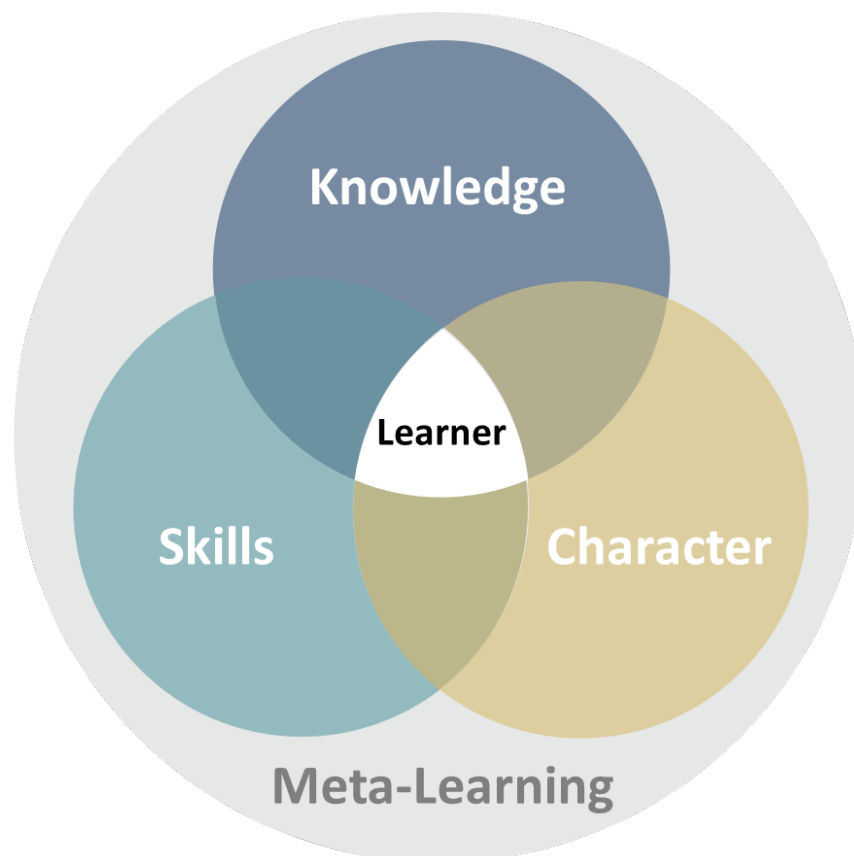


## 4D Framework Version 1.2 Update

When the CCR design team first developed the CCR Competencies/Subcompetencies Framework in 2019, they set five parameters for the design process. The developed framework would be:

1. **Comprehensive**, to ensure all high-level thinking about education design can be considered as parts of a single whole.
2. **Compact**, to enable actionability through the chunking of items into hierarchical groups so users can more easily remember them.
3. **Uncorrelated** as reasonably feasible, while respecting that all constructs inherently interact with one another, and that ontological or linguistic perfection would be illusory.
4. **Appropriate**, featuring competencies and subcompetencies at roughly equivalent levels of abstraction and relatedness.
5. **Globally Relevant**, to avoid cultural dependence, while striving to provide common understandings for effective cross-cultural communication.

It was published to further detail our trademark diagram:



An additional, implicit goal in the deployment of the framework has been **stability**. Recognizing that educational terminology can come and go, the CCR Framework prioritizes stability so its users do not have to frequently update resources and materials. It is for this reason that in the half-decade CCR has used and propagated this framework, no changes have been made, despite requests to do so.

However, our “[Education Engineering](#)” mindset recognizes that by blindly adhering to a dated framework in the face of new evidence, we fail in our mission to ensure that the education field keeps pace in a changing world. We labeled the launch of our framework as “Version 1.0” deliberately. We recognized that a moment would come when the momentum and direction of change would outweigh the benefits of preserving the framework, and an update would be launched and labeled. We recognize that moment in the rapid proliferation of artificial intelligence (AI), and accordingly, believe the time is now for “Version 1.2.”

Our five initial design parameters are unchanged; [4D Competency/Subcompetencies Framework 1.2](#) seeks to optimize the framework for these goals. At a glance, the changes are as follows:

**A change to the structure of the Meta-Learning Dimension. It now features two competencies, [metacognition](#) and [metaemotion](#) (previously “mindfulness”), which share the same set of ten subcompetencies.** From the inception of the above 4D Education Venn diagram, CCR has posited that the Meta-Learning Dimension functions differently from the other dimensions. A person must “learn how to learn” knowledge, skills, and character. We define meta-learning as a person’s ability to harness and adapt their thinking (**metacognition**) and affect (**metaemotion**) to be most useful for the unique context. Because an individual’s thoughts and feelings are connected, dividing the dimension into competencies with discrete subcompetencies was deemed not useful. Curriculum designers don’t need to choose between prioritizing “how we think” or “how we feel.” Instead, they may leverage the most useful subcompetencies directly, which are fluidly assigned to both.

**As stated, mindfulness has been renamed [metaemotion](#) and moved to the Meta-Learning Dimension.** Mindfulness and its subcompetencies referenced awareness of one’s emotions and the emotions of others, making them a reasonable fit for the Meta-Learning Dimension, rather than the Character Dimension (as in Framework 1.0). Its subcompetencies were added to metacognition’s to comprise the Meta-Learning Dimension. Also, mindfulness was confused for mindfulness *practice* (meditation, etc.), which it is not.

**Because of the restructured Meta-Learning Dimension, [growth mindset](#)’s subcompetencies have been redistributed to other competencies, and it has been removed as a competency.** This serves as an opportunity to optimize the framework according to the design goal of **uncorrelatedness**; in deployment of the framework, growth mindset subcompetencies have

frequently correlated with resilience and metacognition. These subcompetencies have been reviewed and distributed to other competencies accordingly. Additionally, CCR’s new book [Education for the Age of AI](#) introduces cross-dimensional Drivers—Motivation, Identity, Agency, and Purpose—as crucial elements of education in the age of AI. Growth mindset is a bedrock component of the Agency Driver.

**Further in pursuit of an uncorrelated framework, leadership’s subcompetencies have been reallocated to other competencies and it has been removed as a competency.** Strong leaders are a sum of many competencies—they communicate clearly, collaborate compassionately, courageously tackle problems, conduct themselves ethically, and remain mindful and reflective. Rather than viewing it as a separate competency, it was deemed more effective to distribute the elements of strong leadership throughout the competencies. Leadership is also a crucial aspect of formation of an empowered identity, one of the new cross-dimensional drivers, and that empowerment enables one to act with agency, another driver. Leadership remains a crucial component of student learning experiences, as now more than ever, humankind needs just and humane leaders distributed throughout society. In the age of artificial intelligence, we advocate for the notion of leadership to be expanded and redefined; it will soon need to include the effective management of a suite of artificial intelligence tools. It is one of the “emphases” our new book recommends:

Competency	Emphasis
Creativity	Imagination
Critical Thinking	Decision-making
Communication	Dialogue
Collaboration	Leadership
Curiosity	Open-mindedness
Courage	Risk-taking
Resilience	Resourcefulness
Ethics	Fairness
Metacognition & Metaemotion	Adaptability

As detailed in [Education for the Age of AI](#), these [emphases](#) serve as a lens of specific value for competencies. For example, artificial intelligence is capable of creativity—it generates creative works—but those works are synthesized from the training data set. The ability of humans to radically imagine remains crucially important, as humanity faces challenges with solutions that are not in the training data set of AI. It then is crucial for the education field to emphasize the imaginative aspects of the creativity competency. In the case of leadership, it is crucial for

schools to teach the multiple forms of effective leadership (and followership) as an emphasis within teaching collaboration.

**All these shifts allow us to respond to user demand for a more *compact* framework – of just ten competencies and fifty subcompetencies – to further facilitate actionability.** In reassigning and merging correlated subcompetencies, a framework with each competency having five subcompetencies became possible (with ten fluidly assigned across metacognition and metaemotion). This change facilitates usability, as educators have shared a desire for fewer subcompetencies. It also enables alignment with the framework’s Venn diagram: now, the Skill and Character Dimensions are equivalent with four competencies each, and the Meta-Learning Dimension’s subcompetencies necessitate infusion in all areas of an education.

Specific, competency-by-competency changes are detailed in the following pages. The prefixes 1.0 and 1.2 will be used to increase clarity for the changes.

## DIMENSIONAL FRAMEWORK

### Revised 1.2

	Dimension	Competency
01	Skill	Creativity
02	Skill	Critical Thinking
03	Skill	Communication
04	Skill	Collaboration
05	Character	Curiosity
06	Character	Courage
07	Character	Resilience
08	Character	Ethics
09	Meta-Learning	Metacognition
10	Meta-Learning	Metaemotion

### Previous 1.0

	Dimension	Competency
01	Skill	Creativity
02	Skill	Critical Thinking
03	Skill	Communication
04	Skill	Collaboration
05	Character	Mindfulness
06	Character	Curiosity
07	Character	Courage
08	Character	Resilience
09	Character	Ethics
10	Character	Leadership
11	Meta-Learning	Metacognition
12	Meta-Learning	Growth Mindset

### Changelog

- Mindfulness renamed metaemotion, moved to Meta-Learning Dimension, detailed on p. 13-14.
- Leadership removed, detailed on p. 15.
- Growth mindset removed, detailed on p. 16.

## CREATIVITY

### Revised 1.2

<b>1.2CRE1</b>	Developing personal tastes, aesthetics, and style
<b>1.2CRE2</b>	Generating and seeking new ideas
<b>1.2CRE3</b>	Being comfortable with risks, uncertainty, and failure
<b>1.2CRE4</b>	Connecting, reorganizing, and refining ideas into a cohesive whole
<b>1.2CRE5</b>	Realizing ideas while recognizing constraints

### Changelog

- Order of first two subcompetencies switched to reflect priority in age of AI to lessen emphasis on generating and seeking new ideas.
- 1.2CRE1 adds “style” to tastes and aesthetics, for emphasis in the age of AI, and in response to teacher feedback in our research studies.
- 1.0CRE6 removed due to overlap with metacognition. Covered by 1.2MET2: Reflecting on processes, learning, and identity.

### Previous 1.0

<b>1.0CRE1</b>	Generating and seeking new ideas
<b>1.0CRE2</b>	Developing personal tastes and aesthetics
<b>1.0CRE3</b>	Being comfortable with risks, uncertainty, and failure
<b>1.0CRE4</b>	Connecting, reorganizing, and refining ideas into a cohesive whole
<b>1.0CRE5</b>	Realizing ideas while recognizing constraints
<b>1.0CRE6</b>	Reflecting on processes and outcomes

## CRITICAL THINKING

### Revised 1.2

<b>1.2CRI1</b>	Identifying, clarifying, and organizing information
<b>1.2CRI2</b>	Assessing validity and quality of information
<b>1.2CRI3</b>	Weighing pros and cons of alternative choices
<b>1.2CRI4</b>	Applying sound reasoning to decision-making
<b>1.2CRI5</b>	Reflecting critically on one's own reasoning and assumptions

### Changelog

- 1.0CRI2 removed due to overlap with metacognition. Covered by 1.2MET8: Considering other points of view.
- 1.2CRI3 added.
- Order of 1.0CRI3 and 1.0CRI4 shifted to reflect a sequential critical thinking process.

### Previous 1.0

<b>1.0CRI1</b>	Identifying, clarifying, and organizing information
<b>1.0CRI2</b>	Considering other points of view
<b>1.0CRI3</b>	Applying sound reasoning to decision-making
<b>1.0CRI4</b>	Assessing validity and quality of information
<b>1.0CRI5</b>	Reflecting critically on one's own reasoning and assumptions

## COMMUNICATION

### Revised 1.2

<b>1.2COM1</b>	Asking questions and actively listening
<b>1.2COM2</b>	Sharing one's vision and inspiring others
<b>1.2COM3</b>	Clearly and concisely articulating ideas or messages
<b>1.2COM4</b>	Communicating with fidelity across distinct modes and mediums
<b>1.2COM5</b>	Adapting messages according to audience

### Changelog

- 1.2COM2 added, from 1.0LEA7.
- 1.0COM3 and 1.0COM4 merged into 1.2COM4.
- 1.0COM5 phrase “empathizing with audiences” removed, covered by 1.2MET9:  
Recognizing, engaging, and empathizing with the emotions of others.

### Previous 1.0

<b>1.0COM1</b>	Asking questions and actively listening
<b>1.0COM2</b>	Clearly and concisely articulating ideas or messages
<b>1.0COM3</b>	Using and understanding nonverbal and paralingual communication
<b>1.0COM4</b>	Communicating via multiple modes (digitally, orally, etc.)
<b>1.0COM5</b>	Empathizing with audiences and adapting messages accordingly



## COLLABORATION

### Revised 1.2

<b>1.2COL1</b>	Taking and sharing responsibility with others
<b>1.2COL2</b>	Optimizing team resources and unique skills and perspectives of individuals
<b>1.2COL3</b>	Navigating and resolving interpersonal conflict
<b>1.2COL4</b>	Giving and receiving constructive feedback
<b>1.2COL5</b>	Actively supporting and showing compassion for team members

### Changelog

- 1.2COL2 phrase “optimizing team resources,” added from 1.0LEA3.
- 1.2COL5 replaces “empathizing” with “showing compassion for,” reorders to prioritize “actively supporting.” Empathizing covered by 1.2MET9: Recognizing, engaging, and empathizing with the emotions of others.

### Previous 1.0

<b>1.0COL1</b>	Taking and sharing responsibility with others
<b>1.0COL2</b>	Utilizing each individual's unique skills and perspectives
<b>1.0COL3</b>	Navigating and resolving interpersonal conflict
<b>1.0COL4</b>	Giving and receiving constructive feedback
<b>1.0COL5</b>	Empathizing with and actively supporting team members

## CURIOSITY

### Revised 1.1

<b>1.2CUR1</b>	Seeking to understand deeply
<b>1.2CUR2</b>	Surveying opportunities and exploring novel experiences
<b>1.2CUR3</b>	Seeking different perspectives to broaden understanding
<b>1.2CUR4</b>	Envisioning and prioritizing one's interests and passions
<b>1.2CUR5</b>	Finding joy in learning and being a lifelong learner

### Changelog

- 1.2CUR2 re-words “seeking out novelty and trying new things” to “surveying opportunities and exploring novel experiences.”
- 1.2CUR4 re-words “actively pursuing one’s interests and passions” to “envisioning and prioritizing one’s interests and passions.”
- 1.2CUR5 added from 1.0GRO5.

### Previous 1.0

<b>1.0CUR1</b>	Seeking to understand deeply
<b>1.0CUR2</b>	Seeking out novelty and trying new things
<b>1.0CUR3</b>	Seeking different perspectives to broaden understanding
<b>1.0CUR4</b>	Actively pursuing one's own interests and passions

## COURAGE

### Revised 1.2

<b>1.2COU1</b>	Pursuing ambitious goals, despite risks
<b>1.2COU2</b>	Leading with initiative and accountability
<b>1.2COU3</b>	Engaging with others in a vulnerable way
<b>1.2COU4</b>	Acknowledging one's strengths and weaknesses
<b>1.2COU5</b>	Believing in oneself and one's agency and self-efficacy

### Changelog

- 1.2COU1 reworded to be more concise.
- 1.0COU2 removed, covered by 1.2ETH2: Making ethical decisions and standing up for the rights of others.
- 1.2COU2 added from 1.0LEA1 and 1.0LEA2.
- 1.2COU4 added from 1.0GRO2 and 1.0GRO4.
- 1.2COU5 added from 1.0GRO1.

### Previous 1.0

<b>1.0COU1</b>	Pursuing ambitious goals despite social, financial, physical, or emotional risk to self
<b>1.0COU2</b>	Standing up for one's values
<b>1.0COU3</b>	Engaging with others in a vulnerable way

## RESILIENCE

### Revised 1.2

<b>1.2RES1</b>	Persevering through challenges and seeking help when needed
<b>1.2RES2</b>	Building strong social networks
<b>1.2RES3</b>	Establishing and maintaining effective habits
<b>1.2RES4</b>	Managing stress to maintain performance
<b>1.2RES5</b>	Motivating oneself via meaning or purpose

### Changelog

- 1.2RES3 added from 1.0MIN3: Building effective habits for regulation of inner experience. “Regulation of inner experience” removed due to an emphasis throughout all 1.2MET subcompetencies.
- 1.0RES3 re-worded as 1.2RES4, “expressing emotions appropriately” removed due to a focus on emotions throughout 1.2Metalearning.
- 1.0RES1 moved to 1.2MET1: Adapting flexibly to meet each situation’s specific needs.
- 1.2RES5 re-words “orienting” to “motivating oneself” to emphasize action.
- Order of subcompetencies switched to reflect a process of dynamic, resilient growth.

### Previous 1.0

<b>1.0RES1</b>	Adapting flexibly
<b>1.0RES2</b>	Building strong social networks
<b>1.0RES3</b>	Managing stress and expressing emotions appropriately
<b>1.0RES4</b>	Orienting to a meaning or purpose
<b>1.0RES5</b>	Persevering through challenges but seeking help when needed

## ETHICS

### Revised 1.2

<b>1.2ETH1</b>	Identifying and describing ethical concepts, rights, and responsibilities
<b>1.2ETH2</b>	Making ethical decisions and standing up for the rights of others
<b>1.2ETH3</b>	Understanding and showing compassion for the perspectives of others
<b>1.2ETH4</b>	Recognizing and implementing one's moral code
<b>1.2ETH5</b>	Contributing to the broader group or community

### Changelog

- 1.0ETH1 and 1.0ETH4 merged for 1.2ETH1.
- 1.2ETH2 re-words “taking ethical actions” with “standing up for the rights of others” from 1.0COU2.
- 1.2ETH3 adds the phrase “showing compassion for” to 1.0ETH3.
- 1.2ETH4 added.
- 1.2ETH5 added from 1.0LEA6.

### Previous 1.0

<b>1.0ETH1</b>	Identifying and describing ethical concepts
<b>1.0ETH2</b>	Making ethical decisions and taking ethical actions
<b>1.0ETH3</b>	Understanding the ethical perspectives of others
<b>1.0ETH4</b>	Understanding and assessing values, (civil) rights, and responsibilities

## METACOGNITION & METAEMOTION

### Revised 1.2

1.2MET1	Adapting flexibly to meet each situation's specific needs
1.2MET2	Reflecting on processes, learning, and identity
1.2MET3	Understanding one's emotions and reactions
1.2MET4	Recognizing and coordinating one's body and its needs
1.2MET5	Determining goals, plans to achieve those goals, and reviewing one's progress
1.2MET6	Monitoring comprehension and managing information accordingly
1.2MET7	Evaluating one's actions and their consequences
1.2MET8	Considering other points of view
1.2MET9	Recognizing, engaging, and empathizing with the emotions of others
1.2MET10	Cultivating positivity, patience, and compassion

### Changelog *(1.0Metacognition and 1.0Mindfulness listed on following page)*

- Order adjusted to create relative proximity for cognitive and emotional groupings.
- 1.2MET1 re-words 1.0MET7 to emphasize contextualization in an age of AI.
- 1.2MET2 removes “achievements” from 1.0MET1 to be more concise.
- 1.2MET3 added from 1.0MIN1.
- 1.2MET4 added.
- 1.2MET8 added from 1.0CRI2.
- 1.2MET9 added from 1.0COL5 and 1.0COM5.
- 1.2MET10 added from 1.0MIN4. Open-mindedness removed to be concise. 1.0MIN1 and 1.0MIN2 removed, merged into 1.2MET3.
- 1.0MIN3 removed, covered by 1.2RES3: Establishing and maintaining effective habits.

- 1.0MIN4 removed, covered by 1.2MET10: Cultivating positivity, patience, and compassion.

## MINDFULNESS

### Previous 1.0

<b>1.0MIN1</b>	Attending to one's body, emotions, and reactions in the present moment
<b>1.0MIN2</b>	Understanding by describing one's emotions and reactions
<b>1.0MIN3</b>	Building effective habits for regulation of inner experience
<b>1.0MIN4</b>	Cultivating positivity, open-mindedness, patience, and compassion

## METACOGNITION

### Previous 1.0

<b>1.0MET1</b>	Reflecting on processes, achievements, learning, and/or identity
<b>1.0MET2</b>	Determining goals, plans to achieve those goals, and monitoring one's progress
<b>1.0MET3</b>	Monitoring comprehension and managing information accordingly
<b>1.0MET4</b>	Evaluating one's actions and their consequences
<b>1.0MET5</b>	Considering alternatives and different perspectives
<b>1.0MET6</b>	Practicing awareness and regulation of internal state
<b>1.0MET7</b>	Thinking and adapting flexibly



## LEADERSHIP

### Previous 1.0

<b>1.0LEA1</b>	Determining challenges and setting goals
<b>1.0LEA2</b>	Managing power ethically
<b>1.0LEA3</b>	Thinking strategically to best utilize resources (people and material)
<b>1.0LEA4</b>	Evaluating team outcomes and adapting accordingly
<b>1.0LEA5</b>	Respectfully collaborating with others
<b>1.0LEA6</b>	Contributing to the broader group or community
<b>1.0LEA7</b>	Sharing one's vision and inspiring others

### Changelog

- 1.0LEA1 removed, covered by 1.2MET5: Determining goals, plans to achieve those goals, and reviewing one's progress.
- 1.0LEA2 removed, covered by 1.2ETH2: Making ethical decisions and standing up for the rights of others, 1.2ETH3: Understanding and showing compassion for the perspectives of others, and 1.2ETH5: Contributing to the broader group or community.
- 1.0LEA3 removed, covered by 1.2COL2: Optimizing team resources and unique skills and perspectives of individuals.
- 1.0LEA4 removed, covered by 1.2MET4: Evaluating one's actions and their consequences and 1.2MET1 Adapting flexibly to meet each situation's specific needs.
- 1.0LEA5 removed, covered by 1.2COL1: Taking and sharing responsibility with others and 1.2COL5 Actively supporting and showing compassion for team members.
- 1.0LEA6 removed, covered by 1.2ETH5: Contributing to the broader group or community.
- 1.0LEA7 removed, covered by 1.2COM2: Sharing one's vision and inspiring others

## GROWTH MINDSET

### Previous 1.0

1.0GRO1	Believing in one's agency and having high self-efficacy
1.0GRO2	Learning from mistakes and welcoming feedback as a chance to grow
1.0GRO3	Persevering for deeper expertise and understanding
1.0GRO4	Understanding one's current strengths and weaknesses
1.0GRO5	Finding joy in learning and becoming a lifelong learner

### Changelog

- 1.0GRO1 removed, covered by 1.2COU5: Believing in oneself and one's agency and self-efficacy.
- 1.0GRO2 removed, covered by 1.2COL4: Giving and receiving constructive feedback and 1.2MET1 Adapting flexibly to meet each situation's specific needs.
- 1.0GRO3 removed, covered by 1.2RES1: Persevering through challenges but seeking help when needed
- 1.0GRO4 removed, covered by 1.2COU4: Acknowledging one's strengths and weaknesses.
- 1.0GRO5 removed, covered by 1.2CUR5: Finding joy in learning and becoming a lifelong learner.