

Traversing the Gap between College and Workforce Readiness: Anything but a "Bridge Too Far!"

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Commentary

Traversing the Gap between College and Workforce Readiness: Anything but a "Bridge Too Far!"

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Abstract

This commentary reviews the chapters authored by Clark, Schmitt, and Golubovich, Su, and Robbins. Each chapter offers possible solutions for bridging the apparent gap between college and workforce readiness, while inherently highlighting ways in which these two readiness domains are analogous. Specifically, each author recognizes noncognitive skills as constituents of both college and workplace success, suggesting students equipped with these critical skills will be prepared for both domains. Across the three chapters an integrative framework for studying noncognitive skills across putative domains remains elusive, though we suggest this is possible. Throughout, the authors also discuss various approaches to the measurement of noncognitive skills and both practical and policy implications. Since these chapters intimate how crucial noncognitive skills are in college and workplace readiness, we focus on next steps we can take in an effort to resolve issues surrounding measurement and their organizational framework. We also advocate for social-emotional learning programs at the primary, secondary, and even tertiary education levels to foster these skills. Juxtaposed, these chapters elucidate the current state of college and workforce readiness, potential pathways through which we can improve measurement of necessary skills, and ultimately, a compelling means by which to bridge the gap between college and workforce readiness.

Keywords: college readiness, workforce and career readiness, noncognitive skills, assessment, 21st century workforce, social-emotional learning.

Traversing the Gap between College and Workforce Readiness: Anything but a "Bridge Too Far"!

Operation Market Garden was a notorious failure for the Allies during the Second World War. The operation was intended to allow joint militia from the UK, USA, Canada, Poland, and The Netherlands to break through German lines and seize strategically important bridges in occupied territory to end the war by Christmas of 1944. Instead, overextending its resources, the Allies suffered a terrible defeat and the war lingered on for another year. These historical events led to an ensemble film, shunned by a patriotic America at the time -- A Bridge Too Far -- whose title comes from an unconfirmed comment attributed to British Lieutenant-General Frederick Browning who told Field Marshal Bernard Montgomery, the operation's architect: "I think we may be going a bridge too far".

We might ask ourselves whether the three chapter authors of this section (Clark; Schmitt; Golubovich, Su, and Robbins) were buying (or rather being pressed by the four editors of this book, of whom the current senior author is one) into a similar situation. After all, as the chapters of the book attest, college readiness seems to sit uncomfortably within a chasm, neither quite the purview of K12 education nor the colleges themselves, while workforce readiness adds a third player into the mix, the employer and the various components of the labor market, including policy, technology trends, and a range of economic factors. Ergo, we four editors may well have asked our three authors to go a bridge too far.

Though bridging the gap between college and workforce readiness is a feat that will take a great deal of advocacy; pioneers who believe in change; and steadfast implementation; it is far from impossible. A bridge initially perceived as "too far" becomes tangibly closer, more accessible, and more feasible once one considers a common denominator of both college and

workforce readiness: Noncognitive skills. Despite differences in domain-specific skill sets and competencies, both college and workforce readiness are rooted in a strikingly similar set of noncognitive skills. Through the development of noncognitive skills, which can be fostered through social-emotional learning programs, students could plausibly be prepared to face many of the challenges they meet, both in college and beyond into the workforce. Possessing qualities such as grit, resilience, cooperation, curiosity, and teamwork, will help students succeed in multiple demanding environments, whether they are persisting in difficult university-level courses, maintaining positive attitudes when facing rejection in the job market, or assimilating to the demands of an entry-level job in their transition to the workforce. Juxtaposed, these three chapters suggest that by fostering noncognitive skills in students, we can effectively build a solid foundation of desirable noncognitive skills, which will enable individuals to succeed in college, in the workplace, and in life.

Linking Education and Employment: A Foundational Competency Framework for Career Success

Arguably, Clark (Chapter 11) raises the largest concern over whether bridging college readiness and work readiness may be going a step too far. She presents three separate, rigid, definitions of career, workforce, and college readiness, and an initial perception might have the reader assuming minimal, if any, room for overlap. There is a lack of cohesion between college and career and workplace readiness, the former of which emphasizes academic achievement, and the latter of which include both include cognitive and noncognitive foundational skills, as well as increasingly domain-specific skill sets that qualify individuals to enter career clusters and specific jobs within them. However, she ultimately argues that the three readiness profiles are related, and can be effectively developed via what she terms “foundational skills”. These

foundational skills are synonymous with "noncognitive skills", "21st century skills", and "soft skills" that have been discussed throughout this volume; she argues that focusing on these skills throughout K-12 education will better prepare students for college, careers, and specific job placements. After discussing the fallacies in labeling skills versus competencies in various models, she presents the Employability Skills Framework as an integrative readiness model, combining many common skills from 20 other competing frameworks and organizing them as sub-skills of three main skills: applied knowledge, effective relationships, and workplace skills. She concludes her chapter by presenting key skills that will be necessary in the next ten years, as a result of drivers in the workforce such as technology; local, national, and global market trends; and public policies that create constant, rapid change.

Whether intentional or not, Clark's chapter seems to suggest that the definition of college readiness be expanded to be more blatantly inclusive of noncognitive skills. She defines college readiness as "the level of achievement a student needs to be ready to enroll and succeed-without remediation- in credit-bearing first-year postsecondary courses" (Clark, Chapter 11). While her definitions of career and workplace success both include explicit mention of "foundational skills", noncognitive skills are only inferred to be a part of her college readiness definition by the "and succeed" segment. Think about it: what exactly helped you to succeed in college? Was it saying no to a party so you could study for an upcoming exam? Working extra hard on a paper after receiving a failing grade on a prior assignment? Being able to delegate assignments and work cohesively with others on a group presentation? These actions exemplify conscientiousness, resilience, and cooperation, respectively, and are undoubtedly constituents of college success (Kyllonen, Lipnevich, Burrus, & Roberts, 2014). Research findings converge to

suggest such noncognitive skills be included as constituents of college readiness, considering they are instrumental in predicting college success (McNeish, Radunzel, & Sanchez, 2015).

While Clark admirably boils down 20 competing foundational skills models into the Employability Skills Framework, which can be appropriate for college, career, and work readiness, a question remains as to whether her ideas can be further integrated to fit within the Big Five Factor Model. Over the last fifty years, a consensus has been reached that in order for the field to advance, it is necessary to adopt a classification scheme through which to report, analyze, and compare empirical findings. In the industrial-organizational literature, the Big Five has become the predominant framework for understanding skills in the workforce and relating them to valued outcomes (e.g., Barrick & Mount, 1991; Sackett & Walmsley, 2014). The Big Five framework can also be validly applied to K-12 education (e.g., Lipnevich, Preckel, & Roberts, 2016; Poropat, 2009; Roberts, Martin, & Olaru, 2015) and to college readiness criteria (e.g., Credé & Niehorster, 2012; Kyllonen et al., 2014). If one accepts the meta-analytic findings upon which these arguments rest, the Big Five framework appears appropriate for integrating all three readiness domains. The Employability Skills Framework includes components of the Big Five; for example, effective relationship skills, communication skills, and a range of personal qualities. In turn, we suggest the potential for further integration of even this comprehensive framework into the Big Five, which might be done for the sake of parsimony, integration, and ease of communicating to all constituents.

Combining Cognitive and Noncognitive Measures: Expanding the Domain of College and Workforce Performance and its Prediction

Schmitt (Chapter 12) further highlights the significance of noncognitive constructs within discussions of both workforce and college readiness, and advocates for the assessment of

noncognitive constructs as constituents of not only college admissions, but also subsequent outcomes of college success. It is as if Schmitt builds on the “and succeed” component of the college readiness definition provided by Clark, and advances her argument by compiling evidence in support of the relevancy of noncognitive skills for college success. His advocacy for the inclusion of noncognitive constructs in college admissions is followed by a stimulating discussion of measurement, including current issues, potential solutions, and the demonstrated need for innovative approaches to assessment. Overall, Schmitt argues that noncognitive assessments should supplement traditional cognitive assessments in the college application process, especially considering that many of these constructs are already assessed in job applicants. The conclusion that can be extracted is that college and work require similar noncognitive skills, and we should be measuring them in college as well, considering that they are highly predictive of academic success (see also Kyllonen et al., 2014), and also colleges’ value of noncognitive skills, as reflected through their mission statements (see e.g., Stemler, 2012).

In terms of assessing noncognitive constructs, Schmitt calls for a move from the current subjective means of evaluating noncognitive skills, which include letters of recommendation, personal statements, and lists of extracurricular activities, to more objective, standardized, and innovative methodologies for measuring these constructs. He proposes that methodological advances will increase incremental validity, as well as objectivity. However, he points out concerns associated with noncognitive assessment: coaching to provide desirable responses, faking, and the reactions to these measures from students, parents, and admissions personnel. From his discussion of measurement, it becomes clear that this is an area where more focused research is desperately needed, but one where psychometricians, educators, and policy makers

need to become effectively co-joined. Assessments that are less susceptible to faking, generally well-received by the public, and able to provide a baseline for formative assessment are needed if noncognitive constructs are to be assessed in tandem with traditional tests of cognitive ability. Measures that have the potential to fill this gap include situational judgment tests, forced-choice paradigms, and even big data as supplements to traditional self-report items (e.g., Lipnevich, MacCann, & Roberts, 2013). The future of the integration of noncognitive assessment with traditional cognitive assessment may depend on the emergence of such measures, which are capable of objectively measuring these constructs.

A particularly salient, and perhaps underemphasized, component of Schmitt's chapter is the finding of smaller score differences between minority and majority groups on noncognitive measures than on traditional measures of cognitive ability. Historically, minority students have tended to score lower on traditional measures of cognitive ability, including both IQ tests and college admissions entrance exams (e.g., Kobrin, Sathy, & Shaw, 2007; Nisbett et al., 2012). Potential reasons for this include cultural and psychometric bias (Kaufman, 2015). However, Schmitt's work showing an average of 0 in minority-majority differences on noncognitive measures, as opposed to differences between $-.62$ and -1.18 standard deviations on cognitive measures, suggest noncognitive measures are much less biased, either culturally or psychometrically. Researchers also increasingly recognize that noncognitive skills are critical for college readiness, particularly in urban minority populations (Roderick, Nagaoka, & Coca, 2009), and possessing an unbiased way of measuring these skills, and moreover using them as an admissions criterion, appears to be a huge stride in the scheme of college admissions for minority students.

Establishing an International Standards Framework and Action Research Agenda for Workplace Readiness and Success

Golubovich et al. (Chapter 13) also observe the lack of a framework for work readiness skills, which contributes to the disconnect between skills learned through formal education, and those necessary for success in the 21st century workforce. The authors of this chapter focus on establishing a framework specifically for middle-skills jobs, which are characterized by the need for training between a high-school diploma and four-year bachelor's degree, interpersonal interactions (insinuating these jobs cannot become automated), and the projected expansion of these types of jobs within upcoming years. Due to the relevancy of these jobs in the emergent job market, the framework presented targets these jobs specifically. A detailed research agenda and methodology is also presented for use in assessing critical attributes related to job success, establishing minimum scores for entry into job fields, and extracting specific requirements from various job profiles.

Commendable components of this chapter include the authors detailed research agenda, inventive methodology, and use of principal component analysis in establishing their standards framework. Their framework is rooted both in empirical data, and from integrating data within O*NET and ISCO. Their goal was to identify the fundamental KSAOs required for success in each job in order to develop a comprehensive overview of KSAOs for middle-skills jobs. The five components that emerge are critical thinking and problem solving, communication, intrapersonal and interpersonal skills, innovation and achievement, and detail orientation, which were similar to those previously identified by a previous study cited by the authors. Moreover, Golubovich et al. have used these skills to develop a performance evaluation survey, which they

intend to pilot and establish validity evidence using various workplace samples from multiple countries.

However, two areas of concern arise surrounding this particular chapter. First is the author-implemented limitation of the framework only applying to middle-skills jobs. It seems feasible that target skills identified as pertinent for middle-skills professions, such as detail orientation and critical thinking could be both necessary and helpful in other levels of jobs, both higher and lower (indeed, this is entirely consistent with the arguments of another section of this book; Sackett and Walmsley, Chapter 2). Burrus, Jackson, Xi, and Steinberg (2013) conducted an analysis of O*NET database in order to identify a framework of crucial competencies for job zones 3-5, and identified similar competencies to those identified by Golubovich et al. This further suggests the framework may be more broadly applicable, and not necessarily limited to middle-skills jobs. Moreover, the standards framework includes both interpersonal and intrapersonal skills, as well as communication and detail orientation, which are noncognitive competencies that appear redundant with the Big Five (see Roberts et al., 2015; Sackett & Walmsley, 2014). Such a narrow, specific framework limits the potential for a more inclusive, yet cohesive, framework that can identify critical skills for success across all post-secondary domains.

The second concern is the analogy of education as an almost factory-like process, through which individuals become trained and ready for workplace success following their education; a monotonous, drone-like phenomena that appears discrepant both with the arguably lofty-goals of bridging education and workplace readiness, and emerging technology trends that will likely see one day see the re-imagination of the educational process. Instead, traits exemplified by a more holistic education, encapsulating noncognitive skills, will result in students who are better

prepared for all aspects of post-secondary life. Instead of cogs in a factory assembly-line, non-cog students (pun intended!) will benefit from qualities such as critical thinking, interpersonal and intrapersonal communication competency, and the ability to think dynamically and critically in order to face any challenges that come their way.

Advancing the Operation

Juxtaposed, these three chapters highlight the relevancy of noncognitive skills in discussions of both college and workplace readiness. However, this is not to say other factors do not play into the college and workplace readiness equation. Both high school GPA and SAT scores are powerful predictors of first-year college GPA, (e.g., Kobrin, Patterson, Shaw, Mattern, & Barbuti, 2008), suggesting that cognitive ability plays a crucial role in college readiness. Golubovich et al. (Chapter 13) also cite cognitive ability as the best predictor of job performance. We are not advocating that noncognitive skills are the sole constituents of college and workforce readiness, but that they instead supplement other predictors, such as cognitive ability. Just as Schmitt (Chapter 12) advocates for noncognitive assessments to supplement traditional assessments of cognitive ability, we are proposing that readiness at a noncognitive skills level can enhance students' readiness profiles as they enter college and the workforce. By considering multiple constituents of success, we can prepare students to succeed in both college and the workplace by cultivating a shared set of required noncognitive skills, in addition to the traditional cognitive skills students already receive instruction in.

Through successfully cultivating and assessing noncognitive skills, we can bridge the gap between college and workplace readiness, as these skills serve as a foundation for success in both environments. Some common themes we see our authors discuss include the lack of a comprehensive framework, need for a common language between educators and employers, and

the need for innovative approaches to noncognitive assessment. Though currently treated as different skill sets, the authors make it clear that noncognitive skills underlie both college and workplace success, and cultivating such skills in K-12 education can prepare students for success in college and on through to the workforce. Based on our authors' contributions in support of noncognitive skills as foundational necessities to success in college and work, suggestions to advance the field include the following:

Selection of an integrative framework through which to study noncognitive skills in the domains of college and workforce readiness. Multiple authors within this section comment on the lack of consensus for a theoretical framework for college and work readiness skills. As demonstrated by multiple meta-analyses, the Big Five framework is most suitable in studying the relationship between various skills and job success in the industrial-organizational psychology literature (Barrick & Mount, 1991; Barrick, Mount, & Judge, 2001). Further, selection of one integrative framework enables us to match specific job characteristics with personality dimensions that will be most predictive of job performance within that work style (Burrus & Way, 2016). The Big Five is also a fitting framework through which to study academic achievement, both in K-12 and in college (Poropat, 2009; Roberts et al., 2015). From within this chapter, both frameworks presented by Clark, as well as Golubovich et al. could feasibly be considered within the larger realm of the Big Five. It seems appropriate that the Big Five receive consideration as an integrative framework, which could anchor all research and move the field forward.

Innovative forms of assessment for noncognitive readiness skills. As demonstrated by Schmitt, work is needed in the domain of noncognitive skill assessment. The potential exists to measure noncognitive skills in a manner that removes cultural and psychometric bias, and could

provide an objective baseline of foundational readiness skills. Accurate assessments could be used in college admissions processes as a supplement to traditional measures of cognitive ability. Though the development of innovative approaches to noncognitive assessment is in its early stages, measures such as situational judgment tests, implicit association tests, and forced choice approaches hold the potential as more unbiased, objective indicators (Lipnevich et al., 2013). Assuming the stance that all constructs we wish to assess can be encapsulated by the Big Five (e.g., John & De Fruyt, 2015; MacCann & Roberts, 2010; Roberts et al., 2015), innovative assessments (both summative and formative) could be built upon this framework in order to assess a multitude of noncognitive constructs.

Interventions to improve noncognitive skills, provided these are evaluated by validated assessments. Over the past two decades, education has witnessed the emergence of a variety of programs designed to improve noncognitive skills in K12 education, most often under the label of social and emotional learning (SEL) programs. The fact that personality is subject to change (e.g., Walton & Billera, 2016) implies that there may be systematic ways of influencing noncognitive skills, most likely at the facet level (e.g., MacCann, Duckworth, & Roberts, 2009). Meta-analytic evidence exists showing the value of SEL programs for a range of valued academic and behavioral outcomes (e.g., Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Durlak, Weissberg, & Pachan, 2010), and a recent study also demonstrates the economic advantages of SEL programs, with every \$1 invested in SEL curricula yielding a mean return of \$11 (Belfield, Bowden, Klapp, Levin, Shand, & Zander, 2015). Innovative means of assessment will help with the advance of this field as well, as it is still often the case that these programs rely excessively on self-reported assessments, which are subject to a variety of biases and validity threats (e.g., Duckworth & Yeager, 2015). Effective SEL programs, paired with equally effective

program assessment, can bolster noncognitive skills in students from K-16 (note we are arguing here, these might also be applied to college students as well), which can prepare them for success in both college and the workplace.

Conclusion

When the Allies faced the Germans in the infamous Operation Garden Market, an inus condition in their defeat was the lack and overextension of supplies and troops. On the horizon of bridging college and workplace readiness, our landscape differs vastly from that which the Allies faced in 1944. As exemplified by the contributors to this volume, we possess legions of qualified researchers, policymakers, and educators who are advocates for change. These individuals carry supplies such as methodologies of innovative assessment, social emotional learning curricula, and the all-integrative Big Five framework. Most importantly, we are armed with the strategic knowledge on how to effectively bridge the gap: That is, through the identification, remediation, and perhaps even meaningful credentialing of noncognitive skills in students. Students who possess qualities such as grit, resilience, growth mindset, and the ability to cooperate, will be able to succeed in all domains beyond secondary schooling, from college to the workplace. An operation to inculcate noncognitive skills in students could alter the status quo of deeming college and work readiness as disparate entities, and effectively bridge the gap between college and workplace readiness.

References

- American Educational Research Association, American Psychological Association, and National Council on Measurement in Education (2014). *The standards for educational and psychological testing*. Washington, DC: AERA/APA/NCME.
- Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, *44*(1), 1-26.
- Barrick, M. R., Mount, M. K., & Judge, T. A. (2001). Personality and performance at the beginning of the new millennium: What do we know and where do we go next? *International Journal of Selection and Assessment*, *9*(1/2), 9-30.
- Belfield, C., Bowden, B., Klapp, A., Levin, H., Shand, R., & Zander, S. (2015). The economic value of social and emotional learning. Center for Benefit-Cost Studies in Education, Teachers College, Columbia University. Retrieved from:
<http://blogs.edweek.org.ezproxy.gc.cuny.edu/edweek/rulesforengagement/SEL-Revised.pdf> .
- Burrus, J., Jackson, T., Xi, N., & Steinberg, J. (2013). Identifying the most important 21st century workforce competencies: An analysis of the occupational information network (O*NET). ETS Research Report, ETS RR-13-21.
- Burrus, J., & Way, J. (2016). Using O*NET to develop a framework of job characteristics to potentially improve the predictive validity of personality measures. ACT Research Report Series, 9, 1-20. Retrieved from:
http://www.act.org/content/dam/act/unsecured/documents/6168_RR_2016-9_Using_ONET_Develop_Framework_Job_Characteristics.pdf

- Credé, M., & Niehorster, S. (2012). Adjustment to college as measured by the student adaptation to college questionnaire: a quantitative review of its structure and relationships with correlates and consequences. *Educational Psychology Review, 24*, 133-165.
- Duckworth, A. L., & Yeager, D. S. (2015). Measurement matters: Assessing personal qualities other than cognitive ability for educational purposes. *Educational Researcher, 44*, 237-251.
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). Enhancing students' social and emotional development promotes success in school: Results of a meta-analysis. *Child Development, 82*, 405-432.
- Durlak, J. A., Weissberg, R. P., & Pachan, M. (2010). A meta-analysis of After-School Programs that seek to promote personal and social skills in children and adolescents. *American Journal of Community Psychology, 45*, 294-309.
- James, W. (1890/1981). *The principles of psychology* (F. Burkhardt, Ed., 2 vols.). Cambridge, MA: Harvard University Press.
- John, O. P., & De Fruyt, F. D. (2015). *Framework for the Longitudinal Study of Social and Emotional Skills in Cities*. Retrieved from [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=EDU/CERI/CD\(2015\)13&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=EDU/CERI/CD(2015)13&docLanguage=En)
- Kaufman, J. C. (2015). Why creativity isn't in IQ tests, why it matters, and why it won't change anytime soon probably. *Journal of Intelligence, 3*(3), 59-72.
- Kobrin, J. L., Patterson, B. F., Shaw, E. J., Mattern, K. D., & Barbuti, S. M. (2008). Validity of the SAT for predicting first-year college grade point average. College Board Research Report, No. 2008-5.

- Kobrin, J. L., Sathy, V., & Shaw, E. J. (2007). A historical view of subgroup performance differences on the SAT reasoning test. College Board Research Report No. 2006-5, 1-54.
- Kyllonen, P. C., Lipnevich, A. A., Burrus, J. and Roberts, R. D. (2014). Personality, motivation, and college Readiness: A prospectus for assessment and development. ETS Research Report Series, 2014: 1–48. doi: 10.1002/ets2.12004
- Lipnevich, A. A., MacCann, C., & Roberts, R. D. (2013). Assessing noncognitive constructs in education: A review of traditional and innovative approaches. In D. H. Saklofske, C. B. Reynolds, & V. L. Schwann (Eds.), *Oxford handbook of child psychological assessment*. (pp. 750-772). Cambridge, MA: Oxford University Press.
- Lipnevich, A. A., Preckel, F., & Roberts, R. D. (2016). Psychosocial constructs: Knowns, unknowns, and future directions. In A. A. Lipnevich, F. Preckel, & R. D. Roberts (Eds.), *Psychosocial skills and school systems in the 21st Century: Theory, research, and practice*. New York: Springer.
- MacCann, C., Duckworth, A. L., & Roberts, R. D. (2009). Empirical identification of the major facets of conscientiousness. *Learning and Individual Differences, 19*, 451-458.
- MacCann, C., & Roberts, R. D. (2010). Prediction of academic outcomes from time management, grit, and self-control: The pervasive influence of conscientiousness. In R. E. Hicks (Eds.), *Personality and individual differences: Current directions* (pp. 79-90). Brisbane, Queensland: Australian Academic Press.
- McNeish, D. M., Radunzel, J., & Sanchez, E. (2015). A multidimensional perspective of college readiness: Relating student and school characteristics to performance on the ACT. ACT Research Report Series 2015 (6), 1-56.

- Nisbett, R. E., Aronson, J., Blair, C., Dickens, W., Flynn, J., Halpern, D. F., & Turkheimer, E. (2012, January 2). Intelligence: New Findings and Theoretical Developments. *American Psychologist*. Advance online publication. doi: 10.1037/a0026699
- Roberts, B. W., & DelVecchio, W. F. (2000). The rank-order consistency of personality traits from childhood to old age: A quantitative review of longitudinal studies. *Psychological Bulletin*, 126, 3-25.
- Roberts, B. W., Walton, K. E., & Viechtbauer, W. (2006). Patterns of mean-level change in personality traits across the life course: A meta-analysis of longitudinal studies. *Psychological Bulletin*, 132, 1-25.
- Roberts, R. D., Martin, J., & Olaru, G. (2015). *A Rosetta Stone for noncognitive skills: Understanding, assessing, and enhancing noncognitive skills in Primary and Secondary Education*. Asia Society and ProExam: New York.
- Roderick, M., Nagaoka, J., & Coca, V. (2009). College readiness for all: The challenge for urban high schools. *Project Muse: The Future of Children*, 19(1), 185-210.
- Sackett, P. R., & Walmsley, P. T. (2014). Which personality attributes are most important in the workplace? *Perspectives on Psychological Science*, 9, 538-551.
- Stemler, S. E. (2012). What should university admissions tests predict? *Educational Psychologist*, 47, 5-17.
- Walton, K. E., & Billera, K. A. (2016). Personality development during the school-aged years: Implications for theory, research and practice. In A. A. Lipnevich, F. Preckel, & R. D. Roberts (Eds.), *Psychosocial skills and school systems in the 21st Century: Theory, research, and practice*. New York: Springer