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Psychosocial Skills and School Systems in the 21st Century

Theory, Research, and Practice

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Editors
Anastasiya A. Lipnevich
Educational Psychology
Queens College and the Graduate Center
The City University of New York
New York, NY, USA

Franzis Preckel
Department of Psychology
University of Trier
Trier, Germany

Richard D. Roberts
Center for Innovative Assessments
Professional Examination Service
New York, NY, USA

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Chapter 15
Psychosocial Constructs: Knowns, Unknowns, and Where do we go From Here?

Anastasiya A. Lipnevich, Franzis Preckel, and Richard D. Roberts

We must remember that intelligence is not enough. Intelligence plus character—that is the goal of true education. The complete education gives one not only power of concentration, but worthy objectives upon which to concentrate. The broad education will, therefore, transmit to one not only the accumulated knowledge of the race but also the accumulated experience of social living. (King, 1947)

The reader drawn to make a comparison between this opening quote and contemporary educational practice may notice a certain degree of discrepancy: The main focus of post-World War II education has traditionally been on intellectual academic goals rather than skills that could be referred to as "character." The humble intention of this book was to make a small step toward redressing this imbalance by bringing together renowned experts to review the emerging literature on the role, importance, and place of psychosocial skills in K-12 research, public policy, and educational practice. The collection of chapters comprising this volume covers a plethora of topics ranging from theoretical background, assessment, psychometrics, and human development to specific examples of applications of psychosocial skills in educational settings that can be brought to scale. In this concluding commentary, we will summarize the main themes discussed by our contributors and offer ideas

A.A. Lipnevich (✉)
Educational Psychology, Queens College and the Graduate Center, The City University of New York, 365 5th Avenue, New York, NY 10016, USA
e-mail: a.lipnevich@gmail.com

F. Preckel
Department of Psychology, University of Trier, Universitaetsring 15, 54286 Trier, Germany
e-mail: preckel@uni-trier.de

R.D. Roberts
Center for Innovative Assessments, Professional Examination Service, 475 Riverside Drive, Suite 600, New York, NY 10115, USA
e-mail: RRoberts@proexam.org

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for future research and policy implications, in the process hopefully getting closer toward the "truly complete broad" education that Dr. King envisaged nearly seven decades ago.

We begin by describing psychosocial skills both as predictors of academic outcomes and indicators of a broader definition of academic success, raising issues that we feel may need attention in future scientific discourse. We will also suggest an organizing framework for psychosocial skills that may help to condense the vast number of characteristics into a manageable set of categories. Next, we discuss specific interventions and issues that concern the malleability of psychosocial skills. Finally, we conclude this chapter—and the volume—with a set of recommendations for future educational research, policy, and practice.

15.1 Psychosocial Skills as Effective Predictors of Academic Success

It is no longer disputed that psychosocial skills explain and predict important academic, workplace, and life outcomes. The relative predictive power of these constructs is often discussed in conjunction with that of cognitive skills. Although cognitive skills do predict academic success (e.g., Hezlett et al., 2001; Kobrin, Patterson, Shaw, Mattern, & Barbuti, 2008), job performance (e.g., Schmidt & Hunter, 1998), health (e.g., Deary, Whalley, & Starr, 2003), and marital satisfaction (e.g., Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007), these correlations are consistently far from being perfect (i.e., near unity; correlations range from $r = 0.06$ for mortality to $r = 0.51$ for job performance). Psychosocial skills represent variables that explain additional variance in these and other key outcomes.

Starting from the earliest levels of schooling—preschool—psychosocial skills like conscientiousness predict achievement (e.g., Abe, 2005). This link remains relatively stable in middle school, with self-efficacy, self-concept, and attitudes predicting reading, science, and math grades, as well as scores on both national and international assessments. This relationship persists even after controlling for demographics, school attendance, and educational materials available at home (Campbell, Voelkl, & Donahue, 1997; Lee, Redman, Goodman, & Bauer, 2007). Self-discipline has also been found to predict academic attainment (grades and test scores) beyond cognitive ability for eighth graders (Duckworth & Seligman, 2005). In high school and beyond, meta-analyses have shown that psychosocial factors increment over test scores in predicting GPA, retention, absenteeism, and disciplinary infractions (e.g., Poropat, 2009; Robbins, Lauver, Davis, Langley, & Carlstom, 2004). The key factors include such examples as conscientiousness (e.g., Noftle & Robins, 2007; O'Connor & Paunonen, 2007; Wagerman & Funder, 2006), learning strategies (e.g., Dunlosky, Rawson, Marsh, Nathan, & Willingham, 2013), emotional control (e.g., Chamorro-Premuzic & Furnham, 2003; Robbins, Allen, Casillas, Peterson, & Le, 2006), and study habits, skills, and attitudes (e.g., Crede & Kuncel, 2008).

Table 15.1 Relationship of selected psychosocial constructs with academic outcomes

Construct	Outcomes	Chapter and authors
Need for cognition	Reasoning High school GPA College GPA Attendance Test scores (ACT) Domain-specific knowledge Course grades Domain knowledge	Chapter 5 (Jebb, Saef, Parrigon, & Woo)
Creativity	GPA Teacher ratings of performance Domain-specific knowledge Science understanding	Chapter 6 (Kaufman, Beghetto, & Dilley)
Conscientiousness	High school GPA College GPA Attendance Course Grades Tardiness Subject knowledge	Chapter 7 (Kim, Poropat, & MacCann)
Academic self-concept	School grades Test scores GPA	Chapter 8 (Trautwein & Möller)
Self-regulated learning	GPA Course grades Test scores Teacher ratings of performance	Chapter 9 (Bembenutti, White, & DiBenedetto)
Motivation	High school GPA College GPA Test scores (SAT, ACT) First-year retention in college	Chapter 10 (Hulleman, Barron, Kosovich, & Lazowski)
Academic emotions	GPA Subject-specific course performance (math, science, languages)	Chapter 11 (Goetz & Bieg)
Resilience	GPA Attendance Dropout rates	Chapter 12 (Prince-Embury, Keefer, & Saklofske)

Psychosocial variables described in this volume are numerous, and each of them has been shown to relate to key academic outcomes. In some meaningful sense then, the authors contributing to this volume have selected and extended the constructs discussed in the aforementioned passages. Table 15.1 lists the constructs described in detail throughout the current volume and the academic outcomes to which they most strongly relate. Table 15.2 is a companion piece, where we systematically list promising measures and approaches to assessment of each of these constructs, and Table 15.3 summarizes interventions and suggestions for skill development discussed in the current volume.

The relationship of psychosocial skills with meaningful outcomes continues on well beyond schooling, extending into the workforce and throughout an individuals'

Table 15.2 Examples of assessments of psychosocial constructs discussed in the volume and elsewhere

Psychosocial skill	Assessments
Empathy (Chapter 3)	Bryant Index of Empathy Measurement for Children and Adolescents, Southampton Test of Empathy for Preschoolers (STEP), Basic Empathy Scale (BES), Interpersonal Reactivity Index (IRI), Multifaceted Empathy Test (MET), Balanced Emotional Empathy Scale (BEES), skin conductance, respiration, measure of daily helping
Self-esteem (Chapter 3)	Rosenberg's Self-Esteem Scale, Coopersmith Self-Esteem Inventory, Piers-Harris Children's Self-Concept Scale (CSCS), Personal Evaluation Inventory (PEI)
Self-directed learning (Chapter 3)	Guglielmino's Self-Directed Learning Readiness Scale (SDLRS), Self-Directed Learning Scale (SDLS), Self-Directed Learning with Technology Scale (SDLTS)
Leadership (Chapter 3)	Multifaceted Leadership Questionnaire (MLQ), Roets Rating Scale for Leadership (RRSL), Scales for Rating the Behavioral Characteristics of Superior Students (SRBCSS), Vanderbilt Assessment for Leadership in Education
Civic knowledge (Chapter 3)	United States Citizenship and Immigration Services (USCIS) Naturalization Test, National Assessment of Educational Progress (NAEP), International Association for the Evaluation of Educational Achievement Civic Education Study
Teamwork and cooperation (Chapter 3)	Teamwork Knowledge Skill and Ability Test (TKSA), Teamwork Competency Test (TCT), Individual Performance in Teams Scale (IPIT), Situational Judgment Tests (SJT), self-report and teacher-rating scale
Ethics (Chapter 3)	Defining Issues Test, Schwartz Value Scale (SVS), Ethical Priority Test, Ethical Sensitivity Scale Questionnaire, Aristotelian Ethical Behavior in Leisure Scale (AEBLS)
Emotional intelligence (Chapter 3, 11, 13)	Bar-On EQ-i, EQ-i youth form, Situational Test of Emotional Management for Youth (STEM-Y), Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), MSCEIT-YV, Children's Worry and Anger Management Scales (CWMS, CAMS), Children's Sadness Management Scale (CSMS), Trait Emotional Intelligence Questionnaire (TEIQue; Child Form, TEIQue-CF; Adolescent Short Form, TEIQue-ASF), "Guess Who? Peer Assessment Technique"
Student motivation (Chapter 3, 10)	Motivations for Reading Questionnaire (MRQ), Expectancy-Value-Cost (EVC) Scale, Intrinsic Motivation Inventory (IMI), PISA study, Preschool Reading Attitude Scale (PRAS), Emergent Readers Motivation and Reading Scale (ERMAS), Student Motivation and Engagement Scale—High School (MES-HS)
Need for cognition (Chapter 5)	The Need for Cognition Scale (NCS), Need for Cognition in Early Adolescence (German adaptation)
Creativity (Chapter 6)	Self-reported creativity (e.g., creative self-efficacy), creativity activity checklists (Kaufman Domains of Creativity Scale, K-DOCS), teacher ratings (Scales for Rating the Behavioral Characteristics of Superior Students), divergent thinking tests (e.g., Torrance Test of Creative Thinking, TTCT), creative problem-solving tasks (Remote Associates Test)
Conscientiousness (Chapter 7)	NEO Personality Inventory—Revised (NEO-PI-R), Big Five Aspect Scale, Sixteen Personality Factor Questionnaire, Abridged Big Five Dimensional Circumplex Scale, California Personality Inventory, Hogan Personality Inventory, Jackson Personality Inventory—Revised, Multidimensional Personality Questionnaire, HEXACO Personality Inventory, Conceptual Synthesis of Conscientiousness Facets Across Models

(continued)

Table 15.2 (continued)

Psychosocial skill	Assessments
Grit (Chapter 7)	Short Grit Scale (Grit-S)
Academic self-concept (Chapter 8)	Academic Self-Description Questionnaire (ASDQ), Piers-Harris Children's Self-Concept Scale (CSCS), Joseph Pre-School and Primary Self-Concept Screening Test (JPPSST), Pictorial Scale of Perceived Competence and Social Acceptance (PSPCSA)
Self-regulated learning (Chapter 9)	Motivated Strategies for Learning Questionnaire (MSLQ), Self-Regulated Learning Interview Schedule (SRLIS), observations of overt behavior, interview evidence, think-aloud protocols, traces of mental events and processes, situational manipulations, recording student motivation strategies as they work, keeping diaries, microanalytic assessments
Academic emotions (Chapter 11)	Ekman's "Facial Action Coding System" (FACS), Positive and Negative Affect Schedule (PANAS), Academic Emotions Questionnaire (AEQ), Self-Assessment Manikin (SAM), State-Trait Anxiety Inventory (STAI), physiological measures (skin conductance, heart rate, cortisol), imaging techniques (fMRI, EEG), FaceReader
Resiliency (Chapter 12)	Resiliency Scales for Children and Adolescents (RSCA): a profile of personal strengths, ClassMaps Survey

Table 15.3 Examples of interventions and recommendations for development of psychosocial constructs discussed in the volume

Psychosocial skill	Interventions/recommendations
Emotional intelligence (Chapters 3, 11, 13)	Promoting Alternate Thinking Strategies (PATHS) program and Promotion of EI in Learning and Achievement Situations (PEILAS) model build knowledge of emotions and strategies for emotion regulation; RULER (universal SEL approach that integrates EI into core academic curriculum; skills include recognizing, understanding, labeling, expressing, and regulating emotions)
Student motivation (Chapters 3, 10)	Attribution retraining, growth mindset interventions (target perceptions about student capacity to learn), opportunities for choice in the classroom (e.g., homework assignments), value affirmation, interventions targeting students' sense of belonging in academic environment, The Wheel (13-module motivation and engagement framework), Concept-Oriented Reading Instruction (CORI)
Need for cognition (Chapter 5)	Intellectual discussions with faculty/peers during critical periods, increase student's sense of self-efficacy, programs that increase depth and frequency of student's reading
Creativity (Chapter 6)	Incorporate mini-c learning experiences, supportive and balanced task-specific feedback, explicitly teaching creative thinking strategies, foster creative metacognition in students
Conscientiousness (Chapter 7)	Enhancement of self-regulation (Tools of the Mind program), attentional bias modification, mindfulness training, teacher conscientiousness
Grit (Chapter 7)	Present tasks as investments in long-term goals, similar interventions to conscientiousness
Academic self-concept (Chapter 8)	Comprehensive school systems and teachers that bolster self-concept, temporal comparisons instead of social comparisons in giving feedback, positive motivational cues, supportive attributions for success and failure, safe and trusting student-teacher relationships

(continued)

Table 15.3 (continued)

Psychosocial skill	Interventions/recommendations
Self-regulated learning (Chapter 9)	Foster a learning environment where students focus on personal progress and view errors as learning opportunities, modeling desired behaviors, teaching goal setting (K-2), modeling and integrating help-seeking strategies (3–5), modeling self-assessment (6–8), encouraging students to evaluate their own work and self-monitor progress (9–12), and using computer-based learning environments
Academic emotions (Chapter 11)	Teach learners that academic emotions are both controllable and valuable, teach learners about emotions and strategies for regulating emotions, define and classify academic emotions, build emotion vocabulary, increase knowledge about the effects of academic emotions, and focus on mastering learning material and working through challenges
Resiliency (Chapter 12)	Addressing emotional reactivity, social and emotional learning (SEL) programs that target self-management, social awareness, relationships skills, and responsible decision-making; give students opportunities to practice social and emotional skills inside and outside of the classroom (also at home); Responsive Classroom approach; ClassMaps; cultivating "islands of competence"/mastery experiences; effort attributions; positive feedback that focus on strengths

life. Psychosocial variables demonstrate significant relationships with a vast array of variables, important for individuals' development and functioning (see Hough & Oswald, 2008; Matthews, Zeidner, & Roberts, 2006; Ozer & Benet-Martinez, 2006; Roberts et al., 2007 for reviews). These include happiness (e.g., Diener & Lucas, 1999), health (e.g., Bogg & Roberts, 2004), longevity (e.g., Roberts et al., 2007), job performance (e.g., Barrick, Mount, & Judge, 2001), job satisfaction (e.g., Judge, Heller, & Mount, 2002), labor economic outcomes (e.g., wages, employment, incarceration rates; see e.g., Heckman & Rubinstein, 2001; Heckman, Malofeeva, Pinto, & Savelyev, 2007), marital satisfaction (e.g., Watson, Hubbard, & Weise, 2000), peer relationships (e.g., Jensen-Campbell et al., 2002), as well as behavioral problems (e.g., Ge & Conger, 1999) and psychological disorders (e.g., Trull & Sher, 1994). All in all, evidence from empirical research supports the claim that psychosocial skills are important predictors of academic, workforce, and—ultimately—life success.

15.2 Psychosocial Skills as Meaningful Outcomes in Their Own Right

The goal of finding effective ways to predict students' academic success has been high on the priority list of numerous researchers in the field of education. Scholars have attempted to discover additional predictors of academic achievement that should be considered during the admissions process or when evaluating successes on individual, school, or programmatic levels (e.g., Burton & Ramist, 2001;

Harackiewicz, Barron, Tauer, & Elliot, 2002). Discovery and definition of new predictors of students' academic success, however, is a futile exercise, unless there is a comprehensive formulation of *what* constitutes such success. Until recently, the plethora of newly proposed and traditional predictor variables was used in conjunction with a very narrow set of academic outcomes. Specifically, the criteria for success that have been most popular among the researchers were first-year and cumulative college GPA, course grades, college or high school graduation, and attendance rates (see, e.g., Camara & Echternacht, 2000; Camara & Kimmel, 2005; Harackiewicz et al., 2002). Such a mismatch between the predictor and the outcome space stalls potential developments in the field and makes the impact of inquiries theoretically and practically less meaningful.

Throughout this volume, the contributing authors conveyed the message that psychosocial skills are valuable in their own right. That is, teaching students time management, self-regulation, motivation, creativity, and other psychosocial characteristics should be an explicit goal of education. In fact, as Stemler and DePascale note in Chapter 3 of this volume, these skills have already become an ingrained part of the core mission of many educational establishments. Further, as Bertling, Borgonovi, and Almonte (Chap. 14) show, these skills are becoming the focus of many national and international large-scale group score assessments and are regarded as key outcomes of education. Hence, there is a growing recognition that psychosocial skills should be at the very core of instructional programs irrespective of their links to GPA or other "traditional" academic outcomes. After all, it is virtually impossible to build a cogent argument that would somehow disprove the pivotal role of academic self-concept, emotional control, creativity, or motivation, to name a few, for individuals' success. So let us look at psychosocial skills as outcomes of educational programs and let us review approaches to defining the criterion space in education that includes such skills.

Many prestigious colleges and universities include psychosocial skills into their definitions of success. Such definitions range from broad goals such as helping develop the whole person and preparing students for the adult world to specific lists of skills and attributes they expect of their graduates. Examples of the latter include students' ability to generate original ideas and solutions, function in an intercultural context, and respect and value individual differences (see, e.g., Acrum, 1992; Rigol, 2003). Many institutions now claim that to the extent possible, admissions decisions should be validated on this broader set of criteria. Thus, the chapters that focus on specific psychosocial constructs discussed in this volume are often consistent with a reconceptualization of psychosocial skills as explicit goals of education.

An interesting approach to identifying a comprehensive list of outcomes of educational programs was undertaken by Oswald, Schmitt, Kim, Ramsay, and Gillespie (2004). The researchers examined educational objectives and mission statements from 35 colleges and universities in the United States in search for common themes that institutions stipulated. The authors condensed all the variables into twelve relevant criteria of college success. The identified dimensions were:

1. Knowledge, learning, and mastery of general principles
2. Continuous learning, intellectual interest, and curiosity

3. Artistic and cultural appreciation and curiosity
4. Multicultural tolerance and appreciation (showing tolerance and openness)
5. Leadership (demonstrating skills in a group)
6. Interpersonal skills (communicating and dealing well with others)
7. Social responsibility, citizenship, and involvement
8. Physical and psychological health (avoiding unhealthy behaviors, having a set of effective coping mechanisms for dealing with stress)
9. Career orientation (establishing, prioritizing, and working toward goals)
10. Adaptability and life skills (adapting well to changes, dealing with problems)
11. Perseverance (committing to goals, regardless of their difficulty)
12. Ethics and integrity (having a well-developed set of values)

If mission statements are to be regarded as formal documents with explicated goals of educational institutions, then the proper identification and further assessment of corresponding criteria for success should be in place. Undoubtedly, there is evidence demonstrating that college success is a multidimensional construct that should not be gauged solely on students' GPA, grades, and retention. The latter statement is bolstered by evidence that theoretically derived components of college success were predicted by distinct indicators and covaried with other variables (Oswald et al., 2004). Stemler and DePascale (Chap. 3) provide a detailed review of the criteria of educational success as defined through mission statements at the K-12 level and beyond and offer a list of assessments that can be used to gauge them. It is important to note differences and commonalities between tertiary education, on the one hand, and primary and secondary, on the other. The main differences may stem from the selection procedures: Universities and colleges, in general, are more selective than primary, middle, and high schools (private schools, notwithstanding). Further, university and college students have a longer learning history and more experience with formal education and have accumulated wider academic knowledge and skills as compared to students of the K-12 system. Nevertheless, there are also commonalities between primary, secondary, and tertiary education. First, all three levels provide formal instruction with the aim of preparing student for the later (work) life. Second, the biological and neurological basis of learning (i.e., basic brain structures and functions) does not change qualitatively from secondary to higher education.

The importance of psychosocial skills is also recognized outside of the academic milieu. In fact, researchers in education draw upon current theories of job performance to reevaluate the domain of students' performance in schools and colleges. The organizational psychology literature presents several models of competencies that describe criteria for success in the workplace (see, e.g., Robertson, Callinan, & Bartram, 2002). In a report published by The Conference Board, Partnership for 21st Century Skills, Society for Human Resource Management, and Corporate Voices for Working Families, *Are They Really Ready to Work?* researchers identified the skills recognized as most important and/or that will be increasing in importance over the next decades as critical to workplace success based on responses from 400+ surveys and twelve interviews with HR professionals and executives in

the business community (Casner-Lotto & Barrington, 2006). Psychosocial skills such as work ethic, teamwork, oral communication, leadership, and creativity were listed as some of the most important personal skills for success in the workplace in the twenty-first century. These skills are reviewed in the current volume with our contributors offering specific suggestions for psychosocial skill development and assessment in K-12 education. Interestingly, each of these skills was rated as more important, compared to the skills traditionally taught and assessed in school, such as writing, reading comprehension, English, and math.

To conclude our discussion of models of success that encompass psychosocial skills, we will review the final set of characteristics that may help us to define success in education. Bartram, Robertson, and Callinan (2002) (see also Kurz & Bartram, 2002) put forward a list of eight criteria, or competency factors, aptly entitled the Great Eight. These competencies were derived by employing factor analysis and multidimensional scaling analysis to categorize supervisor, self-assessment, and overall job performance ratings. As Bartram et al. (2002) note, this approach represented a criterion-centered model, rather than predictor-centered one, when the data obtained through cognitive measures, motivation, and personality questionnaires were analyzed. These factors capture a broad range of skills and attributes and include:

1. Leading and deciding (providing leadership, initiating action)
2. Supporting and cooperating (team working, supporting)
3. Interacting and presenting (relating, communicating, influencing)
4. Analyzing and interpreting (problem solving, writing, applying expertise and technology)
5. Creating and conceptualizing (learning and researching)
6. Organizing and executing (planning, delivering quality, persevering)
7. Adapting and coping (coping with stress)
8. Enterprising and performing (achieving results)

The Great Eight factors have been rigorously tested, and the structure has been replicated in a number of different data sets. Bartram et al. (2002) present evidence from 33 validation studies and demonstrate support of the eight-component structure. Ability and personality variables predict the Great Eight factors differently and in a meaningful fashion. The researchers conclude that the Great Eight model provides a useful framework for testing predictor-criterion contingencies with both personality and cognitive indicators used as predictors.

The Great Eight model appears to be a good solution to the criterion problem in the workplace. Although some attempts have been made by educational researchers to construct similar models that would be as structurally stable and theoretically meaningful, in general these have neither generalized nor been widely adopted. It is possible that defining the exact set of skills that are critical for academic success at all levels is an unattainable endeavor, but it is something that researchers should attempt to achieve in future programmatic endeavors. In concluding this section, we contend that the skills listed throughout this volume should certainly be considered in any such model and become key outcomes of many educational programs.

15.3 An Organizing Framework for Psychosocial Skill Assessment and Development

This section comments on an organizing framework for the key psychosocial factors discussed as early as Chapter 1. Burrus and Brenneman (Chap. 1) attempted to organize the collection of psychosocial skills into a concise model. The authors discuss the Big Five as the key organizing framework for psychosocial skills. The authors propose to further divide the Big Five into three categories, critical for K-12 students: performance skills, interpersonal skills, and self-management skills. The performance skills ("getting along with school") are generally aligned with conscientiousness and openness to experience. According to Burrus and Brenneman (Chap. 1), skills that fall under the umbrella of the performance skills include grit (Chap. 7), creativity (Chap. 6), curiosity (Chap. 5), time management (Chap. 7), and goal setting (Chap. 9 and 10). The second category proposed by Burrus and Brenneman (Chap. 1) is self-management skills ("getting along with yourself"). Self-management skills are all related to the emotional stability factor of the Big Five and include skills like self-efficacy (Chap. 9 and 10; see also Chap. 8 on academic self-concept), test anxiety (Chap. 11), and coping (Chap. 11 and 12). Burrus and Brenneman (Chap. 1) also suggest that interpersonal skills ("getting along with others") can be indexed by such skills as leadership (related to conscientiousness and openness to experience) and teamwork (related to agreeableness and emotional stability). The authors further propose that cross-cultural competence (Chap. 1) and emotional intelligence (Chap. 11 and 13) fall under the interpersonal skills category.

At this juncture, it would be disingenuous not to discuss other alternative frameworks for synthesizing key psychosocial skills for educational research, policy, and practice. For example, the Partnership for 21st Century Skills considers the four Cs—critical thinking, communication, collaboration, and creativity—as core, while the Collaborative for Academic, Social, and Emotional Learning (CASEL) highlights five "competency clusters": self-awareness, self-management, social awareness, relationship skills, and responsible decision-making. Tony Wagner's (2010) bestseller, *The Global Achievement Gap*, highlights seven "survival skills": problem solving and critical thinking, collaboration across networks and leading by influence, agility and adaptability, initiative and entrepreneurship, effective written and oral communication, accessing and analyzing information, and curiosity and imagination. Another bestseller, Paul Tough's (2013) *How Children Succeed* champions grit, curiosity, and the hidden power of character in its subtitle. And in 2012, the National Research Council, in its landmark report *Education for Life and Work*, attempted to cut through the morass by declaring three clusters of competencies: the cognitive, the interpersonal, and the intrapersonal.

Elsewhere, we have made a case that each of these models, however, may also be subsumed under the Big Five factor framework (Roberts, Martin, & Olaru, 2015). Moreover, whereas the Big Five is supported by a large volume of compelling meta-analytic data showing its utility for education, workforce, and life across a wide array of the outcomes, in many countries, other frameworks are based on

isolated studies, have limited empirical support, and/or appear to predict only specific academic outcomes. Indeed, we suggest that any alternative model/framework to be considered should exceed the Big Five with respect to the following criteria:

1. Appropriately, evidence, theory, and policy driven
2. Well-documented, extensive, and programmatic record of validity support, including meta-analytic evidence (extra weighting would come in the form of causal modeling through longitudinal designs; note however, many of these longitudinal studies use the Big Five framework [see Chap. 4] so this may be a heavy lift)
3. Extensive predictive scope (i.e., provide recommendations or evidence tied not just to education, but also workforce and everyday life considerations)
4. Global, cross-cultural relevance (i.e., not limited just to data collected in educational systems in the United States)
5. Ability to generate actionable recommendations and also have intervention programs that are consistent with (1)–(4), such as is documented in many of the chapters of this volume
6. Extent to which a logical case can be made that the alternative model/framework will yield a return on investment greater than the Big Five

Put another way, it is precisely for these reasons that we believe the Big Five (including their facets) serves as a compelling framework for understanding K-12 psychosocial skills, how they would best be measured, and how they might be changed. Unfortunately, unlike cognitive skills, which have a fairly comprehensive taxonomic model underlying it—the Cattell-Horn-Carroll model (see Roberts & Lipnevich, 2011)—with primary mental abilities identified under higher-order constructs, the Big Five facets remain idiosyncratic to particular researchers' preference. We contend that a major undertaking needed in this domain is to clearly document these facets, especially since it appears, that is, at this level successful interventions may be targeted (see, e.g., Kyllonen, Lipnevich, Burrus, & Roberts, 2014). Fortunately, some work has been done to this end (especially for conscientiousness; see, e.g., MacCann, Fogarty, & Roberts, 2012; Roberts, Chernyshenko, Stark, & Goldberg, 2005), but the goal of having a stratum model for psychosocial skills akin to cognitive ability appears some time off in the future.

15.4 On the Issue of Malleability of Psychosocial Skills

Researchers have consistently demonstrated that cognitive ability may not be changed easily (see, e.g., Kyllonen, Roberts, & Stankov, 2008). Conversely, as our contributors note in their respective chapters, most psychosocial skills can be (see Chap. 4, 10, 11, 12, and 13, for review; Table 15.3 lists examples of interventions and recommendations for psychosocial skills development). Walton and Billera (Chap. 4) provide a comprehensive review of literature on the development of personality across the individuals' life. The authors do a tremendous task explicating the complexity of assessing stability and change of psychosocial

characteristics, so we would like to refer the reader to Chapter 4 of this volume for the full account. As it comes to mean-level changes, the authors condense their conclusions to two main points. First, personality continues to change in adulthood (Roberts, Walton, & Viechtbauer, 2006). Studies show significant changes in psychosocial skills during childhood and adolescence (Branje, Frijns, Finkenauer, Engels, & Meeus, 2007; De Fruyt et al., 2006; Klimstra, Hale, Raaijmakers, Branje, & Meeus, 2009; McCrae et al., 2002; Prinzie & Dekovic, 2008; Pullmann, Raudsepp, & Allik, 2006), with young adulthood being the period for the most significant changes. Second, the authors present a rather optimistic picture showing that individuals' personal characteristics generally improve as they age. So, individuals exhibit increased conscientiousness, emotional stability, and social dominance across much of the life course. This supports the so-called maturity principle, which states that people demonstrate an increased capability of being a productive and involved member of society, an increased tendency to be planful and decisive, and a greater propensity for being considerate and charitable (see Caspi, Roberts, & Shiner, 2005). In sum, personal betterment is one more thing that we should look forward to as we age.

The research that Walton and Billera (Chap. 4) review suggests that specific interventions targeting psychosocial skills may be of great use and importance. After all, personality is not set in plaster after the age of five, as James (1890/1981) originally proposed (see, e.g., Terracciano, Costa, & McRae, 2006). Attesting to this point, a recent meta-analysis by Durlak, Weissberg, and Pachan (2010) synthesized results of 75 studies that examined the impact of after-school programs on a number of meaningful outcomes. The authors found that these nonformal learning programs had an overall positive and statistically significant impact on a range of psychosocial characteristics of participating students. The main changes in outcomes took place in three main domains: feelings and attitudes, indicators of behavioral adjustment, and school performance. These authors' also revealed significant increases in children's and adolescents' self-perceptions (e.g., self-concept), bonding to school, positive social behaviors, school grades, and achievement test scores. Further, problem-related behaviors were reduced. In sum, Durlak et al. (2010) conclude that these findings indicate that after-school programs deserve support and recognition and stress the importance of these programs as means to increase a slew of key psychosocial characteristics.

The contributors to this volume did a thorough job of systematically reviewing interventions and approaches to enhancing core psychosocial skills. Thus, Prince-Embury, Keefer, and Saklofske (Chap. 12) provide specific examples of psychosocial interventions aimed at fostering resiliency in the classroom: Responsive Classroom and ClassMaps. Both programs have garnered significant empirical support, and their effectiveness is seemingly beyond debate. Similarly, Torrente, Rivers, and Brackett (Chap. 13) review approaches to improving emotional intelligence in schools. They present a RULER model that focuses on the development of five skills that can be instilled by means of instruction and experience: recognizing emotions (e.g., interpreting nonverbal cues), understanding (e.g., knowing causes and consequences of emotions), labeling (e.g., developing extensive emotion

vocabulary), expressing (e.g., expressing emotion in socially appropriate ways), and regulating emotions (e.g., managing emotional states). Torrente et al. describe a range of specific tools that help to enhance students' emotional intelligence. Goetz and Bieg's (Chap. 11) discussion adds to our understanding of approaches to helping students regulate their emotions. The authors further present a model for the development of emotional intelligence in learning and achievement situations.

Another broad set of psychosocial skills includes investment traits like need for cognition. Jebb, Saef, Parrigon, and Woo (Chap. 5) provide suggestions on how need for cognition, as the tendency to enjoy effortful thinking, may be developed in the classroom. The authors note that high self-efficacy as well as programs focused on the depth and frequency of student reading may support their need for cognition. Kaufman, Beghetto, and Dilley (Chap. 6) review individual and school-level approaches to the development of creativity. From teaching students creative metacognition (Kaufman & Beghetto, 2013) to creating contexts that encourage creative solutions to seemingly mundane problems—the authors provide persuasive evidence suggesting that creativity can be improved.

Academic self-concept is a characteristic that can be enhanced rather economically and without disrupting the routine instructional activities and that has a potential for positive ramifications for the students. In fact, as Trautwein and Moeller (Chap. 8) note, some interventions resulted in self-concepts that increased by half of a standard deviation, which in turn lead to improved academic performance. Due to the fact that high academic self-concepts in one domain can lead to reduced self-concepts in other, contrasting domains, interventions fostering academic self-concept are often included into broader programs that are focused on improving student self-regulation. Bembenutty, White, and DiBenedetto (Chap. 9) describe specific tools for encouraging self-regulated learning in students of various ages. The advice ranges from teaching children at K-3 level how to resist lunch until lunchtime to helping K-6- to K-12-level students examine the consequences of partying before large homework assignments are due.

Motivation is another central psychosocial skill that can be successfully developed through targeted interventions. Hulleman, Kosovich, and Lasowski (Chap. 10) present a meta-analysis of expectancy interventions, value interventions, and cost interventions, as well as multicomponent motivational interventions. The authors discuss an impressive empirical base attesting to the effectiveness of these approaches.

In sum, the corpus of literature on interventions reviewed in this volume suggests relatively unequivocally that psychosocial skills are teachable and learnable and that such interventions can generally be done at scale. This does not suggest, however, that there is still not more work to be done. For one, the practitioner may feel overwhelmed by the large number of programs available, with little attempt to identify redundancies, or provide a clear evaluation of the efficacy of one program relative to another. This issue is clearly outside the scope of this final chapter, but resources exist for making such judgments, such as is provided on the webpage of the Collaborative for Academic, Social, and Emotional Learning (CASEL, see http://www.casel.org/). Secondly, not all contributors made it abundantly clear that the hallmark of effective programs is a systematic process that requires multiple

steps and conditions. Elsewhere we have provided guidelines for the development, implementation, and evaluation of programs of a psychosocial nature (Zeidner, Roberts, & Matthews, 2002). It is perhaps worth briefly reiterating these guidelines here, since while generally met, virtually no intervention program included all elements (certainly as presented in this volume). This is clearly something that needs to occur as these programs move to scale, both domestically and internationally:

1. Base psychosocial skills intervention programs on a solid conceptual framework
2. Carefully specify program goals and behavioral outcomes
3. Fully integrate psychosocial programs into the school educational and instructional curriculum
4. Make provisions for practice and for the transfer of these skills outside the classroom (after-school settings provide an especially important context for transfer)
5. Ensure professional development of program personnel (modeling the targeted behaviors for the student should be a key intervention strategy)
6. Use robust experimental, psychometrically sound designs for assessing program effectiveness

Finally, it is not always clear how these intervention programs can be buttressed effectively by educational policy. Absent in this important impetus, we remain circumspect of these programs' sustainability. In this next section, we attempt to redress this imbalance by integrating all of the preceding sections to provide recommendations for future educational research and program evaluation and how policy might service these endeavors.

15.5 Policy Implications and Future Directions

The contributors of this volume affirm the utmost importance of psychosocial skills for individuals' learning, functioning, and development. Not surprisingly, these skills have been increasingly taken seriously by the educational community, as witnessed by the prominence of standards movements (e.g., Partnership for 21st Century Skills, 2006a, b, see Chap. 3), and their growing role in large-scale international assessments with an attendant impact on policy (see Chap. 14) and even legislation (e.g., Partnership for 21st Century Skills, 2008). In fact, in countries as different as the United States, the United Kingdom, Finland, Korea, Israel, and Singapore, psychosocial skills have been elevated to playing a central role in national curricula. This movement has been fueled, in part, by a new understanding that these skills are critical in the global economy. A number of US states currently mandate that psychosocial skills be part of a standard curriculum, with more states joining in.

To build on the growing momentum, we feel that psychosocial skills are destined to take a more prominent place in school curricula. Psychosocial skills should become explicit in accountability practices and policies, and expectations that educational programs develop and focus on these characteristics should be clear to educators, students, and parents alike. This task, of course, is not simple, but hardly

anything in education is. Changing curriculum, promoting teacher preparation, receiving support from administrators, and educating parents on the extended criteria of their children's success are some of the steps that will have to take place in order to make psychosocial skills an ingrained part of daily instructional practices.

Further, schools in general and teachers in particular should be held accountable for teaching psychosocial skills. Currently, one of the main (and much criticized) criteria of teacher effectiveness is student performance on standardized tests. Adding psychosocial skills to the list of indicators of teacher success may sound intimidating, but it is quite possible that such addition may be welcomed and embraced by educators. After all, students' achievement on a test does not capture the breadth of teachers' contribution to students' learning and development, and broadening the outcome space to include student psychosocial skills may be a boon to all. As Stemler and DePascale note in Chapter 3 of this volume, most teachers are generally in favor of the concept of accountability—as long as such system is aligned with the goals that they deem important.

The next policy implication flows out of the previous one. To make judgments about students' psychosocial skills, such skills should be effectively assessed, and the results of such assessments should be clearly communicated to all the interested parties. Chapter 2 of this volume reviews issues and concerns associated with assessment of psychosocial skills and proposes solutions to solving some of the issues, whereas Chapter 3 offers specific examples of such assessments. Using effective traditional and alternative approaches to gauging psychosocial skills does not have to be an overly daunting task. With the help of technology, in particular, this task may become easily executable, as some program-level precedents show (see Roberts et al., 2015).

As we mentioned earlier in this chapter, after-school programs have been shown to contribute to positive development of psychosocial skills. Music, arts, drama classes, sports, and peer tutoring are some of the many quality after-school experiences that have been shown to enhance a range of psychosocial skills. Making such programs available to as many students as possible may be another avenue for shifting policies.

We may be stating the obvious here, but policy changes should be carefully construed and steeped in solid research foundations. The challenge here is that the domain of psychosocial skills research is very broad as it transcends a number of fields and disciplines that lie on the intersection of psychology, education, economics, and other related disciplines. It is virtually impossible to summarize all research on psychosocial skills, even in the specific context that we chose for this volume—K-12. Despite existing consensus on a number of issues that concern psychosocial skills in K-12, researchers working in the field have enough problems to solve and questions to answer. Let us try to summarize some of the areas in which we think research may most usefully progress and inform policy changes.

Researchers may work on identifying which skills (and when) are the most essential for students. The researchers in this volume describe a number of psychosocial skills that are important for students to cultivate. As Burrus and Brenneman (Chap. 1) suggest, researchers may also want to investigate their relative importance

in a certain developmental phase. In other words, although all of the skills that were mentioned in this book would be nice to have, is there a subset of skills that are absolutely critical to develop? Are there any basic psychosocial skills that set the stage for the development of more complex skills? After all, time and effort are valuable and in many cases quite limited. Hence, having a clear understanding as to which skills should be the focus of attention would be of great theoretical and practical utility. Related to this point, researchers can invest into identifying which psychosocial skills are most malleable. Burrus and Brenneman (Chap. 1) speculate that if, for example, "leaders are born, not made," trying to enhance individuals' leadership skills would be a futile exercise. Teaching students on how to manage their time or how to cope with debilitating anxiety may be more useful.

Another broad area for research concerns the summative as well as the formative assessment of psychosocial skills. Ziegler and Brunner (Chap. 2) and Stemler and DePascale (Chap. 3) discuss a range of important questions that arise when psychosocial skills are to be gauged. For example, researchers should continue their efforts and develop new assessments of these skills that are resistant to faking (see Ziegler, MacCann, & Roberts, 2011 for an extensive review). Some promising options include the use of forced-choice methods (e.g., Stark, Chernyshenko, Drasgow, & White, 2012), anchoring vignettes (Bertling et al., Chap. 14), situational judgment tests (Lipnevich, MacCann, & Roberts, 2013), and assessments embedded in video games (e.g., Shute, Ventura, Kim, & Wang, 2014). Moreover, instituting a system of formative assessment with specific tools and recommendations that would be helpful in developing psychosocial skills in students would be yet another useful topic for research. In a similar way that educators learn to provide feedback on student writing, teachers should be encouraged to provide feedback on psychosocial skills. Both the form and the content of such feedback are a critical topic for investigation.

Finally, choosing a parsimonious taxonomy of psychosocial skills would move the field forward. As we and our contributors noted earlier in this volume (see, e.g., Chap. 1 and 4), the Big Five personality model may serve as an organizing framework of psychosocial skills. However, this model needs to be more fully articulated at the facet level to provide the fine-grained organizing taxonomy of psychosocial skills that might serve researchers, practitioners, and policy makers best. Such a taxonomy would help to expand the criterion space of educational success by defining key characteristics. Researchers could use such framework to integrate scattered findings or to identify blind spots of educational research (e.g., systematic intervention studies for some of these skills). And, as Stemler and DePascale (Chap. 3) rightfully note, educators can be held accountable for developing psychosocial skills, in the same way they are held accountable for developing reading, writing, and arithmetic in their students. Developing such a taxonomy is an ambitious endeavor that presupposes the cooperation of educational research, policy, and practice. We hope that this volume meets this important and challenging undertaking in some small way, moving the needle closer toward a truly complete broad education.

References

Abe, J. A. (2005). The predictive validity of the five-factor model of personality with preschool age children: A nine year follow-up study. *Journal of Research in Personality, 39*, 423–442.

Acrum, R. (1992). *The college application and admission process*. New York: College Board.

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), 9–30.

Bartram, D., Robertson, I. T., & Callinan, M. (2002). Introduction: A framework for examining organizational effectiveness. In I. T. Robertson, M. Callinan, & D. Bartram (Eds.), *Organizational effectiveness: The role of psychology* (pp. 1–10). Chichester, UK: Wiley.

Bogg, T., & Roberts, B. W. (2004). Conscientiousness and health-related behaviors: A meta-analysis of the leading behavioral contributors to mortality. *Psychological Bulletin, 130*(6), 887–919.

Branje, S. J. T., Frijns, T., Finkenauer, C., Engels, R., & Meeus, W. (2007). You are my best friend: Commitment and stability in adolescents' same-sex friendships. *Personal Relationships, 14*(4), 587–603.

Burton, N. W., & Ramist, L. (2001). *Predicting success in college: SAT studies of classes graduating since 1980* (College Board Research Report No. 2001–002). New York: College Board.

Camara, W. J., & Echternacht, G. (2000). *The SAT I and high school grades: Utility in predicting success in college* (RN-10). New York: College Entrance Examination Board, Office of Research and Development.

Camara, W., & Kimmel, E. W. (2005). *Choosing students: Higher education admissions tools for the 21st century*. Mahwah, NJ: Lawrence Erlbaum.

Campbell, J. R., Voelkl, K. E., & Donahue, P. L. (1997). *NAEP 1996 trends in academic progress* (NCES Publication No. 97–985). Washington, DC: U.S. Department of Education.

Casner-Lotto, J., & Barrington, L. (2006). *Are they really ready to work? Employers' perspectives on the basic knowledge and applied skills of new entrants to the 21st century U.S. workforce*. Washington, DC: Conference Board, Partnership for 21st Century Skills, Corporate Voices for Working Families, Society for Human Resource Management.

Caspi, A., Roberts, B. W., & Shiner, R. L. (2005). Personality development: Stability and change. *Annual Review of Psychology, 56*, 453–484.

Chamorro-Premuzic, T., & Furnham, A. (2003). Personality traits and academic examination performance. *European Journal of Personality, 17*(3), 237–250.

Crede, M., & Kuncel, N. R. (2008). Study habits, skills, and attitudes: The third pillar supporting collegiate academic performance. *Perspectives on Psychological Sciences, 3*, 425–454.

De Fruyt, F., Bartels, M., Van Leeuwen, K. G., De Clercq, B., Decuyper, M., & Mervielde, I. (2006). Five types of personality continuity in childhood and adolescence. *Journal of Personality and Social Psychology, 91*(3), 538–552.

Deary, I. J., Whalley, I. J., & Starr, J. M. (2003). IQ at age 11 and longevity: Results from a follow up of the Scottish Mental Survey 1932. In C. E. Finch, J. M. Robine, & Y. Christen (Eds.), *Brain and longevity: Perspectives in longevity* (pp. 153–164). Berlin: Springer.

Diener, E., & Lucas, R. E. (1999). Personality and subjective well-being. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 213–229). New York: Russell Sage Foundation.

Duckworth, A. L., & Seligman, M. E. P. (2005). Self-discipline outdoes IQ in predicting academic performance of adolescents. *Psychological Science, 16*(12), 939–944.

Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest, 14*(1), 4–58.

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*(3), 294–309.

Ge, X., & Conger, R. D. (1999). Adjustment problems and emerging personality characteristics from early to late adolescence. *American Journal of Community Psychology, 27*, 429–459.

Harackiewicz, J. M., Barron, K. E., Tauer, J. M., & Elliot, A. J. (2002). Predicting success in college: A longitudinal study of achievement goals and ability measures as predictors of interest and performance from freshman year through graduation. *Journal of Educational Psychology, 94*(3), 562–575.

Heckman, J. J., Malofeeva, L., Pinto, R. R., & Savelyev, P. (2007). *The effect of the Perry Preschool program on the cognitive and noncognitive skills of its participants*. Unpublished manuscript, Department of Economics, University of Chicago, IL.

Heckman, J. J., & Rubinstein, Y. (2001). The importance of noncognitive skills: Lessons from the GED testing program. *The American Economic Review, 91*(2), 145–149.

Hezlett, S. A., Kuncel, N., Vey, M. A., Ahart, A. M., Ones, D. S., Campbell, J. P., et al. (2001, April). *The effectiveness of the SAT in predicting success early and late in college: A comprehensive meta-analysis*. Paper presented at the annual meeting of the National Council on Measurement in Education, Seattle, WA.

Hough, L. M., & Oswald, F. L. (2008). Personality testing and industrial-organizational psychology: Reflections, progress, and prospects. *Industrial and Organizational Psychology, Perspectives on Science and Practice, 1*(3), 272–290.

James, W. (1890/1981). *The principles of psychology* (F. Burkhardt, Ed., 2 vols.). Cambridge, MA: Harvard University Press.

Jensen-Campbell, L. A., Adams, R., Perry, D. G., Workman, K. A., Furdella, J., & Egan, S. K. (2002). Agreeableness, extraversion, and peer relations in early adolescence: Winning friends and deflecting aggression. *Journal of Research in Personality, 36*, 224–251.

Judge, T. A., Heller, D., & Mount, M. K. (2002). Five-factor model of personality and job satisfaction: A meta-analysis. *Journal of Applied Psychology, 87*(3), 530–541.

Kaufman, J. C., & Beghetto, R. A. (2013). In praise of Clark Kent: Creative metacognition and the importance of teaching kids when (not) to be creative. *Roeper Review, 35*, 155–165.

King, M. L. Jr. (1947, January–February). *The purpose of education. The Maroon Tiger*. Retrieved from http://kinfencyclopedia.stanford.edu/encyclopedia/documentsentry/doc_470200

Klimstra, T. A., Hale, W. W., III, Raaijmakers, Q. A. W., Branje, S. J. T., & Meeus, W. H. J. (2009). Maturation of personality in adolescence. *Journal of Personality and Social Psychology, 96*(4), 898–912.

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 Vol. 5, pp. 1–10). New York: College Board.

Kurz, R., & Bartram, D. (2002). Competency and individual performance: Modeling the world of work. In I. T. Robertson, M. Callinan, & D. Bartram (Eds.), *Organizational effectiveness: The role of psychology* (pp. 227–255). Chichester, London: Wiley.

Kyllonen, P. C., Lipnevich, A. A., Burrus, J., & Roberts, R. D. (2014). *Personality, motivation, and college readiness: A prospectus for assessment and development* (ETS Research Report No. ETS RR-14-06). Princeton, NJ: Educational Testing Service.

Kyllonen, P. C., Roberts, R. D., & Stankov, L. (2008). *Extending intelligence: Enhancement and new constructs*. New York: Lawrence Erlbaum Associates.

Lee, J., Redman, M., Goodman, M., & Bauer, M. (2007*). Enhance: Noncognitive assessments for K-12*. Paper presented at the 2007 annual conference of the National Council of Measurement in Education, Chicago, IL.

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. Schwean (Eds.), *Oxford handbook of child psychological assessment* (pp. 750–772). Cambridge, MA: Oxford University Press.

MacCann, C., Fogarty, G. J., & Roberts, R. D. (2012). Strategies for success in education: Time management is more important for part-time than full-time community college students. *Learning and Individual Differences, 22*(5), 451–458.

Matthews, G., Zeidner, M., & Roberts, R. D. (2006). Personality, affect, and emotional development. In P. A. Alexander & P. H. Winne (Eds.), *Handbook in educational psychology* (2nd ed., pp. 163–186). Mahwah, NJ: Lawrence Erlbaum.

McCrae, R. R., Costa, P. T., Jr., Terracciano, A., Parker, W. D., Mills, C. J., De Fruyt, F., et al. (2002). Personality trait development from age 12 to age 18: Longitudinal, cross-sectional and cross-cultural analyses. *Journal of Personality and Social Psychology, 83*(6), 1456–1468.

National Research Council. (2012). *Education for life and work: Developing transferable knowledge and skills in the 21st century*. Washington, DC: The National Academies Press.

Noftle, E. E., & Robins, R. W. (2007). Personality predictors of academic outcomes: Big Five correlates of GPA and SAT scores. *Journal of Personality and Social Psychology, 93*(1), 116–130.

O'Connor, M. C., & Paunonen, S. V. (2007). Big Five personality predictors of post-secondary academic performance. *Personality and Individual Differences, 43*, 971–990.

Oswald, F. L., Schmitt, N., Kim, B. H., Ramsay, L. J., & Gillespie, M. A. (2004). Developing a biodata measure and situational judgment inventory as predictors of college student performance. *Journal of Applied Psychology, 89*(2), 187–207.

Ozer, D. J., & Benet-Martinez, V. (2006). Personality and the prediction of consequential outcomes. *Annual Review of Psychology, 57*, 401–421.

Partnership for 21st Century Skills (2006a). Results that matter. 21st century skills and high school reform. Retrieved from. http://www.p21.org/tools-and-resources/publications/204.

Partnership for 21st Century Skills (2006b). State standards for the 21st century. Retrieved from. http://www.p21.org/tools-and-resources/publications.

Partnership for 21st Century Skills (2008). Brief: Policy recommendations on preparing Americans for the global skills race. Retrieved from. http://www.p21.org/toolsand-resources/publications.

Poropat, A. E. (2009). A meta-analysis of the five-factor model of personality and academic performance. *Psychological Bulletin, 135*(2), 322–338.

Prinzie, P., & Dekovic, M. (2008). Continuity and change of childhood personality characteristics through the lens of teachers. *Personality and Individual Differences, 45*(1), 82–88.

Pullmann, H., Raudsepp, L., & Allik, J. (2006). Stability and change in adolescents' personality: A longitudinal study. *European Journal of Personality, 20*(6), 447–459.

Rigol, G. W. (2003). *Admissions decision-making models: How U.S. institutions of higher education select undergraduate students*. New York: The College Board.

Robbins, S., Allen, J., Casillas, A., Peterson, C. H., & Le, H. (2006). Unraveling the differential effects of motivational and skills, social, and self-management measures from traditional predictors of college outcomes. *Journal of Educational Psychology, 98*(3), 598–616.

Robbins, S. B., Lauver, K., Le, H., Davis, D., Langley, R., & Carlstrom, A. (2004). Do psychosocial and study skill factors predict college outcomes? A meta-analysis. *Psychology Bulletin, 130*(2), 261–288.

Roberts, B. W., Chernyshenko, O. S., Stark, S., & Goldberg, L. R. (2005). The structure of conscientiousness: An empirical investigation based on seven major personality questionnaires. *Personnel Psychology, 58*(1), 103–139.

Roberts, B. W., Kuncel, N., Shiner, R. N., Caspi, A., & Goldberg, L. R. (2007). The power of personality: The comparative validity of personality traits, socio-economic status, and cognitive ability for predicting important life outcomes. *Perspectives in Psychological Science, 2*(4), 313–345.

Roberts, R. D., & Lipnevich, A. A. (2011). From general intelligence to multiple intelligences: Meanings, models, and measures. In K. R. Harris, S. Graham, & T. Urdan (Eds.), *APA Educational Psychology Handbook, Volume 2* (pp. 33–57). Washington, DC: APA.

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*. New York: Asia Society and ProExam.

Roberts, B. W., Walton, K., & 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), 1–25.

Robertson, I. T., Callinan, M., & Bartram, D. (2002). *Organizational effectiveness: The role of psychology*. Chichester: Wiley.

Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological Bulletin, 124*(2), 262–274.

Shute, V. J., Ventura, M., Kim, Y. J., & Wang, L. (2014). Video games and learning. In W. G. Tierney, Z. Corwin, T. Fullerton, & G. Ragusa (Eds.), *Postsecondary play: The role of games and social media in higher education* (pp. 217–235). Baltimore, MD: John Hopkins University Press.

Stark, S., Chernyshenko, O. S., Drasgow, F., & White, L. A. (2012). Adaptive testing with multidimensional pairwise preference items: Improving the efficiency of personality and other noncognitive assessments. *Organizational Research Methods, 15*(3), 463–487.

Terracciano, A., Costa, P. T., & McRae, R. R. (2006). Personality plasticity after age 30. *Personality & Social Psychology Bulletin, 32*(8), 999–1009.

Tough, P. (2013). *How children succeed: Grit, curiosity, and the hidden power of character*. New York: Houghton Mifflin Harcourt.

Trull, T. J., & Sher, K. J. (1994). Relationship between the five-factor model of personality and Axis I disorders in a nonclinical sample. *Journal of Abnormal Psychology, 103*(2), 350–360.

Wagerman, S. A., & Funder, D. C. (2006). Acquaintance reports of personality and academic achievement: A case for conscientiousness. *Journal of Research in Personality, 41*, 221–229.

Wagner, T. (2010). *The global achievement gap: Why even our best schools don't teach the new survival skills our children need-and what we can do about it*. New York: Basic Books.

Watson, D., Hubbard, B., & Weise, D. (2000). General traits of personality and affectivity as predictors of satisfaction in intimate relationships: Evidence from self- and partner-ratings. *Journal of Personality, 68*(3), 413–449.

Zeidner, M., Roberts, R. D., & Matthews, G. (2002). Can emotional intelligence (EI) be schooled? A critical review. *Educational Psychologist, 37*(4), 215–231.

Ziegler, M., MacCann, C., & Roberts, R. D. (2011). Faking: Knowns, unknowns, and points of contention. In M. Ziegler, C. MacCann, & R. D. Roberts (Eds.), *New perspectives on faking in personality assessment* (pp. 3–16). New York: Oxford University Press.