REL Midwest Reference Desk
Measuring Noncognitive Skills

May 2016

Question

What does the research say about measuring noncognitive skills in grades 6–12?

Background

REL Midwest received a request for information on measuring noncognitive skills.

Following an established REL Midwest research protocol, we conducted a search for research reports as well as descriptive and policy-oriented briefs and articles on measuring noncognitive skills. We focused on identifying resources that specifically addressed grades 6–12. The sources included federally funded organizations, research institutions, several educational research databases, and a general Internet search using Google.

We also searched for appropriate organizations that may act as resources on this issue. We have not done an evaluation of these organizations or the resources themselves, but we offer this list for reference only.

What does the research say about measuring noncognitive skills in grades 6–12?

Bowers, A. J. (2011). What's in a grade? The multidimensional nature of what teacher-assigned grades assess in high school. *Educational Research and Evaluation, 17*(3), 141–159.

From the abstract: "Historically, teacher-assigned grades have been seen as unreliable subjective measures of academic knowledge, since grades and standardized tests have traditionally correlated at about the 0.5 to 0.6 level, and thus explain about 25-35% of each other. However, emerging literature indicates that grades may be a multidimensional assessment of both student academic knowledge and a student's ability to negotiate the social processes of schooling, such as behavior, participation, and effort. This study analyzed the high school transcript component of the Education Longitudinal Study of 2002 (ELS:2002) using multidimensional scaling (MDS) to describe the relationships between core subject grades, non-core subject grades, and standardized test scores in mathematics and reading. The results indicate that when accounting for the academic knowledge component assessed through standardized tests, teacher-assigned grades may be a useful assessment of a student's ability at the non-cognitive aspects of school. Implications for practice, research, and policy are discussed."

Note: REL Midwest tries to provide publicly available resources whenever possible. Although we were unable to locate a link to the full-text version of this article, we determined that it might be of interest to you. The resource may be available through university or public library systems.

Coryn, C. L. S., Spybrook, J. K., Evergreen, S. D. H., & Blinkiewicz, M. (2009). Development and evaluation of the social-emotional learning scale. *Journal of Psychoeducational Assessment, 27*(4), 283–295.

From the abstract: "This article presents the development and evaluation of a measurement device designed to assess elementary-aged students' social-emotional learning needs. A sample of 633 fourth-, fifth-, and sixth-grade elementary students from 11 public schools in a midsized Midwestern U.S. city was used to evaluate the reliability and validity of the 20-item Social-Emotional Learning Scale (SELS) for the sample. A correlated three-factor model consisting of the factors Task Articulation, Peer Relationships, and Self-Regulation was fit using maximum likelihood estimation and found to be adequate. For the sample, the SELS demonstrated evidence of both precision and accuracy, including internal consistency as well as convergent and discriminant validity. Potential applications for the SELS and further research are discussed."

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DiCerbo, K. E. (2014). Game-based assessment of persistence. *Educational Technology & Society, 17*(1), 17–28. Retrieved from http://www.ifets.info/journals/17_1/3.pdf

From the abstract: "Interest in 21st century skills has brought concomitant interest in ways to teach and measure them. Games hold promise in these areas, but much of their potential has yet to be proven, and there are few examples of how to use the rich data from games to make inferences about players' knowledge, skills, and attributes. This article builds an evidence model for the assessment of persistence from Poptropica, a popular commercial game for children. Task persistence is an important skill related to successful school and work outcomes, particularly given new, complex tasks requiring sustained application of effort. Evidence extracted from log files of the game was used to identify players with a particular goal and then create a measure of persistence toward that goal. The results support the ability to create an assessment argument for a game-based measure of persistence."

Egalite, A. J., Mills, J. N., & Greene, J. P. (2016). The softer side of learning: Measuring students' non-cognitive skills. *Improving Schools, 19*(1), 27–40. Retrieved from http://www.uaedreform.org/wp-content/uploads/EDRE-WP-2014-03.pdf

From the abstract: "With an abundance of datasets of standardized test score data, researchers and education policymakers run the risk of focusing exclusively on the measurement of cognitive outcomes in key academic subjects such as math and reading

at the expense of important non-cognitive outcomes. We use behavioral measures of conscientiousness, perseverance, and delay of gratification as well as a self-reported measure of student grit—defined as student perseverance and passion for long-term goals—to assess the non-cognitive skills of 174 16- to 18-year-old students attending a residential public high school in Arkansas, United States. Analysis shows that 11th grade students (16- to 17-year-olds) rate themselves lower on self-reported grit but outperform their 12th grade counterparts (17- to 18-year-olds) on behavioral measures of persistence, delay of gratification, and conscientiousness. These findings point to the strengths and limitations of existing tools for measuring non-cognitive skills and the need for more measures to be developed and tested with diverse populations."

Humphrey, N., Kalambouka, A., Wigelsworth, M., Lendrum, A., Deighton, J., & Wolpert, M. (2011). Measures of social and emotional skills for children and young people: A systematic review. *Educational and Psychological Measurement, 71*(4), 617–637.

From the ERIC abstract: "This study presents the findings of a systematic review of measures of social and emotional skills for children and young people. The growing attention to this area in recent years has resulted in the development of a large number of measures to aid in the assessment of children and young people. These measures vary on a number of variables relating to implementation characteristics and psychometric properties. The methodology of the review followed the general principles of systematic reviewing, such as systematic search of databases, the adoption of predetermined set of inclusion and exclusion criteria, and a multistage filtering process. The review process resulted in the retention of 12 measures, which are presented and discussed in relation to key issues in this area, including difficulties with the underlying theory and frameworks for social and emotional skills, inconsistent terminology, the scope and distinctiveness of available measures, and more practical issues such as the type of respondent, location, and purpose of measurement."

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Kautz, T., & Zanoni, W. (2014). *Measuring and fostering non-cognitive skills in adolescence: Evidence from Chicago Public Schools and the OneGoal program* (Unpublished manuscript). Chicago, IL: University of Chicago, Department of Economics. Retrieved from http://home.uchicago.edu/~tkautz/OneGoal_TEXT.pdf

From the abstract: "Recent evidence has established that non-cognitive skills (e.g., persistence and self-control) are valuable in the labor market and are malleable throughout adolescence. Some recent high school interventions have been developed to foster these skills, but there is little evidence on whether they are effective. Using administrative data, we apply two methods to evaluate an intervention called OneGoal, which attempts to help disadvantaged students attend and complete college in part by teaching non-cognitive skills. First, we compare the outcomes of participants and non-participants with similar pre-program cognitive and non-cognitive skills. In doing so, we

develop and validate a measure of non-cognitive skill that is based on readily available data and rivals standard measures of cognitive skill in predicting educational attainment. Second, we use an instrumental variable difference-in-difference approach that exploits the fact that OneGoal was introduced into different schools at different times. We estimate that OneGoal improves academic indicators, increases college enrollment by 10–20 percentage points, and reduces arrest rates by 5 percentage points for males. We demonstrate that improvements in non-cognitive skill account for 15–30 percent of the treatment effects."

Mast Ryan, D. (2013). *A critical analysis of an instrument used to measure 21st century skills attainment among high school career and technical education students* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses database (UMI No. 3566274).

From the abstract: "The purpose of this study was to examine the reliability and validity of an instrument currently being used to measure student perceptions of 21st Century skill acquisition in a Career and Technical Education (CTE) high school. The research is a quantitative study to determine empirical factors of the survey instrument, as well as determine reliabilities. The study utilized existing data collected by the school during a routine annual program evaluation process. Factor analysis was used to analyze 396 student responses to 55 survey items to identify underlying constructs (factors). Five factors, reflective of 31 contributing survey items, emerged from the preponderance of evidence as most appropriate…Results indicated no statistical difference in responses occurred in the demographic categories of ethnicity, gender, socio-economic status, or high school zone. Statistically significant differences were identified in the demographic category of Program of Study. Two key finding emerged from this study. The first suggests that the instrument could be revised to reflect the five empirical factors associated with 21st Century skill acquisition, along with the 31 contributing survey items, resulting in a psychometrically sound tool. This would provide a shorter version of the assessment resulting in a reduction of time and resources necessary for administration. The second key finding of this study, based on the limited response differences among study groups, suggests that the instrument may yield similar results when implemented across a range of students from varying demographic backgrounds. Though follow up research should be conducted to provide data regarding the stability of the revised instrument over time, these findings may be helpful in advancing the search for an appropriate, efficient tool that would allow high school to assess acquisition of 21st Century skills."

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Note: REL Midwest is unable to confirm whether this resource has been peer-reviewed. However, we have included it, as it may be of interest to you.

Romer, N., & Merrell, K. W. (2013). Temporal stability of strength-based assessments: Test–retest reliability of student and teacher reports. *Assessment for Effective Intervention, 38*(3), 185–191.

> *From the abstract:* "This study focused on evaluating the temporal stability of self-reported and teacher-reported perceptions of students' social and emotional skills and assets. We used a test-retest reliability procedure over repeated administrations of the child, adolescent, and teacher versions of the 'Social-Emotional Assets and Resilience Scales.' Middle school students in Grades 6 through 8 reliably self-reported on their social and emotional competencies. In a similar vein, teacher ratings of students in Grades K through 5 also showed strong temporal stability. Although all samples and versions of this scale demonstrated temporal stability, multiple administrations of the child self-report version of the SEARS showed evidence of the mean score of the initial administration being significantly lower than what was obtained on later administrations. Implications for further research and development efforts are discussed."

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Schmitt, N., Billington, A., Keeney, J., Reeder, M., Pleskac, T. J., Sinha, R., & Zorzie, M. (2011). *Development and validation of measures of noncognitive college student potential*. New York: College Board. Retrieved from https://research.collegeboard.org/sites/default/files/publications/2012/7/researchreport-2011-1-validation-measures-noncognitive-college-student-potential.pdf

> *From the abstract:* "In considering and evaluating approaches to the admission of college students, the usual approach is to try to measure past academic achievement and primarily verbal and math ability on the assumption that these abilities will predict subsequent college academic grades and achievement. These measures do predict classroom achievement, though far from perfectly so. It is also the case that most universities claim to develop students in areas not well represented by classroom grades such as leadership, social responsibility, integrity, multicultural appreciation, and others. In our work, we have adopted a model employed by industrial/organizational psychologists in personnel selection. We began with a 'job analysis' of the 'job' of undergraduate students. We developed a list of expectations universities claim to have of students and derived a list of constructs that were hypothesized to be essential to success. This set of constructs has been central to the development of a series of measures we use to assess student potential as well as a set of outcome measures that we believe is a better representation of the totality of relevant college student outcomes."

Seal, C. R., Miguel, K., Alzamil, A., Naumann, S. E., Royce-Davis, J., & Drost, D. (2015). Personal-interpersonal competence assessment: A self-report instrument for student development. *Research in Higher Education Journal*, 27. Retrieved from http://files.eric.ed.gov/fulltext/EJ1056172.pdf

From the abstract: "The purpose of this paper is to assess the internal consistency of a revised instrument, the Personal-Interpersonal Competence Assessment (PICA); derived from the earlier Social Emotional Development Instrument (SED-I). There were three primary rationales for the revision. First, and most importantly, to better align the operational factors with the conceptual definitions. Second, was to clearly position the construct within the broader context of personal and interpersonal competence, rather than the emotional intelligence literature. Third, to provide a developmental, rather than a diagnostic assessment for personal-interpersonal competence. As with the earlier SED-I model and measure, the intent of the research is to consider the gap in the literature between social emotional learning (targeted at K-12 populations) and subsequent professionalism models (targeted at post-college careers). Although many models and measures use college age populations to assess validity, few directly target models of professional development that higher education students may use to enhance their own development. The intent of this paper, therefore, is to contribute to student development by bridging the gap between social emotional learning and professional skills. Results indicate support for the internal consistency of the instrument. Future studies may examine the validity of the PICA tool as well as the theoretical and practical implications of the PICA model."

West, M. R., Kraft, M. A., Finn, A. S., Martin, R. E., Duckworth, A. L., Gabrieli, C. F. O., & Gabrieli, J. D. E. (2016). Promise and paradox: Measuring students' non-cognitive skills and the impact of schooling. *Educational Evaluation and Policy Analysis, 38*(1), 148–170.

From the abstract: "We used self-report surveys to gather information on a broad set of non-cognitive skills from 1,368 eighth graders. At the student level, scales measuring conscientiousness, self-control, grit, and growth mindset are positively correlated with attendance, behavior, and test-score gains between fourth grade and eighth grade. Conscientiousness, self-control, and grit are unrelated to test-score gains at the school level, however, and students attending over-subscribed charter schools score lower on these scales than do students attending district schools. Exploiting admissions lotteries, we find positive impacts of charter school attendance on achievement and attendance but negative impacts on these non-cognitive skills. We provide suggestive evidence that these paradoxical results are driven by reference bias or the tendency for survey responses to be influenced by social context."

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You, S., Furlong, M., Felix, E., & O'Malley, M. (2015). Validation of the social and emotional health survey for five sociocultural groups: Multigroup invariance and latent mean analyses. *Psychology in the Schools, 52*(4), 349–362.

From the abstract: "Social-emotional health influences youth developmental trajectories and there is growing interest among educators to measure the social-emotional health of

the students they serve. This study replicated the psychometric characteristics of the Social Emotional Health Survey (SEHS) with a diverse sample of high school students (Grades 9–12; N = 14,171), and determined whether the factor structure was invariant across sociocultural and gender groups. A confirmatory factor analysis (CFA) tested the fit of the previously known factor structure, and then structural equation modeling was used to test invariance across sociocultural and gender groups through multigroup CFAs. Results supported the SEHS measurement model, with full invariance of the SEHS higher-order structure for all five sociocultural groups. There were no moderate effect size or higher group differences on the overall index for sociocultural or gender groups, which lends support to the eventual development of common norms and universal interpretation guidelines."

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Additional Resources

American Educational Research Association. (2016). *Researchers urge caution in using measures of students' "non-cognitive" skills for teacher evaluation, school accountability, or student diagnosis* [Press release]. Retrieved from http://www.aera.net/Newsroom/NewsReleasesandStatements/ResearchersUrgeCautionin UsingMeasuresofStudents%E2%80%99%E2%80%9CNon-Cognitive%E2%80%9DSkillsforTeacherEvaluation,SchoolAccountability,orStudentDiag nosis/tabid/15945/Default.aspx

From the press release: "Policymakers and practitioners have grown increasingly interested in measures of personal qualities other than cognitive ability—including self-control, grit, growth mindset, gratitude, purpose, emotional intelligence, and other beneficial personal qualities—that lead to student success. However, they need to move cautiously before using existing measures to evaluate educators, programs, and policies, or diagnosing children as having "non-cognitive" deficits, according to a review by Angela L. Duckworth and David Scott Yeager published in *Educational Researcher*, a peer-reviewed journal of the American Educational Research Association. Personal skills are generally considered to be characteristics that facilitate goal-directed effort, healthy social relationships, and sound judgment and decision making. Basic scientific research reliably shows that measures of these characteristics predict success in school, work, and life. Just a few survey questions, or one session of observing whether a child can delay gratification, can predict educational attainment, income, crime, and happiness months or years later. But these measures are generally not ready for educational use… 'There really is no perfect measure for any aspect of personal skills. What we have are measures that have their distinct advantages and limitations. Developing better measures, and understanding which currently available measures are appropriate for which uses, are top priorities we should have as an education community,' said Duckworth… 'We advise practitioners and policymakers to seek out the most valid measure for their intended purpose(s),' wrote the authors. 'Whenever possible, we recommend using a plurality of

measurement approaches. While time and money are never as ample as would be ideal, a multi-method approach to measurement can dramatically increase reliability and validity.'"

Barell, J. F. (2012). *How do we know they're getting better? Assessment for 21st century minds, K-8*. Los Angeles, CA: Corwin Press.

From the description: "How do we measure students' inquiry, problem-solving, and critical thinking abilities so that we know they are prepared to meet the challenges of the 21st century? John Barell explains how inquiry leads to problem-solving and provides specific steps for formative assessment that informs instruction of 21st century skills. Included are examples that show how to use today's technology in the classroom and how to use inquiry to develop and assess students' ability to: (1) Think critically and creatively; (2) Collaborate with others; (3) Become self-directed learners; (4) Adapt and become resourceful; and (5) Develop a sense of leadership, responsibility, and global awareness. The authors challenge teachers to reflect on their own learning, thinking, and problem-solving processes as well as those of their students. The text provides frameworks for monitoring students' progress and guidelines for communicating with parents. Teachers will find examples from all grade levels that show how to observe and assess students' growth in their development of 21st century capacities, making this a timely and valuable resource."

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Greenstein, L. M. (2012). *Assessing 21st century skills: A guide to evaluating mastery and authentic learning.* Los Angeles, CA: Corwin Press.

From the ERIC description: "The Common Core State Standards clearly define the skills students need for success in college and the 21st century workplace. The question is, how can you measure student mastery of skills like creativity, problem solving, and use of technology? Laura Greenstein demonstrates how teachers can teach and assess 21st century skills using authentic learning experiences and rigorous, varied assessment strategies. Based on the best ideas of renowned experts in education, this book provides a framework and practical ideas for measuring: (1) Thinking skills: critical thinking, problem solving, creativity, and metacognition; (2) Actions: communication, collaboration, digital and technological literacy; and (3) Living skills: citizenship, global understanding, leadership, college and career readiness. Included are numerous rubrics and checklists, a step-by-step model for developing your own classroom assessments, a lesson planning template, and sample completed lesson plans. 'Assessing 21st Century Skills' gives you the tools and strategies you need to prepare students to succeed in a rapidly changing world."

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determined that it might be of interest to you. The book may be available through university or public library systems.

Hanover Research. (2014). *Best practices in soft skills assessment*. Washington, DC: Author. Retrieved from http://gssaweb.org/webnew/wp-content/uploads/2015/04/Best-Practices-in-Soft-Skills-Assessment.pdf

From the introduction: "Nationwide, educators have grown increasingly aware of the important role that soft skills play in ensuring students are adequately prepared to enter college and the workforce. Unfortunately, however, traditional instruction and assessment do not always provide the appropriate tools for developing and measuring student success outside of traditional academic subject areas. This report examines these issues in soft skills assessment with a focus on assessment strategies that may be successfully embedded within the core academic curriculum."

Kyllonen, P. C. (2012, May). *Measurement of 21st century skills within the Common Core State Standards*. Paper presented at the Invitational Research Symposium on Technology Enhanced Assessments, Washington, D.C. Retrieved from https://cerpp.usc.edu/files/2013/11/Kyllonen_21st_Cent_Skills_and_CCSS.pdf

From the introduction: "For the past 10 years or so, Educational Testing Service has supported the Center for New Constructs, which has had as its mission the identification and evaluation of constructs and measures other than those typically measured by content tests, such as mathematics, English language arts, and science achievement tests. Since then the center has been renamed the Center for Academic and Workforce Readiness and Success (CAWRS) to highlight ETS's recent foray into the workplace, but the work of the center has remained the same—to explore the foundations, rationale, and feasibility of measuring personal characteristics that are important for educational success but that are typically ignored in educational assessment. During this period CAWRS staff have explored this area through literature reviews, collaborations, and data collections ranging from a few students to more than 100,000, including some in K-12 education settings, in community college and college settings, in graduate and professional school, and more recently, in the workplace. CAWRS staff have explored a wide array of constructs, ranging from ones that overlap considerably with what is already tested on standardized tests, such as critical thinking, to ones that are quite distinct, such as teamwork and work ethic. CAWRS also has explored a wide variety of measurement methods, such as self-rating and others' rating scales, situational judgment tests, anchoring vignettes, conditional reasoning, the implicit association test, and others. The purpose of this paper is to review some of this work, particularly as it pertains to the measurement of 21st century skills in K-12 education."

Marzano, R. J. & Heflebower, T. (2012) *Teaching & assessing 21st century skills. The classroom strategies series.* Bloomington, IN: Marzano Research Laboratory

From the ERIC abstract: "As the 21st century unfolds, the pace of change in the world is accelerating. Teachers and administrators must lead the cultural shift required to ensure their students can survive and thrive in the changing world. In Teaching & Assessing 21st

Century Skills the authors present a model of instruction and assessment based on a combination of cognitive skills (skills students will need to succeed academically) and conative skills (skills students will need to succeed interpersonally) necessary for the 21st century. The authors believe both cognitive and conative skills will be vital to the success of all citizens living and working in the highly varied and quickly changing knowledge economy of the 21st century. Part of The Classroom Strategies Series, this clear, highly practical guide follows the series format, first summarizing key research and then translating it into recommendations for classroom practice. In addition to the explanations and examples of strategies, each chapter includes helpful comprehension questions to reinforce the reader's understanding of the content to create both short- and long-term strategies for teaching and assessing 21st century skills. Benefits: (1) Presents relatable classroom stories that depict the presented strategies; (2) Provides end-of-chapter comprehension questions to help readers assess and reinforce their understanding of the new strategies; and (3) Offers an appendix of rubrics for assessing cognitive and conative 21st century skills."

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Mayrath, M. C., Clarke-Midura, J., Robinson, D. H., & Schraw, G. (Eds.). (2012). *Technology-based assessments for 21st century skills: Theoretical and practical implications from modern research.* Charlotte, N.C.: Information Age Publishing.

From the ERIC description: "Creative problem solving, collaboration, and technology fluency are core skills requisite of any nation's workforce that strives to be competitive in the 21st Century. Teaching these types of skills is an economic imperative, and assessment is a fundamental component of any pedagogical program. Yet, measurement of these skills is complex due to the interacting factors associated with higher order thinking and multifaceted communication. Advances in assessment theory, educational psychology, and technology create an opportunity to innovate new methods of measuring students' 21st Century Skills with validity, reliability, and scalability. In this book, leading scholars from multiple disciplines present their latest research on how to best measure complex knowledge, skills, and abilities using technology-based assessments. All authors discuss theoretical and practical implications from their research and outline their visions for the future of technology-based assessments."

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Saavedra, A. R., & Opfer, V. D. (2012). Learning 21st-century skills requires 21st-century teaching. *Phi Delta Kappan, 94*(2), 8–13.

From the abstract: "For students to learn 21st-century skills, we will have to teach them differently than we have in the past. The outdated, transmission model, through which teachers transmit factual knowledge to students via lectures and textbooks, remains the dominant approach to compulsory education in much of the world, yet it is not the most effective way to teach 21st-century skills. Students are not developing 21st-century skills because they are not explicitly taught and because they are more difficult to assess than factual retention. The authors summarize nine lessons from the science of learning telling how students learn 21st-century skills and how pedagogy can address their needs."

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Scarupa, H. J. (Ed.). (2014). *Measuring elementary school students' social and emotional skills: Providing educators with tools to measure and monitor social and emotional skills that lead to academic success* (Publication No. 2014-37). Bethesda, MD: Child Trends. Retrieved from http://www.childtrends.org/wp-content/uploads/2014/08/2014-37CombinedMeasuresApproachandTablepdf1.pdf

From the ERIC abstract: "Mounting research evidence points to social and emotional skills as playing a central role in shaping student achievement, workplace readiness, and adult wellbeing. This report describes the rigorous, collaborative work undertaken by the Tauck Family Foundation and Child Trends, a national leader in measuring children's development and wellbeing, and provides the results of that work. Child Trends' and the Foundation's primary goal was to create tools that the Foundation's investees could use to assess and monitor the extent to which the organizations are improving low-income students' social and emotional skills associated with success in school and life. A secondary goal was to provide these tools and related guidance to other educators across the country who share a desire to strengthen students' social and emotional skills as a strategy for supporting their success. This report highlights the research on the importance of five skills to academic success, summarizes the iterative process used to develop a measurement tool to assess these skills, and suggests two options for incorporating the measurement of these skills in regular classroom data collection. The intent of this work is to provide teachers and programs with data they can use to gauge and improve student social and emotional competencies in areas that matter for students' success in school and beyond. The following are appended: (1) Psychometric Analyses of Pilot Survey; (2) Teacher Survey; (3) Student Survey; (4) Operationalization Document; and (5) Scoring Guide."

Stecher, B. M., & Hamilton, L. S. (2014). *Measuring hard-to-measure student competencies: A research and development plan.* Santa Monica, CA: RAND Corporation. Retrieved from http://www.rand.org/pubs/research_reports/RR863.html

From the summary and key findings: "Efforts to prepare students for college, careers, and civic engagement have traditionally emphasized academic skills, but a growing body of research suggests that interpersonal and intrapersonal competencies, such as communication and resilience, are important predictors of postsecondary success and citizenship. One of the major challenges in designing educational interventions to support these outcomes is a lack of high-quality measures that could help educators, students, parents, and others understand how students perform and monitor their development over time. This report provides guidelines to promote thoughtful development of practical, high-quality measures of interpersonal and intrapersonal competencies that practitioners and policymakers can use to improve valued outcomes for students. Key findings include: (1) Five broad tasks must be accomplished to develop and implement appropriate measures of interpersonal and intrapersonal competencies: defining and selecting constructs, identifying the intended uses of the measure, developing measures, evaluating the technical quality of measures, and documenting consequences of assessment use; (2) To determine which competencies to address first, start by examining research to understand what measures currently exist across the domains of interest; how good they are from a technical, as well as a practical, perspective; and how difficult it is likely to be to develop new ones; and (3) Four kinds of development activities are likely to be needed: (a) conduct basic research to understand the nature of the psychological processes or behavioral manifestations that underlie a construct, (b) develop new measures for a construct that is well understood, (c) assess or improve the quality of an existing measure of a construct, or (d) investigate the consequences of using a measure in the school context. The following are appended: (1) Summary of the White House Workshop on Hard-to-Measure 21st-Century Skills; and (2) Experts Who Participated in Meetings and Interviews."

Taylor, W. (2014). Assessing what we value. *Independent School, 73*(2). Retrieved from http://www.nais.org/Magazines-Newsletters/ISMagazine/Pages/Assessing-What-We-Value-article.aspx

From the introduction and conclusion: "In the June 2010 *Harvard Business Review*, Dan Ariely, a professor of psychology and behavioral economics at Duke University, wrote a column entitled 'You Are What You Measure.' In it, he thoughtfully prods business leaders to consider the problematic correlation between the tools for measuring progress and actual organizational progress. 'Human beings,' writes Ariely, 'will adjust behavior based on the metrics they're held against. What you measure is what you'll get.'

"In short, assessments drive outcomes, but these outcomes may not be optimal in either the short or long run…Teachers and schools assess what they value in the learning experience. There is a growing awareness in independent and public schools, however, that the skills that have been—and, in some cases, are still being—assessed are not the skills that will optimize students' ability to be successful in the 21st-century global economy… A national survey of corporate and nonprofit leaders reveals crucial insight

into the preparation that such leaders are looking for in potential employees in order to productively move their organizations forward in a global economy… Because time is the most cherished commodity in all schools, any shifts toward including more project-based learning, assessments involving real-world problems, and creative collaboration must come at the expense of spending less time on previous priorities. While the steps will vary from school to school, those electing to incorporate more 21st-century skills into their learning environments have generally done so by reducing the amount of time and emphasis they had placed on content mastery. For most schools, the operating rationale behind this decision is that priority must be given to developing the skills that students will need to productively, successfully, and creatively analyze, synthesize, and communicate widely accessible content…School traditions and habits aside, the simplest way to look at the assessment challenges is this: The assessments we use to evaluate students today should be geared toward their future and not our past."

Additional Organizations to Consult

- Collaborative for Academic, Social, and Emotional Learning (CASEL)
  http://casel.org/
  CASEL Library: https://casel.squarespace.com/library/

  From the website: "Collaborative for Academic, Social, and Emotional Learning (CASEL) is the nation's leading organization advancing the development of academic, social and emotional competence for all students. Our mission is to help make evidence-based social and emotional learning (SEL) an integral part of education from preschool through high school. Through research, practice and policy, CASEL collaborates to ensure all students become knowledgeable, responsible, caring and contributing members of society."

- Partnership for 21st Century Learning
  http://www.p21.org/
  Resources for Educators: http://www.p21.org/our-work/resources/for-educators

  From the website: "P21's mission is to serve as catalyst for 21st century learning to build collaborative partnerships among education, business, community and government leaders so that all learners acquire the knowledge and skills they need to thrive in a world where change is constant and learning never stops."

  "P21's reports and publications support a vision for learning to ensure 21st century readiness for every student. These documents have been developed through a comprehensive process involving thorough input from partners, educators, researchers, organizations and businesses across the country."

- Rutgers Social and Emotional Learning Laboratory
  http://www.rci.rutgers.edu/~melias/

  From the website: "The Rutgers Social-Emotional Learning Lab is dedicated to conducting action-research in public, private, and religious school settings for the

purpose of building children's skills for facing the tests of life, and not a life of tests. The RU-SELL focuses on understanding the relationship of academic achievement, social-emotional competencies, and the development of character and a core set of life principles, and the development of school-based interventions to strengthen social-emotional skills, character, and one's Laws of Life, and prevent bullying, violence and victimization, substance abuse, and related problem behaviors.

"Projects of the RU-SELL focus on students and their school, family, and community environments. We employ a project-based, constructivist, and inquiry-oriented social-learning approach to pedagogy and a development ecological-community psychology approach to understanding settings and designing, delivering, and evaluating interventions. In addition, we carry out applied research related to bullying/youth violence, victimization, character development and identity, spirituality, purpose, and forgiveness, social-emotional and social decision-making skills, social support, classroom organization, management, and discipline, test anxiety and motivation, menschlekheit development in schools and families, Jewish education, emotional intelligence, and the design, implementation, and sustainability of preventive interventions."

Keywords and Search Strings Used in the Search

- soft skills

- employability

- "21st Century"

- "social and emotional"

- non-cognitive

- "emotional intelligence"

- ("soft skills" OR employability OR "21st century" OR "social emotional learning" OR noncognitive OR non-cognitive OR "emotional intelligence" OR "civic engagement" OR "life long learning") AND (indicate OR indication OR measure OR assess OR evaluate OR evaluation)

- "social and emotional" AND (measure OR measures OR assess OR assessment OR indicate OR indicators OR evaluate OR evaluation)

- "soft skills" AND (measure OR measures OR assess OR assessment OR indicate OR indicators OR evaluate OR evaluation)

- "21st century" AND (measure OR measures OR assess OR assessment OR indicate OR indicators OR evaluate OR evaluation)

- (noncognitive OR non-cognitive) AND (measure OR measures OR assess OR assessment OR indicate OR indicators OR evaluate OR evaluation)

Search of Databases and Websites

Institute of Education Sciences sources: Institute of Education Sciences (IES), Regional Educational Laboratory (REL) Program, National Center for Education Statistics (NCES), National Center for Education Research (NCER)

Additional data resources: ERIC, EBSCO databases, JSTOR database, ProQuest, Google Scholar, Google

Criteria for Inclusion

When Reference Desk researchers review resources, they consider—among other things—four factors:

- *Date of the publication***:** We include the most current information, except in the case of nationally known seminal resources.

- *Source and funder of the report/study/brief/article:* We give priority to IES, nationally funded, and certain other vetted sources known for strict attention to research protocols.

- *Methodology:* Randomized controlled trial studies, surveys, self-assessments, literature reviews, policy briefs. We generally give priority for inclusion to randomized controlled trial study findings, but the reader should note at least the following factors when basing decisions on these resources: numbers of participants (Just a few? Thousands?); selection (Did the participants volunteer for the study, or were they chosen?); representation (Were findings generalized from a homogeneous or a diverse pool of participants? Was the study sample representative of the population as a whole?).

- *Existing knowledge base:* Although we strive to include vetted resources, there are times when the research base is slim or nonexistent. In these cases, we presented the best resources we could find, which may include, for example, newspaper articles, interviews with content specialists, and organization websites.