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# Redesigning the Curriculum for a 21<sup>st</sup> Century Education

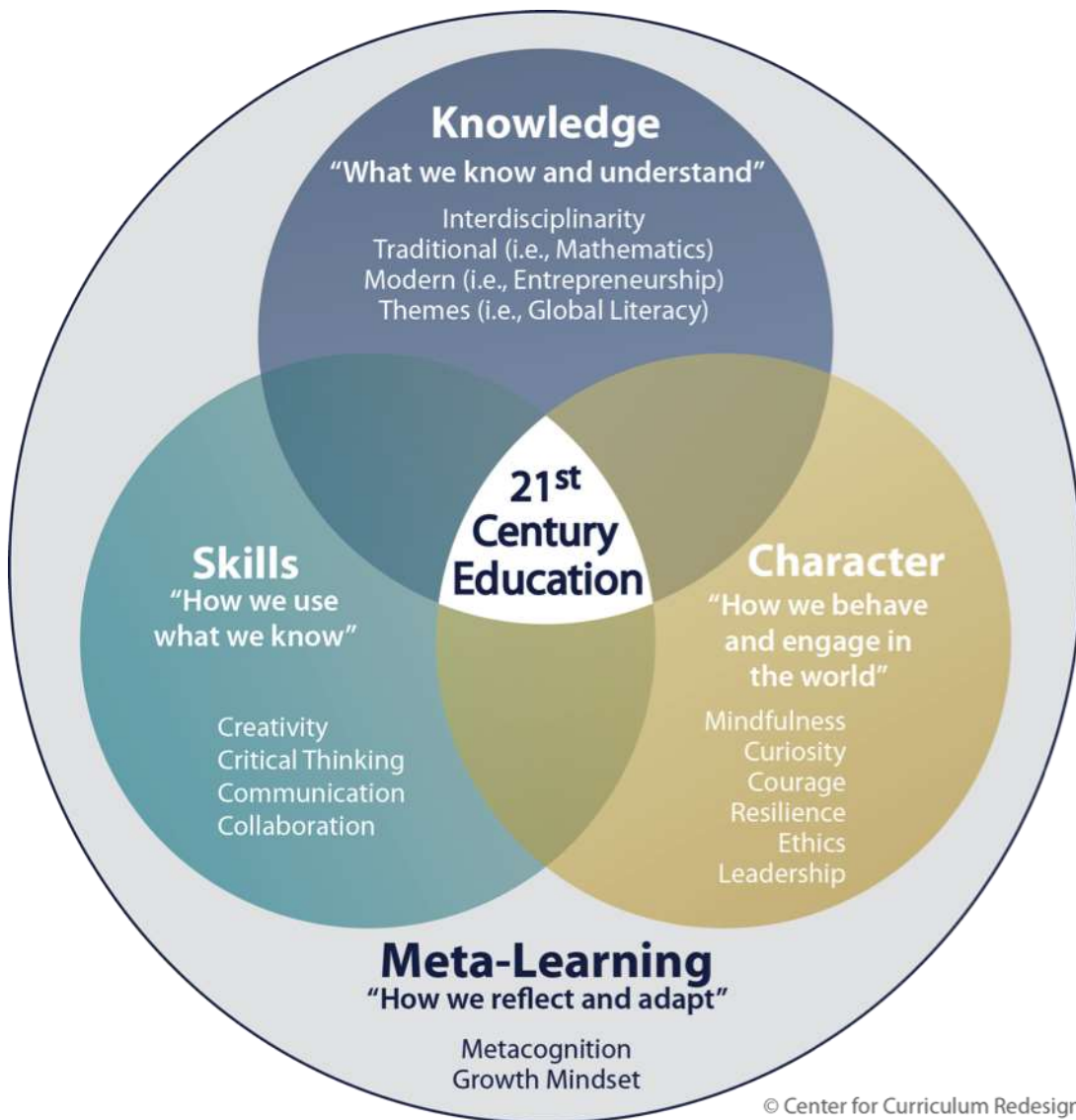
The CCR Foundational White Paper

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In the 21<sup>st</sup> century, humanity faces severe challenges at the societal (climate change, financial instability, pandemics, etc.), economic (globalization, innovation, etc.) and personal levels (employability, privacy, fulfilment, etc.). Technology's exponential growth is rapidly compounding the problems via automation and offshoring of tasks, which are producing societal disruptions. Education is falling behind the curve of technological progress,<sup>1</sup> as it did during the Industrial Revolution.

The last major changes to curriculum<sup>2</sup> were effected in the late 1800's as a response to the sudden growth in societal and human capital needs. As the world of the 21<sup>st</sup> century bears little resemblance to that of the past, education curricula are overdue for a major redesign, *emphasizing depth and versatility*. Curricula worldwide have often been tweaked, of course, sometimes to a large extent, but have never been **deeply** redesigned for all the dimensions of an education: Knowledge, Skills, Character, and Meta-Learning. Adapting to 21<sup>st</sup> century needs means revisiting each dimension and their interplay:



<sup>1</sup> Goldin, C. & Katz, L. (2009). *The race between education and technology*. Harvard University Press.

<sup>2</sup> Also known as "standards", "programmes" etc. depending on the country.

## Knowledge — *What we know and understand.*

Knowledge is the dimension most emphasized in the traditional view of curriculum and content. Yet as collective knowledge increases, curriculum has not successfully kept up. The current curriculum is often *relevant* neither to students (reflected in their disengagement and lack of motivation) nor to societal and economic needs. Thus, there is a profound need to rethink the significance and applicability of *what* is taught, and simultaneously to strike a better balance between the theoretical and the practical.

Traditional disciplines (Maths, Science, Languages - domestic & foreign, Social Studies, Arts, etc.) are of course essential. Tough choices must be made about what to pare back in order to allow for more appropriate areas of focus (for instance in Maths, more statistics & probabilities, and less trigonometry), including concomitant depth that will cultivate the other three dimensions (Skills, Character, Meta-Learning). Modern disciplines (such as Technology & Engineering, Media, Entrepreneurship & Business, Personal Finance, Wellness, Social Sciences, etc.) respond to present and future demands and must be accommodated as a normal part of the curriculum, not as ancillary or optional activities.

***Interdisciplinarity*** is a strong binding mechanism within and between traditional and modern disciplines, and the practices it requires have the potential to impact the Skills, Character and Meta-Learning dimensions as well as accentuate transfer. Interdisciplinary approaches to knowledge will help learners make connections between concepts, facilitating deeper learning.

***Learning Progressions*** clarify how students build up understanding over time, they can be very large or very small, and some learning progressions lead into others. Most learning progressions are based on research, although when research is lacking it is possible to fill in the gaps with the logic of ordering.

***Core Concepts*** highlight the underlying conceptual structure of the information laid out in standards, showing the conceptual shifts learners are meant to have via inductive reasoning from all the examples they've been exposed to. Important and complex frameworks for disciplinary processes (e.g. inquiry cycle, close reading etc.) which are difficult to teach all at once, can be thought of as comprising a set of Discipline-level core concepts.

***Themes*** are ways of viewing the world that hold contemporary importance. These include Global Literacy, Environmental Literacy, Information Literacy, Digital Literacy, Systems Thinking, Design Thinking, Civic Literacy, and Computational Literacy.

## Skills<sup>3</sup> — How we use what we know

Higher-order skills (also known as the “4 C’s” of Creativity, Critical thinking, Communication, Collaboration, also known as “21st Century Skills”<sup>4</sup>) are essential for deeply learning Knowledge as well as for demonstrating understanding through performance.<sup>5</sup> Yet the curriculum is already overburdened with content, making it harder for students to acquire (and teachers to teach) Skills.

Additionally, there is a lack of support for educators in combining knowledge and skills in robust pedagogies and deeper learning experiences. There is, however, a reasonable global consensus on what the Skills are at the broadest level<sup>6</sup>, and how different pedagogies (such as projects) can affect their acquisition.

Dimension	Competency	Subcompetency	Includes
Skills How we use what we know	<b>CREATIVITY</b>	CRE1: Generating and seeking new ideas	imaginativeness imagination ingenuity
		CRE2: Developing personal tastes and aesthetics	
		CRE3: Being comfortable with risks, uncertainty, and failure	
		CRE4: Connecting, reorganizing, and refining ideas into a cohesive whole	
		CRE5: Realizing ideas while recognizing constraints	
		CRE6: Reflecting on processes and outcomes	
	<b>CRITICAL THINKING</b>	CRI1: Identifying, clarifying, and organizing information	problem-solving analysis reasoning
		CRI2: Considering other points of view	
		CRI3: Applying sound reasoning to decision-making	
		CRI4: Assessing validity and quality of information	
		CRI5: Reflecting critically on one's own reasoning and assumptions	
	<b>COMMUNICATION</b>	COM1: Asking questions and actively listening	dialogue listening speaking
		COM2: Clearly and concisely articulating ideas or messages	
		COM3: Using and understanding nonverbal and paralingual communication	
		COM4: Communicating via multiple modes (digitally, orally, etc.)	
		COM5: Empathizing with audiences and adapting messages accordingly	
<b>COLLABORATION</b>	COL1: Taking and sharing responsibility with others	cooperation teamwork group cohesion	
	COL2: Utilizing each individual's unique skills and perspectives		
	COL3: Navigating and resolving interpersonal conflict		
	COL4: Giving and receiving constructive feedback		
	COL5: Empathizing with and actively supporting team members		

<sup>3</sup> There is no word that works equally well in all languages to convey the meaning of “Skills”, which ends up being the best compromise. It could be “competencies”, “savoir-faire”, “proficiencies”, etc.

<sup>4</sup> Trilling, B. & Fadel, C. (2009). 21st Century Skills. Wiley — [www.21stcenturyskillsbook.com](http://www.21stcenturyskillsbook.com)

<sup>5</sup> The Conference Board’s “Are they really ready to work?”; AMA “Critical skills survey”; PIAAC program (OECD); etc.

<sup>6</sup> [www.oecd.org/site/piaac/mainelementsofthesurveyofadultskills.htm](http://www.oecd.org/site/piaac/mainelementsofthesurveyofadultskills.htm)

# Character<sup>7</sup> — *How we behave and engage in the world*

Increasingly, the need for development of qualities beyond knowledge and skills is being highlighted around the world. There are three commonly cited, broad purposes of character education—it can:

- Build a foundation for lifelong learning
- Support successful relationships at home, in the community, and in the workplace
- Develop the personal values and virtues for sustainable participation in a globalized world.

CCR has synthesized more than 40 frameworks, research and feedback<sup>8</sup> from around the world to arrive at the essential six character qualities, each encompassing in it a broad range of related terms. These qualities are: Mindfulness; Curiosity; Courage; Resilience; Ethics; and Leadership, in which all other qualities and concepts can be fitted. Character learning is also likely to happen in out-of-school settings such as sports, scouting, adventure trips, etc. which heightens the challenge.

Dimension	Competency	Subcompetency	Includes
Character How we behave and engage in the world	MINDFULNESS	MIN1: Attending to one's body, emotions, and reactions in the present moment	self-awareness presence self-management
		MIN2: Understanding by describing one's emotions and reactions	
		MIN3: Building effective habits for regulation of inner experience	
		MIN4: Cultivating positivity, open-mindedness, patience and compassion	
	CURIOSITY	CUR1: Seeking to understand deeply	open-mindedness wonder exploration
		CUR2: Seeking out novelty and trying new things	
CUR3: Seeking different perspectives to broaden understanding			
CUR4: Actively pursuing one's own interests and passions			
COURAGE	COU1: Pursuing ambitious goals despite social, financial, physical or emotional risk to self	bravery confidence risk-taking	
	COU2: Standing up for one's values		
	COU3: Engaging with others in a vulnerable way		
RESILIENCE	RES1: Adapting flexibly	perseverance grit persistence	
	RES2: Building strong social networks		
	RES3: Managing stress and expressing emotions appropriately		
	RES4: Orienting to a meaning or purpose		
	RES5: Persevering through challenges but seeking help when needed		
ETHICS	ETH1: Identifying and describing ethical concepts	integrity fairness virtue	
	ETH2: Making ethical decisions and taking ethical actions		
	ETH3: Understanding the ethical perspectives of others		
	ETH4: Understanding and assessing values, (civil) rights, and responsibilities		
LEADERSHIP	LEA1: Determining challenges and setting goals	responsibility decision-making	
	LEA2: Managing power ethically		
	LEA3: Thinking strategically to best utilize resources (people and material)		
	LEA4: Evaluating team outcomes and adapting accordingly		
	LEA5: Respectfully collaborating with others		
	LEA6: Contributing to the broader group or community		
	LEA7: Sharing one's vision and inspiring others		

<sup>7</sup> This dimension has very different nomenclature in different spheres, making consensus challenging. The dimension of Character encompasses all of the terms: agency, attitudes, behaviors, beliefs, compass, dispositions, mindsets, personality, temperament, values, social and emotional skills, non-cognitive skills, and soft skills. Character, although sometimes charged with non-educational connotations, is nevertheless a concise and inclusive term that is recognizable by all cultures.

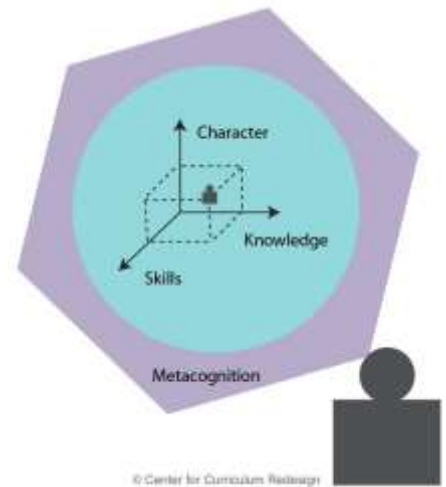
<sup>8</sup> Including more than 500 teachers



# Meta-Learning — *How we reflect, adapt, and Learn how to Learn*

The fourth and final dimension of the CCR framework is one that lies overarching to the other three. Meta-Learning concerns the processes related to reflecting on and adjusting one’s learning. It includes metacognition (predicting, monitoring, and evaluating one’s learning), as well as internalizing a Growth Mindset about one’s capacities.

Meta-Learning is essential for creating lifelong learning habits and the learning of the other three dimensions, and ensuring the transfer of learning beyond its original context. The most successful students very often already engage in a productive virtuous cycle of Meta-Learning, and explicitly encouraging this dimension can help all students in all areas of learning, throughout their lifetimes and across their careers. In a world requiring constant and increasingly fast adaptation, deliberately highlighting this dimension – rather than subsuming it and thus often neglecting it – is critical.



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Dimension	Competency	Subcompetency	Includes
Meta-Learning <small>How we reflect and adapt</small>	<b>METACOGNITION</b>	MET1: Reflecting on processes, achievements, learning, and/or identity	thinking about thinking self-reflection
		MET2: Determining goals, plans to achieve those goals, and monitoring one's progress	
		MET3: Monitoring comprehension and managing information accordingly	
		MET4: Evaluating one's actions and their consequences	
		MET5: Considering alternatives and different perspectives	
		MET6: Practicing awareness and regulation of internal state	
		MET7: Thinking and adapting flexibly	
	<b>GROWTH MINDSET</b>	GRO1: Believing in one's agency and having high self-efficacy	self efficacy productive failure
		GRO2: Learning from mistakes and welcoming feedback as a chance to grow	
		GRO3: Persevering for deeper expertise and understanding	
GRO4: Understanding one's current strengths and weaknesses			
GRO5: Finding joy in learning and becoming a lifelong learner			

# Calling for a 21<sup>st</sup> Century Education

Historical inertia has been so far a large deciding factor when it comes to curriculum design at the policy level, as well as given the human dynamics involved. For policy at the system level, most countries face political life-cycle instabilities that make it hard for systems to innovate in an ambitious way due to lack of continuity, and thus generally preclude the removal of obsolete areas. As for human dynamics, decisions are made by subject-matter experts in relative isolation from the demands of the real world (and the users of the discipline itself), and thus tend to take an incremental (and perhaps overly collegial) approach. Herein lies *the deep value to jurisdictions of the Center for Curriculum Redesign (CCR): it is independent of local politics, and mindful of biases, dogma and "groupthink"*.

Most of the education transformation efforts worldwide are focused on the How of education, which is very laudable. But very little is being done about the What. Education much needs an innovative curriculum adapted to the needs of 21<sup>st</sup> century learners and societies: *Is Education relevant enough for this century? Are we educating learners to be versatile in a world that is increasingly challenging?*

The CCR addresses the fundamental question of "*WHAT* should students learn for the 21<sup>st</sup> century?" and openly propagates its recommendations and frameworks on a worldwide basis. The CCR brings together non-governmental organizations, jurisdictions, academic institutions, corporations, and non-profit organizations including foundations. Please [join us](#) on this exciting journey.

**Charles Fadel**

Founder and Chairman

Center for Curriculum Redesign

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