

Technical Summary: Search Institute's REACH Survey

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Search Institute developed the REACH Framework and Survey in response to growing interest among education practitioners and leaders in understanding the role of motivation and related social-emotional factors in academic motivation and persistence. This resource builds on diverse bodies of research by many scholars to create and test a multi-dimensional model of student motivation and perseverance.

This technical summary reviews the survey development process as well as the psychometric properties of the survey based on pilot tests.

Theoretical Background for the Survey

Search Institute's work on motivation and perseverance integrates 25 years of research on youth development and thriving (e.g., Benson, Scales, Hamilton, & Sesma, 2006; Benson, Scales, & Syvertsen, 2011; Scales, Benson, & Roehlkepartain, 2011) with recent research by other scholars on student motivation and perseverance. Noteworthy among these scholars are:

- Carol Dweck and colleagues on growth mindsets (e.g., Dweck & Master, 2009) ;
- Angela Duckworth and colleagues on grit (Duckworth & Quinn, 2009);
- Daphna Oyserman and colleagues on possible selves (Oyserman, Bybee, & Terry, 2006);
- Walter Mischel on self-control (Mischel, 2014); and

More Information

This Technical Summary briefly describes the development of the REACH Survey, and the psychometric qualities of the REACH measures. A more detailed technical report as well as other information on the REACH Framework and other resources can be found at www.search-institute.org/surveys/REACH.

- Camille Farrington and colleagues on multidimensional models of student success (Farrington et al., 2012)

Drawing on these streams of research in educational and developmental psychology and our research and applied work in positive youth development, we developed the REACH Framework that articulates specific, actionable dimensions of student motivation and perseverance. This approach recognizes that motivation and perseverance are not just matters of individual drive and tenacity, but are also shaped in social contexts and relationships. Thus the model identifies *both internal* (attitudes, self-perceptions, skills) *and external facets* (relationships and opportunities) that are at work.

Most notably, the REACH Framework begins with Relationships, recognizing the power of *developmental relationships* in student motivation and perseverance (as well as other areas of development (Pekel, Roehlkepartain, Syvertsen, & Scales, 2015). Developmental relationships go

The REACH Framework

The REACH Framework integrates conclusions from diverse bodies of research into a five-part framework (and 20 accompanying everyday actions) designed to be actionable in schools and classrooms. These categories are measured in the REACH survey.

Relationships	Student motivation is grounded in positive and developmentally rich relationships with teachers.
Effort	Students are more likely to put in the needed effort to learn, and learn from failures, when they have “growth mindsets,” believing that they have the ability to get smarter with effort.
Aspirations	Students are more motivated when they have a positive view of their future possible selves and connect that vision to their current actions.
Cognition	Cognition focuses on the degree to which students maintain self-control and mental toughness, and defer gratification in the present to achieve goals and complete tasks in the future.
Heart	Students are more motivated when they identify and better understand what they love to do, and when they are asked to think about what they value most deeply.

beyond caring to include expanding students’ possibilities, challenging their growth, providing support, and sharing power with them. These aspects of teacher-student relationships are theorized to be highly influential for students’ capacities to persevere (e.g., Wentzel, 2009), especially for low-income students (e.g., Roorda et al., 2011; Stanton-Salazar, 2011). However, these kinds of high-quality teacher-student relationships may be particularly scarce for low-income students (e.g., Fitzpatrick et al., 2013; Pianta et al., 2012).

The Survey Development Process

Beginning in 2013, Search Institute has engaged in an iterative cycle of measure development, testing, revision, testing, and revision that, combined with field work with educators in schools, has led to the current REACH Framework and Survey. Our pilot testing has involved 22 schools (eight high schools and 14 middle schools) collectively involving more than 5,000 6th-12th grade students. The samples reflect considerable racial/ethnic, gender, and socioeconomic diversity.

We have conducted repeated factor analyses (exploratory and confirmatory) and examinations of

model fit to guide us in deleting some items from the original pool of about 200, revising others, adding new items at different stages of the process, and revising the conceptual and measurement framework based on the unfolding empirical structure.

The data bearing on the quality of the REACH Survey come from our final pilot study of 602 high school students (grades 9-12) in Bloomington, Minnesota. The sample was diverse: 53% female, 53% non-White, with about 40% describing their families as having some or a great deal of financial strain. The school district collaborated to provide actual school records that were linked to student surveys, on attendance, test scores, and GPA.

REACH Measure Psychometrics

The REACH measures showed good quality on several important aspects of survey strength.

1. VARIABILITY: There is acceptable variation in students' responses to different items.

The total REACH score mean average of 3.48 out of 5.0 is above the middle point of the response scale, but not dramatically above. In fact, 80% of students' scores were in the 'Approaching Goal' and 'Meets Goal' levels of academic motivation and perseverance. This pattern suggests that, generally, the students are making distinctions as they respond from item to item, rather than consistently giving just high or low responses.

Why it matters: Such response variability strengthens confidence in the data. This variability also provides an important starting point for developing improvement strategies.

2. INTERNAL CONSISTENCY RELIABILITY: The internal consistency reliabilities of nearly all the REACH measures are acceptable to excellent.

The reliabilities of the five major categories (Relationships, Effort, Aspirations, Cognition, and Heart) range from good to excellent ($\alpha=.80s-.90s$) and the great majority of the subcategories within those five have acceptable to excellent reliabilities ($\alpha=.70s-.90s$).

Why it matters: This shows that the items in these measures are "hanging together" and measuring the same concept, which strengthens interpretation of results.

3. STABILITY RELIABILITY: A test-retest of the survey (n=73 students; 71% female, 58% grades 6-8; 41% non-White) in an earlier pilot studies also showed good stability reliability.

Correlating the responses from two survey administrations to the same students, one week

apart, showed IntraClass Correlation coefficients in the good to excellent (.70s-.90s) range for the total REACH score, and the scores for the scales measuring the five major categories.

Why it matters: This is important because measures need to be stable to be used for pre-post testing or tracking student progress. Any change over time seen when using insufficiently stable measures could be due to measure error and not true change in students. Thus, a high degree of short-term stability like this is desirable.

4. CONSTRUCT VALIDITY: There is a good evidence for the construct validity of the REACH measures.

Confirmatory Factor Analysis showed strong factor loadings of the REACH items on the dimensions they were theoretically supposed to be measuring, and the relative independence of the REACH measures from each other. The REACH theoretical model, and these measures of it, were also shown to fit acceptably to the pilot data. Thus, our theory was shown to be supported by the actual data, using generally accepted model fit criteria for four widely used fit indices (RMSEA, CFI, TLI, and SRMR).

Why it matters: This is important because it suggests that the REACH theory (Framework) of academic motivation is backed up by real-world student data, and that the items that measure these motivational factors are sound.

5. PREDICTIVE VALIDITY: There is reasonable to good evidence supporting the predictive validity of the REACH perseverance measures.

Why it matters: The purpose of building students' academic motivation and perseverance is to help them succeed at school. So it is

important that the data show such a link between doing well on the REACH measures of academic motivation and perseverance, and desired outcomes such as feeling connected to school and achieving good grades.

This is a promising result, but it is based on a correlational study. Confirmation that the REACH factors contribute to these school success outcomes requires a study that follows students over time.

- a. **Grades:** There are small to moderate (.10s-.20s) significant correlations of the REACH measures with students' *actual GPAs*. Correlation coefficients are even larger among some racial/ethnic, grade, and financial strain subgroups. This association of REACH with actual GPA is important because student GPAs are at least as strong, and often a stronger predictor of college success, as are test scores.

Students were 2 to 2 ½ times more likely to have at least a B+ GPA average if they had at least Adequate levels of the total REACH score, Effort, Cognition, or Heart.

In addition, students who had at least Adequate levels of Heart were four times more likely to be in the top 10% in their math scores on the Minnesota Comprehensive Assessment III.

- b. **School experiences:** There are moderate to strong correlations (64% in the .30s-.80s) in the predicted directions between the REACH measures and concurrent outcome measures. The higher students' REACH scores, the better their reports of school climate, student emotional belonging (connectedness) to school, the cultural affirmation and cultural respect in students' classes, and the quality of instruction they experience.

In addition, as expected, as students' REACH motivation scores rise from Below Goal to Approaching, Meeting, or Exceeding Goal, a greater percentage generally meet the criteria for having a positive school climate, sense of belonging to school, higher quality of instruction, and greater cultural affirmation and respect in their classes.

- c. **Barriers:** Similarly, the higher students' REACH scores, the less their perceived discrimination, and obstacles to perseverance.

Abbreviated Version of the REACH Survey

Some schools may choose to administer an abbreviated survey, which may be more appropriate for middle school students.

The brief version is composed of the one or two items per subcategory that the Confirmatory Factor Analysis showed had the strongest factor loadings on that subcategory. The abbreviated version contains just 58 items measuring the REACH motivation categories, less than half the length of the full version.

Overall, there were few differences in either measure quality or substantive pilot findings when comparing the full and abbreviated REACH Survey versions.

- The abbreviated survey is equivalently reliable.
- Two of the model fit indices for the abbreviated survey are adequate (RMSEA and SRMR). The other two fit indices (CFI and TLI) are nearly adequate.
- The abbreviated survey yields nearly identical REACH means as the full survey, both overall and by gender, grade, race/ethnicity, and financial strain subgroups.

- The abbreviated survey yields nearly identical correlations with the survey outcomes (e.g., school climate, belonging, etc.) and school district-provided data on attendance, test scores, and GPAs.

The abbreviated survey thus appears to be an appropriate alternative to the full survey, without sacrificing psychometric quality. The full survey, however, provides more actionable data because it asks twice as many questions about specific student attitudes and self-perceptions, and teacher and student behaviors, all of which are malleable and potential targets for action, than does the brief survey that is roughly half its length.

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For more information on the REACH framework and other resources,
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