

Hard Thinking about Soft Skills

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Habits like persisting and drawing on past knowledge are some of the most essential dispositions we can teach.

Twenty-first century skills. Social-emotional learning. Grit. Mindsets. Character strengths. Habits of Mind; habits of the heart. People use these words and phrases—and similar ones—to describe skills that they also often refer to as *noncognitive* and *soft* (Conley, 2013; Kamenetz, 2015). Although most people in academics and business consider these skills to be crucial for a well-educated individual, the language people use reflects some problematic attitudes.

The term *21st century*, for instance, implies that these attitudes have only just been discovered or are peculiar to the demands of the current day. Persisting in the face of difficulty or adopting someone else's perspective have probably been valuable inclinations since the dawn of human history and are likely to continue to be important well into the 22nd century. And calling these skills soft or noncognitive belies their importance.

Whatever terms we use, they should point accurately to the kinds of valuable outcomes—beyond literacy, numeracy, test scores, and grades—young people will need in life. And our language should be accessible and conducive to productive thinking and planning for teachers, parents, and students themselves. We've come to view these terms as having advantages and disadvantages. Carefully considering several key terms will help us clarify the meaning of each phrase and boost educators' efforts to develop these qualities and inclinations in students.

What's in a Word? Skills

First, let's tackle the word *skill*. This term can be useful in emphasizing that such outcomes as being inquisitive or persisting in the face of difficulty are practical behaviors, responses to situations rather than decontextualized displays of knowledge. It reminds us that there is more to real life than being able to call facts quickly to mind or checking the correct box on a test. In a fast-changing world, education has to prepare learners to *act* intelligently, skillfully, and with good judgment when they meet the unexpected.

However, we usually think of a skill as a procedure someone can be trained to do. Developing a skill seems like a technical matter. But guiding someone to develop an attitude of curiosity or self-evaluation, for example, isn't like training someone to shoot a rifle or make a béchamel sauce. Curiosity has a skillful aspect, certainly, but it also involves a deeper pleasure in making discoveries and an openness to novelty and challenge. To develop such inclinations, students need ongoing opportunities, encouragement, and guidance in a wide range of contexts, not just "training." Attempts to train students in thinking skills have often been ineffective. The skills developed don't last, don't transfer to new situations, and don't come to mind when they are needed. (Swartz, Costa, Beyer, Kallick, & Reagan, 2008).

Further, we must communicate more clearly about how to distinguish among types of thinking, thinking skills, and thinking dispositions. For example, the "4 C's" of 21st century skills (Partnership for 21st Century Learning, 2011)—critical thinking, creative thinking, communication, and collaboration—might be considered "types of thinking" that we should teach students to engage in. These are important types of thinking, and students do need to learn how to perform them on appropriate occasions. Merely engaging in these types of thinking, however, doesn't mean that students engage in them carefully or skillfully. Students can, for instance, collaborate in hasty, sloppy, and superficial ways (Swartz et al., 2008). Simply introducing students to these types of thinking doesn't ensure that they will develop thinking *skills*—or the disposition to use those skills effectively when faced with complex problems.

Soft

Think about what the word *soft* connotes. It's the obvious contrast to *hard*—as in the phrases *hard data*, *hard evidence*, and *hard thinking*. If *hard* implies objective, clearly defined and reliable, *soft* must imply subjective, fuzzy, and unreliable—softhearted rather than hardheaded. The terminology implies that these valued outcomes are sentimental or "warm and fuzzy." It immediately undermines their claim to serious attention, suggesting that we don't consider them as important as the "hard" data that's presently driving accountability.

There are no right answers to prove a student has developed one of these traits, no test scores to compare, no averages or standard deviations to yield. So *soft* also implies that these outcomes are impossible to measure and fall outside any framework of accountability.

There *is* hard evidence, however, for both the importance of traits like resilience or a growth mindset and the effectiveness of certain methods for cultivating them (Edwards, 2014). Although the attempt to define levels of such attributes is fraught with difficulty, that doesn't mean it's impossible to define levels and show evidence of development.

It's true that such skills are never fully "mastered," so they cannot be assessed using summative, right-answer forms of assessment. But such assessment tools as interviews; open-ended questionnaires that allow students to draw from their personal experiences; portfolios demonstrating growth over time; and performance tasks and capstone projects—especially combined with journals in which students reflect on their use of dispositions in such projects—can yield inferential but valid data on how skilled students are, for example, at collaborating or persisting through difficulties.

In a sense, these are the "hardest" data because they involve student voice, direct observation, and real-time performances. After all, which data are more significant indicators that a student will be a lifelong learner: scores measuring recall of information from an assigned text or the fact that a student voluntarily chooses to read? Bubbling in the correct answer to a complex math problem or persisting over time on a problem that demands insight and creativity?

Noncognitive

In an attempt to distinguish attitudes, inclinations, beliefs, and dispositions from content knowledge, researchers coined the somewhat awkward term *noncognitive* for everything that was not, in their view, grounded in or directly derived from rational thought (which they labeled *cognitive*).

The term *noncognitive* tries to make space in our thinking for important outcomes of education that aren't simply concerned with the storage, retrieval, and rational manipulation of knowledge. But it sets up a false opposition between cognition and other aspects of a person, such as sociability—and between thinking (good) and emotion (problematic).

Every thought and action is accompanied by emotions, which originate in the amygdala. Feel-good neurotransmitters (serotonin, endorphin, dopamine) are released whenever we experience such feelings as satisfaction with the completion of a complex task, rapture from observing a sunset, camaraderie in working with others, or the Eureka moment of enlightenment.

Being a skillful collaborator, for instance, involves cognitive, emotional, and social aspects, used together. You need to be able to see the world through other people's eyes, which involves the highly cognitive ability to build accurate mental models of their knowledge structures and to keep them updated during a conversation. And persisting with difficult problems involves both cognitive strategies and a general tolerance for uncertainty.

The very term *noncognitive* suggests that cognition is well defined and well understood, while everything else exists in a dark zone around this patch of intellectual light. Again, the language itself carries a derogatory attitude toward some of the most valuable outcomes of learning.

A Better Term: *Dispositions*

So what should we call these essential learnings? We suggest *thinking dispositions*. The word *disposition* is now preferred by many education leaders (Costa & Kallick, 2014; Ennis, 1996; Nelsen, 2014). Teams at Harvard's Project Zero, for example, have made a strong case for using the terms *thinking dispositions* and *learning dispositions* (Perkins, Jay, & Tishman, 1993; Ritchhart, 2002).

The term *dispositions* addresses several points we've made: The word itself indicates that it's not only a person's ability that counts, but also the person's perception and inclination to make good use of that ability in appropriate situations. John Dewey (1933) said, "Knowledge of methods alone will not suffice; there must be the desire, the will to employ them. This desire is an affair of personal dispositions" (p. 30). Perkins and colleagues (1993) describe dispositions as, "acquired patterns of behavior that are under one's control and will as opposed to being automatically activated, and they are overarching sets of behaviors, not just single specific behaviors." And we like one of Webster's definitions of *disposition*: "Natural fitness or tendency; one's inclination or propensity."

Can We Teach for Dispositions?

Dispositions like thinking interdependently, striving for accuracy, and thinking flexibly are crucial to a person's success in school and life. We suggest, therefore, that when educators make decisions about what students should know or be able to do as a result of participating in educational experiences, they include dispositions as explicit outcomes.

But some questions arise. Can we teach dispositions directly? And if dispositions are patterns or clusters of behavior, how can educators isolate any one, help students develop it, and adequately assess whether students are getting better at demonstrating it (Conley, 2013)?

Although such attributes may take a lifetime to learn, they *are* teachable and observable. Dispositions needn't be mindless habits. When facing a problematic situation, people can consciously choose to draw on powerful ways of thinking and acting—such as striving for accuracy and drawing on past knowledge. And as a person becomes more *disposed* to use a particular facet of practical intelligence, that disposition can grow and become more sophisticated.

For example, when students engage in project-based learning, they will need to develop the disposition of thinking about their thinking. They'll need to pay attention to how they plan, process, and present their products. Teachers can ask students to become conscious of their strategies for learning through reflecting in a journal about how they're persisting or whether they could change their course of action by thinking flexibly. Upon the project's completion, teachers might invite students to reflect on which strategies they used, how those strategies helped them with their final product, and in what other situations—in life, school, careers, and so on—they might apply dispositions like persistence and flexibility.

Young children might learn about the habits of mind through role-playing or even through talking about what practices help them succeed in playing games. The importance of making the dispositions explicit is that students learn the meaning and the strategies associated with each disposition. This helps them grow the dispositions into habits of mind.¹

Dispositions can serve as an internal compass to guide decisions and actions (Costa & Kallick, 2014). Teachers might encourage students to develop the habit of asking themselves, anytime they are confronted with a challenging situation, What is the most thoughtful action I can take right now? Students can learn to ask themselves metacognitive questions like these:

- How can I draw on my past successes with such problems?
- What do I already know about the problem, and what resources do I have or might I generate?
- How might I approach this problem *flexibly*, looking at the situation in a fresh way? How can I draw upon my repertoire of problem-solving strategies?
- To make this challenge clearer, can I break this problem into its component parts and develop a strategy for understanding and accomplishing each step? Are there data I can draw on?
- How do my beliefs, values, and goals interact with this problem? Are any attitudes or emotions blocking—or enhancing—my progress?

Teachers foster the development of metacognitive self-questioning by raising such questions as a regular practice before, during, and after projects, lessons, or units. We should encourage students to communicate with clarity and precision about what and how they are thinking, what strategies they use, and how they might apply these insights to new situations. When students are about to engage in a science lab, for example, invite them to consider the questions being posed, what they already know and are aware of, and how they might apply past knowledge to this

new learning situation. Gradually, students will become more self-aware and more self-directed. Teachers will do less teaching, and students will do more thinking and learning.

Dispositions and School Culture

We believe a school's culture will also benefit when students—and teachers—develop these kinds of attributes, which are as cognitively demanding as any technical "skill." Over time, as everyone in the school becomes effective in employing the dispositions described here, positive interactions and practices will pervade the school. When everyone in a school agrees that it's as essential for students to develop these dispositions as to gain academic abilities, that's a powerful shared vision for students' future lives. And there's nothing "soft" about that.

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