Dispositions by Design

Today's students will graduate into a world characterized by unprecedented changes driven by a variety of interdependent trends, including accelerating technological advances, globalization, climate change, artificial intelligence, human migrations, and the increasing influence of mass and social media. In light of these changes, there is a growing recognition that mastering subject-area knowledge alone will not be sufficient to prepare students for their futures. Voices both within and outside of schools are calling for a more expansive and innovative brand of education that will prepare students with the capabilities to think critically, demonstrate creativity and imagination, communicate effectively using various media, work collaboratively with others, and self-direct their own lifelong learning.

But how exactly do schools teach the Habits of Mind, which are decidedly different than "hard" academic skills? A contemporary education should develop students' understanding of conceptually big, transferable ideas and processes so that they will be equipped to *apply* their learning to the new (and unpredictable) challenges and opportunities they will face. That is the central proposition of the well-known Understanding by Design framework developed by Wiggins and McTighe (2011). In our work with

schools, we have found that Understanding by Design can in fact be instrumental in helping educators infuse the Habits of Mind into the curriculum so that the habits are effectively introduced and cultivated (Wiggins & McTighe, 2005).

When the Understanding by Design framework is applied to the cultivation of Habits of Mind, educators identify the "big ideas" that underlie each habit in order to specify what students should come to understand about that habit. Specifying desired *understandings* helps to clarify the meaning of the habits while providing targets for teaching and learning. Using this approach, educators also develop a set of associated *essential questions* to engage learners in "making meaning" about the habits.

A 2nd grader at Escola Concept São Paulo in Brazil, an affiliate center for the Institute for the Habits of Mind, reflects on her decisionmaking processes with a teacher at the school. Photo courtesy of Escola Concept São Paulo, Brazil.

The Habits of Mind should be developed over time through deliberate practice. By visiting and revisiting the essential questions across the grades, students will come to better understand and internalize these productive mental dispositions. Ultimately, we want students to be asking these questions of themselves, without prompting. The

long-term goal is for students to develop an internal compass to help them recognize the need for, and appropriately invoke, the appropriate habit(s) when confronting new challenges and opportunities, within school and throughout their lives.

Understandings and Essential Questions

With these goals in mind, we've developed examples of understandings and corresponding essential questions related to the 16 Habits of Mind (see Figure 1). Note that these examples do not represent the universe of possibilities. Nor do we want teachers to simply adopt them reflexively or teach them in a rote fashion. Rather, we offer them as a resource and a starting point. We encourage teachers to adapt and extend them and invite students to construct their own understandings—in their own words and in their own ways.

Figure 1. Sample Understandings and Essential Questions for the Habits of Mind

HABIT OF MIND	UNDERSTANDINGS	ESSENTIAL QUESTIONS
Persisting	People have a better chance of completing a task if they are focused	*Why should I keep trying?*

	on what they want, what they have to do, the time they have to get it done, and a plan for how they will achieve it. Instead of giving up, people who persist apply strategies to help them stick with a task. People need to decide whether persisting is worth pursuing. They understand the benefits and recognize the value of persisting.	*What should I do when I get stuck?* *Why is it so important that I work to complete this task?* *What are the consequences if I do or do not complete the task?* *Would my time and efforts be better applied elsewhere? Is this worth my persistence?*
Managing Impulsivity	The ability to manage one's impulses can be improved through being deliberate about actions and reflecting on experiences over time. Instead of acting or responding immediately, effective thinkers control their emotions, deliberate, and consider the	*Why and when should I take time to think before I act?* *What is my strategy for this challenge?* *What do I do when I am driven by my emotions?* *How might I recognize my*

	consequences of alternative actions. Efficacious thinkers understand the benefits and recognize the value of managing their impulsivity.	*emotional state and manage my response?*
Listening with Understanding and Empathy	The ability to listen to another person with understanding requires withholding judgement, empathizing with another's perspective, and opening your mind for deeper learning.	*Am I understanding the other person's point of view and correctly recognizing his or her feelings or emotions?* *How might it feel to be ...?*
Thinking Flexibly	Flexible thinkers' minds are open to change based on additional information or reasoning, even if these challenge their beliefs. Flexible thinkers are willing to suspend conscious effort and allow their subconscious to continue productive work. Thinking flexibly is part	*In what other ways might I think about this? What is another perspective?* *Whose "story" is this?* *What else might I try when I get stuck? How does stepping back and looking at the big picture (the whole) open*

	attitude (openness to a new idea) and part *action* (knowing how and when to expand our horizons and use ideas and information).	*my mind to new ideas?* *When and why should I change my thinking and my actions?*
Thinking About Thinking (Metacognition)	Efficacious thinkers set goals, regularly monitor their thinking, self-assess, and make needed adjustments.	*How am I thinking about this?* *What kind of thinking will be called for in this situation?* *How effective is the strategy that I am using? What changes might be needed?* *Did my efforts succeed? What could I have done differently?*
Striving for Accuracy	The degree of accuracy and precision needed varies with the situation. People who strive for accuracy seek truths in order to reach a worthy standard.	*Why does accuracy in this situation matter?* *What are the criteria I am using to judge the veracity of this work?*

	Efficacious thinkers work on continually perfecting their craft.	*How can I continue to perfect my craft?*
Questioning and Posing Problems	Efficacious problem solvers take the time to try to understand and frame a problem before rushing to identify solutions. Efficacious problem solvers ask questions to distinguish symptoms and root causes. Efficacious problem solvers know how to ask questions to fill in the gaps.	*Why does this problem exist and need solving?* *What is the real problem here? Am I getting to the root cause?* *What questions do we need to ask?*
Applying Past Knowledge to New Situations	Efficacious people learn from experience. They use their store of knowledge and experience to address new situations.	*What do I already know? How does what I know apply here?* *How might I transfer what I have learned to another situation?* *How can my past experiences*

		help me in the future?
Thinking and Communicating with Clarity and Precision	Communication is successful when the intended message is completely understood. Precise thinking and language contribute to a clearer message. One's language should fit the purpose and audience of a communication. Imprecise thinking and language can lead to misunderstanding.	*How will I know if I am being understood?* *How will I check for understanding?* *How should I adjust my language to best fit my purpose and audience?* *What are consequences of imprecision?*
Gathering Data Through All Senses	Information can be received from external and internal sources. Gathering data from multiple sources can enhance understanding.	*What sources of data should I consider?* *How do I take notice of what I am observing in the environment?*
Creating, Imagining, and Innovating	When people think creatively, they imagine what could be rather than only what is. When people are creative, they try to	*What is possible?* *How do I come up with ideas?* *What is another way of*

	conceive solutions to problems differently, examining alternative possibilities from many angles. The act of creating is a constant pursuit of greater perfection.	*seeing/doing this?* *What works? What doesn't?* *How could I improve this ...?*
Responding with Wonderment and Awe	When people notice something special in their surroundings, they often become curious, perplexed, or amazed by what they observe. One can find something interesting or valuable in almost any situation.	*What am I noticing that makes me wonder?* *Why is this so amazing, interesting, or mysterious to me?* *What feelings does this experience generate in me?*
Taking Responsible Risks	Risk-taking situations require a leap into the unknown. They are typically complex and nuanced, requiring tolerance for ambiguity. All risks are not worth taking. When taking a risk, we need to assess the situation and use	*How will I judge if a risk is worth taking?* *What might be the effects of taking this risk?* *What might be the impact of not trying?*

	prior knowledge to inform potential actions.	
Finding Humor	When people develop a whimsical frame of mind, they can find incongruity and perceive absurdities, ironies, and satire. In a safe environment, we can observe discontinuities that make us laugh at ourselves. Humor and self-deprecation can defuse tensions and win friends.	*What do I notice that is humorous about this situation?* *When and how can humor be helpful?* *Am I taking myself too seriously? How might I lighten up?*
Thinking Interdependently	When working productively with others, people need to present and justify their ideas, and test the feasibility of possible solutions and strategies as they work toward a common goal. As people collaborate and remain open to others' perspectives, their thinking can be enhanced by the	*How can we work best together?* *How can I best contribute to this group?* *How am I affecting the group? How is the group affecting me?* *How can we avoid "group*

| | interchanges with others.

Working with others can be productive; however, "group think" can be limiting. | *think"?* |
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| **Remaining Open to Continuous Learning** | People who are inquisitive, thoughtful, and confident are open to searching for new or better ways to solve problems, understand ideas, and resolve tensions and uncertainties. | *What motivates me to keep learning?*

What do I still wonder about?

How will I remain open to new ideas? Or new learning? |

"Living" the Habits of Mind

The cultivation of the Habits of Mind requires a deliberate effort on the part of educators, since most learners will not develop these competencies automatically. Efficacious thinkers are able to call on specific habits instinctively to enhance their thinking and actions in particular situations. But initially, learners have to start this process by asking deliberate questions such as: Which Habits of Mind might be appropriate in this situation? Or Which Habits of Mind do I need most often? Once students begin to exercise their

thinking muscles, they can become more discriminate (What cues in this situation alert me to the need for drawing upon particular thinking habits?) and reflect on the impact of various habits (In what ways did employing this habit benefit my learning process? How might using the Habits of Mind be beneficial in other situations?). Once students recognize the value of using the habits, they can strive to increase their awareness, clarity, and commitment so that they become embodied in their ways of being.

One challenge in developing Habits of Mind in schools is that they are not easily segmented or tiered. That is, it would be unnatural and forced to devote 3rd grade, for example, to addressing *persistence* and *flexible thinking* or to reserve listening with *empathy* for high school English classes. Like the air we breathe, the habits are all around us, and there are innumerable opportunities to draw attention to and use them multiple times each day, in all grades.

That said, Habits of Mind can be embedded in the development of relevant units of study. We suggest considering the ways in which specific habits are important to the development of thinking given a specific context. So, for example, if the unit is on weather, then one habit that might play a significant role would be gathering data through all the senses. If the unit is on civic discourse, listening with understanding and empathy might be a critical

habit to focus on.

There are also many ways for schools to integrate the dispositions into their curriculum and school cultures incrementally—over time, by design. Educators might:

- Post essential questions on the Habits of Mind in classrooms or common areas in the school. Posting the questions makes them visible and reminds students (and educators) to consider them as we work.

- Draw attention to one or more relevant habits in conjunction with subject-matter learning (like how the habit is applied by literary characters, famous scientists, or historical figures).

- Look for *natural* opportunities to highlight one or more habits as students are working. (For example: "Notice how Andre asked a question to clarify the problem.")

- With students, think aloud to model how *you* as an adult are considering an essential question related to a particular habit and how you acted on the habit in a given situation.

- Periodically invite students to give examples of when they applied a habit outside of school (a Habits of Mind "show and tell").

- Have students write a journal entry to reflect on a situation where specific Habits of Mind were (or could have been) used.

- Invite students to share what was going on inside their head (metacognition) with such questions as: "How did you decide when to ...?" "What criteria did you use to choose ...?" "What did you say to yourself when ...?"

- In preparing students for a project or assignment, invite them to anticipate which Habits of Mind they might need to pay attention to.

Ultimately, adults serve as important modelers of the Habits of Mind. As Albert Einstein said, "Setting an example is not the main means of influencing another, it is the only means." Accordingly, teachers and parents must strive to embody the dispositions they seek to cultivate in young people.

"Thought-Full" Action

When confronted with conflicts, challenges, or problematic situations, efficacious human beings ask themselves, "What is the most *thought-full* action I can take right now?" (Costa & Kallick, 2014; Kallick & Zmuda 2017). They use their executive processes to intentionally employ a variety of productive habits related to self-awareness, impulse control, management of internal thought processes, and

use of feedback for improvement.

While the value of the Habits of Mind is widely recognized, it is also true that learning these dispositions takes practice, self-monitoring, and reflection. By helping students regularly consider essential questions related to the habits, we increase the likelihood that they will internalize and intentionally use these dispositions throughout their lives. We believe that in doing so, today's children will contribute to a more empathic, peaceful, and thoughtful world.

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