

Deep rivers of learning

Get below surface-level knowledge to help students build attitudes and habits that will stay with them for a lifetime.

By Guy Claxton

If you look at a cross-section of a river, you'll see that the water flows differently at different depths. Usually, the flow is fastest on the surface and slows as you go deeper down. But sometimes things look smooth on the surface, while the current below is bubbling with activity. If you judge the river only by looking at the surface, you'll be misled.

A classroom is like the river. It has different layers of learning going on at the same time. On the surface are knowledge and information: the subjects and topics being studied. They are usually easy to see and describe, and it is straightforward to know how well students have captured them. Also, they tend to move quickly. *Ab! There goes adding fractions, and here comes the Boston Tea Party. And just behind that, I can see the periodic table.* This is the top layer of learning.

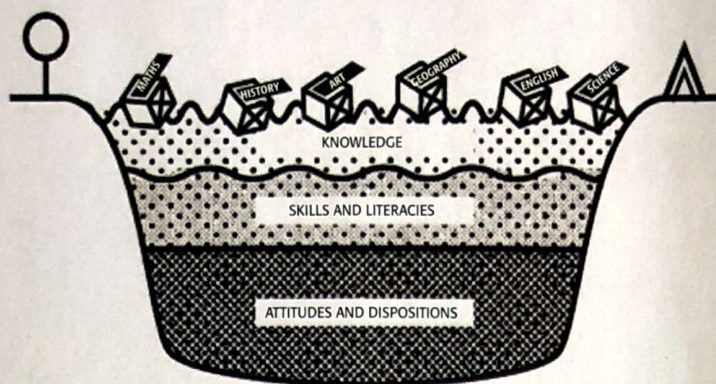
Below the surface are all the forms of literacy and expertise that enable students to understand, discuss, and use the top-level knowledge and information. These include the skills of reading, writing, and calculating; the ability not just to know Spanish but to think in Spanish, and the capacity to wrestle productively with a tricky new math problem. All of these skills take time to practice and develop, and they are a little trickier to describe and track.

But down in the darker depths of the river — harder to see and slower moving — a third kind of learning is always going on. This is where we find the gradual development of attitudes and habits that influence learning itself. These attitudes and habits determine how students respond to difficulty, complexity, and frustration. Do they feel interested or threatened? Do they tend to engage and grapple by themselves, or do they wait passively to be rescued and directed? Do they share mistakes and misunderstandings confidently and openly, or do they try to cover up their fallibility?

Like the banks and bed of the river, every classroom channels and shapes students' development, not just as knowers of facts but as learners. The attitudes and habits shaped at school have a powerful impact on students' long-term success in life. They are the most important residues of those long years of study.

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The learning river



SOURCE: Claxton, G. (2017). *The learning power approach: Teaching learners to teach themselves*. Thousand Oaks, CA: Corwin, 2017. Printed by permission of Juan and Becky Carlzon.

Finding the layers

When I was a high school chemistry teacher, I had no idea what effect I was having on these attitudes and habits. But as I look back, I see, somewhat ruefully, that I was unconsciously and unintentionally steering my students to becoming passive, dependent, cautious grade addicts rather than imaginative, independent, risk-taking explorers. I made things too neat for them and rescued them from difficulty too quickly, so they didn't learn how to struggle for themselves. I was in such a hurry to make sure they were catching the knowledge that I was sending down the river that I paid no heed to the deeper forms of learning.

But I see now that I could have helped my students learn chemistry in a different way. For example, instead of telling them exactly what equipment they would need to do an experiment, I could have laid out various resources for them to select from, perhaps deliberately including some they were not going to need, just to keep them on their toes. It might have taken a little extra time, but the long-term benefits would have been worth it.

As teachers, we make dozens of these choices in every lesson, every day. Making these choices requires an awareness of the different layers of learning and how each layer draws on different aspects of good teaching. To help students gain knowledge and understanding, I need to know my stuff so that I can package the content engagingly, explain things clearly, pose questions that reveal misunderstandings I can correct, and set relevant assignments and mark them carefully.

At the second layer, the development of intellec-

tual skills, I need to act more like a personal trainer or a coach. The activities I design need to be good "exercise machines" for the target skills, and they need to be appropriate for my students' current level of expertise. To get each of my students to keep achieving personal bests at math or history, I need to know them well enough to stretch them effectively, and I need to keep providing feedback about the progress they are making and the appropriate next steps.

But at the deepest layer, other facets of my role as a learning designer become important. Learning attitudes are not taught, or even trained, so much as incubated, and we teachers have to design the incubator. To build curiosity, resilience, and independence, we need to design the whole culture of the classroom to welcome and strengthen these dispositions. Everything we do — how we design our lessons, how we mark students' work, the language we use, how we arrange the furniture, how eager we are to demonstrate our knowledge — all of these elements slowly shape students' attitudes.

Of course, in practice these three layers are blended together and constantly interact. Teachers don't have to stop transmitting knowledge to do something different called "cultivating attitudes." Nevertheless, we all have to be alert to what is going on at the deepest levels, lest we inadvertently teach in a way that keeps our students floating on the surface.

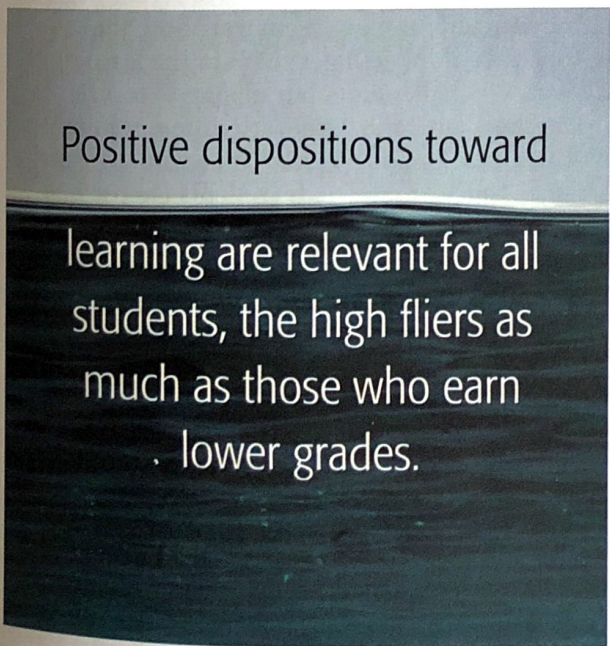
This awareness is part of becoming the teachers we want to be. I can't imagine any teacher waking up in the morning thrilled at the prospect of helping students become more passive, docile, credulous, timid, and extrinsically motivated, interested only in their next grade. But lots of us have had that effect — on high-achieving and low-achieving students. We all need to wake up to the longer-term effects of the way we teach and, if necessary, adjust our habits so that we are cultivating the attributes we say we want for our students. It is not good enough to squeeze better grades out of them and get them to college if we neglect to help them develop the gumption they are going to need once they are there.

The truth is, no matter what you do, you are cultivating attitudes and habits in your students as you help them grow in knowledge and skills, so it is best to be conscious and intentional about it. You can teach the War of Independence in a way that encourages compliance and credulity, or you can teach it in way that cultivates independent and critical thinking. The way you teach simultaneous equations can steer students toward a belief in one right way to the one right answer, or it can be an exercise machine for developing adventurousness and resourcefulness. Both ways can get good results — but which one fits our students for the world beyond the school gates?

A new school of thought

Over the last 20 years or so, a number of approaches to teaching have begun to pay more explicit attention to the incubation of attitudes, and their proponents have been devising teaching methods that reliably and methodically strengthen those positive habits of mind, at the same time as they retain all the benefits of good teaching and training of students in knowledge and skills. Prime examples of this new school of thought are:

- Ron Berger's EL Education (previously Expeditionary Learning), with its emphasis on the cultivation of craftsmanship;
- The Project Zero-inspired Studio Thinking schools, led by Lois Hetland, that have identified the learning dispositions that are especially relevant to the arts;
- Larry Rosenstock's High Tech High schools, which have developed the idea of the teacher as a learning designer;
- Ron Ritchhart's Cultures of Thinking and Visible Thinking methods;
- Art Costa and Bena Kallick's worldwide Habits of Mind network;
- Angela Duckworth's Character Lab;
- International Baccalaureate's Learner Profile;
- Elena Bodrova and Deborah Leong's Tools of the Mind program;
- And my own team's development of what we call Building Learning Power.



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Each of these has its own brand, but their common assumptions and methodologies far outweigh the differences. The philosophical, theoretical, experimental, and practical synergy between these and many other kindred approaches is driving the redesign of schools and classrooms around the world.

Foundational beliefs

Whatever the specific approach, this larger school of thought builds on certain ideas. Among them is the belief that attitudes of mind are as important for life (and college) success as grades. These attitudes, to a large extent, reflect the cultures in which people have found themselves, especially family, friendships, and school. How people approach learning, and how successfully they respond to novelty or difficulty, depends as much on these acquired attitudes as on any immutable kind of intelligence. Although positive attitudes toward learning lead to better school achievement, we cultivate those attitudes because they are valuable outcomes of education in their own right. That said, concern with knowledge, literacy, and good grades is entirely compatible with the deliberate cultivation of learning dispositions. These different ends do not have to compete with or disrupt each other.

Cultivating positive learning attitudes depends on teachers. Teachers are learning designers whose job is to orchestrate their classroom culture to bring about the learning outcomes they deem desirable. When designing a classroom culture, it is important to be explicit and precise about these outcomes. Warm and fuzzy notions like confidence, self-esteem, or “potential” are not meaningful enough to drive the development of a richer, deeper pedagogy.

Once teachers have a clear definition of the outcomes they are seeking, they will be able to knit them together with the day-to-day experiences of all their learners. When developing the pedagogy, everything is potentially relevant, including seemingly trivial aspects of methodology and procedure—décor, furniture, displays, groupings, routines, vocabulary, activity design, written comments on students' work, access to resources, smartphone policy. Measurement is also important, but developing the pedagogy comes first. Think about how to develop effective ways of teaching the attitudes before worrying about how to evaluate them.

When developing a pedagogy, keep in mind that learning attitudes are not content- or context-free. People's responses to difficulty or uncertainty differ according to their temperament, circumstances, and other factors. When teachers pay consistent attention to these attitudes for all students across different tasks and settings, they are more likely to become general-purpose mental habits that students

can apply anywhere. In addition, helping students talk and think about the processes of learning, and about themselves as learners, promotes both higher levels of achievement and the development of positive learning dispositions.

Remember, too, that positive dispositions toward learning are relevant for all students, the high fliers as much as those who earn lower grades. There are many students at Harvard and Stanford who lack resilience and resourcefulness because their teachers focused on knowledge and skills to the detriment of mental attitudes and habits.

Erasing mistakes: An example

One essential learning attitude is a willingness to acknowledge and learn from mistakes. This notion came up a few months ago, when I was being interviewed by the education editor of a British national newspaper about learning attitudes and he said, “Guy, the theory is all very well, but give me a concrete example.” I replied, off the top of my head, that I thought erasers were “instruments of the devil.” Within 24 hours, I was on the front page of several national papers, had received an email of support from a primary school in rural China, and had been invited onto national radio in Canada and Australia, where I had the opportunity to explain what I meant.

Of course, my complaint is not about those innocent little slabs of rubber. Lots of artists, architects, and designers make good use of them every day and are not damaged in the process. My concern is whether the way they are used in some classrooms weakens children’s learning by encouraging them to hide their mistakes. Some teachers act as if being “bright” means getting all your answers right the first time. This is not a good idea to embed in young people’s minds, for two reasons.

First, in the real world, most learning takes time, effort, and trial and error. Academic papers go through many drafts before they are published. Athletes spend thousands of hours being not very good at things on the way to becoming expert at them. Chefs produce a lot of unpalatable meals on the way to devising a new recipe that works. The image of intelligence as instant success ill prepares young learners for the kinds of learning they are going to do.

Second, when this virus gets into your brain, it makes you feel stupid if you make mistakes, flounder, or need to take your time. This bad feeling makes you want to avoid effort and the risk of error, so your resilience and determination are undermined and you become a weaker learner. If you become addicted to your eraser because it enables you to quickly remove the evidence of your fallibility, then the eraser is doing you harm.

Four practical suggestions

So what can you do to help build strong, positive attitudes to learning? Here are four practical suggestions.

- ***Toss the erasers, for reasons just explained.***

Try it for a month. Be prepared for some pushback, but keep explaining why you are doing it. After a month, see if your students’ willingness to draft, experiment, and be adventurous has increased.

- ***The stuck poster.***

Students who learn to sit and wait to be rescued by the teacher lose their initiative. So get your class to brainstorm a list of things they could do to help themselves when they are stuck: “Reread the question.” “Look at the illustrations.” “Ask a friend.” It is important that they come up with the ideas, not you. That way, they start to think more creatively about how to be independent. Make a poster to go on the wall that they can refer to, and keep it fresh by getting students to add more self-help ideas.

- ***Try three before me.***

When a learner is stuck, ask them to tell you the three things they have already tried to help themselves before you offer any help. If they haven’t thought of anything, give them another minute or two to come up with something. Then if they are really stuck, you can give them a hint — but not too much. Just enough to get their learning going again.

- ***Chili challenges.***

Give the students a choice of different degrees of difficulty, and get them to choose the one they think will get them in the learning zone — challenging, but manageable. Our teachers label the tasks with different numbers of chilies, like on a restaurant menu, to signal how “spicy” they are. If students choose one that is too easy or too hard, no problem, they can always choose a different one. Once they get used to being in the learning zone, they become more resilient.

These are just a few small tweaks that can lead students to those deep levels of learning that give them the mental habits they will need long after they leave your classroom. Wherever you are as a teacher, however independent your students already are, look for the next little shift that might help them become even more so. Keep seeking a new personal best — for them and for you!