.26	-0.21	-0.23	-0.18	-0.28
Lifetime marijuana use	-0.12	-0.15	-0.13	-0.01 <sup>ns</sup>	-0.14
<i>Aggression victimization</i>					
Been pushed, shoved, etc.	-0.17	-0.12	-0.07	-0.07	-0.14
Mean rumors about you	-0.10	-0.13	-0.12	0.05 <sup>ns</sup>	-0.14
Been teased about body	-0.10	-0.13	-0.12	0.02 <sup>ns</sup>	-0.06 <sup>ns</sup>
<i>Aggression perpetration</i>					
Pushed, shoved, hit	-0.28	-0.23	-0.22	-0.33	-0.34
Spread mean rumors	-0.22	-0.21	-0.12	-0.22	-0.31
<i>Perceived safety</i>					
Feel unsafe at school	-0.48	-0.30	-0.14	-0.19	-0.41
Feel unsafe at other places	-0.20	-0.20	-0.11	-0.01 <sup>ns</sup>	-0.25
<i>Academic performance</i>					
School performance	0.17	0.20	0.14	0.09	0.25

ns = not statistically significant from 0 ( $p < .05$ )

Note: Analytic samples consist of 2,000 fifth-grade respondents sampled from surveys administered between spring 2003 and spring 2005. Weighted data.



TABLE B24

**Current and recommended measures of environmental resilience assets among secondary school students**

Current use of secondary school items		Recommended use of secondary school items	
Construct	Item	Construct	Item
School caring relationships	Adult who really cares about me.	School support	Adult who really cares about me.
	Adult who notices when I'm not there.		Adult who notices when I'm not there.
	Adult who listens to me when I have something . . .		Adult who listens to me when I have something . . .
School high expectations	Adult who tells me when I do a good job.	School support	Adult who tells me when I do a good job.
	Adult who always wants me to do my best.		Adult who always wants me to do my best.
	Adult who believes that I will be a success.		Adult who believes that I will be a success.
School meaningful participation	I do interesting activities.	School meaningful participation	I do interesting activities.
	I help decide things like class activities or rules.		I help decide things like class activities or rules.
	I do things that make a difference.		I do things that make a difference.
Community caring relations	Adult who really cares about me.	Community support	Adult who really cares about me.
	Adult who notices when I am upset about . . .		Adult who notices when I am upset about . . .
	Adult whom I trust.		Adult whom I trust.
Community high expectations	Adult who tells me when I do a good job.	Community support	Adult who tells me when I do a good job.
	Adult who believes that I will be a success.		Adult who believes that I will be a success.
	Adult who always wants me to do my best.		Adult who always wants me to do my best.
Community meaningful participation	I am part of clubs, sports teams, church/temple, or other . . .	Community meaningful participation	I am part of clubs, sports teams, church/temple, or other . . .
	I am involved in taking lessons in music, art, literature . . .		I am involved in taking lessons in music, art, literature . . .
	<b>I help other people.</b>		<b>Item dropped—functions differently for female/Mexican Americans</b>
Home caring relationships	Adult who is interested in my school work.	Home support	Adult who is interested in my school work.
	Adult who talks with me about my problems.		Adult who talks with me about my problems.
	Adult who listens to me when I have something . . .		Adult who listens to me when I have something . . .
Home high expectations	Adult who expects me to follow the rules.	Home support	Adult who expects me to follow the rules.
	Adult who believes that I will be a success.		Adult who believes that I will be a success.
	Adult who always wants me to do my best.		Adult who always wants me to do my best.
Home meaningful participation	<b>I do fun things or go fun places with my parents or other . . .</b>	Home meaningful participation	<b>Item dropped—functions differently for 11th graders</b>
	I do things at home that make a difference.		I do things at home that make a difference.
	I help make decisions with my family.		I help make decisions with my family.
Peer caring relationships	A friend who really cares about me.	Peer caring relationships	A friend who really cares about me.
	A friend who talks with me about my problems.		A friend who talks with me about my problems.
	A friend who helps me when I'm having a hard time.		A friend who helps me when I'm having a hard time.
Pro-social peers	<b>My friends get into a lot of trouble.</b>	Pro-social peers	<b>Item dropped—functions differently for females/Chinese Americans</b>
	My friends try to do what is right.		My friends try to do what is right.
	My friends do well in school.		My friends do well in school.

Note: **Green items** dropped from the recommended model because of differential item functioning, inconsistent loading patterns, or cross-loadings or because only a single item remains to measure construct.

TABLE B25

**Current and recommended measures of internal resilience assets among secondary school students**

Current use of secondary school items		Recommended use of secondary school items	
Construct	Item	Construct	Item
Cooperation and communication	I stand up for myself without putting others down.	Cooperation and communication <sup>a</sup>	Item dropped—cross-loadings
	I enjoy working together with other students my age.		Item dropped—cross-loadings
	I can work with someone who has different opinions than mine.		I can work with someone who has different opinions than mine.
Self-efficacy	I can work out my problems.	Self-efficacy	I can work out my problems.
	I can do most things if I try.		I can do most things if I try.
	There are many things that I do well.		There are many things that I do well.
Empathy	I feel bad when someone gets their feelings hurt.	Empathy	I feel bad when someone gets their feelings hurt.
	I try to understand what other people go through.		I try to understand what other people go through.
	I try to understand what other people feel and think.		I try to understand what other people feel and think.
Problem solving	I know where to go for help with a problem.	Problem solving	Item dropped—functions differently for females and males
	When I need help I find someone to talk with.		When I need help I find someone to talk with.
	I try to work out problems by talking or writing about them.		I try to work out problems by talking or writing about them.
Self-awareness	There is a purpose to my life.	Self-awareness	There is a purpose to my life.
	I understand my moods and feelings.		I understand my moods and feelings.
	I understand why I do what I do.		I understand why I do what I do.
Goals and aspirations	I have goals and plans for the future.	Goals and aspirations <sup>a</sup>	Item dropped—functions differently for African Americans/Mexican Americans
	I plan to graduate from high school.		Item dropped—only one item left to measure construct
	I plan to go to college or some other school after high school.		Item dropped—functions differently for Chinese Americans

a. Construct dropped because of insufficient number of items.

Note: **Green items** dropped from the recommended model because of differential item functioning, inconsistent loading patterns, or cross-loadings or because only a single item remains to measure construct.

TABLE B26

**Current and recommended measures of environmental resilience assets among elementary school students**

Current use of elementary school items		Recommended use of elementary school items	
Construct	Item	Construct	Item
School caring relationships	Do the teachers ... at school care about you?	School support	Do the teachers ... at school care about you?
	Teachers ... listen when ... have something to say?		Teachers ... listen when ... have something to say?
	Teachers ... tell you when you do a good job?		Teachers ... tell you when you do a good job?
School high expectations	Teachers ... believe that you can do a good job?	Home support	Teachers ... believe that you can do a good job?
	Parent ... care about your school work?		Parent ... care about your school work?
	Parent ... listen when you have something to say?		Parent ... listen when you have something to say?
Home high expectations	Parent ... believe that you can do a good job?	Meaningful participation <sup>a</sup>	Parent ... believe that you can do a good job?
	Parent ... at home want you to do your best?		Parent ... at home want you to do your best?
	<b>Do you make class rules/choose things to do at school?</b>		<b>Item dropped—construct has low internal consistency</b>
School meaningful participation	<b>Do you do things to be helpful at school?</b>	Pro-social peers <sup>b</sup>	<b>Item dropped—functions differently for boys and girls</b>
	<b>Do you help out at home?</b>		<b>Item dropped—construct has low internal consistency</b>
	<b>Do you make rules or choose things to do at home?</b>		<b>Item dropped—construct has low internal consistency</b>
Home meaningful participation	<b>Do your best friends get into trouble?</b>	Item not used—only one item left to measure construct	<b>Item dropped—functions differently for boys and girls</b>
	<b>Do your best friends try to do the right thing?</b>		<b>Item not used—only one item left to measure construct</b>

a. Construct dropped because of low internal consistency.

b. Construct dropped because of insufficient number of items.

Note: **Green items** are dropped from the recommended model because of differential item functioning, inconsistent loading patterns, or cross-loadings or because only a single item remains to measure construct. **Blue items** and the constructs they measure are not used in the recommended model because the constructs exhibit low internal consistency reliability.

TABLE B27

**Current and recommended measurement of internal resilience assets among elementary school students**

Current use of elementary school items		Recommended use of elementary school items	
Construct	Item	Construct	Item
Empathy	Do you try to understand how other people feel?	Empathy	Do you try to understand how other people feel?
	Do you feel bad when someone gets their feelings hurt?		Do you feel bad when someone gets their feelings hurt?
Problem solving	<b>Do you try to work out your problems by talking/writing ... ?</b>	Problem solving	<b>Item dropped—inconsistent loadings/cross-loadings</b>
	<b>Do you know where to go to get help with a problem?</b>		<b>Item dropped—construct has low internal consistency</b>
	<b>Do you try to do your best?</b>		<b>Item dropped—construct has low internal consistency</b>
Goals/aspirations	<b>Do you have goals and plans for the future?</b>	Goals/aspirations	<b>Item dropped—construct has low internal consistency</b>
	<b>Do you plan to go to college ... after high school?</b>		<b>Item dropped—construct has low internal consistency</b>

a. Construct dropped because of low internal consistency.

Note: **Green items** are dropped from the recommended model because of differential item functioning, inconsistent loading patterns, or cross-loadings or because only a single item remains to measure construct. **Blue items** and the constructs they measure are not used in the recommended model because the constructs exhibit low internal consistency reliability.