

SPOTLIGHT 3

The multidimensionality of skills

Having knowledge is not the same as being able to apply it.¹ Having a skill means having the ability to do something well. Having a skill requires knowledge, but having knowledge does not necessarily imply having skills.² Knowing how a wind turbine works does not mean a person has the skill to fix one.

Skills are multidimensional, dynamic, and interactive

Promoting a breadth of skills means “educating for a mastery of a wide range of competencies that will help mitigate the challenges posed by our changing world context.”³ This Report uses three broad categories of skills (figure S3.1):

Cognitive skills refers to the “ability to understand complex ideas, to adapt effectively to the environment, to learn from experience, to engage in various forms of reasoning, to overcome obstacles by taking thought.”⁴ Cognitive skills are needed for learning, personal and professional development, and the development of other types of skills. They can be broken down into *foundational skills*—which include basic literacy, numeracy, critical thinking, and problem-solving—and *higher-order skills* such as more advanced versions of these cognitive skills and others like adaptive learning.

Socioemotional skills are the behaviors, attitudes, and values that a person needs to “navigate interpersonal and social situations effectively,”⁵ as well as to “deal effectively and ethically with daily tasks and challenges.”⁶ Self-awareness, leadership, teamwork, self-control, and motivation are socioemotional skills.⁷ Sometimes referred to as *noncognitive skills*, socioemotional skills include so-called personality traits, which

reflect enduring patterns in how individuals respond to various situations. Socioemotional skills are transversal skills, meaning they are relevant to a broad range of disciplines. They work together with cognitive skills, in that success in meeting many workplace and life challenges depends on both types of skills.

Technical skills are the acquired knowledge, expertise, and interactions needed by a worker for competent performance of the duties associated with a specific job. Technical skills require mastery of the knowledge, materials, tools, and technologies needed to do a job.⁸

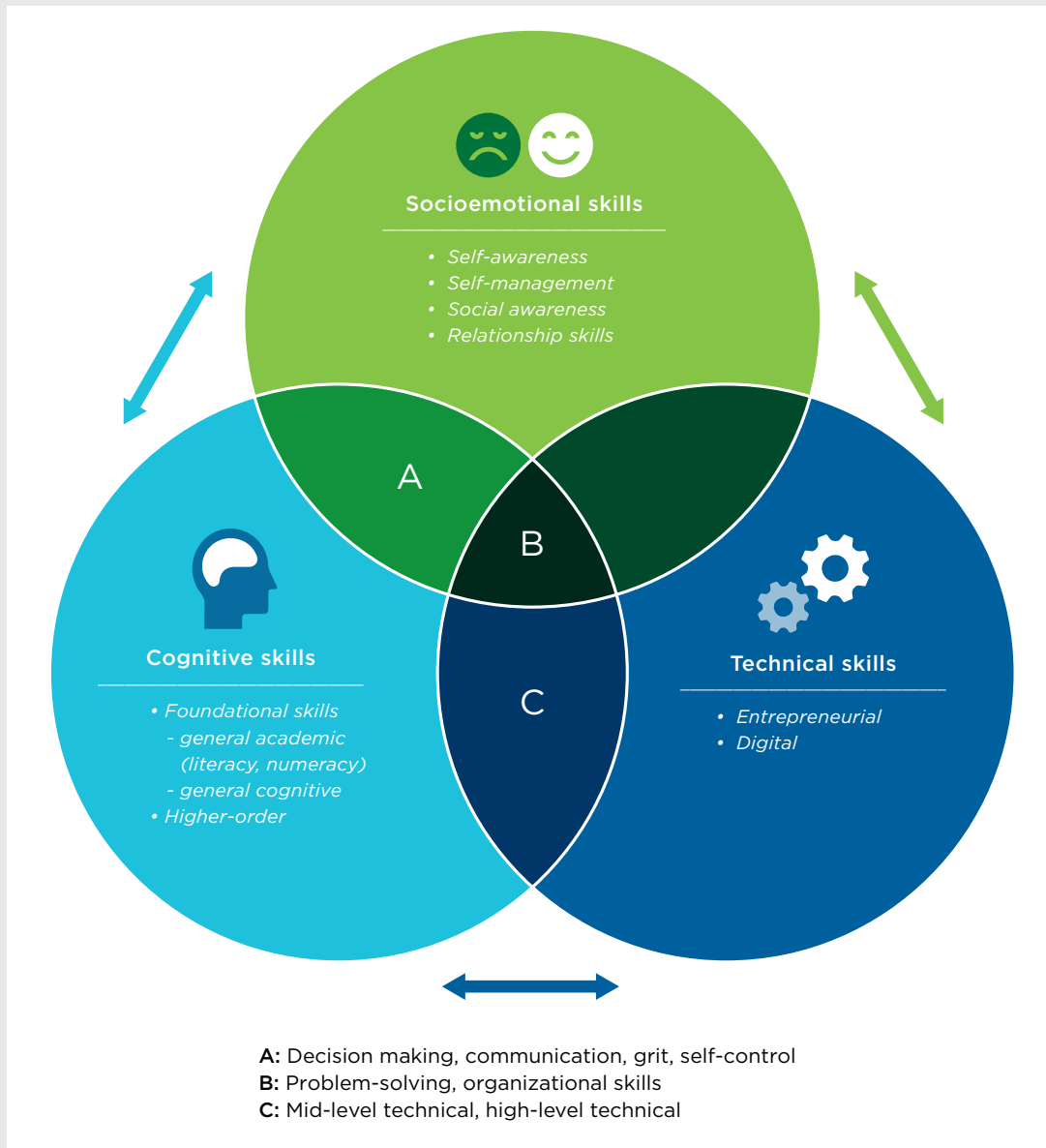
Cognitive skills and socioemotional skills reinforce each other. Individuals with characteristics such as drive, diligence, perseverance, or good social skills are more likely to apply themselves to acquiring cognitive skills, as well as to have positive relationships in their lives. Yet cognitive skills are distinct from socioemotional skills.⁹ Acquiring an early solid base of both is critical because both set the course of lifetime trajectories. Individuals with early advantages tend to gain more skills over their lifetimes, and it is difficult for others to close widening gaps over time.

Skills can be acquired

Different types of skills can be developed over time, depending on an individual’s neurobiological and psychological development.¹⁰

Most cognitive skills are acquired during childhood, but they can be reinforced through young adulthood. Early childhood is an optimal period to acquire foundational cognitive skills because they are a prerequisite to developing further cognitive and socioemotional skills during later developmental periods.¹¹

Figure S3.1 Cognitive, socioemotional, and technical skills interact



Source: WDR 2018 team.

Higher-order cognitive skills are regularly developed in late adolescence and early adulthood, in parallel with technical skills that are relevant for the labor market.¹² Given the ages that correspond to optimal skills development periods, foundational cognitive skills are usually learned in school and at home.

Similarly, socioemotional skills can be acquired through adulthood, though the optimal period is in early childhood, while the best stage to reinforce them is early adulthood. But unlike cognitive skills, certain socioemotional skills—such as self-esteem,

positive identity, or leadership—are better acquired in middle childhood and during adolescence.¹³ Even though the neurobiological and psychosocial bases are already well established at this stage, socioemotional skills can also be learned well during early adulthood through new experiences.¹⁴

Technical skills can be learned at ages and in settings that correspond to the fields of study or jobs that a person chooses. Thus these skills can be acquired throughout life, in school and the workplace, as well as through specific training and education.¹⁵

Notes

1. Schönfeld (2017).
2. For a discussion of alternative definitions of the term *skills*, see Green (2011) and Warhurst and others (2017).
3. Winthrop and McGivney (2016, 14).
4. Neisser and others (1996, 77).
5. Guerra, Modecki, and Cunningham (2014, 5).
6. “Core SEL Competencies,” CASEL, <http://www.casel.org/core-competencies/>. Also see Pierre and others (2014) and Taylor and others (2017).
7. Duckworth and Yeager (2015); Durlak and others (2011); John and DeFruyt (2015); Kautz and others (2014); Payton and others (2008).
8. Pierre and others (2014).
9. Kautz and others (2014).
10. Cunha, Heckman, and Schennach (2010); Guerra, Modecki, and Cunningham (2014).
11. Cunha and others (2006).
12. Handel, Valerio, and Sánchez Puerta (2016).
13. Cunningham, Acosta, and Muller (2016).
14. Sánchez Puerta, Valerio, and Gutiérrez Bernal (2016); Taylor and others (2017).
15. Handel and others (2016).

References

- Cunha, Flavio, James J. Heckman, Lance Lochner, and Dimitriy V. Masterov. 2006. “Interpreting the Evidence on Life Cycle Skill Formation.” In *Handbook of the Economics of Education*, Vol. 1, edited by Eric A. Hanushek and Finis Welch, 697–812. Handbooks in Economics Series 26. Amsterdam: North-Holland.
- Cunha, Flavio, James J. Heckman, and Susanne M. Schennach. 2010. “Estimating the Technology of Cognitive and Noncognitive Skill Formation.” *Econometrica* 78 (3): 883–931.
- Cunningham, Wendy V., Pablo Acosta, and Noël Muller. 2016. *Minds and Behaviors at Work: Boosting Socioemotional Skills for Latin America’s Workforce*. Directions in Development: Human Development Series. Washington, DC: World Bank.
- Duckworth, Angela L., and David Scott Yeager. 2015. “Measurement Matters: Assessing Personal Qualities Other Than Cognitive Ability for Educational Purposes.” *Educational Researcher* 44 (4): 237–51.
- Durlak, Joseph A., Roger P. Weissberg, Allison B. Dymnicki, Rebecca D. Taylor, and Kriston B. Schellinger. 2011. “The Impact of Enhancing Students’ Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions.” *Child Development* 82 (1): 405–32.
- Green, Francis. 2011. “What Is Skill? An Inter-Disciplinary Synthesis.” LLAKES Research Paper 20, Centre for Learning and Life Chances in Knowledge Economies and Societies, Institute of Education, University of London.
- Guerra, Nancy, Kathryn Modecki, and Wendy V. Cunningham. 2014. “Developing Social-Emotional Skills for the Labor Market: The Practice Model.” Policy Research Working Paper 7123, World Bank, Washington, DC.
- Handel, Michael J., Alexandria Valerio, and María Laura Sánchez Puerta. 2016. *Accounting for Mismatch in Low- and Middle-Income Countries*. Directions in Development: Human Development Series. Washington, DC: World Bank.
- John, Oliver P., and Filip DeFruyt. 2015. “Education and Social Progress: Framework for the Longitudinal Study of Social and Emotional Skills in Cities.” Report EDU/CERI /CD, Organisation for Economic Co-operation and Development, Paris.
- Kautz, Tim, James J. Heckman, Ron Diris, Bas Ter Weel, and Lex Borghans. 2014. “Fostering and Measuring Skills: Improving Cognitive and Non-cognitive Skills to Promote Lifetime Success.” NBER Working Paper 20749, National Bureau of Economic Research, Cambridge, MA.
- Neisser, Ulric, Gwyneth Boodoo, Thomas J. Bouchard Jr., A. Wade Boykin, Nathan Brody, Stephen J. Ceci, Diane F. Halpern, et al. 1996. “Intelligence: Knowns and Unknowns.” *American Psychologist* 51 (2): 77–101.
- Payton, John, Roger P. Weissberg, Joseph A. Durlak, Allison B. Dymnicki, Rebecca D. Taylor, Kriston B. Schellinger, and Molly Pachan. 2008. “The Positive Impact of Social and Emotional Learning for Kindergarten to Eighth-Grade Students: Findings from Three Scientific Reviews.” Technical Report, Collaborative for Academic, Social, and Emotional Learning, Chicago.
- Pierre, Gaëlle, María Laura Sánchez Puerta, Alexandria Valerio, and Tania Rajadel. 2014. “STEP Skills Measurement Surveys: Innovative Tools for Assessing Skills.” Social Protection and Labor Discussion Paper 1421, World Bank, Washington, DC.
- Sánchez Puerta, María Laura, Alexandria Valerio, and Marcela Gutiérrez Bernal. 2016. *Taking Stock of Programs to Develop Socioemotional Skills: A Systematic Review of Program Evidence*. Directions in Development: Human Development Series. Washington, DC: World Bank.
- Schönfeld, Manuel. 2017. “Work Readiness Assessment Tools in Comparison: From Administration to Z-scores.” World Bank, Washington, DC.
- Taylor, R.D., E. Oberle, J. A. Durlak, and R. P. Weissberg. 2017. “Promoting Positive Youth Development through School-Based Social and Emotional Learning Interventions: A Meta-Analysis of Follow-Up Effects.” *Child Development* 88 (4): 1156–71.
- Warhurst, Chris, Ken Mayhew, David Finegold, and John Buchanan, eds. 2017. *The Oxford Handbook of Skills and Training*. Oxford, U.K.: Oxford University Press.
- Winthrop, Rebecca, and Eileen McGivney. 2016. “Skills for a Changing World: Advancing Quality Learning for Vibrant Societies.” Center for Universal Education, Brookings Institution, Washington, DC.

