



REINVENTING OUR SCHOOLS
FOR EXTRAORDINARY AND
UNCERTAIN TIMES

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The Attributes Of The Modern Learner

Revolutions destroy the perfect and then they enable the impossible.

Seth Godin

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NEW SKILL SETS FOR MODERN TIMES

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– Growing skills instability:

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– A reskilling imperative:

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SECTION 9



Blooms Taxonomy





E-RESOURCE 8:

The Nine I's of Modern Learning (Jukes et al., 2018)

http://bit.ly/sb21_9is

THE GLOBAL ACHIEVEMENT GAP

In their 2015 book, *Most Likely to Succeed*, authors Tony Wagner and Ted Dintersmith identified seven essential skills that students require to be adequately prepared for modern life, work, and citizenship. They were:

1. Critical thinking and problem-solving
2. Collaboration and leadership
3. Agility and adaptability
4. Initiative and entrepreneurialism
5. Effective oral and written communication
6. Accessing and analyzing information
7. Curiosity and imagination

THE ASIA SOCIETY

The Asia Society (<http://asiasociety.org/>), a global non-profit organization and a leading force in forging closer ties between Asia and the West through arts, education, policy, and business outreach, specifies global competence as the core capacity students need for the 21st century and defines it as “the capacity and disposition to understand and act on issues of global significance” (Asia Society, n.d.).

According to the Asia Society (n.d.), globally competent students do the following:

1. Investigate the world beyond their immediate environment.
2. Recognize perspectives: others' and their own.
3. Communicate ideas effectively with diverse audiences.
4. Take action to improve conditions.



ese and other definitions of modern learning are cross-disciplinary and reflect the new skills needed to live in complex and ever-changing modern times. The challenge is that most curricula—and, therefore, classrooms—do not adequately address many of the skills identified above. Regardless of which of these skill sets mentioned above you prefer to embrace, they all typically comprise similar sorts of complex thinking, learning, and communication skills, all of which are much more challenging to teach and learn than the more popular traditional skill sets that emphasize memorization and rote learning. However we may choose to describe them, they are essential for modern learning.

The critical point to understand is that regardless of what definition you use to describe modern learning, the essential skills are not taught as separate subjects or in isolation from the curriculum. Learning works best when it's attached horizontally (learning connected to something that we're currently working on) as opposed to learning that's connected vertically (learning attached to something that we will potentially need or use in the future). Though both horizontal and vertical learning are essential, it's important to consciously understand which type of information is being introduced so that we can be realistic about the amount of retention that must take place.

Research has repeatedly shown that effective learners relate existing knowledge to new information. Architect and graphic designer Richard Saul Wurman called this “Velcro learning” (1989, p.132). He suggested that information without context, interest, and relevance was like using only one side of a piece of Velcro—it doesn't stick. However, when relevant connections are made between experience and new information, long-term learning sticks.

This doesn't prevent us from valuing or focusing on both types of information simultaneously, as it's essential to balance what we need to know now with what we may need to know in the future. As learners, we must understand that the effort required to retain horizontal versus vertical information demands a different level of focus and commitment.

SECTION 10

How Do We Have It All?

Lead me, follow me, or get out of my way.

General George Patton

How do we both address the short-term goals of preparing students for the tests while at the same time addressing the long-term goals of preparing them for life? How do we address the need for our students to learn the traditional content as well as the essential skills for modern learning? To thrive in a rapidly evolving, technology-mediated world, students must not only possess strong skills in areas such as language arts, mathematics, and science, but they must also be adept at skills such as critical thinking, problem-solving, persistence, collaboration, and curiosity. For this discussion, we will use the World Education Forum (WEF-USA) skills and categories to best capture what we believe to be the “new basics”: the essential competencies for life and work in modern times.

In 2015, to uncover the skills that meet the needs of the marketplace, the World Economic Forum USA published their *New Vision for Education* report.



E-RESOURCE 9:

New Vision for Education: Unlocking the Potential of Technology
(World Economic Forum, 2015) http://bit.ly/wef_newvision2015

ey first conducted a meta-analysis of research about modern learning skills in primary and secondary education and then distilled the research into 16 skills in three broad categories:

1. Foundational Literacies

Foundational literacies represent how students apply core skills to everyday tasks.

These skills serve as the base upon which students need to build more advanced and equally important competencies and character qualities. This category includes not only the globally assessed skills of literacy and numeracy, but also scientific literacy, information communication technology (ICT) literacy, financial literacy, and cultural and civic literacy. Acquisition of these skills has been the traditional focus of education around the world. Historically, being able to understand written texts and quantitative relationships was sufficient for entry into the workforce. Now, these skills represent just the starting point on the path towards mastering 21st-century skills.

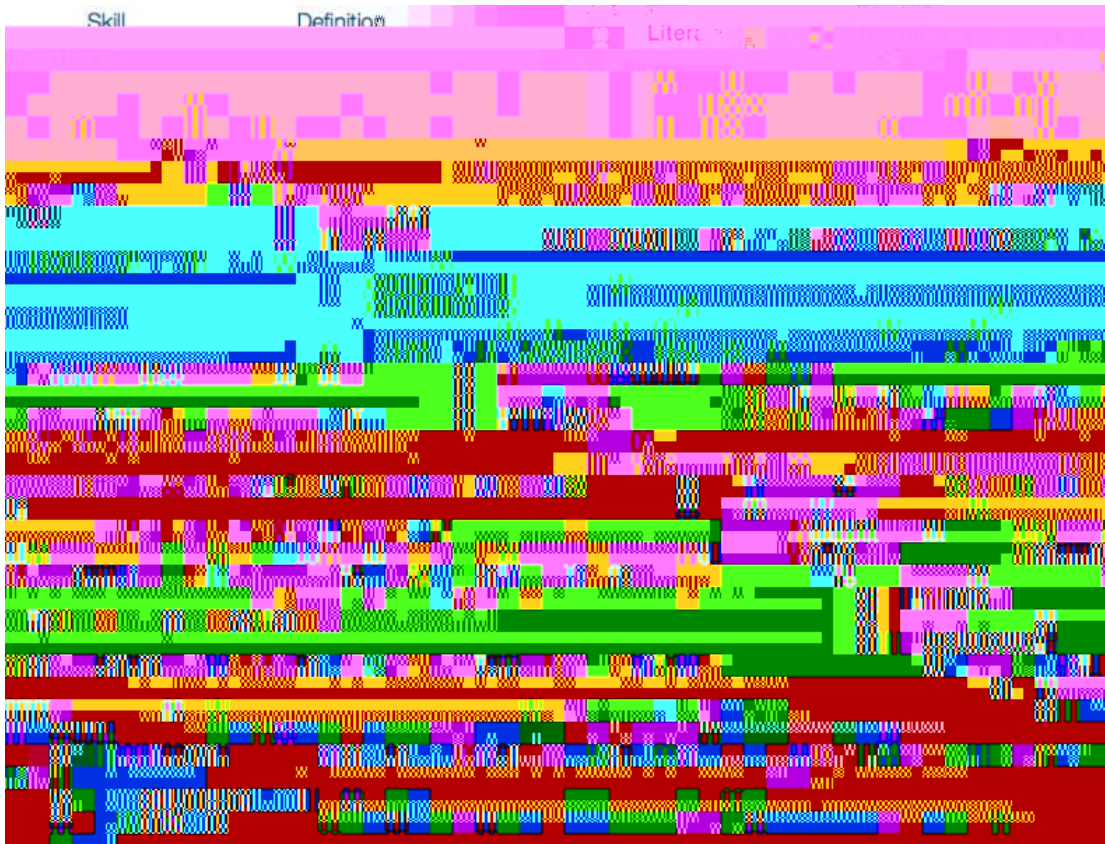
2. Competencies

Competencies describe how students approach complex challenges. For example, critical thinking is the ability to identify, analyze, and evaluate situations, ideas, and information to formulate responses to problems. Creativity is the ability to imagine and devise innovative new ways of addressing issues, answering questions, or expressing meaning through the application, synthesis, or repurposing of knowledge. Communication and collaboration involve working in coordination with others to convey information or tackle problems. Competencies such as these are essential to the 21st-century workforce, where being able to critically evaluate and communicate knowledge, as well as work well with a team, has become the norm.

3. Character Qualities

Character qualities describe how students approach their changing environment. Amid rapidly changing markets, character qualities such as persistence and adaptability ensure greater resilience and success in the face of obstacles. Curiosity and initiative serve as starting points for discovering new concepts and ideas. Leadership and social and cultural awareness involve effective interactions with others in socially, ethically, and culturally appropriate ways. (World Economic Forum, 2015, p. 2-3).

Graphically, the sixteen 21st century skills in three broad categories are represented this way:



E-VIDEO 8:

What Most Schools Don't Teach

(jumboload, 2013) http://bit.ly/jumboload_22713

Regardless of whether you use the University of Melbourne's Assessment and Teaching of 21st Century Skills (AT21CS) Consortium's skills and categories, Tony Wagner's seven essential skills, the Asia Society's capacities and dispositions for global competence, the WEF-USA's skills and categories, or some other list, the reality is that much has changed in our world since the days of Horace Mann and the one-room schoolhouse. Having examined what we define as essential modern learning skills and why they are critical for our students, our next chapter will explore the attributes of exemplary modern learning organizations to ensure that each of our students leave school equipped with the aforementioned modern learning skills.

REFERENCES

Amadeo, K. (2020, January 25). How outsourcing jobs affects the U.S. economy: Seven things you should know about outsourcing. *The Balance*. <https://www.thebalance.com/how-outsourcing-jobs-affects-the-u-s-economy-3306279>

Anderson, L. and Krathwohl, D. R., et al. (2001). *A Taxonomy for learning, teaching, and assessing: A revision of Bloom's Taxonomy of educational objectives*. Boston, MA: Pearson Education, Inc.

Boix-Mansilla, V. & Jackson, A. (2011). *Educating for global competence: Preparing our youth to engage in the world*. Asia Society.

CBC News. (2016, August 3). *Robots slowly replacing aging workers in China's Factories*. [Video]. Youtube. <https://www.youtube.com/watch?v=MMpaaTYnzTk&feature=youtu.be>

Carter, D. (2016, July 6). Goodbye, linear factory model of schooling: Why learning is irregular. *EdSurge News*. <https://www.edsurge.com/news/2016-07-06-goodbye-linear-factory-model-of-schooling-why-learning-is-irregular>

0 0 | (o) .

- David, J. L. and Cuban, L. (2010). *Cutting through the hype: the essential guide to school reform*. Harvard Education Press .
- Davis, J. (2013, October 15). *A radical way of unleashing a generation of geniuses*. Wired. <https://www.wired.com/2013/10/free-thinkers/>
- Dede, C. (2005). Planning for neomillennial learning styles. *EDUCAUSE Quarterly*, 28(1), 7–12.
- Diamandis, P. (2012). *Abundance is our future*. [Video]. TED Conferences. <https://www.youtube.com/watch?v=BltRufe5kkI>
- DuFour, R. (2004). Schools as learning communities: What's a professional learning community? *Educational Leadership*. <http://www.ascd.org/publications/educational-leadership/may04/vol61/num08/What-Is-a-Professional-Learning-Community%C2%A2.aspx>
- Dweck, C. S. (1999). *Self-theories: their role in motivation, personality, and development*. Psychology Press.
- EduTopia (2012, March 14). *Singapore's 21st century teaching strategies*. [Video]. Youtube. https://www.youtube.com/watch?v=M_pIK7ghGw4
- epSos.de. (2015, April 20). *Fast industrial robot production line in Europe*. [Video]. Youtube. <https://www.youtube.com/watch?v=d7hwDw7rCuo>
- Elmore, R. F. (2004). *School reform from the inside out: Policy, practice, and performance (3rd ed.)*. Harvard Educational Publishing Group.
- Elmore, R. F. (2006). *Education leadership as the practice of improvement*. [Audio recording]. Retrieved October 3, 2016, from www.scottmcleod.org/2006UCEAEElmore.mp3
- Ericsson. (2012 March 6). *The future of learning* [Video]. Youtube. <https://www.youtube.com/watch?v=quYDkuD4dMU&t=22s&list=PLgAspOV4fadwpW9-LOTs3Faiu3QAvnQkw&index=1>
- Ferlazzo, L. (2009, August 26). *Data-driven versus data informed*. Edublogs. <https://larryferlazzo.edublogs.org/2009/08/26/data-driven-versus-data-informed/>
- Fischer, K. W. (2009). Mind, brain, and education: Building a scientific groundwork for learning and teaching. *Mind, Brain, and Education*, 3(1), 3–16.

- Friedman, T. L. (2019, July 2). The biggest threat to America is us. *New York Times*. <https://www.nytimes.com/2019/07/02/opinion/america-threat.html>
- Friedman, T. L. (2007). *The world is flat: A brief history of the twenty-first century*. Picador/Farrar, Straus and Giroux.
- Fullan, M. (1993, March). Why teachers must become change agents. *Educational Leadership*, 50(6), 7. <http://www.michaelfullan.ca/wp-content/uploads/2016/06/13396031680.pdf>
- Fullan, M. (2006, November). *Change theory: A force for school improvement*. Centre for Strategic Education (Australia). <http://michaelfullan.ca/wp-content/uploads/2016/06/13396072630.pdf>
- Fullan, M., Hill, P., & Crévola, C. (Eds.). (2006). *Breakthrough*. Corwin Press.
- Fullan, M., & Donnelly, K. (2013). *Alive in the swamp: Assessing digital innovation in education*. Nesta. http://michaelfullan.ca/wp-content/uploads/2013/06/13_Alive_in_the_Swamp.pdf
- Fullan, M. (2013, May 7). ASCD. <http://www.wholechildeducation.org/assets/content/mx-resources/Fullan13Strat.pdf>
- Fullan, M. (2014). *The principal: Three keys to maximizing results*. Josey-Bass (A Wiley Brand)
- Gardner, H. (1993). *Multiple intelligences: The theory in practice*. Basic Books.
- Gardner, H. (1999). *The disciplined mind: Beyond facts and standardized tests, the K-12 education that every child deserves*. Penguin Putnam.
- Great Schools Partnership. (2013, May 15). *Capacity*. In The Glossary of Education Reform. <http://edglossary.org/capacity/>
- Grotzer, T. A. and Basca, B. B. (2003). How does grasping the underlying causal structures of ecosystems impact students' understanding? *Journal of Biological Education*. <http://clic.gse.harvard.edu/files/clic/files/grotzerbellbascajbe.pdf>
- Guest, Robert. (2016, January 23). Generation uphill. *The Economist*. <http://www.economist.com/news/special-report/21688591-millennials-are-brainiest-best-educated-generation-ever-yet-their-elders-often>
- Harrow, A. J. (1972). *A taxonomy of the psychomotor domain: A guide for developing behavioral objectives*. New York, NY: David McKay Company
- Hess, F. M. (2008, December). The new stupid. *Educational Leadership*, 66(4), 12-17. <http://www.ascd.org/publications/educational-leadership/dec08/vol66/num04/the-New-Stupid.aspx>
- Hutton, P. (2014). *What if students could control their own learning?*. [Video]. Youtube. http://bit.ly/phutton_tedx112014

- Jukes, I. (2015, September 10). *Education in the age of disruptive innovation*. [Video]. Youtube. https://www.youtube.com/watch?v=GiLqUfvKybE&feature=youtu.be&list=PLStfrHNCID2XvIXZs_BqNXAqTqyxqV_Oo
- Jukes, I. et al. (2018). *e 9I's of modern learning*. SB21 Press.
- InklingHQ (2011, December 16). *Inkling—A textbook case of innovation*. [Video]. Youtube. https://youtu.be/m_f7G921RY4?list=PLStfrHNCID2UKjNRd2bVIOFIdrFKldtw_
- Jumboload. (2013). *What most schools don't teach*. [Video]. Youtube. http://bit.ly/jumboload_22713
- Kaufman, M. (2014, February 28). Five reasons half of you'll be freelancers in 2020. *Forbes*. <https://www.forbes.com/sites/michakaufman/2014/02/28/ve-reasons-half-of-you-will-be-freelancers-in-2020/#55446e2f6d39>
- Kidwell, P. A., Ackerberg-Hastings, A., & Roberts, D.L. (2008).

Mertler, C. (2014). *The data-driven classroom: How do I use student data to improve my instruction?* ASCD.

NASSP. (2013). *Leadership matters: What the research says about the importance of principal leadership.* <http://www.naesp.org/sites/default/files/LeadershipMatters.pdf>

National Advisory Committee on Creative and Cultural Education. (1999). *All our futures: creativity, culture and education.*

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- Pink, D. (2009, August 25). *e puzzle of motivation*. [Video]. Youtube. <https://www.youtube.com/watch?v=rrkrvAUbU9Y&feature=youtu.be>
- Plecki, M. L., Alejano, C. R., Knapp, M. S., & Lochmiller, C. R. (2006). *Allocating resources and creating incentives to improve teaching and learning*. Center for the Study of Teaching and Policy. University of Washington. <http://www.wallacefoundation.org/knowledge-center/Documents/2-Allocating-Resources-and-Creating.pdf>
- PricewaterhouseCoopers (Australia). (2015). *A smart move*. <https://www.pwc.com.au/pdf/a-smart-move-pwc-stem-report-april-2015.pdf>
- Rainie, L. and Anderson, J. (2017, May 3). *e future of jobs and job training*. *Pew Research Center: Internet and Technology*. <https://www.pewresearch.org/internet/2017/05/03/the-future-of-jobs-and-jobs-training/>
- Rao, D. and Verweij, G. (2017). Sizing the prize: What's the real value of AI for your business and how can you capitalize?. *Price Waterhouse Cooper*. <https://www.pwc.com/gx/en/issues/analytics/assets/pwc-ai-analysis-sizing-the-prize-report.pdf>
- Ray, E. (2015). Stanford scholars' influence on education discourse gets high marks. *Stanford News*. <https://news.stanford.edu/thedish/2015/01/26/stanford-scholars-influence-on-education-discourse-gets-high-marks/>
- Reed, G. E. (2016, January 17.). Both the parts and whole: Leadership and systems thinking. *e Systems Thinker*. <https://thesystemsthinker.com/both-the-parts-and-whole-leadership-and-systems-thinking/>
- Reisinger, D. (2019) AI expert says automation could replace 40% of jobs in 15 years. *Fortune*. <https://fortune.com/2019/01/10/automation-replace-jobs/>
- Rifkin, G. (2016, August 1). Seymour Papert, 88, dies; Saw education's future in computers. *New York Times*. <https://www.nytimes.com/2016/08/02/technology/seymour-papert-88-dies-saw-educations-future-in-computers.html?partner=IFTTT>
- Ritchhart, R., & Perkins, D. N. (2008). Life in the mindful classroom: Nurturing the disposition of mindfulness. *Journal of Social Issues*, 56(1), 27–47.
- Robinson, K. (2001). Mind the gap: *e creative conundrum*. *Critical Quarterly*, 43(1), 41–45.
- Rose, Todd. (2013, June 20). *e myth of average* [Video]. TED Conferences. <http://tedxtalks.ted.com/video/e-Myth-of-Average-Todd-Rose-a>
- RSA ANIMATE (2010, October 14). *Changing educational paradigms*. [Video]. Youtube. <https://www.youtube.com/watch?v=zDZFcdGpL4U>

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- e Teaching Commission (2006). *Teaching at risk: Progress and potholes*. Washington, DC: Author.
- Torres, R. (2014, February). *What it takes to be a great leader* [Transcript]. TED Conferences. http://www.ted.com/talks/roselinde_torres_what_it_takes_to_be_a_great_leader/transcript?language=en
- Vander Ark, T. (2017, January 17). How to create experiences and scale environments that change lives. *Getting Smart*. <https://www.gettingsmart.com/2017/01/how-to-create-experiences-and-scale-environments-that-change-lives/>
- Veritasium. (2014). *is will revolutionize education*. [Video]. Youtube. <https://www.youtube.com/watch?v=GEmuEWjHr5c>
- Vincent-Lancrin, S., et al. (2019). Measuring innovation in education 2019: What has changed in the classroom?. *Educational Research and Innovation, OECD Publishing*. <https://doi.org/10.1787/9789264311671-en>.
- Wagner, T., & Dintersmith, T. (2015). *Most likely to succeed: Preparing our kids for the innovation era*. Simon & Schuster.
- Warlick, D. (2006). Happy Birthday Jude. 2 Cents Worth. <http://2cents.onlearning.us/?p=298>
- Data-informed decision-making. (2019, July 25). In *Wikipedia*. https://en.wikipedia.org/wiki/Data-informed_decision-making cent.5