

"Thinking dispositions"

A New Look at What it Means to be a Good Thinker

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Critical thinking. Higher order thinking. Thinking skills. Do you ever feel lost in a forest of buzzwords? Terms such as these are popular nowadays, as a growing number of educational initiatives include the teaching of thinking as part of their educational goals. It is easy to be confused about definitions. But broadly, all these terms refer to the same thing: reflective, high-level thinking processes such as careful decision making, reasoning, artistic creation, and problem solving.

What does it mean to be competent in these areas of thinking? Traditionally, good thinking has been defined as a matter of cognitive ability, or skill. Hence the term, "thinking skills." Certainly, good thinkers have skills. But they also have more: Motivation, attitude, values, and habits of mind all play key roles in thinking, and, in large part, it is these elements that determine whether learners use their thinking skills when it counts – in diverse areas of their school studies, and in meaningful contexts in their personal lives.

Researchers in the Cognitive Skills Group at Project Zero have proposed a new view of what it means to be a good thinker: Good thinkers, we believe, have the right "thinking dispositions." A thinking disposition is a felt tendency, or leaning, towards a particular pattern of intellectual behavior. For example, good thinkers tend to be disposed to find and investigate problems, to probe assumptions, to seek reasons, to be reflective.

Funded by the John T. and Catherine D. MacArthur foundation, *Patterns of Thinking* is a multi-year research project at Project Zero to investigate such thinking dispositions. At the heart of the investigation is a conception of seven broad patterns of thinking that are especially central to high-level thinking and learning (see Table 1). The claim of the project is bold: In our culture, at this particular moment in history, these thinking dispositions provide the best leverage on the kinds of thinking and learning challenges young people face. Efforts to teach thinking ought to cultivate them.

Research Reveals "the Disposition Effect"

Can you play poker? Do you play poker regularly? If your answer is yes to the first question and no to the second, you may have experienced what we call "the disposition effect" – a gap between what you have the ability to do (play poker) and what you are disposed to do (play poker frequently). There are countless abilities we possess but don't use, and much of the time it presents no problem. But having an ability without the disposition to use it *can* be a problem when it interferes with learning.

For example, in a recent study at the Atlantic Middle School in Quincy, Massachusetts, we investigated 6th graders' causal reasoning skills, by asking students to reason about the causes of complex issues like homelessness. Most students pointed to a single cause: "People are homeless because they don't have a job," they said, or "the homeless don't pay their bills so they have to leave home." Yet when gently pressed to think further about causes, many 6th graders' thinking deepened considerably. For example, reconsidering the problem, one student reasoned: "There could be a lot of reasons they're homeless, not just jobs: like how they feel emotionally, and if they have people in their family who care for them". In short, many students showed the ability to engage in high-level reasoning, but not the disposition to do so.

We conducted a similar study at Rochester Memorial Elementary School, in Rochester, Massachusetts. One aspect of the study probed

7 Dispositions for Good Thinking

1. The disposition to be broad and adventurous.
2. The disposition to wonder, to identify problems, to investigate.
3. The disposition to build explanations and understandings.
4. The disposition to make plans and be strategic.
5. The disposition to be intellectually careful and precise.
6. The disposition to ask for and evaluate reasons.
7. The disposition to be metacognitive.

different aspects of 5th-graders' creativity, such as their ability to think imaginatively about decision-making options, and their ability to be inventive about truth-testing strategies. Again, we discovered a "disposition effect:" Many students had a good deal of creative ability, but weren't disposed to fully use their ability unless pressed.

How Thinking Dispositions Work

What causes the "disposition effect" - the gap between what people are able to do and what they are disposed to do? To answer this question, our first step has been to try to better understand the basic psychology behind thinking dispositions. We have identified three psychological components of dispositions, all of which must be present in order to spark, or activate, dispositional behavior. They are: (1) *sensitivity* - the perception of the appropriateness of a particular behavior; (2) *inclination* - the felt urge towards a behavior; and (3) *ability* - the basic capacity to follow through with the behavior.

Consider the student who is disposed to look for many causes of a complex phenomenon such as homelessness. Such a student is sensitive to opportunities to do so (she recognizes homelessness as a situation that may have many contributing causes); she feels pulled to explore the various causes (motivated either by intrinsic or extrinsic factors); and she has abilities that support her reasoning, for instance the ability to discriminate between different kinds of causes.

This trio of dispositional components - sensitivity, inclination, and ability - is present in any kind of dispositional behavior, not just high-level thinking dispositions. To see how this is so, think about someone you know who has the disposition to tell jokes. Good joke-tellers are sensitive to opportunities to tell jokes (pregnant pauses, embarrassing moments), they feel inclined to tell jokes (just try to suppress them), and they have well-developed joke-telling skills - great timing, for instance, or colorful delivery.

Ongoing Research

Of course, identifying the psychological components of thinking dispositions is only the beginning of understanding them, and the concept of thinking dispositions raises many difficult questions: Can thinking

dispositions really be taught? If they can, who decides which ones *should* be taught? Can thinking dispositions be reliably identified and assessed? In what ways are they influenced by physiological factors? How do they compare across cultures? Across genders? Across grade- and age-levels? Difficult as these questions are, they are crucially important, and their investigation comprises much of the

agenda of the *Patterns of Thinking* research over the next three years. Through a blend of empirical research, theoretical analysis, and liaisons with scholars in other fields, *Patterns of Thinking* researchers will continue to study thinking dispositions. Along the way, our hope is to be able to contribute some small piece to the great puzzle of what it means to be a good thinker.

Patterns of Thinking Project
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Thinking Dispositions in the Classroom

In addition to basic research, the *Patterns of Thinking* project has also sought practical applications of the idea of thinking dispositions, and the concept has found its way into a number of other projects of the Project Zero Cognitive Skills group. For example:

- In collaboration with South African educators, members of the Cognitive Skills group helped to develop a 64-lesson "thinking skills" course for non-privileged South African students. The course takes a dispositional approach to cultivating thinking, aiming to create a classroom environment that cultivates students' sensitivity to thinking opportunities and their inclination to pursue those opportunities, in addition to providing direct instruction in thinking skills.
- In a new public elementary school in Hawaii, we have helped teachers develop and implement a philosophy of curriculum-development that emphasizes the teaching of thinking dispositions, and that attends to the cultural forces of the classroom that support thinking-dispositional behavior.
- In the context of art education, members of the cognitive skills group have co-authored supplementary materials to "Behind the Scenes," a Public Broadcasting children's television series about how artists make art. The materials are designed to engage students in hands-on activities that encourage thinking dispositions especially related to creativity.