

The background features a network diagram of interconnected nodes and lines, primarily in shades of orange and teal, set against a white background. The diagram is composed of numerous small circles (nodes) connected by thin lines, creating a complex web-like structure. The nodes are more densely packed in the upper right and lower right areas, with some larger nodes acting as hubs. The overall aesthetic is modern and technical.

Social Capital Assessment + Learning for Equity (SCALE) Measures

TECHNICAL
MANUAL

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Social Capital Assessment and Learning for Equity Project

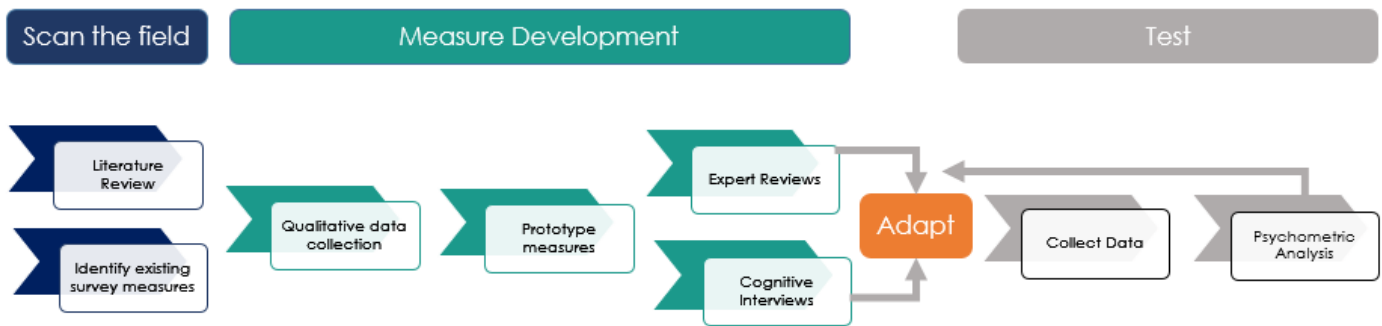
The Social Capital Assessment and Learning for Equity Project (SCALE) - funded by the Bill & Melinda Gates Foundation - was launched in January 2020 with the purpose of understanding how social capital and strong peer-to-peer relationships help youth and young adults secure education and/or employment opportunities. Social capital can be defined as the resources that arise from a web of relationships, which people can access and mobilize to help them improve their lives and achieve their goals (Scales et al., 2020). Organizations have the potential to promote social capital by connecting youth and young adults to both relationships and resources. One mechanism for centering social capital development in a program's work is to measure how participants experience the relationship-building efforts within the program and to track the resources these relationships facilitate access to. Thus, a key goal of this project was to develop and rigorously test a set of social capital measures and related constructs for youth and young adults that were reliable, valid, and theoretically sound.

This technical manual summarizes our social capital measures, using data collected in January - March 2021 from six partner organizations (i.e., Basta, Beyond 12, Braven, Climb Hire, COOP, and nXu). These measures are organized around four domains: (a) social capital, (b) mindsets and skills for social capital development, (c) support for social capital development, and (d) program outcomes.

Our hope is that programs, schools, and organizations use these measures to make programmatic changes that improve the relationships being formed within and outside their program(s), while also ensuring all youth and young adults are being equitably supported.

Measure Development Process

A four-step mixed methods process, which is outlined below was used to develop psychometrically sound measures of social capital and related constructs for youth and young adults.



Literature Review

An extensive review of the literature on social capital among youth and young adults was conducted. This work was guided by three aims. The first aim was to identify gaps in the scientific literature on the social capital of youth and young adults, particularly among young people of color and from low-income backgrounds. The second aim was to provide a theoretical foundation for our definition of social capital and how youth and young adult-serving organizations support social capital development. And the last aim was to identify how social capital has been previously measured in the academic literature. Please see Scales et al., 2020 for the full review.

Qualitative Data Collection

We facilitated a number of focus groups to help determine the scope and specifications of social capital and relevant outcome measures for the partnering youth and young adult-serving organizations. This included focus groups with 74 individuals including 24 staff members, 33 current program participants, and 17 alumni from partner organizations. The sample was evenly distributed across partner organizations. Our goal was to better understand how youth and young adults experience relationships and social capital within the six partner programs. The resulting qualitative data were analyzed for key themes, and used to directly inform measure development. For a full description of research methodology and findings see Boat et al., 2020.

Cognitive Interviews & Expert Reviews

Prior to the pilot administration, the initial draft measures were subjected to several rounds of careful review to test readability, interpretation, and contextual and cultural appropriateness. Vetting procedures included expert reviews by staff from all six partner organizations, staff reviews from researchers at Search Institute ($n = 7$), and reviews by researchers and program evaluators from other organizations and academic institutions ($n = 4$). These reviews helped the measure development team sharpen the conceptual clarity and dimensionality of each construct being measured, and helped evaluate from the partner program perspective, the utility of the measures as an assessment of social capital and other related constructs.

Following expert reviews, survey items also were subjected to cognitive interviews with youth and young adults from each of the partnering organizations ($n = 7$). The goal of these one-on-one interviews was to identify whether survey items achieved our intended measurement purpose and, if not, where and how they could be improved. A variety of cognitive probes were used to assess young people's abilities to comprehend and accurately respond to the items intended to assess social capital. The cognitive interviews helped our team identify potential comprehension problems and were used to inform the revision and simplification of several survey items.

Measure Administration

The developed measures were administered by each of the six partner organizations using standardized administration procedures. Partners invited all current program participants to take the survey. The survey took participants roughly 10-15 minutes to complete. It was made clear to participants that the survey was anonymous and that the data would be analyzed by Search Institute. It was also made clear that participation was completely voluntary and that choosing to not participate would in no way impact participants' relationship with their program. All participants had the opportunity to enter into a \$50 e-gift card raffle as a thank you for their participation.

Sample Description

The social capital measures were administered to 994 youth and young adults that were current program participants in one of the six partner organizations. Ninety-five percent of the 994 program participants were aged between 13 and 52 ($M_{AGE}=20.76$). Over half of the sample identified as female (69.7%). The three largest self-identified racial and ethnicity groups were Hispanic/Latino(a) (33.4%), Black/African American (28.1%), and Asian or Pacific Islander (19.2%). See Table 1 for more details.

Table 1. Demographic characteristics of young people who participated in the Social Capital Assessment and Learning for Equity Pilot Survey

	Sample Size	%		Sample Size	%
Gender			Edu. Attainment		
Male	284	29.0	Some HS or currently in HS	48	4.9
Female	682	69.7	HS graduate / GED	45	4.6
Other	10	1.0	Some college or currently in college	672	68.7
Self-described	3	0.3	VocTec or 2-year degree	11	1.1
Transgender	6	0.6	Bachelors or higher	202	20.7
F to M	0	0.0	Tenure in Program		
M to F	1	20.0	0-3 months	169	17.3
Non-binary	4	80.0	4-12 months	525	53.6
Race			More than a year	285	29.1
Asian or Pacific Islander	188	19.2	Program		
Black, African American, or African	275	28.1	Basta	110	11.1
Hispanic, Latin, or Spanish	327	33.4	Beyond 12	614	61.8
Native American or Alaska Native	3	0.3	Braven	62	6.2
White	57	5.8	Climb Hire	71	7.1
Prefer to self-describe	12	1.2	COOP	93	9.4
Multiracial	116	11.9	nXu	44	4.4

Notes. Percentages in this table are valid percents; i.e., denominators used to calculate the percentages vary across items. One survey was dropped because the individual did not provide consent to participate in the study; 75 additional surveys were dropped because no data were provided after the consent item (i.e., no responses were provided for any of the survey items). The transgender category item was only posed to respondents who indicated 'yes' to the transgender item. Numbers may not add up to 100% if there was missing data.

Measures

A description of each of the social capital measures and how to administer them can be found in Search Institute's User Guide. The psychometric properties of the measures are presented across four domains: (1) social capital; (2) mindsets and skills for social capital development; (3) support for social capital development, and (4) program outcomes.

Response Scale

All survey items have five response options, scored on an agreement scale from 0 (*Strongly Disagree*) to 4 (*Strongly Agree*). Each point on the scale was labeled with a general orientation from left-to-right of negative (or less) to positive (or more).

0	1	2	3	4
Strongly Disagree	Disagree	Somewhat Disagree; Somewhat Agree	Agree	Strongly Agree

Statistical Approach

All measures underwent psychometric testing to ensure they are both reliable and valid. A brief description of the three primary statistical approaches (confirmatory factor analyses, internal reliability, measurement invariance) used to assess the psychometric properties of each of the social capital measures is provided below.

Confirmatory Factor Analysis (CFA). CFAs were conducted on each measure with three or more items to examine the scale's measurement properties. We primarily used Mplus version 7.2, a structural equation modeling (SEM) statistical software program. A SEM methodological approach is ideal for testing measurement models because it uses items to estimate a conceptual model and accounts for measurement error. Factor loadings along with model fit, latent means, and latent standard deviations come from CFA models.

Internal Reliability. Internal reliability calculations assess the extent to which items measure the same general construct. In reporting internal reliability, we report Cronbach's alpha coefficient, which is overwhelmingly the most common reliability statistic used in the social science literature.

Measurement Invariance Tests. Measurement invariance tests were also conducted to determine whether the measures work well across various subgroups – for instance, a measure that is determined to be invariant across gender means it is reasonable to conclude that young people who identify as female and young people who identify as male have a uniform understanding and interpretation of survey items. In contrast, a measure that is not invariant indicates that certain groups of youth or young adults may be interpreting survey items differently than others. The results of measurement invariance evaluations by gender (male vs. female), and race (Asian/Pacific Islander vs. Black vs. Hispanic vs. Native American vs. White vs. Other vs. Multiracial) are reported. A checkmark (✓) indicates that the model is considered to be invariant across the groups being compared; NA indicates that measurement invariance was unable to be assessed (in most cases due to small sample sizes). If a model is not invariant, a note was included to indicate the level that failed to meet the test's invariance criteria (configural, metric, or scalar).

Interpretation of Psychometric Properties of Measures

For each measure, we include a table that provides key descriptive and psychometric information. Below is a brief overview on how to interpret each parameter.

Factor loadings. Factor loadings can be interpreted as a correlation between an item and the underlying factor. We report standardized factor loadings, which range from 0 to 1. Higher loadings mean that the variable is a stronger indicator of the construct. Generally, factor loadings of .4 and above are considered acceptable.

Mean. A latent mean should be interpreted as the sample average. To calculate the latent means, we utilized an effects coding procedure (Little, 2013). Effects coding is a method of scaling variables for model identification that constrains the intercepts to sum to zero and sets the factor loadings to average 1. This process allows the means of the latent constructs to be estimated.

Standard deviation. The standard deviation of the latent variable measures how concentrated the data are around the mean. Larger standard deviations indicate that individual responses vary more widely from the mean, and smaller standard deviations indicate that individual responses are closely gathered around the mean.

Model fit. Every CFA model comes with a set of model fit indices, which provides an indication of how 'good' the overall construct is, based on the collected data. A summary of these fit indices can be found below:

χ^2 (Chi-square). Smaller values and non-significant p values (probability, an indicator of significance level) indicate better fit. Non-significant p values are ideal, although uncommon with large sample sizes. The model's number of degrees of freedom (df) are reported in parentheses.

RMSEA (Root Mean Square Error of Approximation). Smaller values indicate better fit. Values lower than or equal to .08 are acceptable; values lower than or equal to .05 are recommended.

CFI (Comparative Fit Index). Larger values indicate better fit – values of .90 or greater are recommended.

TLI (Tucker Lewis Index). Larger values indicate better fit – values of .90 or greater are recommended.

SRMR (Standardized Root Mean Square Residual). Smaller values indicate better fit – values lower than or equal to .05 are recommended.

Just-identified model. A just-identified model in SEM is a model where the number of free parameters equals the number of known values, leaving zero degrees of freedom. Although model fit is perfect by definition, the factor loadings can be interpreted as usual. All of our 3-item measures are just-identified, thus no model fit indices are provided.

Overall fit assessment. Each of the model fit indices are based on unique sets of assumptions – therefore, each index has different strengths and weaknesses. Consequently, any given CFA model's fit cannot be properly assessed by evaluating just one or two of the indices – overall fit assessment requires a holistic approach. Please note that the determination of overall fit assessment entails some subjectivity: (1) it is sometimes the case that some of a model's indices fall very close to the rule-of-thumb thresholds; and (2) when comparing two or more models, the models are often assessed on their fit *relative to each other*.

Cronbach's alpha (α). Alpha coefficients are indicators of internal reliability – i.e., how closely related the items making up each measure are, or how well the items are at measuring the same construct. Alphas range from 0 to 1; higher values are preferable to lower ones. A general rule of thumb is that alphas greater than or equal to .70 indicate acceptable internal reliability.

Measurement invariance. Measurement invariance tests were run to test for invariance across gender (male vs. female) and race (the precise race groups that were tested varied between models, based on subgroup sample size). There are multiple tests of measurement invariance that are used by psychometrics scholars and practitioners. We used the Comparative Fit Index (CFI), proposed by Cheung and Rensvold (2002). This test posits that as long as the difference in a measure's CFI values does not exceed ± 0.010 across each invariance level, the measure can be considered to be invariant across the groups being compared.

Three invariance levels were assessed:

1. Configural, or equivalence of model structures;
2. Metric (weak factorial), or configural + equivalence of factor loadings;
3. Scalar (strong factorial), or metric + equivalence of residuals.

Failure to achieve all three levels of invariance does not necessarily indicate that the measure is flawed; and in some cases, it might even be expected (e.g., older youth may have a more-nuanced understanding of social and emotional competencies than younger youth). Rather, findings identify potential measurement differences that should be considered when using the measures across different groups of young people.

Notes: *All psychometric analyses are sample-specific. In other words, the reliability indicators and CFA model results reported in this technical manual will be different for other survey administrations. It is reasonable to expect, however, that the measures will have similar psychometric properties across multiple administrations.*

Domain 1. Social Capital

Social Capital

Instructions: These questions ask about your relationships with people in your life. We are asking these questions because we want to understand the different kinds of support you have from each of these people.

How much do you disagree or agree with each statement?	Factor Loadings		
	With Peers	With Near Peers	With Teachers or Professors
Elements of a Developmental Relationship			
[RELATIONAL TARGET] show me that I matter to them	.87	.74	.78
[RELATIONAL TARGET] challenge me to be my best	.83	.76	.83
[RELATIONAL TARGET] listen to my ideas and take them seriously	.79	.78	.81
[RELATIONAL TARGET] help me accomplish tasks	.81	.83	.82
[RELATIONAL TARGET] introduce me to new experiences or opportunities	.79	.78	.79
Resources Acquired From Relationships			
[RELATIONAL TARGET] provide me with useful information for pursuing my education or career goals	.84	.83	.87
[RELATIONAL TARGET] support me in developing or strengthening the skills needed to pursue my education or career goals	.88	.83	.86
[RELATIONAL TARGET] connect me with other people who help me pursue my education or career goals	.77	.78	.72
Alpha Coefficient	.94	.93	.92
Mean	3.00	3.25	2.83
Standard Deviation	.77	.66	.73
Measurement Invariance			
Gender	✓	✓	✓
Race: Asian/Pacific Islander vs. Hispanic/Latino(a) vs. Other ^a	✓	✓	✓
Model fit indices _{SPEER}	$\chi^2(df)=73.35^{***} (19)$; RMSEA=.10; CFI=.97; TLI=.96; SRMR=.03		
Model fit indices _{SNEAR PEER}	$\chi^2(df)=81.45^{***} (19)$; RMSEA=.08; CFI=.98; TLI=.96; SRMR=.03		
Model fit indices _{STCHR/PROF}	$\chi^2(df)=173.24^{***} (19)$; RMSEA=.10; CFI=.96; TLI=.95; SRMR=.03		

Notes. The latent correlation between the Developmental Relationships and Resources constructs are .949 for the Peers model, .922 for the Near Peers model, and .913 for the Teachers or Professors model. It is also possible to measure developmental relationships and the resources provided from these relationships separately.

^a Due to small sample sizes and/or model complexity, young people who identified as Black/African American/African, Native American/Alaskan Native, White, or Multiracial were categorized as Other.

Network Strength & Network Diversity

Instructions: The next set of questions ask about your network. By network, we mean the people in your life both within and outside of [Program/Organization Name] who can help you achieve your education or career goals. Think about these people when you answer these questions.

How much do you disagree or agree with each statement?	Factor Loadings			
	Network Diversity & Strength	Network Diversity	Network Strength	
Network Diversity				
I have people in my network with different skills that will be useful to me as I pursue my goals.	.68	.62		
I have people in my network with many different careers or career interests.	.73	.73		
I have people in my network from many different cultures or racial/ethnic backgrounds.	.70	.74		
I have people in my network from many different economic backgrounds.	.65	.68		
Network Strength				
I have people in my network that I can trust to help me pursue my education or career goals.	.79		.79	
I have people in my network that introduce me to others who can help me reach my education or career goals.	.80		.79	
I have people in my network who I am close to that help me pursue my education or career goals.	.82		.82	
I have people in my network who I am less close to but who are influential in helping me reach my education or career goals.	.63		.63	
I have people in my network who help me when they say they are going to help me.	.71		.71	
	Alpha Coefficient	.88	.78	.86
	Mean	2.92	2.94	2.91
	Standard Deviation	.63	.71	.69
Measurement Invariance				
	Gender	✓	✓	✓
Race: Asian/Pacific Islander vs. Black/African American/African vs. Hispanic/Latino(a) vs. Multiracial vs. Other ^a		✓	metric	✓

Model fit indices _{STR+DIV}	$\chi^2(df)=115.73^{***}$ (26); RMSEA=.07; CFI=.97; TLI=.96; SRMR=.03
Model fit indices _{STRENGTH}	$\chi^2(df)=37.63^{***}$ (2); RMSEA=.15; CFI=.96; TLI=.88; SRMR=.03
Model fit indices _{DIVERSITY}	$\chi^2(df)=33.56^{***}$ (5); RMSEA=.08; CFI=.98; TLI=.97; SRMR=.02

Notes. This measure can be used as a two-factor measure, and also separately as independent measures. The latent correlation between Network Diversity and Network Strength in the two-factor model is .77.

^a Due to small sample sizes and/or model complexity, young people who identified as Native American/Alaskan Native or White were categorized as Other.

Domain 2. Mindsets and Skills for Social Capital Development

Catalysts to Mobilize Relationships and Resources

Instructions: These questions ask about your relationships with people in your life. We are asking these questions because we want to understand the different kinds of support you have from each of these people

How much do you disagree or agree with each statement?	Factor Loadings		
	With Peers	With Near Peers	With Teachers or Professors
[RELATIONAL TARGET] help me imagine new possibilities for my future	.87	.81	.81
[RELATIONAL TARGET] make me feel confident that I can reach my education or career goals	.85	.84	.87
[RELATIONAL TARGET] help me understand my own strengths and weaknesses	.78	.80	.76
[RELATIONAL TARGET] show me how to build and maintain strong relationships with others	.82	.81	.75
Alpha Coefficient	.90	.89	.87
Mean	3.06	3.22	2.78
Standard Deviation	.81	.71	.80
Measurement Invariance			
Gender	✓	✓	NA
Race: Asian/Pacific Islander vs. Black/African American/African vs. Hispanic/Latino(a) vs. Multiracial vs. Other ^a	metric	✓	NA
Model fit indices ^{SPEER}	$\chi^2(df)=3.28 (2)$; RMSEA=.05; CFI=1.00; TLI=.99; SRMR=.01		
Model fit indices ^{NEAR PEER}	$\chi^2(df)=43.08^{***} (2)$; RMSEA=.17; CFI=.97; TLI=.92; SRMR=.02		
Model fit indices ^{STCHR/PROF}	$\chi^2(df)=5.76 (2)$; RMSEA=.06; CFI=1.00; TLI=.99; SRMR=.01		

Notes. We were unable to test for measure invariance for the catalysts with teacher or professors due to the model's estimated covariance matrix being non-invertible.

^a Due to small sample sizes and/or model complexity, young people who identified as Native American/Alaskan Native or White were categorized as Other.

Self-Initiated Social Capital

How much do you disagree or agree with each statement?	Factor Loading
When working towards my education or career goals, I ask for help when I need it.	.66
I go out of my way to meet new people in order to reach my education or career goals.	.82
I form strong relationships with people who are useful for helping me reach my education or career goals.	.79
Alpha Coefficient	.80
Mean	2.78
Standard Deviation	.79

Notes. This model is just identified; thus no fit indices are reported. Measurement invariance cannot be tested for just-identified measures because these measures have insufficient degrees of freedom to calculate model fit indices (which measurement invariance tests rely on).

Relationship-Building Skills

How much do you disagree or agree with each statement?	Factor Loading
I am good at building relationships with others.	.78
I communicate well with others.	.87
I work well with others in a group or team.	.74
I know how to solve and manage conflicts with other people.	.74
Alpha Coefficient	.86
Mean	3.19
Standard Deviation	.66
Measurement Invariance	
Gender	✓
Race	NA

Model fit indices $\chi^2(df)=15.10^{***} (2)$; RMSEA=.20; CFI=.96; TLI=.87; SRMR=.04

Notes. There were insufficient subgroup sizes to test for race invariance.

Networking Skills

How much do you disagree or agree with each statement?	Factor Loading
I build relationships with people in my network who can help advance my education or career goals.	.81
I find ways to pay back people in my network for helping me out.	.74
I use my current network to meet new people.	.83
I am able to use the resources I gain from my network to pursue my goals.	.81
Alpha Coefficient	.87
Mean	2.84
Standard Deviation	.78
Measurement Invariance	
Gender	✓
Race: Asian/Pacific Islander vs. Black/African American/African vs. Hispanic/Latino(a) vs. Multiracial vs. Other ^a	✓

Model fit indices $\chi^2(df)=2.31 (2)$; RMSEA=.02; CFI=1.00; TLI=1.00; SRMR=.01

^a Due to small sample sizes and model complexity, young people who identified as Native American/Alaskan Native or White were categorized as Other.

Personal Identity

How much do you disagree or agree with each statement?	Factor Loading
I am comfortable with who I am.	.82
I know myself well.	.94
I know my strengths and weaknesses.	.68
Alpha Coefficient	.85
Mean	3.00
Standard Deviation	.81

Notes. This model is just identified; thus no fit indices are reported. Measurement invariance cannot be tested for just-identified measures because these measures have insufficient degrees of freedom to calculate model fit indices (which measurement invariance tests rely on).

Racial and Ethnic Identity¹

How much do you disagree or agree with each statement?	Factor Loading
I have a clear sense of my racial/ethnic background and what it means for me.	.67
My racial/ethnic background matters to me.	.91
I think about how my racial/ethnic background affects my life.	.75
My racial/ethnic background is an important part of who I am.	.88
Alpha Coefficient	.88
Mean	3.27
Standard Deviation	.72
Measurement Invariance	
Gender	✓
Race	NA

Model fit indices $\chi^2(df)=4.92 (2)$; RMSEA=.13; CFI=.99; TLI=.96; SRMR=.02

Notes. There are insufficient subgroup sizes to test for race invariance.

¹ Some items adapted from Umaña-Taylor et al., 2004.

Sense of Purpose¹

How much do you disagree or agree with each statement?	Factor Loading
I put a lot of effort into making my goals a reality.	.67
I understand what gives my life meaning.	.76
It is important for me to make the world a better place in some way.	.58
Alpha Coefficient	.70
Mean	3.25
Standard Deviation	.66

Notes. This model is just identified; thus no fit indices are reported. Measurement invariance cannot be tested for just-identified measures because these measures have insufficient degrees of freedom to calculate model fit indices (which measurement invariance tests rely on).

¹ Items adapted from Bronk et al., 2018.

Self-Efficacy in Reaching Life Goals¹

How much do you disagree or agree with each statement?	Factor Loading
I can achieve the goals that I have set for myself.	.83
I feel prepared to reach my goals.	.73
I can succeed at tasks that I set my mind to.	.90
I can successfully overcome many challenges.	.85
Alpha Coefficient	.89
Mean	3.15
Standard Deviation	.69
Measurement Invariance	
Gender	✓
Race: Asian/Pacific Islander vs. Black/African American/African vs. Hispanic/Latino(a) vs. Multiracial vs. Other ^a	✓

Model fit indices $\chi^2(df)=15.12^{***} (2)$; RMSEA=.11; CFI=.99; TLI=.97; SRMR=.02

^a Due to small sample sizes and/or model complexity, young people who identified as Native American/Alaskan Native or White were categorized as Other.

¹ Some items adapted from Chen et al., 2001.

Domain 3. Support for Social Capital Development

Program Support for Social Capital Development

How much do you disagree or agree with each statement?	Factor Loading
I have more people I can go to to help me pursue my education or career goals.	.83
I have access to more useful information for pursuing my education or career goals.	.88
I have developed or strengthened skills needed to pursue my education or career goals.	.87
I am connected with more influential people who are useful for pursuing my education or career goals.	.87
Alpha Coefficient	.92
Mean	3.08
Standard Deviation	.79
Measurement Invariance	
Gender	✓
Race: Asian/Pacific Islander vs. Black/African American/African vs. Hispanic/Latino(a) vs. Multiracial vs. Other ^a	✓

Model fit indices $\chi^2(df)=3.91 (2)$; RMSEA=.04; CFI=1.00; TLI=1.00; SRMR=.01

^a Due to small sample sizes and/or model complexity, young people who identified as Native American/Alaskan Native or White were categorized as Other.

Sense of Program Community

How much do you disagree or agree with each statement?	Factor Loading
I feel a sense of community at [PROGRAM/ORGANIZATION NAME].	.94
I care about what happens at [PROGRAM/ORGANIZATION NAME].	.84
I reach out to my [PROGRAM/ORGANIZATION NAME] community for support.	.73
I feel known and valued at [PROGRAM/ORGANIZATION NAME].	.84
Alpha Coefficient	.89
Mean	3.38
Standard Deviation	.71
Measurement Invariance	
Gender	NA

Race: Asian/Pacific Islander vs. Black/African American/African vs. Hispanic/Latino(a) vs. Other ^a metric

Model fit indices $\chi^2(df)=7.93^*(2)$; RMSEA=.13; CFI=.99; TLI=.96; SRMR=.02

Notes. We were unable to test for measurement invariance by gender because the model's residual covariance matrix is not positive definite.

^a Due to small sample sizes and/or model complexity, young people who identified as Native American/Alaskan Native, White, or Multiracial were categorized as Other.

Psychological Safety

How much do you disagree or agree with each statement?	Factor Loading
[PEOPLE IN PROGRAM/ORGANIZATION NAME] create a safe space for me to express who I am and who I want to be.	.88
[PEOPLE IN PROGRAM/ORGANIZATION NAME] acknowledge and respect who I am and my background.	.90
[PEOPLE IN PROGRAM/ORGANIZATION NAME] create a safe space to talk about inequities and other systemic issues.	.89
[PEOPLE IN PROGRAM/ORGANIZATION NAME] believe I am capable of achieving my goals, regardless of my background.	.89
Alpha Coefficient	.94
Mean	3.50
Standard Deviation	.59
Measurement Invariance	
Gender	✓
Race: Asian/Pacific Islander vs. Black/African American/African vs. Hispanic/Latino(a) vs. Other ^a	✓

Model fit indices $\chi^2(df)=7.70^* (2)$; RMSEA=.07; CFI=1.00; TLI=.99; SRMR=.01

^a Due to small sample sizes and/or model complexity, young people who identified Native American/Alaskan Native, White, or Multiracial were categorized as Other.

Volunteer Support

How much do you disagree or agree with each statement?		Factor Loading
The volunteers at [PROGRAM/ORGANIZATION NAME] provided me with useful information for getting a job.		.84
The volunteers at [PROGRAM/ORGANIZATION NAME] made me feel confident about applying for a job.		.86
The volunteers at [PROGRAM/ORGANIZATION NAME] helped me develop new skills needed for getting a job.		.83
The volunteers at [PROGRAM/ORGANIZATION NAME] helped me build connections with others who can help me get a job.		.79
Alpha Coefficient		.89
Mean		3.35
Standard Deviation		.63
Measurement Invariance		
Gender		✓
Race		NA
Model fit indices	$\chi^2(df)=29.23^{***} (2)$; RMSEA=.31; CFI=.93; TLI=.78; SRMR=.04	

Notes. There are insufficient subgroup sizes to test for race invariance.

Seeking Volunteer Support

How much do you disagree or agree with each statement?	Factor Loading
I reach out to volunteers at [PROGRAM/ORGANIZATION NAME] to update them on my job search.	.87
I ask volunteers at [PROGRAM/ORGANIZATION NAME] to introduce me to other influential people.	.78
I ask volunteers at [PROGRAM/ORGANIZATION NAME] for important information about their career or the organization that they work for.	.66
I reach out to volunteers at [PROGRAM/ORGANIZATION NAME] for additional support.	.76
Alpha Coefficient	.85
Mean	2.65
Standard Deviation	.84
Measurement Invariance	
Gender	✓
Race: Asian/Pacific Islander vs. Hispanic/Latino(a) vs. Other ^a	metric

Model fit indices $\chi^2(df)=3.04 (2)$; RMSEA=.06; CFI=1.00; TLI=.99; SRMR=.02

^a Due to small sample sizes and/or model complexity, young people who identified as Black/African American/African, Native American/Alaskan Native, White, or Multiracial were categorized as Other.

Sense of School/College Campus Community

How much do you disagree or agree with each statement?	Factor Loading
I feel a sense of community at my [SCHOOL/COLLEGE CAMPUS].	.86
I care about what happens at my [SCHOOL/COLLEGE CAMPUS].	.74
I reach out to people at my [SCHOOL/COLLEGE CAMPUS] for support.	.75
I feel known and valued at my [SCHOOL/COLLEGE CAMPUS].	.77
Alpha Coefficient	.86
Mean	2.67
Standard Deviation	.87
Measurement Invariance	
Gender	✓
Race: Asian/Pacific Islander vs. Black/African American/African vs. Hispanic/Latino(a) vs. Multiracial vs. Other ^a	✓

Model fit indices $\chi^2(df)=11.22^{**} (2)$; RMSEA=.11; CFI=.99; TLI=.96; SRMR=.02

^a Due to small sample sizes and/or model complexity, young people who identified as Native American/Alaskan Native or White were categorized as Other.

Seeking Professor/Teacher Support

How much do you disagree or agree with each statement?	Factor Loading
I ask [TEACHERS/PROFESSORS] to introduce me to others who can help me reach my educational goals.	.74
I ask [TEACHERS/PROFESSORS] for information about school resources (e.g., advising, tutoring, mental health services).	.85
I ask [TEACHERS/PROFESSORS] for guidance or advice on major life decisions.	.83
I ask [TEACHERS/PROFESSORS] for additional educational support (e.g., homework, tutoring).	.86
Alpha Coefficient	.89
Mean	2.49
Standard Deviation	.97
Measurement Invariance	
Gender	✓
Race: Asian/Pacific Islander vs. Black/African American/African vs. Hispanic/Latino(a) vs. Multiracial vs. Other ^a	metric

Model fit indices $\chi^2(df)=14.84^{***} (2)$; RMSEA=.13; CFI=.99; TLI=.96; SRMR=.02

^a Due to small sample sizes and/or model complexity, young people who identified as Native American/Alaskan Native or White were categorized as Other.

Domain 4. Program Outcomes

Progress Towards Education or Career Goals

How much do you disagree or agree with each statement?	Factor Loading
I have made a plan to reach my education or career goals.	.74
I have already sought out people who can help me pursue my education or career goals.	.68
I am making progress towards my education or career goals.	.85
I have already taken important steps towards pursuing my education or career goals.	.67
Alpha Coefficient	.86
Mean	3.02
Standard Deviation	.72
Measurement Invariance	
Gender	✓
Race: Asian/Pacific Islander vs. Black/African American/African vs. Hispanic/Latino(a) vs. Multiracial vs. Other ^a	✓

Model fit indices $\chi^2(df)=13.04^{**} (2)$; RMSEA=.09; CFI=.99; TLI=.98; SRMR=.02

^a Due to small sample sizes and/or model complexity, young people who identified as Native American/Alaskan Native or White were categorized as Other.

Commitment to Paying-it-Forward¹

How much do you disagree or agree with each statement?	Factor Loading
I do things to help others achieve their goals.	.84
I invest in people around me by helping them access valuable resources.	.84
I pass on my knowledge and skills to others.	.81
I help others by introducing them to new people or connections.	.74
Alpha Coefficient	.88
Mean	3.04
Standard Deviation	.71
Measurement Invariance	
Gender	✓
Race: Asian/Pacific Islander vs. Black/African American/African vs. Hispanic/Latino(a) vs. Multiracial vs. Other ^a	scalar

Model fit indices $\chi^2(df)=4.85(2)$; RMSEA=.05; CFI=1.00; TLI=.99; SRMR=.01

^a Due to small sample sizes and/or model complexity, young people who identified as Native American/Alaskan Native or White were categorized as Other.

¹ Items inspired by Christens, 2012's work on relational empowerment.

Collective Efficacy to Change Systems

How much do you disagree or agree with each statement?	Factor Loading
Working with [OTHERS AT PROGRAM/ORGANIZATION NAME], we can create new education and career opportunities for people who might not have otherwise had them.	.86
Working with [OTHERS AT PROGRAM/ORGANIZATION NAME], we can improve education or employment systems by using the resources we have gained from the program.	.92
Working with [OTHERS AT PROGRAM/ORGANIZATION NAME], we can increase access to education or career opportunities for other people like me.	.91
Alpha Coefficient	.92
Mean	3.26
Standard Deviation	.71

Notes. Measurement invariance cannot be tested for just-identified measures because these measures have insufficient degrees of freedom to calculate model fit indices (which measurement invariance tests rely on).

Occupational Identity

How much do you disagree or agree with each statement?	Factor Loading
I have a clear sense about what careers I am interested in pursuing.	.71
I see my current life experiences as useful to my future career.	.70
I know what steps to take to reach my career goals.	.81
People like me are successful in the careers that interest me.	.59
Alpha Coefficient	.80
Mean	3.00
Standard Deviation	.67
Measurement Invariance	
Gender	✓
Race: Asian/Pacific Islander vs. Black/African American/African vs. Hispanic/Latino(a) vs. Other ^a	metric

Model fit indices $\chi^2(df)=2.54 (2)$; RMSEA=.04; CFI=1.00; TLI=.99; SRMR=.02

^a Due to small sample sizes and/or model complexity, young people who identified as Native American/Alaskan Native, White, or Multiracial were categorized as Other.

Job-Seeking Skills

How much do you disagree or agree with each statement?	Factor Loading
I know how to find information about open job positions.	.70
I know how to network.	.71
I know how to prepare a job resume.	.82
I know how to complete a job application.	.71
I know how to get ready for a job interview (e.g., how to research the company, practice interview questions).	.68
Alpha Coefficient	.84
Mean	3.17
Standard Deviation	.59
Measurement Invariance	
Gender	✓
Race: Asian/Pacific Islander vs. Hispanic/Latino(a) vs. Other ^a	scalar

Model fit indices $\chi^2(df)=3.74 (5)$; RMSEA=.00; CFI=1.00; TLI=1.00; SRMR=.02

^a Due to small sample sizes and/or model complexity, young people who identified as Black/African American/African, Native American/Alaskan Native, White, or Multiracial were categorized as Other.

Appendix A. The Developmental Relationships Framework

Young people are more likely to grow up successfully when they experience developmental relationships with important people in their lives. Developmental relationships are close connections through which young people discover who they are, cultivate abilities to shape their own lives, and learn how to engage with and contribute to the world around them. Search Institute has identified five elements—expressed in 20 specific actions—that make relationships powerful in young people's lives.

Elements	Actions	Definitions
1. Express Care Show me that I matter to you.	<ul style="list-style-type: none"> • Be dependable • Listen • Believe in me • Be warm • Encourage 	Be someone I can trust. Really pay attention when we are together. Make me feel known and valued. Show me you enjoy being with me. Praise me for my efforts and achievements.
2. Challenge Growth Push me to keep getting better.	<ul style="list-style-type: none"> • Expect my best • Stretch • Hold me accountable • Reflect on failures 	Expect me to live up to my potential. Push me to go further. Insist I take responsibility for my actions. Help me learn from mistakes and setbacks.
3. Provide Support Help me complete tasks and achieve goals.	<ul style="list-style-type: none"> • Navigate • Empower • Advocate • Set boundaries 	Guide me through hard situations and systems. Build my confidence to take charge of my life. Stand up for me when I need it. Put in place limits that keep me on track.
4. Share Power Treat me with respect and give me a say.	<ul style="list-style-type: none"> • Respect me • Include me • Collaborate • Let me lead 	Take me seriously and treat me fairly. Involve me in decisions that affect me. Work with me to solve problems and reach goals. Create opportunities for me to take action and lead.
5. Expand Possibilities Connect me with people and places that broaden my world.	<ul style="list-style-type: none"> • Inspire • Broaden horizons • Connect 	Inspire me to see possibilities for my future. Expose me to new ideas, experiences, and places. Introduce me to people who can help me grow.

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