APPENDIX C
RESULTS AND MODEL SELECTION DETAILS

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. Figure C1 shows scree plots for the main and validation samples based on the total sample of secondary students. In both cases, seven eigenvalues are greater than 1.0. Focusing on the number of factors indicated on the x-axis before the plotted line turns sharply right, the plots are consistent with solutions ranging from 6 to 10 extracted factors.

An examination of the goodness-of-fit information for the EFA results produces ambiguous results (table C1).[13] Using the RMSEA cut-off value of 0.06, a 7-factor solution is supported, while the RMSR cut-off value of 0.05 supports a 5-factor solution. What is clear from table C1 (and figure C1) is that the 4-factor solution is not supported by the pattern of fit indices.

To adjudicate between these different solutions, the factor loadings for solutions ranging from four to nine extracted factors were examined. The factor pattern and loadings for these models are presented in appendix tables E4a–E10b. Appendix tables E11–E63 show EFA factor loadings for each demographic subgroup (main sample only). The

TABLE C1
Secondary school environmental resilience assets, total analytic sample, goodness-of-fit information for exploratory factor analysis models

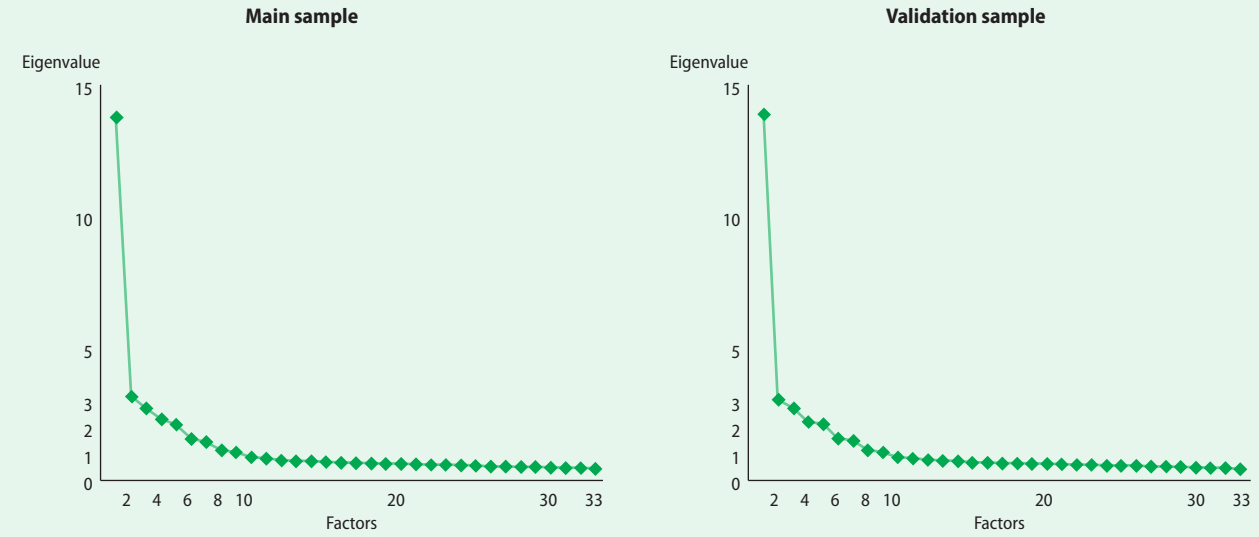
	Main sample		Validation sample	
Model	RMSEA	RMSR	RMSEA	RMSR
1 Factor	0.187	0.163	0.186	0.158
2 Factor	0.159	0.129	0.156	0.123
3 Factor	0.131	0.092	0.133	0.092
4 Factor	0.108	0.064	0.111	0.066
5 Factor	0.081	0.042	0.084	0.045
6 Factor	0.064	0.033	0.067	0.034
7 Factor	0.044	0.021	0.047	0.021
8 Factor	0.030	0.012	0.033	0.013
9 Factor	0.024	0.012	0.025	0.010

RMSEA = Root mean square error of approximation (recommended value ≤ 0.06)

RMSR = Root mean square residual (recommended value ≤ 0.05)

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.

FIGURE C1
Secondary environmental resilience asset scree plot, total analytic samples



patterns of loadings for 4-factor solutions (tables E4a and E4b) suggest that global 9-item school-, 6-item community-, and 9-item home asset constructs can be assessed by the RYDM items. There is also some support for a 5-item peer asset construct, although the loadings for the peer high expectations items (R46 and R47) are quite low. However, several of the items do not consistently load on any of the underlying constructs. Moreover, the factor patterns differ for 7th graders, 11th graders, and males (see tables E10, E22, and E28, respectively).

The 5-factor solutions presented in tables E5a and E5b produce a more general meaningful participation factor based on the school and community meaningful participation items. However, item R55 ("I do things at home that make a difference") cross-loads on two factors, and item R45 ("My friends get into a lot of trouble") does not load on any factor. Item cross-loadings and inconsistency across the main and validation samples are also apparent for the 6-factor and 7-factor solutions in tables E6a–E7b.

The 8-factor solutions in tables E8a and E8b 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 was consistent with those displayed in tables E8a and E8b.[14] Distinct factors are apparent for support and meaningful participation in the school, community, and home environments and caring and pro-social relationships in the peer environment. The factor pattern evident in the 8-factor solution is inconsistent with how the instrument is currently being used in California because the results suggest that caring relationships and high expectations at school, in the home, and the community are not distinct factors.

Confirmatory factor analysis results. CFA models were estimated based on the EFA results. Table C2 shows CFA goodness-of-fit information for 4-factor, 7-factor, and 8-factor CFA models. These models are equivalent to the EFA models shown in the appendix tables E4a, E4b, E7a, E7b, E8a, E8b, except that all but the highest magnitude loadings from the EFA models were constrained to be zero. An examination of the fit indices shows that the 4-factor solution has relatively poor fit, as demonstrated by the CFI, RMSEA, and WRMR values (model 1). The 7-factor model (model 2)—which includes a global home environmental assets factor, peer caring relations and peer high expectations factors, and distinct factors for support and meaningful participation in the school and community environments (4 factors)—provided a significantly better fit to the observed data than the 4-factor model. This is evident by the significant χ^2 difference between the 7- and 4-factor models and the RMSEA values of 0.53 and 0.55 for the main and validation samples, respectively. The 8-factor model (model 3a) was an improvement in fit over the 7-factor model, with a highly significant χ^2 difference test and CFI, TLI, and RMSEA values all within the thresholds for acceptable fit. The 8-factor solution is thus the most suitable model.

To test for differential item functioning across demographic subgroups, the CFA models were re-estimated with covariates to detect differences in measurement intercepts. An inspection of the measurement intercept modification indices revealed that several measurement intercepts differed by demographic subgroup. Models 3b and 3c in table C2 show fit indices for models with and without restrictions on the measurement intercepts identified.[15] A comparison of model 3b and model 3c suggests that relaxing the assumption of equal measurement intercepts improves model fit. Table C3 presents estimates of these measurement intercept differences for model 3c for both the main and the validation sample. Items R23 ("I help other people"), R54 ("I do fun things or go fun places with my parents"), and R45 ("My friends get into a lot of trouble") assess the underlying constructs differently for demographic subgroups.

TABLE C2

Secondary school environmental resilience asset, total analytic sample, goodness-of-fit information for confirmatory factor analysis models

Model	CFI	TLI	RMSEA	WRMR	$\Delta\chi^2$	*df*
Main sample						
(1) 4 Factors—school, community, home, peers	0.878	0.968	0.091	6.678		
(2) 7 Factors—one home factor	0.944	0.989	0.053	3.514	4,144.52	12
(3a) 8 Factors—see preferred EFA model (table B1)	0.961	0.993	0.042	2.869	1,045.00	6
(3b) 8 Factors—invariant measurement intercepts	0.959	0.991	0.038	2.453		
(3c) 8 Factors—5 variant measurement intercepts	0.962	0.992	0.037	2.380	417.98	5
(4) 8 Factors—3 items deleted	0.969	0.993	0.035	2.168[a]		
Validation sample						
(1) 4 Factors—school, community, home, peers	0.857	0.966	0.094	6.896		
(2) 7 Factors—one home factor	0.935	0.988	0.055	3.641	4,471.26	12
(3a) 8 Factors—see preferred EFA model (table B2)	0.956	0.993	0.043	2.761	1,160.09	6
(3b) 8 Factors—invariant measurement intercepts	0.954	0.991	0.040	2.555		
(3c) 8 Factors—5 variant measurement intercepts	0.956	0.991	0.039	2.497	344.33	5
(4) 8 Factors—3 items deleted	0.965	0.993	0.037	2.253[a]		

a. Preferred model

CFI = Comparative fit index (recommended value ≥ 0.95)

TLI = Tucker Lewis index (recommended value ≥ 0.95)

RMSEA = Root mean square error of approximation (recommended value ≤ 0.06)

WRMR = Weighted root mean square residual (recommended value ≤ 1.00)

df = degrees of freedom

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. All $\Delta\chi^2$ values are statistically significant ($p < .05$).

FIGURE C2

Elementary school environmental resilience asset scree plot, total analytic samples

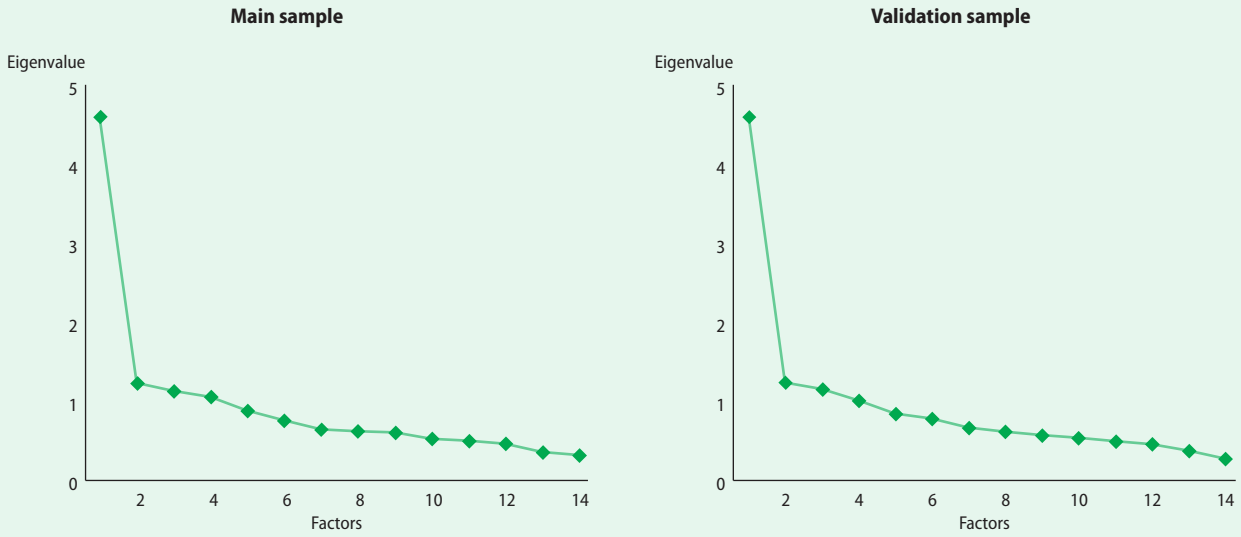


TABLE C3

Measurement intercept differences for environmental resilience assets, secondary school sample

Item		Female	Grade 9	Grade 11	African American	Chinese American	Mexican American
Main sample							
Community meaningful participation							
R21	I am part of clubs, sports teams, church/temp	0.00	0.00	0.00	0.00	0.00	0.00
R22	I am involved in taking lessons in music, art . . .	0.00	0.00	0.00	0.00	0.00	0.00
R23	I help other people.	**0.32**	0.00	0.00	0.00	0.00	**0.20**
Home meaningful participation							
R54	I do fun things or go fun places with parents . . .	0.00	0.00	**–0.29**	0.00	0.00	0.00
R55	I do things at home that make a difference.	0.00	0.00	0.00	0.00	0.00	0.00
R56	I help make decisions with my family.	0.00	0.00	0.00	0.00	0.00	0.00
Pro-social peers							
R45	My friends get into a lot of trouble.	**0.22**	0.00	0.00	0.00	**0.24**	0.00
R46	My friends try to do what is right.	0.00	0.00	0.00	0.00	0.00	0.00
R47	My friends do well in school.	0.00	0.00	0.00	0.00	0.00	0.00
Validation sample							
Community meaningful participation							
R21	I am part of clubs, sports teams, church/temple . . .	0.00	0.00	0.00	0.00	0.00	0.00
R22	I am involved in taking lessons in music, art . . .	0.00	0.00	0.00	0.00	0.00	0.00
R23	I help other people.	**0.28**	0.00	0.00	0.00	0.00	**0.18**
Home meaningful participation							
R54	I do fun things or go fun places with parents . . .	0.00	0.00	**–0.33**	0.00	0.00	0.00
R55	I do things at home that make a difference.	0.00	0.00	0.00	0.00	0.00	0.00
R56	I help make decisions with my family.	0.00	0.00	0.00	0.00	0.00	0.00
Pro-social peers							
R45	My friends get into a lot of trouble.	**0.20**	0.00	0.00	0.00	**0.18**	0.00
R46	My friends try to do what is right.	0.00	0.00	0.00	0.00	0.00	0.00
R47	My friends do well in school.	0.00	0.00	0.00	0.00	0.00	0.00

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. Non-bolded intercepts were constrained to be zero.

Elementary school environmental resilience assets

Exploratory factor analysis results. Figure C2 shows scree plots for the main and validation samples based on the total sample of elementary students. In both cases, four eigenvalues are greater than 1.0—suggesting that a 4-factor solution is most appropriate for the data. The fit indices in table C4 and the factor loadings for solutions ranging from 2 to 5 extracted factors (see appendix tables E65–E72) suggest 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. These results were found for both the main and the validation sample and for both boys and girls.

Confirmatory factor analysis results. Based on the EFA results, table C5 presents goodness-of-fit information for 3- and 4-factor CFA models. One 3-factor model (model 1) was fitted with distinct global factors for assets in the school, home, and

TABLE C4

Elementary school environmental resilience assets, total analytic sample, goodness-of-fit information for exploratory factor analysis models

	Main sample		Validation sample	
Model	RMSEA	RMSR	RMSEA	RMSR
1 Factor	0.093	0.087	0.092	0.089
2 Factor	0.079	0.063	0.079	0.063
3 Factor	0.067	0.048	0.063	0.042
4 Factor	0.046	0.032	0.048	0.030
5 Factor	0.033	0.020	0.043	0.023
6 Factor	0.021	0.014	—	—
7 Factor	0.007	0.008	—	—

— indicates solution could not be obtained due to over-factoring (Heywood case).

RMSEA = Root mean square error of approximation (recommended value ≤ 0.06)

RMSR = Root mean square residual (recommended value ≤ 0.05)

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

peer environments. This model fit the data less well than the 4-factor model with distinct factors for school support, home support, meaningful participation, and pro-social peers (model 2a).

To test for differences in measurement intercepts, model 2a was re-estimated with a covariate for student gender (model 2b).[16] The measurement intercept modification indices suggest that the 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. Allowing these measurement intercepts to vary by gender significantly improves the fit of the model (see table C5, models 2b versus 2c). 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 (table C6). In addition, females are substantially less likely to report that their "best friends try to do the right thing" (0.43 standard deviations). Because these measurement intercept differences are so large, these items should not be used to measure the underlying constructs.

Because dropping item 51 leaves only one item to measure pro-social peers, item 50 ("Do your best friends get into trouble?") should be dropped as well, and pro-social peer assets not be assessed on the elementary module.

After the pro-social peer items are dropped, the 3-factor model is left—with factors for school support, home support, and meaningful participation (model 4 in table C6). 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). Moreover, an inspection of the standardized loadings in the 2-factor model for items 9, 56, and 57 indicated that these meaningful participation items are weakly related to the underlying school and home factors (0.26, 0.37, and 0.24, respectively). Therefore the most support is found for the 3-factor model.

Secondary school internal resilience assets

Exploratory factor analysis results. The EFA models indicate that two of the three items used to assess cooperation and communication among middle and high school students—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. These items were therefore dropped from the analysis. Figure C3 presents scree plots for the main and validation samples. The plot shows that four eigenvalues are greater than one, and the plots are consistent with solutions ranging from three to six extracted factors. Using conventional cut-off levels, the RMSEA and RMSR values presented in table C7 are consistent with 4- and 3-factor solutions, respectively. A comparison of the factor pattern and loadings for the 3-factor and 4-factor models (see tables E84a, E84b, E85a, and E85b) suggests that the 4-factor solution has a simpler and more conceptually clear

TABLE C5

Elementary school environmental resilience asset, total analytic sample, goodness-of-fit information for confirmatory factor analysis models

Model	CFI	TLI	RMSEA	WRMR	$\Delta\chi^2$	*df*
Main sample						
(1) 3 Factors—school, home, peers	0.908	0.951	0.058	1.911		
(2a) 4 Factors—see preferred EFA model	0.938	0.966	0.048	1.578	82.39	3
(2b) 4 Factors—invariant measurement intercepts	0.932	0.960	0.049	1.598		
(2c) 4 Factors—2 variant measurement intercepts	0.943	0.966	0.045	1.480	46.31	2
(3) 2 Factors—school and home (3 items deleted)	0.943	0.966	0.053	1.729		
(4) 3 Factors—school support, home support, meaningful participation	0.944	0.966	0.053	1.663	10.71	2
Validation sample						
(1) 3 Factors—school, home, peers	0.898	0.932	0.065	2.148		
(2a) 4 Factors—see preferred EFA model	0.943	0.963	0.048	1.601	125.24	3
(2b) 4 Factors—invariant measurement intercepts	0.942	0.960	0.046	1.556		
(2c) 4 Factors—2 variant measurement intercepts	0.948	0.962	0.045	1.495	23.79	2
(3) 2 Factors—school and home	0.948	0.962	0.053	1.785		
(4) 3 Factors—school support, home support, meaningful participation (3 items deleted)	0.948	0.961	0.049	1.731[a]	8.07	2

a. Preferred model.

CFI = Comparative fit index (recommended value ≥ 0.95)

TLI = Tucker Lewis index (recommended value ≥ 0.95)

RMSEA = Root mean square error of approximation (recommended value ≤ 0.06)

WRMR = Weighted root mean square residual (recommended value ≤1.00)

df = degrees of freedom

Note: Analytic samples consist of 2,000 fifth-grade respondents sampled from surveys administered between spring 2003 and spring 2005. Weighted data. All $\Delta\chi^2$ values are statistically significant ($p < .05$).

TABLE C6

Gender measurement intercept differences for environmental resilience assets, elementary school sample

Item	Construct	Main sample	Validation sample
Meaningful participation			
9	. . . make class rules or choose things to do at school	0.000	0.000
15	Do you do things to be helpful at school?	**0.363**	**0.201**
56	Do you help out at home?	0.000	0.000
57	Do you get to make rules/choose things to do at home?	0.000	0.000
Pro-social peers			
50	Do your best friends get into trouble?	0.000	0.000
51	Do your best friends try to do the right thing?	**–0.425**	**–0.431**

Note: Analytic samples consist of 2,000 fifth-grade respondents sampled from surveys administered between spring 2003 and spring 2005. Weighted data. Non-bolded intercepts were constrained to be zero.

factor structure. In the 3-factor solution, two items load on more than one factor (see table E84a). The 5-factor solution (table E86a)—with distinct factors identified for self-efficacy, empathy, problem solving, self-awareness, and goals/aspirations—is also conceptually clear and is consistent with how the

FIGURE C3

Secondary school internal resilience asset scree plot, total analytic samples

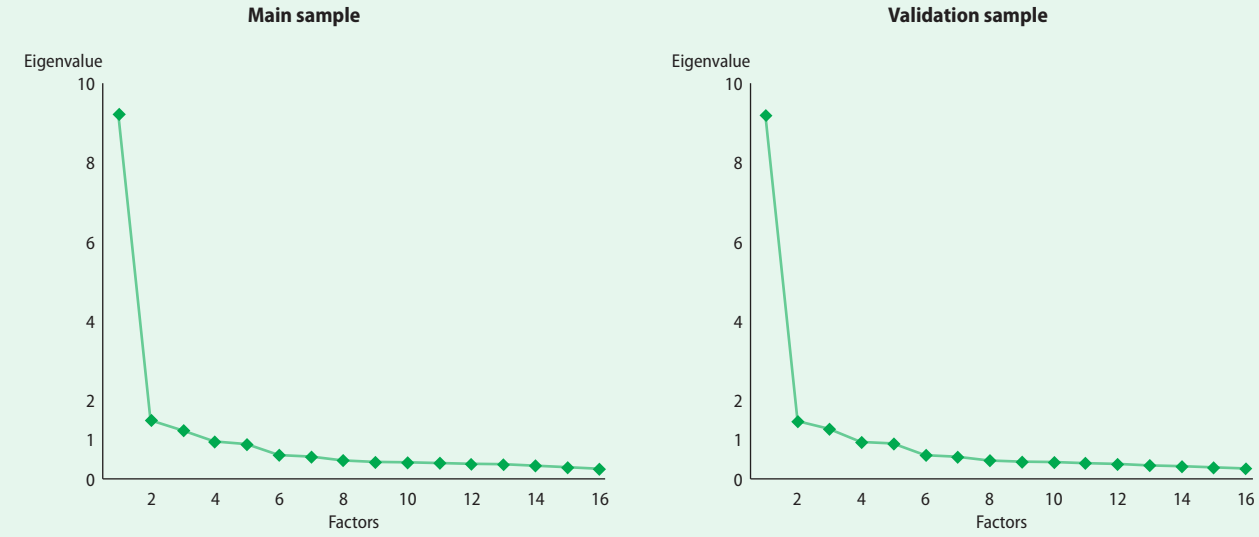


TABLE C7

Secondary school internal resilience assets, total analytic sample, goodness-of-fit information for exploratory factor analysis models

	Main sample		Validation sample	
Model	RMSEA	RMSR	RMSEA	RMSR
1 Factor	0.130	0.091	0.132	0.090
2 Factor	0.097	0.062	0.099	0.064
3 Factor	0.072	0.036	0.075	0.037
4 Factor	0.054	0.024	0.056	0.025
5 Factor	0.028	0.011	0.029	0.011
6 Factor	0.021	0.008	0.017	0.007
7 Factor	0.016	0.005	0.017	0.006

RMSEA = Root mean square error of approximation

RMSR = Root mean square residual

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.

instrument is currently being used in California. CFA models were estimated to help adjudicate between the 4- and 5-factor solutions.

Confirmatory factor analysis results. CFA models were estimated consistent with the 4- and 5-factor EFA models, with all but the highest loadings from the EFA models constrained to be zero. As shown in table C8, estimation of the 5-factor model resulted in an improvement in fit over the 4-factor model. The CFA models confirmed the pattern of factor loadings in table E86a.

Several consistent, substantively significant differences in measurement intercepts across racial/ethnic groups were evident when covariates were included in the CFA models. These differences are presented in table C9. Items R27 ("I know where to go for help with a problem"), R24 ("having goals and plans for the future"), and R26 ("plan to go to college after high school") function differently across demographic subgroups.

Elementary school internal resilience assets

Exploratory factor analysis results. Exploratory factor analyses of the elementary school internal resilience asset items suggested that a 2-factor solution was appropriate for both the main and validation samples. However, the factor patterns were different for the two samples and for 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

TABLE C8

Secondary school internal assets, total analytic sample, goodness-of-fit information for confirmatory factor analysis models

Model	CFI	TLI	RMSEA	WRMR	$\Delta\chi^2$	*df*
Main sample						
(1) 4 Factors	0.891	0.979	0.079	4.841		
(2a) 5 Factors	0.915	0.984	0.068	3.988	770.99	4
(2b) 5 Factors—invariant measurement intercepts	0.923	0.980	0.055	3.200		
(2c) 5 Factors—5 variant measurement intercepts	0.931	0.982	0.053	3.007	288.45	3
(3) 4 Factors—4 items deleted	0.955	0.988	0.067	3.731		
Validation sample						
(1) 4 Factors	0.881	0.980	0.077	4.702		
(2a) 5 Factors	0.910	0.985	0.066	3.827	761.37	4
(2b) 5 Factors—invariant measurement intercepts	0.919	0.981	0.054	3.123		
(2c) 5 Factors—5 variant measurement intercepts	0.926	0.982	0.052	2.955	251.52	3
(3) 4 Factors—4 items deleted	0.948	0.988	0.066	3.623		

CFI = Comparative fit index

TLI = Tucker Lewis index

RMSEA = Root mean square error of approximation

WRMR = Weighted root mean square residual

df = degrees of freedom

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 C9

Measurement intercept differences for internal resilience assets, secondary school sample

Item	Construct	Female	African American	Chinese American	Mexican American
Main sample					
Problem solving					
R35	When I need help I find someone to talk with.	0.00	0.00	0.00	0.00
R27	I know where to go for help with a problem	**–0.34**	0.00	0.00	0.00
R28	I try to work out problems by talking or writing about them.	0.00	0.00	0.00	0.00
Goals					
R24	I have goals and plans for the future.	0.00	0.00	0.00	0.00
R25	I plan to graduate from high school.	0.00	**0.34**	**–0.51**	**0.23**
R26	I plan to go to college or some other school after high school.	0.00	0.00	**–0.25**	0.00
Validation sample					
Problem solving					
R35	When I need help I find someone to talk with.	0.00	0.00	0.00	0.00
R27	I know where to go for help with a problem	**–0.22**	0.00	0.00	0.00
R28	I try to work out problems by talking or writing about them.	0.00	0.00	0.00	0.00
Goals					
R24	I have goals and plans for the future.	0.00	0.00	0.00	0.00
R25	I plan to graduate from high school.	0.00	**0.32**	**–0.52**	**0.20**
R26	I plan to go to college or some other school after high school.	0.00	0.00	**–0.30**	0.00

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. Non-bolded intercepts were constrained to be zero.

FIGURE C4

Elementary school internal resilience asset scree plot, total analytic samples

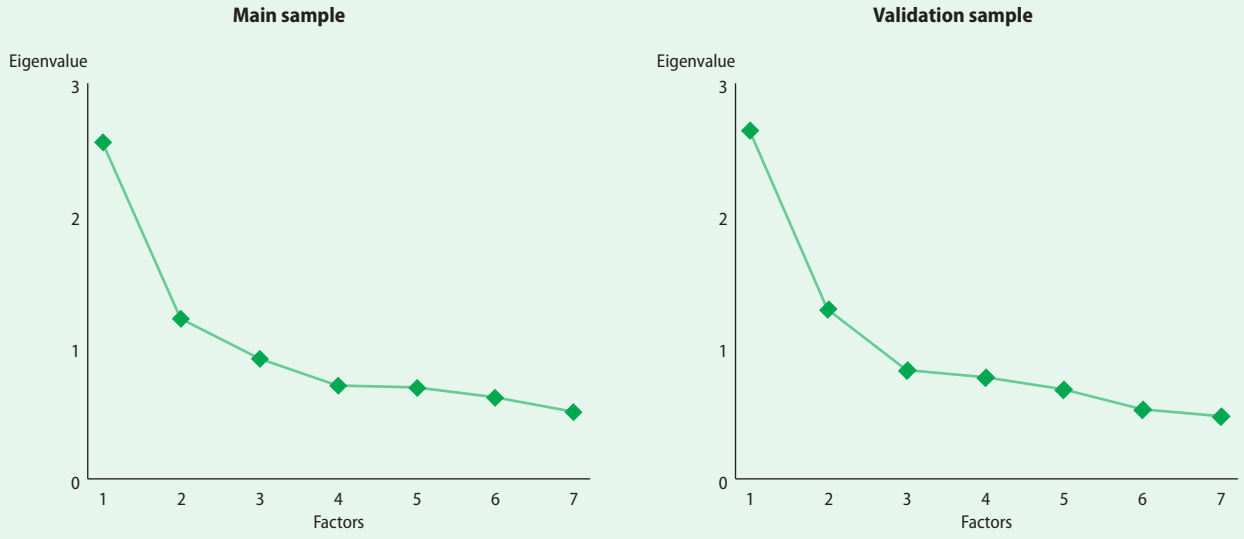


TABLE C10

Elementary school internal resilience assets, total analytic sample, goodness-of-fit information for confirmatory factor analysis models

Model	CFI	TLI	RMSEA	WRMR	$\Delta\chi^2$	*df*
Main sample						
(1) 1 Factor—Item 40 dropped	0.919	0.898	0.079	2.198		
(2) 2 Factor—empathy & goals/aspirations	0.987	0.982	0.033	1.014	69.57	1
Validation sample						
(1) 1 Factor—Item 40 deleted	0.877	0.846	0.103	2.777		
(2) 2 Factor—Empathy and goals/aspirations	0.959	0.942	0.063	1.649	79.92	1

CFI = Comparative fit index

TLI = Tucker Lewis index

RMSEA = Root mean square error of approximation

WRMR = Weighted root mean square residual

df = degrees of freedom

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

(see tables E124a–E132). The EFA factor patterns continued to be ambiguous after dropping item 40—most likely because so few items remained to be analyzed. Thus a CFA framework was estimated with two nested models—a 1-factor model measuring overall internal assets and a 2-factor model measuring empathy and goals/aspirations.

Confirmatory factor analysis results. Table C10 shows goodness-of-fit information for the 1-factor and 2-factor CFA models. The 2-factor model (model 2)—which includes distinct factors for empathy and goals/aspirations—exhibited a significantly better fit to the observed data than the 1-factor model.

APPENDIX D
OTHER ASSESSMENTS OF RESILIENCE AND RELATED FACTORS

This appendix describes the quality and psychometric properties of other elementary and secondary school assessments of environmental and internal resilience assets.

The Search Institute's Attitude and Behavior Questionnaire (ABQ), the most commonly used asset assessment in the United States, is a 152-item questionnaire designed to assess 40 developmental assets[17] among students in grades 6–12—including social competence, self-esteem, and social support in the school and home environments (Price, Dake, & Kucharewski, 2002). The instrument averages 2.3 items per subscale (asset), with 13 of the 40 Search Institute assets measured by just one item. Price et al.'s psychometric analyses of the ABQ indicated that the items assess eight developmental assets—with average internal consistency of 0.50 and stability reliabilities of 0.45 (Price et al., 2002). Thus, the ABQ has relatively poor psychometric properties. In addition, the ABQ is not built upon a strong theoretical approach and assesses only one environmental asset in the school domain (caring school climate).

The Communities That Care Youth Survey (CTC) was designed to assess an array of risk and protective factors among adolescents aged 11 to 18, including family attachment, peer pro-social involvement, and opportunities for pro-social involvement and recognition of pro-social involvement in the school, family, and community domains (Arthur, Hawkins, Pollard, Catalano, & Baglioni, 2002). The instrument contains an average of 3.3 items per protective factor measured, with a mean alpha of 0.75 (Arthur et al., 1996). The protective factor scales have demonstrated respectable internal consistency on large national samples (Beyers, Toumbourou, Catalano, Arthur, & Hawkins, 2004). Although the content of the CTC survey overlaps with the resilience and youth development module, its coverage of environmental and internal assets is more limited. Just two are used to measure opportunities for pro-social involvement and just three for recognition of pro-social involvement in the school domain. These constructs exhibited internal consistency reliabilities of 0.55 and 0.60. No test-retest reliabilities have been reported.

Several environmental and internal asset scales also have been developed for the Child Development Project (CDP) (Battistich, 2003; Battistich, Schaps, Watson, Solomon, & Lewis, 2000; Battistich, Schaps, & Wilson, 2004). The items, designed for students in grades 3–6, assess sense of school community (18 items, alpha=0.81), trust and respect for teachers (6 items, alpha=0.79), positive teacher-student relations (3 items, alpha=0.63), and peers' positive involvement in school (5 items, alpha=0.78). The CDP instrument also assesses personal and social attitudes consistent with resilience theory, including concern for others (10 items, alpha=0.80), efficacy (9 items, alpha=0.81), and global self-esteem (3 items, alpha=0.79). The domains covered by CDP are consistent with Benard's (2004) resiliency framework, and the protective factor scales demonstrate respectable internal consistency reliability, particularly given that the instrument targets elementary school students. However, with 147 items, the instrument is too lengthy for widespread administration in California school settings.

The Social Skills Rating System (SSRS) Student Form (Gresham & Elliot, 1990), another more widely used and respected assessment, assesses several personal strengths characteristic of resilience. The instrument includes 10-item scales measuring cooperation (alpha=0.68), assertion (alpha=0.59), empathy (alpha=0.75), and self-control (alpha=0.66). Stability reliabilities for these scales average 0.58 (Gresham & Elliot, 1990). Thus, both internal consistency and stability reliabilities for the SSRS student form are below conventional levels of adequacy.

Numerous other resilience-related assessments exist, including the Resilience Scale (Wagnild & Young, 1993), the Rochester Evaluation of Asset Development for Youth (Klein et al., 2006), the

Youth Asset Survey (Oman et al., 2002), the Individual Protective Factors Index (Springer & Philips, 1995), and the Resilience Scale for Adolescents (Hjemda, Friborg, Stiles, Martinussen, & Rosenvinge, 2006). However, no other instrument, when compared with the resilience and youth development module, provides as comprehensive and balanced coverage of environmental and internal assets and is short enough for widespread administration in classroom settings.[18]