

Key Noncognitive Skills

1. Self-Efficacy

Students are confident in their ability to obtain academic success, persist to overcome challenges, and are not defeated by failure (Cattell, Cattell, & Cattell, 1993; Conley, 2005, 2007, 2010, 2012; Duckworth, 2005, 2007; Dweck & Reppucci, 1973; Dweck, 1988; Farrington et al., 2012; Marsh, 1984; Marzano, Gaddy, & Dean, 2000; Payton et al., 2000; Richardson, Abraham, & Bond, 2012; Robbins, et al., 2004; Sedlacek, 1996, 2004; Torres & Solberg, 2001; Zimmerman, Bandura, & Martinez-Pons, 1992).

2. Initiative

Students are driven and persist in sustained effort toward accomplishing short- and long-term academic and life goals and mastering new skills and knowledge (Ajzen, 1985; Bartram, 2005; Campbell, Kuncel, & Oswald, 1998; Cherniss & Goleman, 2001; Conley, 2005, 2007, 2010, 2012; Csikszentmihalyi, 1990; Duckworth, 2005, 2007; Fishbein & Ajzen, 1975; Friede et al., 2002; Goleman, 1995; Lindner & Harris, 1992, 1998; Marzano, Gaddy, & Dean, 2000; Partnership for 21st Century Skills, 2009; Payton et al., 2000; Richardson, Abraham, & Bond, 2012; Robbins, et al., 2004; Sedlacek, 1996, 2004; Schmitt, 2012; Schmitt, et al., 2011; Zimmerman, Bandura, & Martinez-Pons, 1992).

3. Integrity

Students work in a systematic and organized fashion to develop precise and accurate products that comply with procedures and directions, have high standards, and maintain academic and personal integrity (Bartram, 2005; Cattell, Cattell, & Cattell, 1993; Conley, 2012; Cherniss & Goleman, 2001; Credé & Kuncel, 2008; Friede et al., 2002; Goldberg, 1990; Hogan & Holland, 2002; Partnership for 21st Century Skills, 2009; Payton et al., 2000; Richardson, Abraham, & Bond, 2012; Schmitt, 2012; Schmitt, et al., 2011).

4. Intellectual Curiosity

Students are intellectually curious life-long learners who go beyond basic mastery of content to explore and expand knowledge (Bartram, 2005; Cattell, Cattell, & Cattell, 1993; Conley, 2005, 2007, 2010, 2012; Credé & Kuncel, 2008; Friede et al., 2002; Goldberg, 2001; Hogan & Holland, 2002; Partnership for 21st Century Skills, 2009; Richardson, Abraham, & Bond, 2012; Schmitt, 2012; Schmitt, et al., 2011).

5. Adaptability

Students respond and adapt well to change, are comfortable with ambiguity, adjust priorities and thinking in response to change, manage pressure and setbacks, and maintain an optimistic outlook (Bar-On, 2006; Bartram, 2005; Cherniss & Goleman, 2001; Friede et al., 2002; Goldberg, 1990; Hogan & Holland, 2002; Partnership for 21st Century Skills, 2009; Bar-On, 2006; Mayer, Salovey, Caruso, & Sitarenios, 2001; Payton, et al., 2000; Schmitt, 2012; Schmitt, et al., 2011).

6. Study Skills

Students use skills and strategies to complete schoolwork, study for tests, take notes, and achieve academic goals; maintain regular study routines; have positive attitudes toward school and studying; and self-identify as scholars (Conley, 2005, 2007, 2010, 2012; Credé & Kuncel, 2008; Lindner & Harris, 1992, 1998; Marzano, Gaddy, & Dean, 2000; Plant, Ericsson, Hill, & Asberg, 2004; Partnership for 21st Century Skills, 2009; Richardson, Abraham, & Bond, 2012; Robbins, et al., 2004).

7. Time and Goal Management

Students effectively and independently prioritize and plan their time to achieve long- and short-term goals and outcomes (Claessens, van Eerde, Rutte, & Roe, 2007; Conley, 2005, 2007, 2010, 2012; Credé & Kuncel, 2008; Koch & Kleinmann, 2002; Lindner & Harris, 1992, 1998; Partnership for 21st Century Skills, 2009; Richardson, Abraham, & Bond, 2012).

8. Leadership

Students inspire and influence others to achieve a common goal by capitalizing on strengths to coordinate tasks; motivating and guiding others; taking initiative and responsibility for outcomes; being decisive, assertive, and authoritative; developing others' skills; and negotiating conflict (Bar-On, 2006; Bartram, 2005; Campbell, Kuncel, & Oswald, 1998; Cattell, Cattell, & Cattell, 1993; Cherniss & Goleman, 2001; Friede et al., 2002; Goldberg, 1990; Goleman, 1995; Partnership for 21st Century Skills, 2009; Payton et al., 2000; Sedlacek, 1996, 2004; Schmitt, 2012; Schmitt, et al., 2011; Sternberg, 2009, 2011, 2012; Sternberg, Bonney, Gabora, & Merrifield, 2012).

9. Collaboration

Students work effectively with others; respect diversity; are empathic, cooperative, and willing to compromise; assume shared responsibility for group tasks; and communicate effectively in groups (Bar-On, 2006; Bartram, 2005; Campbell, Kuncel, & Oswald, 1998; Cattell, Cattell, & Cattell, 1993; Conley, 2005, 2007, 2010, 2012; Friede et al., 2002; Goldberg, 1990; Goleman, 1995; Hogan & Holland, 2002; Marzano, Gaddy, & Dean, 2000; Partnership for 21st Century Skills, 2009; Payton et al., 2000; Richardson, Abraham, & Bond, 2012; Schmitt, 2012; Schmitt, et al., 2011).

10. Communication

Students effectively communicate and listen through oral, written, visual, and nonverbal formats in both formal and informal situations (Bartram, 2005; Bar-On, 2006; Campbell, Kuncel, & Oswald, 1998; Cherniss & Goleman, 2001; Conley, 2005, 2007, 2010, 2012; Friede et al., 2002; Partnership for 21st Century Skills, 2009; Payton et al., 2000; Schmitt, 2012; Schmitt, et al., 2011; Sternberg, 2009, 2011, 2012; Sternberg, Bonney, Gabora, & Merrifield, 2012).

11. Problem Solving

Students develop and implement creative solutions to problems both independently collaboratively (Bartram, 2005; Bar-On, 2006; Cattell, Cattell, & Cattell, 1993; Conley, 2005, 2007, 2010, 2012; Goldberg, 1990; Hogan & Holland, 2002; Lindner & Harris, 1992, 1998; Partnership for 21st Century Skills, 2009; Payton et al., 2000; Richardson, Abraham, & Bond, 2012; Sternberg, 2009, 2011, 2012; Sternberg, Bonney, Gabora, & Merrifield, 2012).

12. Critical Thinking

Students use reasoning and analytic skills to interpret information, develop strategies, and make judgments and decisions (Bartram, 2005; Cattell, Cattell, & Cattell, 1993; Campbell, Kuncel, & Oswald, 1998; Credé & Kuncel, 2008; Conley, 2005, 2007, 2010, 2012; Goldberg, 1990; Hogan & Holland, 2002; Lindner & Harris, 1992, 1998; Marzano, Gaddy, & Dean, 2000; Partnership for 21st Century Skills, 2009; Richardson, Abraham, & Bond, 2012; Sternberg, 2009, 2011, 2012; Sternberg, Bonney, Gabora, & Merrifield, 2012).

13. Self-Awareness

Students have metacognitive knowledge and a realistic sense of their strengths and weaknesses, and they capitalize on strengths and work toward improving deficiencies (Sedlacek, 1996, 2004; Campbell, McCloy, Oppler, & Sager, 1993; Conley, 2005, 2007, 2010, 2012; Cherniss & Goleman, 2001; Goleman, 1995; Bar-On, 2006; Csikszentmihalyi, 1990; Partnership for 21st Century Skills, 2009; Payton et al., 2000; Robbins, et al., 2004; Lindner & Harris, 1992, 1998).

14. Self-Control

Students are able to define, prioritize, and complete tasks independently, and are able to maintain emotional self-control, tolerate stress, and control impulses (Bar-On, 2006; Bartram, 2005; Cattell, Cattell, & Cattell, 1993; Campbell, McCloy, Oppler, & Sager, 1993; Conley, 2005, 2007, 2010, 2012; Cherniss & Goleman, 2001; Goleman, 1995; Lindner & Harris, 1992, 1998; Mayer, Salovey, Caruso, & Sitarenios, 2001; Partnership for 21st Century Skills, 2009; Payton et al., 2000; Plant, Ericsson, Hill, & Asberg, 2004).

15. Applied Knowledge

Students activate and demonstrate knowledge including facts, theories, cultural knowledge, and procedural and practical intelligence; integrate new knowledge into existing structures; and understand how knowledge systems interact with one another (Bean, 1985; Bean & Metzner, 1985; Campbell, Kuncel, & Oswald, 1998; Campbell, McCloy, Oppler, & Sager, 1993; Conley, 2005, 2007, 2010, 2012; Friede et al., 2002; Hogan & Holland, 2002; Partnership for 21st Century Skills, 2009; Sedlacek, 1996, 2004; Sternberg, 2009, 2011, 2012; Sternberg, Bonney, Gabora, & Merrifield, 2012; Schmitt, 2012; Schmitt, et al., 2011).

16. Social and Personal Responsibility

Students act consistently with values and take active responsibility for themselves, their communities, and the environment by engaging in healthy behaviors, performing volunteer work and civic duties, and conserving resources (Gillespie, Kim, Oswald, Ramsay, & Schmitt, 2002; Partnership for 21st Century Skills, 2009; Payton et al., 2000; Chernis & Goleman, 2001; Bar-On, 2006; Goleman, 1998).

References

- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckmann (Eds.), *Action-control: From cognition to behavior* (pp. 1–39). Heidelberg: Springer.
- Bar-On, R. (2006). The Bar-On model of emotional-social intelligence (ESI). *Psicothema, 18*, 13–25.
- Bartram, D. (2005). The Great Eight competencies: A criterion-centric approach to validation. *Journal of Applied Psychology, 90*, 1185–1203.
- Bean, J. P. (1980). Dropouts and turnover: The synthesis and test of a causal model of student attrition. *Research in Higher Education, 12*(2), 155–187.
- Bean, J. P. (1985). Interaction effects based on class level in an explanatory model of college student dropout syndrome. *American Education Research Journal, 22*, 35–64.
- Bean, J. P. (1987). The estimation of a conceptual model of nontraditional undergraduate student attrition. *Research in Higher Education, 27*(1), 15–38.
- Bean, J. P., & Metzner, B. S. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research, 55*(4), 485–540.
- Campbell, J., Kuncel, N. R., & Oswald, F. L. (1998, April). *Predicting performance in graduate school: The criterion problem*. Paper presented at the annual meeting of the Society of Industrial and Organizational Psychologists, Dallas, TX.
- Campbell, J. P., McCloy, R. A., Oppler, S. H., & Sager, C. E. (1993). A theory of performance. In N. Schmitt & W. Borman (Eds.), *Personnel selection in organizations* (pp. 35–70). San Francisco, CA: Jossey-Bass.
- Cattell, R. B., Cattell, A. K. S., & Cattell, H. E. P. (1993). *Sixteen personality factor fifth edition questionnaire*. Champaign, IL: Institute for Personality and Ability Testing.

- Cherniss, G., & Goleman, D. (2001). *The emotionally intelligent workplace: How to select for, measure, and improve emotional intelligence in individuals, groups, and organizations*. San Francisco, CA: Jossey-Bass.
- Claessens, B. J. C., van Eerde, W., Rutte, C. G., & Roe, R. A. (2007). A review of the time management literature. *Personnel Review*, 36(2), 255–276
- Conley, D. T. (2005). *College knowledge*. San Francisco, CA: Jossey-Bass.
- Conley, D. T. (2007). *Redefining college readiness (Vol. 3)*. Eugene, OR: Educational Policy Improvement Center.
- Conley, D. T. (2010). *College and career ready*. San Francisco, CA: Jossey-Bass.
- Conley, D. T. (2012). *A complete definition of college and career readiness*. Eugene, OR: Educational Policy Improvement Center.
- Credé, M., & Kuncel, N. R. (2008). Study habits, skills, and attitudes: The third pillar supporting collegiate academic performance. *Perspectives on Psychological Science*, 3, 425–453.
- Csikszentmihalyi, M. (1990). *Flow*. New York, NY: Harper and Row.
- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 9, 1087–1101.
- Duckworth, A. L., & Seligman, M. E. P. (2005). Self-discipline outdoes IQ in predicting academic performance of adolescents. *Psychological Science*, 16, 939–944.
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, 95(2), 256–273.
- Dweck, C. S., & Reppucci, N. D. (1973). Learned helplessness and reinforcement responsibility in children. *Journal of Personality and Social Psychology*, 25, 109–116.

Farrington, C. A., Roderick, M., Allensworth, E., Nagaoka, J., Keyes, T. S., Johnson, D.

W., & Beechum, N. O. (2012). *Teaching adolescents to become learners. The role of noncognitive factors in shaping school performance: A critical literature review*. Chicago: University of Chicago Consortium on Chicago School Research.

Friede, A. J., Gillespie, M. A., Kim, B. H., Oswald, F. L., Ramsay, L. J., & Schmitt, N. (2002). *Biodata and situational judgment inventories as measures of college success: Development and pilot testing phases*. Princeton, NJ: College Board.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.

Goldberg, L. R. (1990). An alternative “description of personality”: The Big-Five factor structure. *Journal of Personality and Social Psychology*, 99, 1216–1229.

Goleman, D. (1995). *Emotional intelligence*. New York: Bantam.

Hogan, J., & Holland, B. (2002). *Evaluating personality-based job requirements*. Paper presented at the annual meeting of the Society for Industrial-Organizational Psychology, Inc., Toronto, Canada.

Koch, C. J., & Kleinmann, M. (2002). A stitch in time saves nine: Behavioral decision-making explanations for time management problems. *European Journal of Work and Organizational Psychology*, 11(2), 199–217.

Lindner, R. W., & Harris, B. (1992). *Self-regulated learning and academic achievement in college students*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Lindner, R. W., & Harris, B. (1998). Self-regulated learning in education majors. *The Journal of General Education*, 47, 63–78.

- Marsh, H. (1984). Relations among dimensions of self-attribution, dimensions of self-concept and academic achievements. *Journal of Educational Psychology, 76*(6), 1291–1308.
- Marzano, R. J., Gaddy, B., & Dean, C. (2000). *What works in classroom instruction*. Aurora, CO: Mid-Continent Research for Education and Learning.
- Mayer, J. D., Salovey, P., Caruso, D. R., & Sitarenios, G. (2001). Emotional intelligence as a standard intelligence. *Emotion, 1*, 232–242.
- National Research Council. (2012). *Education for life and work: Developing transferable knowledge and skills in the 21st century*. Committee on Defining Deeper Learning and 21st Century Skills, J. W. Pellegrino & M. L. Hilton, Eds. Board on Testing and Assessment and Board on Science Education, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.
- 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.
- Partnership for 21st Century Skills. (2009). *P21 framework definitions*. Retrieved from http://www.p21.org/storage/documents/P21_Framework_Definitions.pdf
- Payton, J. W., Wardlaw, D. M., Graczyk, P. A., Bloodworth, M. R., Tompsett, C. J., & Weissberg, R. P. (2000). Social and emotional learning: A framework for promoting mental health and reducing risk behaviors in children and youth. *Journal of School Health, 70*(5), 179–185.
- Plant, E. A., Ericsson, K. A., Hill, L., & Asberg, K. (2004). Why study time does not predict grade point average across college students: Implications of deliberate practice for academic performance. *Contemporary Educational Psychology, 30*, 96–116.

- Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: A systematic review and meta-analysis. *Psychological Bulletin, 138*, 353–387.
- 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. *Psychological Bulletin, 130*, 261–288.
- Schmitt, N. (2012). Development of rationale and measures of noncognitive college student potential. *Educational Psychologist, 47*(1), 18–29.
- Schmitt, N., Billington, A., Keeney, J., Reeder, M., Pleskac, T. J., Sinha, R., & Zorzie, M. (2011). *Development and validation of measures of noncognitive college student potential*. (No. 2011-1). New York, NY: College Board Research Report.
- Sedlacek, W. E. (1996). Employing noncognitive variables in admitting students of color. *New Directions for Student Services, 74*, 79–91.
- Sedlacek, W. E. (2004). *Beyond the big test: Noncognitive assessment in higher education*. San Francisco, CA: Jossey-Bass.
- Sternberg, R. J. (2009). The rainbow and kaleidoscope projects. *European Psychologist, A New Psychological Approach to Undergraduate Admissions, 14*, 279–287.
- Sternberg, R. J. (2011). The rainbow project: Using psychological theory of intelligence to improve the college admissions process. In M. A. Gernsbacher, R. W. Pew, L. M. Hough, & J. R. Pomerantz (Eds.), *Psychology and the real world: Essays illustrating fundamental contributions to society* (pp. 131–137). New York, NY: Worth.
- Sternberg, R. J. (2012). Assessing hidden talents. In *College Admissions for the 21st Century* (pp. 1–13). Cambridge, MA: Harvard University Press.

Sternberg, R. J., Bonney, C. R., Gabora, L., & Merrifield, M. (2012). WICS: A model for college and university admissions. *Educational Psychologist, 47*, 30–41.

Torres, J. B., & Solberg, V. S. H. (2001). Role of self-efficacy, stress, social integration, and family support in Latino college student persistence and health. *Journal of Vocational Behavior, 59*, 53–63.

William and Flora Hewlett Foundation. (2010, October). *Education program: Strategic plan* (Issue Brief). Retrieved from The Hewlett Foundation website:

<http://www.hewlett.org/programs/education-program/deeper-learning>

Zimmerman, B. J., Bandura, A., & Martinez-Pons, M. (1992). Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal setting. *American Educational Research Journal, 29*, 663–676.

Definitions of Constructs from Key Frameworks

16 PFs

Cattell, R.B., Cattell, A.K.S., & Cattell, H.E.P. (1993)

- **Abstractedness:** Abstracted, imaginative, idea oriented
- **Dominance:** Dominant, forceful, assertive
- **Emotional Stability:** Emotionally stable, adaptive, mature
- **Openness to Change:** Open to change, experimenting
- **Perfectionism:** Perfectionistic, organized, self-disciplined
- **Reasoning:** Abstract, bright, fast-learner
- **Rule-Consciousness:** Rule conscious, dutiful
- **Self-Reliance:** Self-reliant, solitary, individualistic
- **Social Boldness:** Socially bold, venturesome, thick-skinned
- **Vigilance:** Vigilant, suspicious, skeptical, wary

21st Century Skills

Partnership for 21st Century Skills (2009)

- **Access and Evaluate Information:** Access information efficiently (time) and effectively (sources); evaluate information critically and competently.
- **Adapt to Change:** Adapt to varied roles, jobs responsibilities, schedules, and contexts; work effectively in a climate of ambiguity and changing priorities.
- **Analyze Media:** Understand both how and why media messages are constructed, and for what purposes; examine how individuals interpret messages differently, how values and points of view are included or excluded, and how media can influence beliefs and behaviors; apply a fundamental understanding of the ethical/legal issues surrounding the access and use of media.
- **Be Flexible:** Incorporate feedback effectively; deal positively with praise, setbacks and criticism; understand, negotiate, and balance diverse views and beliefs to reach workable solutions, particularly in multicultural environments.
- **Be Responsible to Others:** Act responsibly with the interests of the larger community in mind.
- **Be Self-Directed Learners:** Go beyond basic mastery of skills and/or curriculum to explore and expand one's own learning and opportunities to gain expertise; reflect critically on past experiences in order to inform future progress.
- **Civic Literacy:** Participating effectively in civic life through knowing how to stay informed and understanding governmental processes; exercising the rights and obligations of citizenship at local, state, national and global levels; understanding the local and global implications of civic decisions.
- **Communicate Clearly:** Articulate thoughts and ideas effectively using oral, written, and nonverbal communication skills in a variety of forms and contexts; listen

effectively to decipher meaning, including knowledge, values, attitudes, and intentions; use communication for a range of purposes (e.g., to inform, instruct, motivate, and persuade); utilize multiple media and technologies, and know how to judge their effectiveness a priori as well as assess their impact; communicate effectively in diverse environments (including multilingual).

- **Core Academic Subjects:** English, reading, or language arts; world languages; arts; mathematics; economics; science; geography; history; government and civics.
- **Create Media Products:** Understand and utilize the most appropriate media creation tools, characteristics, and conventions; understand and effectively utilize the most appropriate expressions and interpretations in diverse, multicultural environments.
- **Environmental Literacy:** Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as relates to air, climate, land, food, energy, water, and ecosystems; demonstrate knowledge and understanding of society's impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.); investigate and analyze environmental issues, and make accurate conclusions about effective solutions; take individual and collective action toward addressing environmental challenges (e.g., participating in global actions, designing solutions that inspire action on environmental issues).
- **Financial, Economic, Business, and Entrepreneurial Literacy:** Knowing how to make appropriate personal economic choices; understanding the role of the economy in society; using entrepreneurial skills to enhance workplace productivity and career options.
- **Guide and Lead Others:** Use interpersonal and problem-solving skills to influence and guide others toward a goal; leverage strengths of others to accomplish a common goal; inspire others to reach their very best via example and selflessness; demonstrate integrity and ethical behavior in using influence and power.
- **Health Literacy:** Obtaining, interpreting and understanding basic health information and services and using such information and services in ways that enhance health; understanding preventive physical and mental health measures, including proper diet, nutrition, exercise, risk avoidance, and stress reduction; using available information to make appropriate health-related decisions; establishing and monitoring personal and family health goals; understanding national and international public health and safety issues.
- **Implement Innovations:** Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur.
- **Interact Effectively With Others:** Know when it is appropriate to listen and when to speak; conduct themselves in a respectable, professional manner.
- **Make Judgments and Decisions:** Effectively analyze and evaluate evidence, arguments, claims, and beliefs; analyze and evaluate major alternative points of view; synthesize and make connections between information and arguments; interpret information and draw conclusions based on the best analysis; reflect critically on learning experiences and processes.

- **Manage Goals and Time:** Set goals with tangible and intangible success criteria; balance tactical (short-term) and strategic (long-term) goals; utilize time and manage workload efficiently.
- **Manage Projects:** Set and meet goals, even in the face of obstacles and competing pressures; prioritize, plan, and manage work to achieve the intended result.
- **Produce Results:** Demonstrate additional attributes associated with producing high quality products including the abilities to work positively and ethically; manage time and projects effectively; multitask; participate actively, as well as be reliable and punctual; present oneself professionally and with proper etiquette; collaborate and cooperate effectively with teams; respect and appreciate team diversity; be accountable for results.
- **Reason Effectively:** Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation.
- **Solve Problems:** Solve different kinds of unfamiliar problems in both conventional and innovative ways; identify and ask significant questions that clarify various points of view and lead to better solutions.
- **Think Creatively:** Use a wide range of idea creation techniques (such as brainstorming); create new and worthwhile ideas (both incremental and radical concepts); elaborate, refine, analyze, and evaluate their own ideas in order to improve and maximize creative efforts.
- **Use and Manage Information:** Use information accurately and creatively for the issue or problem at hand; manage the flow of information from a wide variety of sources; apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information.
- **Use Systems Thinking:** Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems.
- **Work Independently:** Monitor, define, prioritize, and complete tasks without direct oversight.

The Big Five

Goldberg (2001)

- **Conscientiousness:** Organizing, performing administrative tasks, following regulations, integrity, and motivation.
- **Emotional Stability:** Reacting to stress, adapting, and making decisions.
- **Extraversion:** Demonstrating independence, decisiveness, and negotiating skills.
- **Intellect and Imagination:** Planning strategically, demonstrating knowledge, writing, and communicating orally.

Components of Graduate School Performance in Psychology

Campbell, Kuncel, & Oswald (1998)

- Being an effective team member
- Carrying out leadership/management functions
- Exhibiting sustained, goal-directed effort
- Expert use of research and data analytic methods
- Oral and written communication
- Using knowledge expertly

Emotional Intelligence

Goleman (1995)

- **Self-Actualization:** To strive to achieve personal goals and actualize one's potential.
- **Self-Awareness:** Knowing what you are feeling in the moment, and using those preferences to guide decision-making; having a realistic assessment of our own abilities and a well-rounded sense of self-confidence.
- **Self-Regulation:** Handling our emotions so they facilitate rather than interfere with the task at hand; being conscientious and delaying gratification to pursue goals; recovering well from emotional distress.
- **Social Skills:** Handling emotions in relationships well and accurately reading social situations and networks; interacting smoothly; using these skills to persuade and lead, negotiate and settle disputes, for cooperation and teamwork.

Emotional Intelligence

Mayer, Salovey, Caruso, & Sitarenios (2001)

- **Facilitating Thought With Emotion:** Ability to harness emotional information and directionality to enhance thinking; relation to intelligence and personality: calibrates and adjusts thinking so that cognitive tasks make use of emotional information.
- **Managing Emotions:** Ability to manage emotions and emotional relationships for personal and interpersonal growth.

Emotional Intelligence (Revised for Occupational Selection)

Cherniss & Goleman (2001)

- **Relationship Management:** Includes developing others, influence, communication, conflict management, visionary leadership, catalyzing change, building bonds, teamwork, and collaboration.
- **Self-Actualization:** To strive to achieve personal goals and actualize one's potential.
- **Self-Awareness:** Emotional self-awareness, accurate self-assessment, self-confidence.

- **Self-Management:** Includes emotional self-control, trustworthiness, conscientiousness, adaptability, achievement drive, initiative.

Emotional-Social Intelligence

Bar-On (2006)

- **Adaptability:** Change management
- **Assertiveness:** To effectively and constructively express one's emotions and oneself
- **Emotional Self-Awareness:** To be aware of and understand one's emotions
- **Flexibility:** To adapt and adjust one's feelings and thinking to new situations
- **Impulse Control:** To effectively and constructively control emotions
- **Independence:** To be self-reliant and free of emotional dependency on others
- **Problem-Solving:** To effectively solve problems of a personal and interpersonal nature
- **Reality Testing:** To objectively validate one's feelings and thinking with external reality
- **Self-Regard:** To accurately perceive, understand, and accept oneself
- **Stress Tolerance:** To effectively and constructively manage emotions

Flow

Csikszentmihalyi (1990)

- **Clear Goals:** Expectations and rules are discernible and goals are attainable and align appropriately with one's skill set and abilities. Moreover, the challenge level and skill level should both be high.
- **Self-Evaluation:** Direct and immediate feedback (successes and failures in the course of the activity are apparent, so that behavior can be adjusted as needed).

Four Keys to College and Career Readiness

Conley (2012)

The constructs listed here are part of the larger Four Keys model.

- **Key Cognitive Strategies** describe the cognitive skills and strategies that allow students to develop and demonstrate competency in learning, applying, and extending academic or on the job knowledge. Students with intentionally developed age-appropriate cognitive strategies are able to think strategically and insightfully about the work they do. *They are able to think well.*
 - **Problem Formulation:** Have a clear understanding of the problem and how it might be approached.
 - **Research:** Identify the research, information, or data needed to solve this problem.
 - **Interpretation:** Synthesize research to make justifiable conclusions addressing the problem.

- **Communication:** Create a clear, organized, and effective message summarizing the problem and solution.
- **Precision/Accuracy:** Ensure the problem is addressed completely and accurately.
- **Key Content Knowledge** describes the structure of knowledge and the interplay with student characteristics that determines how students interact with knowledge. Students who possess grade-specific content knowledge are sufficiently engaged and motivated to learn relevant facts, terms, and constructs, and to understand how they fit together. They know that knowledge about how the world works is necessary for educated citizenship. *Successful students must engage and expend effort to master what is taught.*
 - **Structure of Knowledge:** Cultivate developmentally appropriate mastery of subject matter knowledge along the novice–expert continuum in the core content areas, including reading and writing, mathematics, science, social studies, and art.
 - **Student Characteristics:** Understand that learning and intelligence are malleable and can be changed through increased effort; that effort is under one’s own control and is applied more easily when motivation is high; that academic topics relate to real world contexts that are intrinsically interesting and relevant; and that academic challenges are to be welcomed rather than avoided.
- **Key Learning Skills and Techniques** are the tools that students use to study and to be responsible for their own ongoing learning. Possession of these skills enables lifelong learning and personal growth as well as the self-management behaviors that improve performance in college classrooms and the workplace. *Students with these skills know how to learn.*
 - **Goal Setting:** Identify short- and long-term goals that align with aspirations as well as strengths and weaknesses, identify the steps necessary to attain those goals, and make timely progress toward those goals.
 - **Collaborative Learning:** Develop the skills and strategies necessary to communicate with and to work collaboratively with diverse groups of others, to meet specific objectives.
 - **Memorization and Recall:** Possess multiple effective strategies and devices to memorize and recall facts and terms.
 - **Progress Monitoring:** Continually evaluate the progress toward goals and the alignment between aspirations, qualifications, and evolving skills and interests.
 - **Self-Awareness:** Monitor the self as it evolves and grows to assess strengths, weaknesses, and interests; work toward improving weaknesses and to aligning goals to strengths and interests.
 - **Self-Efficacy:** Be confident in one’s ability to complete increasingly challenging and complex academic and career tasks; be able to build on past experiences and success to maximize future successes.

- **Time Management:** Apply skills and strategies necessary to prioritize, plan, and focus one's attention sufficiently to get expected tasks completed on time.
- **Key Transition Knowledge and Skills** are those necessary to successfully adjust to and perform within the chosen postsecondary environment. Students who possess this knowledge and skills are able to thoughtfully explore their options, identify and obtain the necessary resources, complete the numerous steps necessary to pursue the chosen postsecondary path, and are prepared for the challenges posed by adapting to the new environment. *They know how to get where they want to go.*
 - **Financial Aid Awareness:** Realistically understand the processes and supports available to reduce the costs associated with postsecondary education and training, and the requirements for eligibility and application.
 - **Postsecondary Aspirations:** Establish specific goals for after high school and continually evaluate the alignment between aspirations, qualifications, and evolving skills and interests; aspirations identify specific goals necessary to attain aspirations.
 - **Tuition Awareness:** Realistically understand the costs of multiple options for pursuing postsecondary aspirations.

Great Eight

Bartram (2005)

- **Adapting and Coping:** Adapts and responds well to change. Manages pressure effectively and copes well with setbacks.
- **Analyzing and Interpreting:** Shows evidence of clear analytical thinking. Gets to the heart of complex problems and issues. Applies own expertise effectively. Quickly takes on new technology. Communicates well in writing.
- **Creating and Conceptualizing:** Works well in situations requiring openness to new ideas and experiences. Seeks out learning opportunities. Handles situations and problems with innovation and creativity. Thinks broadly and strategically. Supports and drives organizational change.
- **Enterprising and Performing:** Focuses on results and achieving personal work objectives. Works best when work is related closely to results and the impact of personal efforts is obvious. Shows an understanding of business, commerce, and finance. Seeks opportunities for self-development and career advancement.
- **Interacting and Presenting:** Communicates and networks effectively. Successfully persuades and influences others. Relates to others in a confident, relaxed manner.
- **Leading and Deciding:** Takes control and exercises leadership. Initiates action, gives direction, and takes responsibility.
- **Organizing and Executing:** Plans ahead and works in a systematic and organized way. Follows directions and procedures. Focuses on customer satisfaction and delivers a quality service or product to the agreed standards.
- **Supporting and Cooperating:** Supports others and shows respect and positive regard for them in social situations. Puts people first, working effectively with

individuals and teams, clients, and staff. Behaves consistently with clear personal values that complement those of the organization.

Grit

Duckworth (2007)

- **Grit:** Perseverance and passion for long-term goals.

Key SEL Competencies

Payton, Wardlaw, Graczyk, Bloodworth, Tompsett, & Weissberg (2000)

- **Active Listening:** The capacity to attend to others both verbally and nonverbally to demonstrate to them that they have been understood.
- **Adaptive Goal Setting:** The capacity to set positive and realistic goals.
- **Awareness of Feelings:** The capacity to accurately perceive and label one's feelings.
- **Constructive Sense of Self:** The capacities to accurately perceive one's strengths and weaknesses and handle everyday challenges with confidence and optimism.
- **Cooperation:** The capacity to take turns and share in both pairs and group situations.
- **Expressive Communication:** The capacity to initiate and maintain conversations and to clearly express one's thoughts and feelings both verbally and nonverbally.
- **Help Seeking:** The capacity to identify the need for support and assistance and to access available and appropriate resources.
- **Management of Feelings:** The capacity to regulate one's feelings.
- **Negotiation:** The capacity to consider all perspectives involved in a conflict in order to resolve the conflict peacefully and to the satisfaction of all involved.
- **Personal Responsibility:** The intention to engage in safe and healthy behaviors and be honest and fair in dealing with others.
- **Perspective Taking:** The capacity to accurately perceive the perspectives of others.
- **Problem Identification:** The capacity to identify situations that require a decision or solution and assess the associated risks, barriers, and resources.
- **Problem Solving:** The capacity to develop, implement, and evaluate positive and informed solutions to problems.
- **Refusal:** The capacity to make and follow through with clear "NO" statements, to avoid situations in which one might be pressured, and to delay acting in pressure situations until adequately prepared.
- **Respect for Others:** The intention to accept and appreciate individual and group differences and to value the rights of all people.
- **Social Norm Analysis:** The capacity to critically evaluate social, cultural, and media messages pertaining to social norms and personal behavior.
- **Social Responsibility:** The intention to contribute to the community and protect the environment.

Noncognitive Variables

Sedlacek (1996, 2004)

- **Community Involvement:** Involvement in his or her cultural community.
- **Knowledge Acquired in a Field:** Unusual or culturally related ways of obtaining information and demonstrating knowledge. Field itself may be nontraditional.
- **Leadership Experience:** In any area pertinent to his or her background (for example gang leader, church, sports, noneducational groups).
- **Positive Self-Concept or Confidence:** Strong self-feeling, strength of character. Determination, independence.
- **Preference for Long-Term Goals to Short-Term or Immediate Needs:** Able to respond to deferred gratification.
- **Realistic Self-Appraisal, Especially Academic:** Recognizes and accepts any deficiencies and works hard at self-development. Recognizes need to broaden his or her individuality.

Performance Improvement Characteristics

Hogan & Holland (2002)

- **Adjustment:** Resilient, upbeat, & remaining calm under pressure
- **Ambition:** Competitive, self-confident, and taking initiative
- **Intellectance:** Imaginative, creative, open-minded, and analytical
- **Procedural Knowledge and Skill:** Knowledge and skill of how to accomplish the work, cognitive skill, interpersonal skill, etc.
- **Prudence:** Planful, controlled, and attentive to details
- **School Success:** Staying up-to-date on business and technical matters

Personnel Selection

Campbell, McCloy, Oppler, & Sager (1993)

- **Declarative Knowledge:** Facts, principles, self-knowledge
- **Procedural Knowledge and Skill:** Knowledge and skill of how to accomplish the work, cognitive skill, interpersonal skill, etc.

Self-Regulated Learning

Lindner & Harris (1992, 1998)

- **Cognitive Monitoring** (executive processing: metacognitive, conscious, deliberative)
- **Information Storage/Retrieval** (cognitive processing: automatic, habitual)
- **Learning Goal Orientation** (motivational set/beliefs)
- **Setting Management** (environmental utilization/control)
- **Strategy Construction** (executive processing: metacognitive, conscious, deliberative)
- **Strategy Evaluation** (executive processing: metacognitive, conscious, deliberative)
- **Tactic Execution** (cognitive processing: automatic, habitual)
- **Task Analysis** (executive processing: metacognitive, conscious, deliberative)

- **Time Management** (environmental utilization/control)

Student Attrition Model

Bean (1985); Bean & Metzner (1985)

- **Grades & Academic Performance:** An external assessment of a student's past behavior
- **Institutional Fit and Commitment:** Fit is a sense of fitting in with others at a college; commitment is a commitment to a specific institution rather than to higher education in general.

Student Integration Theory

Tinto (1993, 1997, 1998, 2003, 2005)

- **Social Integration:** The more students are academically and socially involved, the more likely they are to persist and graduate.

Twelve Dimensions of College Performance/Noncognitive Skills

Friede, Gillespie, Kim, Oswald, Ramsay, & Schmitt (2002)

See Also: Oswald, Schmitt, Kim, Ramsey, & Gillespie (2004); Schmitt, et al. (2011)

- **Adaptability and Life Skills:** Adapting to a changing environment (at school or home), dealing well with gradual or sudden and expected or unexpected changes. Being effective in planning one's everyday activities and dealing with novel problems and challenges in life.
- **Continuous Learning, Intellectual Interest and Curiosity:** Being intellectually curious and interested in continuous learning. Actively seeking new ideas and new skills, both in core areas of study as well as in peripheral or novel areas.
- **Ethics and Integrity:** Having a well-developed set of values, and behaving in ways consistent with those values. In everyday life, this probably means being honest, not cheating (on exams or in committed relationships), and having respect for others.
- **Interpersonal Skills:** Communicating and dealing well with others, whether in informal social situations or more formal school-related situations. Being aware of the social dynamics of a situation and responding appropriately.
- **Knowledge and Mastery of General Principles:** Gaining knowledge and mastering facts, ideas, and theories and how they interrelate, and the relevant contexts in which knowledge is developed and applied. Grades or GPA can indicate, but not guarantee, success on this dimension.
- **Leadership:** Demonstrating skills in a group, such as motivating others, coordinating groups and tasks, serving as a representative for the group, or otherwise performing a managing role in a group.
- **Perseverance:** Committing oneself to goals and priorities set, regardless of the difficulties that stand in the way. Goals range from long-term goals (e.g., graduating from college) to short-term goals (e.g., showing up for class every day even when the class isn't interesting).

- **Physical and Psychological Health:** Possessing the physical and psychological health required to engage actively in a scholastic environment. This would include participating in healthy behaviors, such as eating properly, exercising regularly, and maintaining healthy personal and academic relations with others, as well as avoiding unhealthy behaviors, such as alcohol/drug abuse, unprotected sex, and ineffective or counterproductive coping behaviors.
- **Social Responsibility, Citizenship, and Involvement:** Being responsible to society and the community and demonstrating good citizenship. Being actively involved in the events in one's surrounding community, which can be at the neighborhood, town/city, state, national, or college/university level. Activities may include volunteer work for the community, attending city council meetings, and voting

WICS

Sternberg, Reznitskaya, & Jarvin (2007); Sternberg (2008)

- **Analytical Intelligence:** Ability to ascertain whether ideas are good ones
- **Creativity:** Creativity to generate new ideas
- **Practical Intelligence:** Ability to act upon ideas and to convince others of their value

References

- Bar-On, R. (2006). The Bar-On model of emotional-social intelligence (ESI). *Psicothema, 18*, 13–25.
- Barrick, M. R., & Mount, M. K. (1991). The Big-Five personality dimensions in job performance: A meta-analysis. *Personnel Psychology, 44*, 1–26.
- Bartram, D. (2005). The Great Eight competencies: A criterion-centric approach to validation. *Journal of Applied Psychology, 90*, 1185–1203.
- Bean, J. P. (1985). Interaction effects based on class level in an explanatory model of college student dropout syndrome. *American Education Research Journal, 22*, 35–64.
- Bean, J. P., & Metzner, B. S. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research, 55*, 485–540.
- Bundick, M. J. (2011). *The Development of Scales to Measure QISA's Three Guiding Principles of Student Aspirations Using the My Voice Survey* (pp. 1–13). Portland, ME: Quaglia Institute for Student Aspirations.
- Campbell, J. P., McCloy, R. A., Oppler, S. H., & Sager, C. E. (1993). A theory of performance. In N. Schmitt & W. Borman (Eds.), *Personnel selection in organizations* (pp. 35–70). San Francisco, CA: Jossey-Bass.
- Campbell, J., Kuncel, N. R., & Oswald, F. L. (1998, April). *Predicting performance in graduate school: The criterion problem*. Paper presented at the annual meeting of the Society of Industrial and Organizational Psychologists, Dallas, TX.
- Cattell, R. B., Cattell, A. K. S., & Cattell, H. E. P. (1993). *Sixteen personality factor fifth edition questionnaire*. Champaign, IL: Institute for Personality and Ability Testing.

- Cherniss, C., & Goleman, D. (2001). *The emotionally intelligent workplace: How to select for, measure, and improve emotional intelligence in individuals, groups, and organizations*. San Francisco, CA: Jossey-Bass.
- Conley, D. T. (2012). *A complete definition of college and career readiness*. Eugene, OR: Educational Policy Improvement Center.
- Credé, M., & Kuncel, N. R. (2008). Study habits, skills, and attitudes: The third pillar supporting collegiate academic performance. *Perspectives on Psychological Science*, 3, 425–453.
- Csikszentmihalyi, M. (1990). *Flow*. New York, NY: Harper and Row.
- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 9, 1087–1101.
- Friede, A. J., Gillespie, M. A., Kim, B. H., Oswald, F. L., Ramsay, L. J., & Schmitt, N. (2002). *Biodata and situational judgment inventories as measures of college success: Development and pilot testing phases*. Princeton, NJ: College Board.
- Goldberg, L. R. (2001). Analyses of Digman's child-personality data: Derivation of big-five factor scores from each of six samples. *Journal of Personality*, 69, 709–744.
- Goleman, D. (1995). *Emotional intelligence*. New York: Bantam.
- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. London: Routledge.
- Hogan, J., & Holland, B. (2002). *Evaluating personality-based job requirements*. Paper presented at the Seventeenth Annual Meeting of the Society for Industrial-Organizational Psychology, Inc., Toronto, Canada.

- Holtzman, W. H., Brown, W. F., & Farquhar, W. (1954). The survey of study habits and attitudes: A new instrument for the prediction of academic success. *Educational and Psychological Measurement, 14*, 726-732.
- http://www.p21.org/storage/documents/P21_Framework_Definitions.pdf
- Lievens, F., & Sackett, P. R. (2012). The validity of interpersonal skills assessment via situational judgment tests for predicting academic success and job performance. *Journal of Applied Psychology, 97*(2), 460–468. doi:10.1037/a0025741
- Lindner, R. W., & Harris, B. (1992). *Self-regulated learning and academic achievement in college students*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Lindner, R. W., & Harris, B. (1998). Self-regulated learning in education majors. *The Journal of General Education, 47*, 63–78.
- Lowe, M., Kerridge, I., Bore, M., Munro, D., & Powis, D.A. (2001). Is it possible to assess the “ethics” of medical school applicants? *Medical Education, 39*, 258-265.
- Marzano, R. J., Gaddy, B., & Dean, C. (2000). *What works in classroom instruction*. Aurora, CO: Mid-Continent Research for Education and Learning.
- Mayer, J. D., Salovey, P., Caruso, D. R., & Sitarenios, G. (2001). Emotional intelligence as a standard intelligence. *Emotion, 1*, 232–242.
- Osher, L. W., Ward, J. L., Tross, S. A., & Flanagan, W. (1995). The College Adjustment Inventory [Technical report]. Atlanta: Georgia Institute of Technology.
- 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.

Partnership for 21st Century Skills. (2009). *P21 framework definitions*. Retrieved from

Payton, J. W., Wardlaw, D. M., Graczyk, P. A., Bloodworth, M. R., Tompsett, C. J., & Weissberg, R. P. (2000). Social and emotional learning: A framework for promoting mental health and reducing risk behaviors in children and youth. *Journal of School Health, 70*(5), 179–185.

Plucker, J. A. (1996). Construct validity evidence for the Student Aspirations Survey. *Journal of Research in Rural Education, 12*, 161–170.

Plucker, J. A., & Quaglia, R. J. (1998). The Student Aspirations Survey: Assessing Student Effort and Goals. *Educational and Psychological Measurement, 58*(2), 252–257.

doi:10.1177/0013164498058002008

Quaglia Institute for Student Aspirations. *My Voice National Student Report*. (2011). *My Voice National Student Report* (pp. 1–33). Quaglia Institute for Student Aspirations. *Review of Higher Education, 21*, 167–78.

Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: A systematic review and meta-analysis. *Psychological Bulletin, 138*, 353–387.

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. *Psychological Bulletin, 130*, 261–288.

Sackett, P. R., Schmitt, N., Ellingson, J. E., & Kabin, M. B. (2001). High-stakes testing in employment, credentialing, and higher education. Prospects in a post-affirmative-action world. *The American Psychologist, 56*(4), 302–318.

Schmitt, N., Billington, A., Keeney, J., Reeder, M., Pleskac, T. J., Sinha, R., & Zorzie, M.

(2011). *Development and validation of measures of noncognitive college student potential*.

(No. 2011-1). New York, NY: College Board.

Sedlacek, W. E. (1996). Employing noncognitive variables in admitting students of color. *New Directions for Student Services*, 74, 79–91.

Sedlacek, W. E. (2004). *Beyond the big test: Noncognitive assessment in higher education*. San Francisco, CA: Jossey-Bass.

Sedlacek, W. E. (2005). The case for noncognitive measures. In W. J. Camara & E. Kimmel (Eds.), *Choosing students: Higher education admission tools for the 21st century* (pp. 177–193). Mahway, NJ: Erlbaum.

Sternberg, R. J. (1985). *Beyond IQ*. London: Cambridge University Press.

Sternberg, R. J. (1986). What would better intelligence tests look like? In *Measures in the college admissions process* (pp. 146–150). New York, NY: College Entrance Examination Board.

Sternberg, R. J. (2005). The WICS model of organizational leadership. *MIT Center for Public Leadership Working Paper Series*, 05–06.

Sternberg, R. J. (2008). Applying psychological theories to educational practice. *American Educational Research Journal*, 45(1), 150–165.

Thomas, L. L., Kuncel, N. R., & Credé, M. (2007). Noncognitive variables in college admission: The case of the non-cognitive questionnaire. *Educational and Psychological Measurement*, 67, 635–657.

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition (2nd edition)*. Chicago: University of Chicago Press.

- Tinto, V. (1997). Classrooms as communities: Exploring the educational character of student persistence. *Journal of Higher Education*, 68, 599–623.
- Tinto, V. (1998). Colleges as communities: Taking research on student persistence seriously.
- Tinto, V. (2003). Establishing conditions for student success. In L. Thomas, M. Cooper, & J. Quinn, (Eds.), *Improving completion rates among disadvantaged students*. Trent, NJ: Trentham Books.
- Tinto, V. (2005). Moving from theory to action. In A. Seidman (Ed.), *College student retention: Formula for student success*, Westport, CT: Greenwood Publishing.
- Willingham, W. W. (1985). *Success in college: The role of personal qualities and academic ability*. New York, NY: College Entrance Examination Board.

Assessment Websites

16PF

- <http://www.ipat.com/about/16pf/Pages/default.aspx>
- <http://www.pearsonassessments.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=PAg101&Mode=summary>

College Adjustment Inventory (CAI)

- None

ACT ENGAGE

- <http://www.act.org/engage/index.html>
- http://www.act.org/engage/pdf/ENGAGE_Overview.pdf
- http://www.act.org/engage/pdf/college_user_guide.pdf
- <http://www.act.org/engage/bibliography.html>

Beacon

- <http://www.campuslabs.com/products/beacon/about-the-student-strengths-inventory/>

College and Work Readiness Assessment (CWRA)

- <http://www.collegiatelearningassessment.org/files/ComputerAssistedScoringofCLA.pdf>
- http://www.cae.org/content/pdf/CWRA%20_4_.pdf
- http://www.collegiatelearningassessment.org/files/CWRA_0910_Report_Sample_High_School.pdf
- http://www.collegiatelearningassessment.org/files/CLA_Technical_FAQs.pdf

EPIC's CampusReady

- <http://collegeready.epiconline.org/portal/public/information/whatiscampusready>

EPIC's ThinkReady

- <http://collegeready.epiconline.org/portal/public/information/whatisthinkready>

Grit Scale

- http://en.wikipedia.org/wiki/Grit_%28personality_trait%29
- <http://www.youtube.com/watch?v=qaeFnxSfSC4>
- <http://www.apa.org/monitor/nov07/grit.aspx>
- <http://www.authentic happiness.sas.upenn.edu/Default.aspx>
- <http://incharacter.org/observation/the-nitty-gritty-self-esteem-vs-self-control/>

Inventory of Classroom Style and Skills (INCLASS)

- http://www.hhpublishing.com/_assessments/INCLASS/index.html

Kaleidoscope Project

- None

Learning and Study Strategies Inventory (LASSI)

- http://www.hhpublishing.com/_assessments/LASSI/

Motivated Strategies for Learning Questionnaire (MSLQ)

- <http://www.surveymonkey.com/s/R52XGKV>

Michigan State University/College Board's Situational Judgment Inventory and Biodata

- None

National Survey of Student Engagement (NSSE)

- <http://nsse.iub.edu/html/origins.cfm>
- http://nsse.iub.edu/_/?cid=154
- <http://nsse.iub.edu/html/administering.cfm>
- <http://nsse.iub.edu/html/about.cfm>
- http://nsse.iub.edu/_/?cid=217 (Institutional Reporting)
- http://nsse.iub.edu/html/participants.cfm?all_any=any&include_surveys=NSSE&min_year=2012&max_year=2012&name_keyword=&governance=&orderby=Name&aButton=Collect+Results&action=Collect+Results

Noncognitive Questionnaire (NCQ)

- <http://williamsedlacek.info/publications.html#Surveys/Instruments>
- <http://williamsedlacek.info/publications.html>

Personal Potential Index

- <http://www.ets.org/ppi/>

Personal Qualities Assessment (PQA)

- http://www.pqa.net.au/files/pp/pqa_slide01.html
- <http://www.pqa.net.au/>
- <http://sydney.edu.au/dentistry/student/pqa-faq.php>

Rational Biodata Inventory

- None

ScholarCentric's Success Highways

- <http://scholarcentric.com/solutions.html/>

Survey of Study Habits and Attitudes (SSHA)

- None

TAPAS

- <http://www.drsgowassessments.com/Assessments/Personality/Default.aspx>
- <http://www.drsgowassessments.com/Assessments/Personality/References.aspx>
- <http://www.njarmyguard.com/cprocessing/>

Video-based Situational Judgment Test

- None

Work Preferences Assessment (WPA)

- None

Skill Summaries

Summary of relationships between constructs and student outcome measures

Blue = Strong, Green = Moderate, Red = Small –or– No or Negative, Orange = Unavailable

Core skill definition

Assessments that measure this core skill

Constructs and definitions from key frameworks included in core skills

Details of relationships between constructs and student outcome measures

Initiative Students are driven and persist in sustained effort toward accomplishing short- and long-term academic and life goals and mastering new skills and knowledge		Relationships with Outcomes													
This skill was derived from the following constructs (identified in key theoretical frameworks):		College GPA		Performance in Indiv. College Courses		College Credits Earned		College Retention		College Absenteeism		K-12 Success		Career Success	
Key Assessments Measuring These Constructs: Beacon, CAI, CampusReady, CB MSU, ENGAGE, Grit, INCLASS, IASSI, MSLQ, NCO, Posse, RBI, Success Hwys, TAPAS, USE		Strong		Moderate		No or Negative		Moderate		No or Negative		Strong		NA	
Empirically Tested Construct	Definition	r	N	r	N	r	N	r	N	r	N	r	N	r	N
Career Orientation ^{1,2,8}	Having clear career aspirations; establishing, prioritizing, and following a set of career-related goals.	-0.12	2,730–2,768	--	--	--	--	n.s.	--	n.s.	--	--	--	--	--
Goal Commitment ⁴	Commitment to staying at university and obtaining a degree.	0.15	13,098	--	--	--	--	--	--	--	--	--	--	--	--
Grade Goals ⁴	Self-assigned minimal goal standards (in this context, GPA).	0.35	2,670	--	--	--	--	--	--	--	--	--	--	--	--
Persistence ^{1,2,3}	Committing oneself to goals and priorities set, regardless of the difficulties that stand in the way.	0.16	611–636	--	--	--	--	n.s.	--	-0.14	2,730–2,768	--	--	--	--
Positive Self-Concept or Confidence ^{4,6}	Strong self-feeling, strength of character. Determination, independence.	-0.05	7,703	--	--	0.07	493	0.14	2,861	--	--	--	--	--	--
Preference for Long-Term Goals to Short-Term or Immediate Needs ^{4,6}	Ability to respond to deferred gratification.	0.06	7,523	--	--	0.06	493	0.03	2,735	--	--	--	--	--	--
Study Motivation ⁷	Combination of both intrinsic and extrinsic motivation to engage in studying rather than other nonacademic activities.	0.23	6,157	0.17	2,158	--	--	--	--	--	--	--	--	--	--

¹Friede et al. (2002), ²Oswald et al. (2004), ³Schmitt et al. (2011), ⁴Richardson et al. (2012), ⁵Sedlacek (2004), ⁶Thomas et al. (2007), ⁷Crede & Kuncel (2008)

References for all evidence described

Core Skill	Relationships with Outcomes						
	K–12 Success	College GPA	Performance in College Courses	College Credits Earned	College Retention	College Absenteeism	Career Success
<i>Self-Efficacy</i>	Strong	Moderate	Moderate	NA	Strong	NA	NA
<i>Initiative</i>	Strong	Strong	NA	Small	Moderate	NA	NA
<i>Integrity</i>	Strong	Moderate	Moderate	Small	Small	No or Negative	NA
<i>Intellectual Curiosity</i>	Strong	Moderate	Moderate	Small	Small	NA	NA
<i>Adaptability</i>	Strong	Moderate	Small	NA	NA	No or Negative	Moderate
<i>Study Skills</i>	Strong	Small	Moderate	Small	Small	No or Negative	NA
<i>Time and Goal Management</i>	Strong	Small	Small	Small	Small	NA	NA
<i>Leadership</i>	Moderate	Strong	Small	NA	NA	NA	NA
<i>Collaboration</i>	Strong	Moderate	Small	NA	NA	NA	NA
<i>Communication</i>	Strong	Moderate	NA	Small	No or Negative	No or Negative	NA
<i>Problem Solving</i>	Strong	Small	NA	NA	No or Negative	No or Negative	Small
<i>Critical Thinking</i>	Moderate	Strong	NA	NA	NA	NA	NA
<i>Self-Awareness</i>	Moderate	Small	NA	NA	NA	NA	Small
<i>Self-Control</i>	NA	Moderate	NA	Small	Small	No or Negative	NA
<i>Applied Knowledge</i>	NA	Small	NA	Small	No or Negative	No or Negative	NA
<i>Social & Personal Responsibility</i>	NA	Small	NA	NA	No or Negative	No or Negative	Small

Strong: $d \geq .5$

Moderate: $d = .3 - .5$

Small: $d = .1 - .3$

No or Negative: $d \leq .1$

NA: No data available

Self-Efficacy *Students are confident in their ability to obtain academic success, persist to overcome challenges, and are not defeated by failure*

This skill was derived from the following constructs identified in the review of the literature:

• **Self-Reliance** (16PF, Cattell, et al., 1993) • **Self-Efficacy** (Four Keys, Conley, 2012) • **Constructive Sense of Self[^]** (Key SEL Competencies, Payton, et al., 2000) • **Positive Self-Concept or Confidence** (Noncognitive Variables, Sedlacek, 1996; 2004)

Key Assessments Measuring These Constructs: Beacon, CampusReady, ENGAGE, MSLQ, NCQ, RBI, Success Hwys		Relationships with Outcomes													
		College GPA		Performance in Indiv. College Courses		College Credits Earned		College Retention		College Absenteeism		K–12 Success		Career Success	
		Strong		NA		Small		Moderate		NA		Strong		NA	
Empirically Tested Construct	Definition	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>
Performance Self-Efficacy ¹	Perceptions of academic performance capability.	0.59	1,348	--	--	--	--	--	--	--	--	--	--	--	--
Academic Self-Efficacy ¹	General perceptions of academic capability.	0.38	9,598	--	--	--	--	--	--	--	--	--	--	--	--
Academic Self-Efficacy ²	Self-evaluation of one’s ability and/or chances for success in the academic environment.	0.31	46,570	--	--	--	--	0.26	6,930	--	--	--	--	--	--
General Self-Concept ²	One’s beliefs and perceptions about oneself that influence one’s actions and environmental responses.	0.04	9,621	--	--	--	--	0.06	4,240	--	--	--	--	--	--
Internal Locus of Control ¹	Perceived control over life events and outcomes.	0.13	2,126	--	--	--	--	--	--	--	--	--	--	--	--
Self Esteem ¹	General perceptions of self-worth.	0.09	4,795	--	--	--	--	--	--	--	--	--	--	--	--
Positive Self-Concept or Confidence ³	Strong self-feeling, strength of character. Determination, independence. ⁴	-0.05	7,703	--	--	0.07	8,861	0.14	2,861	--	--	--	--	--	--
Efficacy ⁵	Teachers reinforce the belief in students that if they exert effort they can succeed at the task at hand	--	--	--	--	--	--	--	--	--	--	<i>d</i> = 0.80	10 studies	--	--
Reinforcing Effort & Providing Recognition ⁶	NA	--	--	--	--	--	--	--	--	--	--	<i>d</i> = 0.80	21 studies	--	--

¹Richardson et al. (2012). ²Robbins et al. (2004). ³Sedlacek (1996, 2004). ⁴Thomas et al. (2007). ⁵Hattie (2009). ⁶Marzano et al. (2000)

[^] = a construct that was used to derive more than one skill; n.s. = statistically nonsignificant; *d* = mean effect size.

Unless otherwise noted: the effect listed refers to a correlation coefficient, *N* = the number of total participants in the study, and all effects listed were statistically significant.

Initiative Students are driven and persist in sustained effort toward accomplishing short- and long-term academic and life goals and mastering new skills and knowledge

This skill was derived from the following constructs identified in the review of the literature:

• **Goal Setting** • **Postsecondary Aspirations** (Four Keys, Conley, 2012) • **Adaptive Goal Setting** (Key SEL Competencies, Payton, et al., 2000) • **Preference for Long-Term Goals to Short-Term or Immediate Needs** (Noncognitive variables, Sedlacek, 1996; 2004) • **Exhibiting Sustained, Goal-Directed Effort** (Components of Grad School Performance, Campbell, et al., 1998) • **Clear Goals** (Flow, Csikszentmihalyi, 1990) • **Grit** (Grit, Duckworth et al., 2007) • **Learning Goal Orientation** (Self-Regulated Learning, Lindner & Harris, 1992; 1998) • **Manage Goals and Time**[^] • **Implement Innovations**[^] (21st Century Skills, P21, 2009) • **Leading and Deciding**[^] (Great Eight, Bartram, 2005) • **Self-Actualization** (Emotional Intelligence & Emotional Intelligence Revised, Goleman, 1995; Cherniss & Goleman, 2001) • **Perseverance** (Twelve Dimensions, Friede, et al., 2002)

Key Assessments Measuring These Constructs: Beacon, CAI, CampusReady, CB MSU, ENGAGE, Grit, INCLASS, LASSI, MSLQ, NCO, RBI, Success Hwys, TAPAS	Relationships with Outcomes																								
	College GPA		Performance in Indiv. College Courses		College Credits Earned		College Retention		College Absenteeism		K-12 Success		Career Success												
	Small		Moderate		Small		Small		No or Negative		Strong		NA												
Empirically Tested Construct	Definition																								
	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>											
Career Orientation ^{1,2,3}	Having clear career aspirations; establishing, prioritizing, and following a set of career-related goals.											-0.12	2,730-2,768	--	--	--	--	n.s.	--	n.s.	--	--	--	--	
Goal Commitment ⁴	Commitment to staying at university and obtaining a degree.											0.15	13,098	--	--	--	--	--	--	--	--	--	--	--	
Grade Goals ⁴	Self-assigned minimal goal standards (in this context, GPA).											0.35	2,670	--	--	--	--	--	--	--	--	--	--	--	
Perseverance ^{1,2,3}	Committing oneself to goals and priorities set, regardless of the difficulties that stand in the way.											0.16	611-636	--	--	--	--	n.s.	--	-0.14	2,730-2,768	--	--	--	--
Positive Self-Concept or Confidence ^{5,6}	Strong self-feeling, strength of character. Determination, independence.											-0.05	7,703	--	--	0.07	493	0.14	2,861	--	--	--	--	--	--
Preference for Long-Term Goals to Short-Term or Immediate Needs ^{5,6}	Ability to respond to deferred gratification.											0.06	7,523	--	--	0.06	493	0.03	2,735	--	--	--	--	--	--
Study Motivation ^{7,8}	Combination of both intrinsic and extrinsic motivation to engage in studying rather than other nonacademic activities.											0.23	6,157	0.17	2,158	--	--	--	--	--	--	<i>d</i> = 0.48	322 studies	--	--
Goal Specification ⁸	Determining the exact nature of the situation and when the task has been completed (i.e. the "end state" of the task)											--	--	--	--	--	--	--	--	--	--	<i>d</i> = 0.97	53 studies	--	--
Concentration, Persistence, and Engagement ⁸	Effective time within a class that a student actively participated in learning											--	--	--	--	--	--	--	--	--	--	<i>d</i> = 0.48	146 studies	--	--
Goal setting/planning ⁹	Setting of educational goals and planning for completing activities related to those goals											--	--	--	--	--	--	--	--	--	--	<i>d</i> = 0.49	130 effects	--	--
Reinforcing Effort & Providing Recognition ¹⁰	NA											--	--	--	--	--	--	--	--	--	--	<i>d</i> = 0.80	21 studies	--	--
Setting Goals & Providing Feedback ¹⁰	The process of establishing direction and purpose.											--	--	--	--	--	--	--	--	--	--	<i>d</i> = .61	408 effects	--	--

¹Friede et al. (2002), ²Oswald et al. (2004), ³Schmitt et al. (2011), ⁴Richardson et al. (2012), ⁵Sedlacek (2004), ⁶Thomas et al. (2007), ⁷Credé & Kuncel (2008), ⁸Hattie (2009), ⁹Lavery (2008), as cited in Hattie (2009), ¹⁰Marzano et al. (2000)

[^] = a construct that was used to derive more than one skill; n.s. = statistically nonsignificant; *d* = mean effect size.

Unless otherwise noted: the effect listed refers to a correlation coefficient, *N* = the number of total participants in the study, and all effects listed were statistically significant.

Integrity Students work in a systematic and organized fashion to develop precise and accurate products that comply with procedures and directions, have high standards, and maintain academic and personal integrity

This skill was derived from the following constructs identified in the review of the literature:

• **Ethics and Integrity** (Twelve Dimensions, Friede, et al., 2002) • **Precision/Accuracy** (Four Keys, Conley, 2012) • **Use and Manage Information**[^] • **Produce Results**[^] • **Be Responsible to Others**[^] • **Manage Projects**[^] (21st Century Skills, P21, 2009) • **Self-Management**[^] (Emotional Intelligence Revised, Cherniss & Goleman, 2001) • **Rule-Consciousness**[^] • **Vigilance** • **Perfectionism** (16PF, Cattell, et al., 1993) • **Supporting and Cooperating** • **Organizing and Executing**[^] (Great Eight, Bartram, 2005) • **Conscientiousness** (Big Five, Goldberg, 2001) • **Prudence** (Performance Improvement Characteristics, Hogan & Holland, 2002) • **Personal Responsibility** • **Respect for Others** (Key SEL Competencies, Payton, et al., 2000)

Key Assessments Measuring These Constructs: 16PF, CAI, CampusReady, CB MSU, INCLASS, PQA, ThinkReady		Relationships with Outcomes															
		College GPA		Performance in Indiv. College Courses		College Credits Earned		College Retention		College Absenteeism		K–12 Success		Career Success			
		Moderate		Small		NA		NA		No or Negative		Strong		Moderate			
Empirically Tested Construct	Definition	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>		
Conscientiousness ^{1,7}	Self-disciplined and achievement oriented.	0.19	27,875	--	--	--	--	--	--	--	--	--	--	0.13 ⁷	12,893	0.13 ⁸	3,585
Ethics and Integrity ^{2,3,4}	Having a well-developed set of values, and behaving in ways consistent with those values.	0.14	611–636	--	--	--	--	n.s.	--	-0.23	2,730–2,768	--	--	--	--	--	--
Organization ¹	Capacity to select key pieces of information during learning situations.	0.04	5,410	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Study Skills ⁵	Ability to manage time and allocate other resources in accordance with the demands of the academic tasks.	0.25	25,547	0.10	2,175	--	--	--	--	--	--	--	--	--	--	--	--
Organizing and Transforming ⁶	Overt or covert rearrangement of instructional materials to improve learning (e.g., outlining before writing).	--	--	--	--	--	--	--	--	--	--	<i>d</i> = .85	89 effects	--	--	--	--

¹Richardson et al. (2012), ²Friede et al. (2002), ³Oswald et al. (2004), ⁴Schmitt et al. (2011), ⁵Credé & Kuncel (2008), ⁶Lavery (2008), as cited in Hattie (2009), ⁷Barrick & Mount (1991), measured by job proficiency, ⁸Barrick & Mount (1991), measured by job training proficiency

[^] = a construct that was used to derive more than one skill; n.s. = statistically nonsignificant; *d* = mean effect size.

Unless otherwise noted: the effect listed refers to a correlation coefficient, *N* = the number of total participants in the study, and all effects listed were statistically significant.

Intellectual Curiosity *Students are intellectually curious life-long learners who go beyond basic mastery of content to explore and expand knowledge*

This skill was derived from the following constructs identified in the review of the literature:

- **Be Self-Directed Learners**[^] (21st Century Skills, P21, 2012) • **Student Characteristics** (Four Keys, Conley, 2012) • **Continuous Learning, Intellectual Interest, and Curiosity** (Twelve Dimensions, Friede, et al., 2002) • **Reasoning**[^] • **Abstractedness**[^] (16PF, Cattell, et al., 1993) • **Intellect and Imagination**[^] (Big Five, Goldberg, 2001) • **Creating and Conceptualizing**[^] (Great Eight, Bartram, 2005) • **Intellectance**[^] (Performance Improvement Characteristics, Hogan & Holland, 2002)

Key Assessments Measuring These Constructs: 16PF, CampusReady, INCLASS, LASSI, MSLQ, Success Hwys		Relationships with Outcomes													
		College GPA		Performance in Indiv. College Courses		College Credits Earned		College Retention		College Absenteeism		K-12 Success		Career Success	
		Small		NA		NA		NA		NA		Moderate		Small	
Empirically Tested Construct	Definition	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>
Deep Approach to Learning ¹	Combination of deep information processing and a self-intrinsic motivation to learn.	0.14	5,211	--	--	--	--	--	--	--	--	--	--	--	--
Learning Goal Orientation ¹	Learning to develop new knowledge, mastery, and skills.	0.10	18,315	--	--	--	--	--	--	--	--	--	--	--	--
Openness to Experience ¹	Imaginative, insightful, intellectually curious, and open to new experiences.	0.09	1,418	--	--	--	--	--	--	--	--	--	--	-0.02 ³ 0.14 ⁴	9,454 2,700
Student Attitude ²	Student's attitude toward school subjects (math and science).	--	--	--	--	--	--	--	--	--	--	<i>d</i> = .36	732,994 (288 studies)	--	--

¹Richardson et al. (2012), ²Hattie (2009), ³Barrick & Mount (1991), measured by job proficiency, ⁴Barrick & Mount (1991), measured by job training proficiency

[^] = a construct that was used to derive more than one skill; n.s. = statistically nonsignificant; *d* = mean effect size.

Unless otherwise noted: the effect listed refers to a correlation coefficient, *N* = the number of total participants in the study, and all effects listed were statistically significant.

Adaptability Students respond and adapt well to change, are comfortable with ambiguity, adjust priorities and thinking in response to change, manage pressure and setbacks, and maintain an optimistic outlook

This skill was derived from the following constructs identified in the review of the literature:

- Emotional Stability[^] • Social Boldness[^] • Openness to Change (16PF, Cattell, et al., 1993) • Adaptability and Life Skills (Twelve Dimensions, Friede, et al., 2002) • Self-Management[^] (Emotional Intelligence Revised, Cherniss & Goleman, 2001) • Facilitating Thought With Emotion (Emotional Intelligence, Mayer, et al., 2001) • Adaptability • Flexibility[^] (Emotional Intelligence, Bar-On, 2006) • Emotional Stability (Big Five, Goldberg, 2001) • Adjustment (Performance Improvement Characteristics, Hogan & Holland, 2002) • Adapt to Change • Be Flexible[^] (21st Century Skills, P21, 2009) • Adapting and Coping • Creating and Conceptualizing[^] (Great Eight, Bartram, 2005)

Key Assessments Measuring These Constructs: 16PF, Beacon, CAI, CB MSU, INCLASS, PPI, PQA, RBI, Success Hwys, TAPAS		Relationships with Outcomes													
		College GPA		Performance in Indiv. College Courses		College Credits Earned		College Retention		College Absenteeism		K-12 Success		Career Success	
		Moderate		Moderate		Small		Small		No or Negative		Strong		NA	
Empirically Tested Construct	Definition	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>
Adaptability and Life Skills ^{1,2,3}	Ability to adapt to a changing environment, dealing well with expected or unexpected changes.	0.21	611–636	--	--	--	--	n.s.	2,730–2,768	n.s.	2,730–2,768	--	--	--	--
Deep Approach to Learning ⁴	Combination of deep information processing and a self-intrinsic motivation to learn.	0.14	5,211	--	--	--	--	--	--	--	--	--	--	--	--
Effort Regulation ⁴	Persistence and effort when faced with challenging academic situations.	0.32	8,662	--	--	--	--	--	--	--	--	--	--	--	--
Preference for Long-Term Goals to Short-Term or Immediate Needs ^{5,6}	Ability to respond to deferred gratification.	0.06	7,523	--	--	0.06	493	0.03	2,735	--	--	--	--	--	--
Study Habits ⁷	Sound study routines, including frequency of study sessions, self-testing, rehearsal of learned material.	0.23	23,390	0.18	3,628	--	--	--	--	--	--	--	--	--	--
Study Motivation ^{7,8}	Combination of both intrinsic and extrinsic motivation to engage in studying rather than other nonacademic activities.	0.23	6,157	0.17	2,158	--	--	--	--	--	--	<i>d</i> = 0.48	322 studies	--	--
Self-Consequences ⁸	Student arrangement or imagination of rewards or punishment for success or failure.	--	--	--	--	--	--	--	--	--	--	<i>d</i> = .70	75 effects	--	--

¹Friede et al. (2002), ²Oswald et al. (2004), ³Schmitt et al. (2011), ⁴Richardson et al. (2012), ⁵Sedlacek (2004), ⁶Thomas et al. (2007), ⁷Credé & Kuncel (2008), ⁸Hattie (2009)

[^] = a construct that was used to derive more than one skill; n.s. = statistically nonsignificant; *d* = mean effect size.

Unless otherwise noted: the effect listed refers to a correlation coefficient, *N* = the number of total participants in the study, and all effects listed were statistically significant.

Study Skills *Students use skills and strategies to complete schoolwork, study for tests, take notes, and achieve academic goals; maintain regular study routines; have positive attitudes toward school and studying; and self-identify as scholars*

This skill was derived from the following constructs identified in the review of the literature:

- **Key Learning Skills and Techniques** (Four Keys, Conley, 2012)
- **Cognitive Processing: Information Storage/Retrieval** (Self-Regulated Learning, Lindner & Harris, 1992; 1998)
- **Produce Results[^]** (21st Century Skills, P21, 2009)

Key Assessments Measuring These Constructs: CampusReady, ENGAGE, LASSI, MSLQ, SSHA, ThinkReady		Relationships with Outcomes													
		College GPA		Performance in Indiv. College Courses		College Credits Earned		College Retention		College Absenteeism		K–12 Success		Career Success	
		Moderate		Moderate		NA		Strong		NA		Strong		NA	
Empirically Tested Construct	Definition	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>
Academic-Related Skills ¹	Cognitive, behavioral, and affective tools and abilities necessary to successfully do tasks and reach goals.	0.13	16,282	--	--	--	--	0.30	1,627	--	--	--	--	--	--
Homework and Practice ²	Instructional strategies that allow students to learn new info and skills and to practice skills they have learned.	--	--	--	--	--	--	--	--	--	--	<i>d</i> = .77	134 studies	--	--
Study Habits ³	Sound study routines, including frequency of study sessions, self-testing, rehearsal of learned material.	0.23	23,390	0.18	3,628	--	--	--	--	--	--	--	--	--	--
Study Skills ³	Ability to manage time and allocate other resources in accordance with the demands of the academic tasks.	0.25	25,547	0.10	2,175	--	--	--	--	--	--	--	--	--	--
Time/Study Management ¹	Capacity to self-regulate study time and activities.	0.22	5,847	--	--	--	--	--	--	--	--	--	--	--	--
Task Strategies ⁴	Analyzing tasks and identifying specific, advantageous methods	--	--	--	--	--	--	--	--	--	--	<i>d</i> = .45	154 effects	--	--
Summarizing & Note Taking ²	Instructional strategies that require students to distill information, to mentally sift through and synthesize info.	--	--	--	--	--	--	--	--	--	--	<i>d</i> = 1.00	179 studies	--	--

¹Richardson et al. (2012), ²Marzano et al. (2000), ³Credé & Kuncel (2008), ⁴Lavery (2008), as cited in Hattie (2009)

[^] = a construct that was used to derive more than one skill; n.s. = statistically nonsignificant; *d* = mean effect size.

Unless otherwise noted: the effect listed refers to a correlation coefficient, *N* = the number of total participants in the study, and all effects listed were statistically significant.

Time and Goal Management *Students effectively and independently prioritize and plan their time to achieve long- and short-term goals and outcomes*

This skill was derived from the following constructs identified in the review of the literature:

• **Time Management** (Four Keys, Conley, 2012) • **Manage Goals and Time**[^] • **Manage Projects**[^] • **Produce Results**[^] (21st Century Skills, P21, 2009) • **Time Management** (Self-Regulated Learning, Lindner & Harris, 1992; 1998)

Key Assessments Measuring These Constructs: MSLO, CampusReady, LASSI, PPI		Relationships with Outcomes													
		College GPA		Performance in Indiv. College Courses		College Credits Earned		College Retention		College Absenteeism		K-12 Success		Career Success	
		Strong		Small		NA		NA		NA		Moderate		NA	
Empirically Tested Construct	Definition	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>
Study Skills ¹	Ability to manage time and allocate other resources in accordance with the demands of the academic tasks.	0.25	25,547	0.10	2,175	--	--	--	--	--	--	--	--	--	--
Time/Study Management ²	Capacity to self-regulate study time and activities.	0.22	5,847	--	--	--	--	--	--	--	--	--	--	--	--
Time Management ³	Estimating and budgeting use of time (e.g., scheduling daily studying and homework time).	--	--	--	--	--	--	--	--	--	--	<i>d</i> = .44	8 effects	--	--

¹Credé & Kuncel (2008), ²Richardson et al. (2012), ³Lavery (2008), as cited in Hattie (2009)

[^] = a construct that was used to derive more than one skill; n.s. = statistically nonsignificant; *d* = mean effect size.

Unless otherwise noted: the effect listed refers to a correlation coefficient, *N* = the number of total participants in the study, and all effects listed were statistically significant.

Leadership *Students inspire and influence others to achieve a common goal by capitalizing on strengths to coordinate tasks; motivating and guiding others; taking initiative and responsibility for outcomes; being decisive, assertive, and authoritative; developing others' skills; and negotiating conflict*

This skill was derived from the following constructs identified in the review of the literature:

• **Leadership Experience** (Noncognitive Variables, Sedlacek, 1996; 2004) • **Leadership** (Twelve Dimensions, Friede, et al., 2002) • **Practical Intelligence**[^] (WICS, Sternberg, 2005; 2008) • **Carrying Out Leadership/Management Functions** (Components of Grad School Performance, Campbell, et al., 1998) • **Guide and Lead Others**[^] • **Be Responsible to Others**[^] (21st Century Skills, P21, 2009) • **Dominance** • **Social Boldness**[^] (16PF, Cattell, et al., 1993) • **Enterprising and Performing** • **Leading and Deciding**[^] (Great Eight, Bartram, 2005) • **Extraversion** (Big Five, Goldberg, 2001) • **Ambition** (Performance Improvement Characteristics, Hogan & Holland, 2002) • **Relationship Management**[^] (Emotional Intelligence Revised, Cherniss & Goleman, 2001) • **Social Skills** (Emotional Intelligence, Goleman, 1995) • **Independence** (Emotional-Social Intelligence, Bar-On, 2006) • **Problem Identification**[^] • **Negotiation**[^] • **Refusal**[^] (Key SEL Competencies, Payton, et al., 2000)

Key Assessments Measuring These Constructs: 16PF, CB MSU, Kaleidoscope, NCQ, RBI, TAPAS		Relationships with Outcomes														
		College GPA		Performance in Indiv. College Courses		College Credits Earned		College Retention		College Absenteeism		K-12 Success		Career Success		
		Small		NA		Small		No or Negative		No or Negative		NA		NA		
Empirically Tested Construct	Definition	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	
Leadership ^{1,2,3}	Demonstrating skills in a group, such as motivating others, coordinating groups and tasks, serving as a representative.	0.14	611-636	--	--	--	--	n.s.	--	n.s.	--	--	--	--	--	--
Leadership Experience ^{4,5}	Leadership experience in any area pertinent to a student's background.	0.04	7,016	--	--	0.05	631	-0.03	2,735	--	--	--	--	--	--	--

¹Friede et al. (2002). ²Oswald et al. (2004). ³Schmitt et al. (2011). ⁴Sedlacek (2004). ⁵Thomas et al. (2007)

[^] = a construct that was used to derive more than one skill; n.s. = statistically nonsignificant; *d* = mean effect size.

Unless otherwise noted: the effect listed refers to a correlation coefficient, *N* = the number of total participants in the study, and all effects listed were statistically significant.

Collaboration Students work effectively with others; respect diversity; are empathic, cooperative, and willing to compromise; assume shared responsibility for group tasks; and communicate effectively in groups

This skill was derived from the following constructs identified in the review of the literature:

• **Collaborative Learning** (Four Keys, Conley, 2012) • **Social Integration**[^] (Student Integration Theory, Tinto, 1993; 1997; 1998; 2003; 2005) • **Institutional Fit & Commitment**[^] (Student Attrition Model, Bean, 1985) • **Practical Intelligence**[^] (WICS, Sternberg, 2005; 2008) • **Social Boldness**[^] (16PF, Cattell, et al., 1993) • **Be Flexible**[^] • **Be Responsible to Others**[^] • **Communicate Clearly**[^] • **Guide and Lead Others**[^] • **Interact Effectively with Others**[^] (21st Century Skills, P21, 2009) • **Being an Effective Team Member** • **Oral and Written Communication** (Components of Grad School Performance, Campbell, et al., 1998) • **Social Skills** (Emotional Intelligence, Goleman, 1995) • **Relationship Management**[^] (Emotional Intelligence Revised, Cherniss & Goleman, 2001) • **Flexibility**[^] (Emotional-Social Intelligence, Bar-On, 2006) • **Interacting and Presenting** • **Leading and Deciding**[^] (Great Eight, Bartram, 2005) • **Awareness of Self and Others** • **Social Norm Analysis** • **Social Responsibility** (Key SEL Competencies, Payton, et al., 2000) • **Interpersonal Skills** • **Leadership** • **Social Responsibility, Citizenship, and Involvement** (Twelve Dimensions, Friede, et al., 2002)

Key Assessments Measuring These Constructs: Beacon, CampusReady, CB MSU, ENGAGE, INCLASS, NSSE, PQA, TAPAS, Video SJT, WPA, NCQ		Relationships with Outcomes													
		College GPA		Performance in Indiv. College Courses		College Credits Earned		College Retention		College Absenteeism		K-12 Success		Career Success	
		Small		NA		NA		No or Negative		No or Negative		Strong		Small	
Empirically Tested Construct	Definition	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>
Agreeableness ¹	Trusting, empathetic, and compliant in social situations.	0.07	21,734	--	--	--	--	--	--	--	--	--	--	0.04 ⁷	11,653
														0.06 ⁸	3,685
Extraversion ¹	Assertive, positive, and sociable.	-0.04	23,730	--	--	--	--	--	--	--	--	--	--	0.06 ⁷	12,396
														0.15 ⁸	3,101
Interpersonal Skills ^{2,3,4}	Communicating well with others. Being aware of social dynamics and responding appropriately.	n.s.	--	--	--	--	--	n.s.	--	n.s.	--	--	--	--	--
Leadership ^{2,3,4}	Demonstrating skills in a group, such as motivating others, coordinating groups and tasks, serving as a representative.	0.14	611-636	--	--	--	--	n.s.	--	n.s.	--	--	--	--	--
Multicultural Tolerance and Appreciation ^{2,3,4}	Showing openness, tolerance, and interest in a diversity of individuals.	n.s.	--	--	--	--	--	n.s.	--	n.s.	--	--	--	--	--
Peer Learning ¹	Tending to work with other students in order to facilitate	0.13	1,137	--	--	--	--	--	--	--	--	--	--	--	--
Social Integration ¹	Perceived social integration and ability to relate to other students.	0.04	19,028	--	--	--	--	--	--	--	--	--	--	--	--
Cooperative Learning ⁵	Positive interdependence; face-to-face promotion of interaction; individual and group accountability.	--	--	--	--	--	--	--	--	--	--	--	--		
														¹²² <i>d</i> = .73 ⁵ studies ⁵ <i>d</i> = .41 ⁶ 306 studies ⁶	

¹Richardson et al. (2012), ²Friede et al. (2002), ³Oswald et al. (2004), ⁴Schmitt et al. (2011), ⁵Marzano et al. (2000), ⁶Hattie (2009), ⁷Barrick & Mount (1991), measured by job proficiency, ⁸Barrick & Mount (1991), measured by job training proficiency

[^] = a construct that was used to derive more than one skill; n.s. = statistically nonsignificant; *d* = mean effect size.

Unless otherwise noted: the effect listed refers to a correlation coefficient, *N* = the number of total participants in the study, and all effects listed were statistically significant.

Communication Students effectively communicate and listen through oral, written, visual, and nonverbal formats in both formal and informal situations

This skill was derived from the following constructs identified in the review of the literature:

• **Communication** (Four Keys, Conley, 2012) • **Communicate Clearly**[^] • **Solve Problems**[^] • **Create Media Products** • **Interact Effectively with Others**[^] (21st Century Skills, P21, 2009) • **Assertiveness** (Emotional-Social Intelligence, Bar-On, 2006) • **Oral and Written Communication** (Components of Grad School Performance, Campbell, et al., 1998) • **Practical Intelligence**[^] (WICS, Sternberg, 2005; 2008) • **Active Listening** • **Expressive Communication** • **Negotiation**[^] • **Refusal**[^] (Key SEL Competencies, Payton, et al., 2000) • **Interpersonal Skills** (Twelve Dimensions, Friede, et al., 2002) • **Interacting and Presenting** • **Analyzing and Interpreting**[^] (Great Eight, Bartram, 2005) • **Relationship Management**[^] (Emotional Intelligence Revised, Cherniss & Goleman, 2001)

Key Assessments Measuring These Constructs: CampusReady, CWRA, ENGAGE, Kaleidoscope, PQA, ThinkReady, Video SJT		Relationships with Outcomes													
		College GPA		Performance in Indiv. College Courses		College Credits Earned		College Retention		College Absenteeism		K-12 Success		Career Success	
		Small		NA		NA		No or Negative		No or Negative		NA		Small	
Empirically Tested Construct	Definition	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>
Emotional Intelligence ¹	Accurately perceiving emotion in self and others.	0.14	5,024	--	--	--	--	--	--	--	--	--	--	--	--
Extraversion ¹	Assertive, positive, and sociable.	-0.04	23,730	--	--	--	--	--	--	--	--	--	--	0.06 ⁵	12,396
														0.15 ⁶	3,101
Interpersonal Skills ^{2,3,4}	Communicating well with others. Being aware of social dynamics and responding appropriately.	n.s.	--	--	--	--	--	n.s.	--	n.s.	--	--	--	--	--

¹Richardson et al. (2012), ²Friede et al. (2002), ³Oswald et al. (2004), ⁴Schmitt et al. (2011), ⁵Barrick & Mount (1991), measured by job proficiency, ⁶Barrick & Mount (1991), measured by job training proficiency

[^] = a construct that was used to derive more than one skill; n.s. = statistically nonsignificant; *d* = mean effect size.

Unless otherwise noted: the effect listed refers to a correlation coefficient, *N* = the number of total participants in the study, and all effects listed were statistically significant.

Problem Solving *Students develop and implement creative solutions to problems, both independently and collaboratively*

This skill was derived from the following constructs identified in the review of the literature:

• **Problem Formulation** (Four Keys, Conley, 2012) • **Implement Innovations[^]** • **Solve Problems[^]** • **Think Creatively[^]** • **Use Systems Thinking[^]** (21st Century Skills, P21, 2009) • **Problem Solving** • **Problem Identification[^]** (Key SEL Competencies, Payton, et al., 2000) • **Creating and Conceptualizing[^]** • **Analyzing and Interpreting[^]** (Great Eight, Bartram, 2005) • **Intellect and Imagination[^]** (Big Five, Goldberg, 2001) • **Creativity** • **Analytical Intelligence[^]** (WICS, Sternberg, 2005; 2008) • **Abstractedness[^]** (16PF, Cattell, et al., 1993) • **Intellectance[^]** (Performance Improvement Characteristics, Hogan & Holland, 2002) • **Problem-Solving** (Emotional-Social Intelligence, Bar-On, 2006) • **Executive Processing: Task Analysis** • **Executive Processing: Strategy Construction** • **Executive Processing: Strategy Evaluation** • **Cognitive Processing: Tactic Execution** (Self-Regulated Learning, Lindner & Harris, 1992; 1998)

Key Assessments Measuring These Constructs: 16PF, CampusReady, CWRA, INCLASS, PPI, ThinkReady		Relationships with Outcomes													
		College GPA		Performance in Indiv. College Courses		College Credits Earned		College Retention		College Absenteeism		K-12 Success		Career Success	
		Strong		NA		NA		NA		NA		Moderate		NA	
Empirically Tested Construct	Definition	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>
Strategic Approach to Learning¹	Using task-dependent deep and surface learning strategies combined with a motivation for achievement.	0.23	2,774	--	--	--	--	--	--	--	--	--	--	--	--
Generating and Testing Hypotheses²	Applying knowledge in tasks that require generating and testing hypotheses.	--	--	--	--	--	--	--	--	--	--	<i>d</i> = .61	63 studies	--	--
Creativity³	N/A	--	--	--	--	--	--	--	--	--	--	<i>d</i> = .35	45,880	--	--
Problem-Solving Teaching³	Strategies that emphasize defining the cause of the problem, identifying alternatives for a solution, or using multiple perspectives to solve a problem.	--	--	--	--	--	--	--	--	--	--	<i>d</i> = .61	15,235	--	--
Problem-Based Learning³	Includes learning situations that are student-centered and group based, use a tutor to facilitate, have problems that foster knowledge acquisition, involve self-directed learning.	--	--	--	--	--	--	--	--	--	--	<i>d</i> = .15	38,090	--	--

¹Richardson et al. (2012), ²Marzano et al. (2000), ³Hattie (2009)

[^] = a construct that was used to derive more than one skill; n.s. = statistically nonsignificant; *d* = mean effect size.

Unless otherwise noted: the effect listed refers to a correlation coefficient, *N* = the number of total participants in the study, and all effects listed were statistically significant.

Critical Thinking Students use reasoning and analytic skills to interpret information, develop strategies, and make judgments and decisions

This skill was derived from the following constructs identified in the review of the literature:

• Analytical Intelligence[^] (WICS, Sternberg, 2005; 2008) • Analyzing and Interpreting[^] (Great Eight, Bartram, 2005) • Intellect and Imagination[^] (Big Five, Goldberg, 2001) • Task Analysis • Strategy Construction • Cognitive Monitoring[^] • Strategy Evaluation[^] (Self-Regulated Learning, Lindner & Harris, 1992; 1998) • Expert Use of Research and Data Analytic Methods (Components of Grad School Performance, Campbell, et al., 1998) • Key Cognitive Strategies (Four Keys, Conley, 2012) • Abstractedness[^] • Reasoning[^] (16PF, Cattell, et al., 1993) • Intellectance[^] • Procedural Knowledge and Skill (Performance Improvement Characteristics, Hogan & Holland, 2002) • Think Creatively[^] • Reason Effectively • Use Systems Thinking[^] • Make Judgments and Decisions[^] • Use and Manage Information[^] • Access and Evaluate Information • Analyze Media (21st Century Skills, P21, 2009)

Key Assessments Measuring These Constructs: 16PF, CampusReady, CWRA, Kaleidoscope, MSLQ, PQA, TAPAS, ThinkReady, WPA		Relationships with Outcomes													
		College GPA		Performance in Indiv. College Courses		College Credits Earned		College Retention		College Absenteeism		K-12 Success		Career Success	
		Moderate		Small		NA		NA		NA		Strong		NA	
Empirically Tested Construct	Definition	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>
Critical Thinking ¹	Capacity to critically analyze learning material.	0.15	3,824	--	--	--	--	--	--	--	--	--	--	--	--
Deep Approach to Learning ¹	Combination of deep information processing and a self-intrinsic motivation to learn.	0.14	5,211	--	--	--	--	--	--	--	--	--	--	--	--
Deep Processing ²	Attempting to understand material by integrating it within one's existing knowledge structure.	0.12	4,238	0.15	3,025	--	--	--	--	--	--	--	--	--	--
Metacognition ¹	Capacity to self-regulate comprehension of one's own learning.	0.18	6,205	--	--	--	--	--	--	--	--	--	--	--	--
Strategic Approach to Learning ¹	Using task-dependent deep and surface learning strategies combined with a motivation for achievement.	0.23	2,774	--	--	--	--	--	--	--	--	--	--	--	--
Identifying Similarities and Differences ³	Strategies that emphasize the identification of common and	--	--	--	--	--	--	--	--	--	--	<i>d</i> = 1.61	31 studies	--	--
Generating and Testing Hypotheses ³	Applying knowledge in tasks that require generating and testing hypotheses.	--	--	--	--	--	--	--	--	--	--	<i>d</i> = .61	63 studies	--	--
Task Strategies ⁴	Analyzing tasks and identifying specific, advantageous methods for learning (e.g., creating mnemonics).	--	--	--	--	--	--	--	--	--	--	<i>d</i> = .45	154 effects	--	--

¹Richardson et al. (2012). ²Credé & Kuncel (2008). ³Marzano et al. (2000). ⁴Laverv (2008), as cited in Hattie (2009)

[^] = a construct that was used to derive more than one skill; n.s. = statistically nonsignificant; *d* = mean effect size.

Unless otherwise noted: the effect listed refers to a correlation coefficient, *N* = the number of total participants in the study, and all effects listed were statistically significant.

Self-Awareness Students have metacognitive knowledge and a realistic sense of their strengths and weaknesses, and they capitalize on strengths and work toward improving deficiencies

This skill was derived from the following constructs identified in the review of the literature:

- Realistic Self-Appraisal, Especially Academic (Noncognitive Variables, Sedlacek, 1996; 2004)
- Self-Awareness
- Progress Monitoring (Four Keys, Conley, 2012)
- Awareness of Self and Others
- Awareness of Feelings
- Management of Feelings[^]
- Constructive Sense of Self[^]
- Help Seeking (Key SEL Competencies, Payton, et al., 2000)
- Self-Evaluation (Flow, Csikszentmihalyi, 1990)
- Self-Awareness (Emotional Intelligence Revised, Cherniss & Goleman, 2001)
- Self-Regard
- Emotional Self-Awareness[^]
- Reality Testing (Emotional-Social Intelligence, Bar-On, 2006)
- Self-Awareness (Emotional Intelligence, Goleman, 1995)
- Cognitive Monitoring[^]
- Strategy Evaluation[^] (Self-Regulated Learning, Lindner & Harris, 1992; 1998)
- Declarative Knowledge[^] (Personnel Selection, Campbell, et al., 1993)
- Be Flexible[^]
- Make Judgments and Decisions[^] (21st Century Skills, P21, 2009)

Key Assessments Measuring These Constructs: CampusReady, MSLQ, NCQ, ThinkReady, WPA		Relationships with Outcomes													
		College GPA		Performance in Indiv. College Courses		College Credits Earned		College Retention		College Absenteeism		K-12 Success		Career Success	
		Small		Small		Small		Small		NA		Strong		NA	
Empirically Tested Construct	Definition	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>
General Self-Concept ¹	One's beliefs and perceptions about oneself that influence one's actions and environmental responses.	0.04	9,621	--	--	--	--	0.06	4,240	--	--	--	--	--	--
Metacognition ²	Capacity to self-regulate comprehension of one's own learning.	0.18	6,205	--	--	--	--	--	--	--	--	--	--	--	--
Metacognitive Skills ³	Awareness of studying process, monitoring of studying effectiveness, and ability to adapt studying technique.	0.18	1,915	0.08	1,978	--	--	--	--	--	--	--	--	--	--
Realistic Self-Appraisal, Especially Academic ^{4,5}	Recognizes and accepts any deficiencies and works hard at self-development. Recognizes need to broaden individuality.	0.06	7,681	--	--	0.09	493	0.02	2,735	--	--	--	--	--	--
Setting Goals & Providing Feedback ⁶	The process of establishing direction and purpose.	--	--	--	--	--	--	--	--	--	--	<i>d</i> = .61	408 effects	--	--
Self-Evaluation ⁷	Setting standards and using them for self-judgment (e.g.,	--	--	--	--	--	--	--	--	--	--	<i>d</i> = .62	156 effects	--	--
Self-Monitoring ⁷	Observing and tracking one's own performance and outcomes, often recording them.	--	--	--	--	--	--	--	--	--	--	<i>d</i> = .45	154 effects	--	--

¹Robbins et al. (2004), ²Richardson et al. (2012), ³Credé & Kuncel (2008), ⁴Sedlacek (2004), ⁵Thomas et al. (2007), ⁶Marzano et al. (2000), ⁷Lavery (2008), as cited in Hattie (2009)

[^] = a construct that was used to derive more than one skill; n.s. = statistically nonsignificant; *d* = mean effect size.

Unless otherwise noted: the effect listed refers to a correlation coefficient, *N* = the number of total participants in the study, and all effects listed were statistically significant.

Self-Control Students are able to define, prioritize, and complete tasks independently, and are able to maintain emotional self-control, tolerate stress, and control impulses

This skill was derived from the following constructs identified in the review of the literature:

- **Work Independently** • **Be Self-Directed Learners**[^] • **Produce Results**[^] (21st Century Skills, P21, 2009) • **Emotional Stability**[^] • **Rule-Consciousness**[^] (16PF, Cattell, et al., 1993) • **Organizing and Executing**[^] (Great Eight, Bartram, 2005) • **Setting Management** (Self-Regulated Learning, Lindner & Harris, 1992; 1998) • **Self-Management**[^] (Emotional Intelligence Revised, Cherniss & Goleman, 2001) • **Self-Regulation** (Emotional Intelligence, Goleman, 1995) • **Stress Tolerance** • **Emotional Self-Awareness**[^] • **Impulse Control** (Emotional-Social Intelligence, Bar-On, 2006) • **Managing Emotions** (Emotional Intelligence, Mayer, et al., 2001) • **Management of Feelings**[^] (Key SEL Competencies, Payton, et al., 2000)

Key Assessments Measuring These Constructs: 16PF, CampusReady, ENGAGE, LASSI, MSLQ, PPI, PQA, RBI, SSHA, TAPAS, ThinkReady		Relationships with Outcomes													
		College GPA		Performance in Indiv. College Courses		College Credits Earned		College Retention		College Absenteeism		K-12 Success		Career Success	
		Moderate		Moderate		Small		Small		NA		Strong		NA	
Empirically Tested Construct	Definition	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>
Preference for Long-Term Goals to Short-Term or Immediate Needs ^{1,2}	Able to respond to deferred gratification.	0.06	7,523	--	--	0.06	493	0.03	2,735	--	--	--	--	--	--
Study Habits ³	Sound study routines, including frequency of study sessions, self-testing, rehearsal of learned material.	0.23	23,390	0.18	3,628	--	--	--	--	--	--	--	--	--	--
Self-Consequences ⁴	Student arrangement or imagination of rewards or punishment for success or failure.	--	--	--	--	--	--	--	--	--	--	<i>d</i> = .70	75 effects	--	--

¹Sedlacek (2004), ²Thomas et al. (2007), ³Credé & Kuncel (2008), ⁴Lavery (2008), as cited in Hattie (2009)

[^] = a construct that was used to derive more than one skill; n.s. = statistically nonsignificant; *d* = mean effect size.

Unless otherwise noted: the effect listed refers to a correlation coefficient, *N* = the number of total participants in the study, and all effects listed were statistically significant.

Applied Knowledge Students activate and demonstrate knowledge including facts, theories, cultural knowledge, and procedural and practical intelligence; integrate new knowledge into existing structures; and understand how knowledge systems interact with one another

This skill was derived from the following constructs identified in the review of the literature:

- **Knowledge Acquired in a Field** (Noncognitive Variables, Sedlacek, 1996; 2004)
- **Knowledge and Mastery of General Principles** (Twelve Dimensions, Friede, et al., 2002)
- **Practical Intelligence[^]** (WICS, Sternberg, 2005; 2008)
- **Using Knowledge Expertly** (Components of Grad School Performance, Campbell, et al., 1998)
- **Memorization and Recall**
- **Structure of Knowledge**
- **Tuition Awareness**
- **Financial Aid Awareness** (Four Keys, Conley, 2012)
- **Grades & Academic Performance** (Student Attrition Model, Bean, 1985)
- **School Success** (Performance Improvement Characteristics, Hogan & Holland, 2002)
- **Core Academic Subjects**
- **Financial, Economic, Business, and Entrepreneurial Literacy** (21st Century Skills, P21, 2009)
- **Declarative Knowledge[^]**
- **Procedural Knowledge and Skill** (Personnel Selection, Campbell, et al., 1993)

Key Assessments Measuring These Constructs: CampusReady, CB MSU, Kaleidoscope, NCQ, PPI, PQA, ThinkReady, Video SJT		Relationships with Outcomes													
		College GPA		Performance in Indiv. College Courses		College Credits Earned		College Retention		College Absenteeism		K-12 Success		Career Success	
		Moderate		NA		Small		No or Negative		No or Negative		Strong		NA	
Empirically Tested Construct	Definition	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>
Knowledge Acquired in a Field^{1,2}	Unusual or culturally related ways of obtaining information and demonstrating knowledge.	0.07	5,430	--	--	0.06	493	-0.08	932	--	--	--	--	--	--
Knowledge, Learning, Mastery of General Principles^{3,4,5}	Gaining knowledge and mastering facts, ideas, and theories and how they interrelate.	0.22	611-636	--	--	--	--	--	--	-0.17	2,730-2,768	--	--	--	--
Activating Prior Knowledge⁶	Instructional approaches that help students retrieve what they already know about a topic.	--	--	--	--	--	--	--	--	--	--	<i>d</i> = .59	1,251 studies	--	--

¹Sedlacek (2004), ²Thomas et al. (2007), ³Friede et al. (2002), ⁴Oswald, et al. (2004), ⁵Schmitt, et al. (2011), ⁶Marzano et al. (2000)
[^] = a construct that was used to derive more than one skill; n.s. = statistically nonsignificant; *d* = mean effect size.

Unless otherwise noted: the effect listed refers to a correlation coefficient, *N* = the number of total participants in the study, and all effects listed were statistically significant.

Social and Personal Responsibility Students act consistently with values and take active responsibility for themselves, their communities, and the environment by engaging in healthy behaviors, performing volunteer work and civic duties, and conserving resources

This skill was derived from the following constructs identified in the review of the literature:

- **Social Integration**^A (Student Integration Theory, Tinto, 1993; 1997; 1998; 2003; 2005)
- **Physical and Psychological Health**
- **Social Responsibility, Citizenship, and Involvement** (Twelve Dimensions, Friede, et al., 2002)
- **Health Literacy**
- **Environmental Literacy**
- **Civic Literacy** (21st Century Skills, P21, 2009)
- **Social Norm Analysis**
- **Personal Responsibility**
- **Social Responsibility** (Key SEL Competencies, Payton, et al., 2000)
- **Institutional Fit and Commitment**^A (Student Attrition Model, Bean, 1985)
- **Community involvement** (Noncognitive Variables, Sedlacek, 1996; 2004)

Key Assessments Measuring These Constructs: CAI, CB MSU, ENGAGE, INCLASS, NCQ, PPI, RBI, Success Hwys, TAPAS		Relationships with Outcomes													
		College GPA		Performance in Indiv. College Courses		College Credits Earned		College Retention		College Absenteeism		K-12 Success		Career Success	
		Moderate		NA		Small		Small		No or Negative		NA		NA	
Empirically Tested Construct	Definition	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>	<i>N</i>
Academic Goals ¹	One's persistence with and commitment to action, including general and specific goal-directed behavior.	0.16	17,575	--	--	--	--	0.21	20,010	--	--	--	--	--	--
Community Involvement ^{2,3}	N/A	0.07	7,172	--	--	0.11	493	0.01	2,615	--	--	--	--	--	--
Effort Regulation ⁴	Persistence and effort when faced with challenging academic situations.	0.32	8,662	--	--	--	--	--	--	--	--	--	--	--	--
Ethics and Integrity ^{5,6,7}	Having a well-developed set of values, and behaving in ways consistent with those values.	0.14	611-636	--	--	--	--	n.s.	--	-0.23	2,730-2,768	--	--	--	--
Goal Commitment ⁴	Commitment to staying at university and obtaining a degree.	0.15	13,098	--	--	--	--	--	--	--	--	--	--	--	--
Perseverance ^{5,6,7}	Committing oneself to goals and priorities set, regardless of the difficulties that stand in the way.	0.16	611-636	--	--	--	--	n.s.	--	-0.14	2,730-2,768	--	--	--	--
Physical and Psychological Health ^{5,6,7}	Possessing the physical and psychological health required to engage actively in a scholastic environment.	0.24	611-636	--	--	--	--	n.s.	--	-0.10	2,730-2,768	--	--	--	--
Social Responsibility, Citizenship, and Involvement ^{5,6,7}	Being responsible to society and the community and demonstrating good citizenship.	n.s.	--	--	--	--	--	n.s.	--	n.s.	--	--	--	--	--

¹Robbins et al. (2004), ²Sedlacek (2004), ³Thomas et al. (2007), ⁴Richardson et al. (2012), ⁵Friede et al. (2002), ⁶Oswald et al. (2004), ⁷Schmitt et al. (2011)

^A = a construct that was used to derive more than one skill; n.s. = statistically nonsignificant; *d* = mean effect size.

Unless otherwise noted: the effect listed refers to a correlation coefficient, *N* = the number of total participants in the study, and all effects listed were statistically significant.