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Teaching Critical Thinking
Michael Scriven and J. Anthony Blair

2.1 An evidence-based approach

J. Anthony Blair

The work of the Australian researcher of teaching and learning, John Hattie—Visible Learning (VL 2009) and Visible Learning for Teachers (VLT 2012)—inspires the general advice about teaching, and hence about teaching critical thinking, with which we begin the first part of this book.

Hattie’s mantra is “Know thy impact”. He argues that the evidence of about 1000 studies shows that a teacher should constantly be aware of what the students are learning (and what they are not learning) from the lessons. He contends that three “fundamental” principles should underpin teaching and learning at public schools (VLT, Preface).

1. Teachers should challenge students’ intellectual and imaginative capacities. Thus ruled out are lowest common denominator materials, boring pedagogy, mindless busy work. There should be legitimate progression of learning throughout the course.

2. Students should be treated as developing human beings, with humanity, sensitivity and imaginative flair.

3. Teachers should strive to maximize students’ potential for

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later learning and to be contributing members of a good society.

What makes Hattie’s advice stand out is that it is powerfully evidence-based. He has analyzed close to 1000 studies of the effects on learning of different variables, He sums up his advice as follows:

The simple principle underlying most of the syntheses discussed in this book is ‘visible teaching and learning’. Visible teaching and learning occurs when learning is the explicit and transparent goal, when it is appropriately challenging, and when the teacher and the student both (in their various ways) seek to ascertain whether and to what degree the challenging goal is attained. Visible teaching and learning occurs when there is deliberate practice aimed at attaining mastery of the goal, when there is feedback given and sought, and when there are active, passionate and engaging people (teacher, students, peers) participating in the act of learning. It is teachers seeing learning through the eyes of students, and students seeing teaching as the key to their ongoing learning. The remarkable feature of the evidence is that the greatest effects on student learning occur when teachers become learners of their own teaching, and when students become their own teachers. When students become their own teachers they exhibit the self-regulatory attributes that seem most desirable for learners (self-monitoring, self-evaluation, self-assessment, self-teaching). Thus, it is visible teaching and learning by teachers and by students that makes a difference. (Visible Learning for Teachers, Maximizing Impact on Learning. Pp. 17-18.)

One of the principal take-aways from Hattie’s findings for teaching any subject—and so, also for teaching critical thinking—is that, of the factors over which teachers have control, the way the instructor approaches her and his teaching makes all the difference. Hattie distinguishes between experienced teachers and expert teachers. Expert teachers stand out in the following ways (pp. 28-33):

Expert teachers …

- can identify the most important ways to present the subject they teach.
• are proficient at creating an optimal climate for learning.
• monitor learning and provide feedback.
• believe that all students can reach the success criteria. [Everyone qualified to take the course can, with effort, pass it.]
• influence surface and deep outcomes [A surface outcome might be exhibiting CT skills; a deep outcome might be internalizing the attitudes of a critical thinker.]

Advice to teachers:

• Discover what the students know and don’t know about the subject as well as their attitudes and dispositions towards it. Begin there.
• Make learning intentions and criteria of success known at the outset of each lesson.
• As a teacher, aim for a balance between talking, listening and doing, and aim for a similar balance by students.
• Harness the positive power of peers to advance learning. Peers can help, tutor, provide feedback, provide friendship. Look for opportunities for cooperative learning and student tutoring.
• Encourage high, interesting, challenging, expectations.

Hattie divides *Visible Learning for Teachers* into three parts. The excerpts above come from Part 1—which describes where his ideas originate and the roles of teachers in the education process. Part 2 focuses on the lessons: preparation, starting the lesson, the flow of the lesson—(i) learning, and (ii) the place of feedback, and the end of the lesson. This part of the book is larded with ideas that have been tested and found effective. The third part emphasizes what Hattie calls “mind-frames”—the ways teachers and schools think about their roles. He lists eight that, he argues, have proven
effective in producing success in reaching the goal of surface and deep student learning (pp. 181-189):

1. Teachers/leaders believe that their fundamental task is to evaluate the effect of their teaching on students’ learning and achievement.

2. Teachers/leaders believe that their success and failure in student learning is about what they, as teachers or leader, did or did not do … We are change agents!

3. Teachers/leaders want to talk more about the learning than the teaching.

4. Teachers/leaders see assessment as feedback about their impact.

5. Teachers/leaders engage in dialogue not monologue.

6. Teachers/leaders enjoy the challenge and never retreat to “doing their best”.

7. Teachers/leaders believe that it is their role to develop positive relationships in classrooms/staffrooms.

8. Teachers/leaders inform all about the language of learning.

What is challenging about Hattie’s analysis of the evidence is its implications for teaching critical thinking. We think we could do better with smaller classes. The evidence shows that class size is not a major variable. We think we could do better with better-motivated students—not the classrooms full of students for whom this is an option course (or worse, a required course outside their major) to which they aren’t prepared to devote the time or invest the interest it requires. The evidence shows that committed teachers can turn such students into enthusiastic learners.

We cannot do justice to Hattie’s recommendations and his defense of them. We strongly commend Visible Learning for Teachers (Routledge, 2012) to all critical thinking instructors.
2.2 A radical suggestion

Michael Scriven

Thesis

The essential nature of critical thinking guarantees that, as taught in the usual ways, it will fail to show educationally significant (lasting) gains.

“Taught in the usual ways” means taught in a single course (one quarter or one seminar long), using the typical approach (teacher-centric and single text focused).

“The essential nature of critical thinking” is that it is the ability to distinguish, classify, identify and deal appropriately with general patterns of valid, good, weak and fallacious reasoning that recur across substantial ranges of subject matter within, and, especially, across disciplines.

Teaching this way fails in the usual situations for one or the other of two weaknesses. At the more general (macro) end it fails because it comes too close to trying to teach cognitive-linguistic IQ, which appears to be substantially genetic; and at the other (micro) end, where we laboriously endeavor to teach how to handle each of the 30 to 50 most important unsound or sound patterns of inference or representation, it fails because a single course is nowhere near long enough to cover and develop these sprawling skills.

In fact the research results make clear that the whole undergraduate learning experience is not enough. So the claim that critical thinking can, and can only be taught comprehensively via subject matter instruction is also false. A fortiori—the college should not think that a three course sequence of critical thinking is probably enough to yield big gains. Still, it’s a significantly better approach than one course.

The other prong of the second horn that fatally skewers the hopes of success for anything like a conventional collegial critical
thinking course (C4) is the relative weakness of the pedagogical approach used. As is clear from the brilliant analysis of nearly 1000 meta-studies by John Hattie (in the Visible Learning series of books), any approach is limited in its success by its approach to teaching as well as by the particular difficulty of its subject matter.

Reform

In order to get better results, some of the obvious components include:

1. Allocate a sequence of three or if necessary more standard courses for coverage of critical thinking/argumentation/rhetoric.

2. Allow no (or at least no new) teachers of critical thinking who have not developed an outline of texts, examples, and pedagogical guidelines for a 3-unit course that will be taught by using at least the peer-critiquing/self-evaluating approach plus some other Hattie-backed technique(s) of their choice.

3. A weak alternative to (2) is to allow only critical thinking courses that focus on a package of 3-6 one-term important patterns of good or bad inference/presentation skills, with a matching pre and post test on these only. In other words cut the goals heavily and the duration likewise. This approach has been occasionally adopted, e.g., for teaching argument mapping at the University of Melbourne, with significant positive results.

Several successful type (3) approaches might then be synthesized into a trial run 3-unit approach to something on the way to a successful full-scale course for teaching critical thinking.

Right now, we badly need new texts, texts that incorporate the “student as teacher” and other (Hattie) evidence-based approaches and good teachers for them, maybe a thousand as a first step.