

Visible learning inside

When we buy a computer, there is often a label proclaiming that it has ‘Intel inside’. While most of us might not know exactly what this means, the label acts as a seal of approval indicating that what we are buying is good quality and will work. Indeed, it does indicate this: ‘Intel inside’ refers to the processor, or brain, in the computer – and it is the key to the success of the software and other hardware that makes up the ‘workings’ of the computer. In many ways, our schools have emphasized the ‘software’ (the programs in schools) and the ‘hardware’ (buildings, resources), rather than the ‘Intel inside’ (the core attributes that make schools successful). The ‘software’ and ‘hardware’ have been the major marketing tools of schooling used by politicians and principals, and they are also the topics that we most love to debate. Raise the question of class size, grouping in class, salaries and finance, the nature of learning environments and buildings, the curriculum, assessment, and the ensuing debate will be endless and enjoyable. These are *not*, however, the core attributes of successful schooling.

This book is about those core attributes – about the ‘Intel inside’. It discusses not the software or hardware of schooling, but instead asks what are the attributes of schooling that truly make the difference to student learning – the ‘processing’ attributes that make learning visible, such that we might say that the school has ‘visible learning inside’?

The ‘visible’ aspect refers first to making student learning visible to teachers, ensuring clear identification of the attributes that make a visible difference to student learning, and *all* in the school visibly knowing the impact that they have on the learning in the school (of the student, teacher, and school leaders). The ‘visible’ aspect also refers to making teaching visible to the student, such that they learn to become their own teachers, which is the core attribute of lifelong learning or self-regulation, and of the love of learning that we so want students to value. The ‘learning’ aspect refers to how we go about knowing and understanding, and then doing something about student learning. A common theme throughout this book is the need to retain learning at the forefront and to consider teaching primarily in terms of its impact on student learning.

The arguments in this book are based on the evidence in *Visible Learning* (Hattie, 2009), although this book is not merely a summary. *Visible Learning* was based on more than 800 meta-analyses of 50,000 research articles, about 150,000 effect sizes, and about 240 million students (Chapter 2 gives an outline of this evidence). A further 100+ meta-analyses completed since *Visible Learning* was published have been added in Appendix A of this book – but they have not changed the major messages.

This book also builds on perhaps the most significant discovery from the evidence in *Visible Learning*: namely, that almost any intervention can stake a claim to making a difference to student learning. Figure 1.1 shows the overall distribution of all of the effect sizes from each of the 800+ meta-analyses examined in *Visible Learning*. The y -axis represents the number of effects in each category, while the x -axis gives the magnitude of effect sizes. Any effect above zero means that achievement has been raised by the intervention. The average effect size is 0.40, and the graph shows a near normal distribution curve – that is, there are just as many influences on achievement above the average as there are below the average.

The most important conclusion that can be drawn from Figure 1.1 is that ‘everything works’: if the criterion of success is ‘enhancing achievement’, then 95 per cent⁺ of all effect sizes in education are positive. When teachers claim that they are having a positive effect on achievement, or when it is claimed that a policy improves achievement, it is a trivial claim, because virtually everything works: the bar for deciding ‘what works’ in teaching and learning is so often, inappropriately, set at zero.

With the bar set at zero, it is no wonder every teacher can claim that he or she is making a difference; no wonder we can find many answers as to how to enhance achievement; no wonder there is some evidence that every student improves, and no wonder there are no ‘below-average’ teachers. Setting the bar at zero means that we do not need any changes in our system! We need only more of what we already have – more money, more resources, more teachers per students, more . . . But this approach, I would suggest, is the wrong answer.

Setting the bar at an effect size of $d = 0.0$ is so low as to be dangerous.¹ We need to be more discriminating. For any particular intervention to be considered worthwhile, it needs to show an improvement in student learning of at least an average gain – that is, an

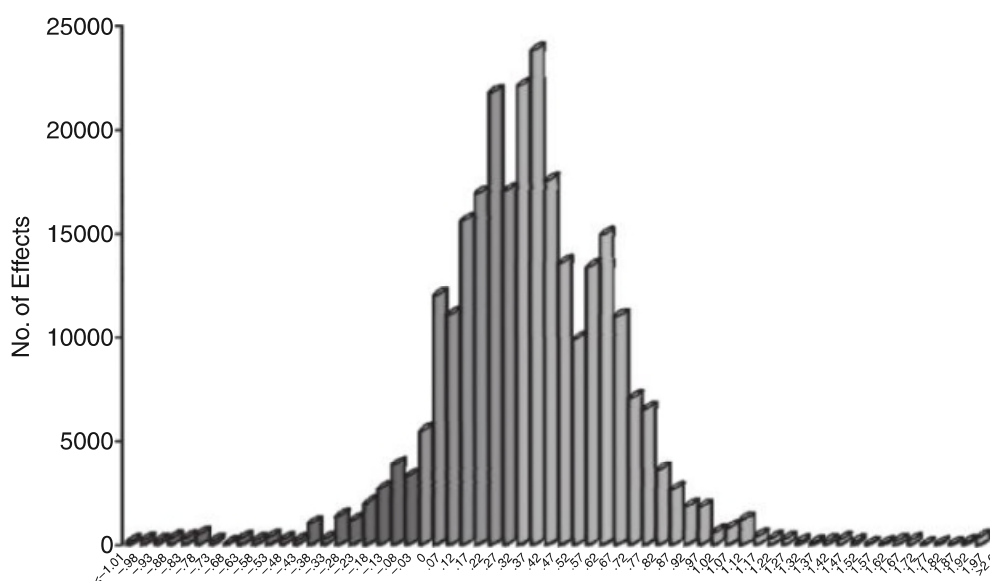


FIGURE 1.1 Distribution of effect sizes across all meta-analyses

¹ d is shorthand for ‘effect size’.

effect size of at least 0.40. The $d = 0.40$ is what I referred to in *Visible Learning* as the *hinge-point* (or h-point) for identifying what is and what is not effective.

EFFECT SIZE

An effect size is a useful method for comparing results on different measures (such as standardized, teacher-made tests, student work), or over time, or between groups, on a scale that allows multiple comparisons independent of the original test scoring (for example, marked out of 10, or 100), across content, and over time. This independent scale is one of the major attractions for using effect sizes, because it allows relative comparisons about various influences on student achievement. There are many sources for more information on effect sizes, including: Glass, McGaw, and Smith (1981); Hattie, Rogers and Swaminathan (2011), Hedges and Olkin (1985); Lipsey and Wilson (2001); and Schagen and Hodgen (2009).

Half of the influences on achievement are above this hinge-point. This is a real-world, actual finding and not an aspirational claim. That means that about half of what we do to *all* students has an effect of greater than 0.4. About half of our students are in classes that get this effect of 0.40 or greater, while half are in classes that get less than the 0.4 effect. *Visible Learning* told the story of the factors that lead to effects greater than this hinge-point of 0.40; this book aims to translate that story into information that teachers, students, and schools can put into practice. It translates the story into a practice of teaching and learning.

Outcomes of schooling

This book is concerned with achievement; we require much more, however, from our schools than mere achievement. Overly concentrating on achievement can miss much about what students know, can do, and care about. Many love the learning aspect and can devote hours to non-school-related achievement outcomes (in both socially desirable and undesirable activities), and love the thrill of the chase in the learning (the critique, the false turns, the discovery of outcomes). For example, one of the more profound findings that has driven me as a father is the claim of Levin, Belfield, Muennig, and Rouse (2006) that the best predictor of health, wealth, and happiness in later life is *not* school achievement, but the number of years in schooling. Retaining students in learning is a highly desirable outcome of schooling, and because many students make decisions about staying in schooling between the ages of 11 and 15, this means that the school and learning experience at these ages must be productive, challenging, and engaging to ensure the best chance possible that students will stay in school.

Levin et al. (2006) calculated that dropouts from high school have an average income of US\$23,000 annually, while a high-school graduate earns 48 per cent more than this, a person with some college education earns 78 per cent more, and a college graduate earns 346 per cent more. High-school graduates live six to nine years longer than dropouts, have better health, are 10–20 per cent less likely to be involved in criminal activities, and are

20–40 per cent less likely to be on welfare. These ‘costs’ far exceed the costs of demonstratively successful educational interventions. Graduating from high school increases tax revenue, reduces taxes paid into public health, and decreases criminal justice and public assistance costs, plus there is clear justice in providing opportunities to students such that they can enjoy the benefits of greater income, health, and happiness.

That the purposes of education and schooling include more than achievement have been long debated – from Plato and his predecessors, through Rousseau to modern thinkers. Among the most important purposes is the development of critical evaluation skills, such that we develop citizens with challenging minds and dispositions, who become active, competent, and thoughtfully critical in our complex world. This includes: critical evaluation of the political issues that affect the person’s community, country, and world; the ability to examine, reflect, and argue, with reference to history and tradition, while respecting self and others; having concern for one’s own and others’ life and well-being; and the ability to imagine and think about what is ‘good’ for self and others (see Nussbaum, 2010). Schooling should have major impacts not only on the enhancement of knowing and understanding, but also on the enhancement of character: intellectual character, moral character, civic character, and performance character (Shields, 2011).

Such critical evaluation is what is asked of teachers and school leaders. This development of critical evaluation skills requires educators to develop their students’ capacity to see the world from the viewpoint of others, to understand human weaknesses and injustices, and to work towards developing cooperation and working with others. It requires educators to develop in their students a genuine concern for self and others, to teach the importance of evidence to counter stereotypes and closed thinking, to promote accountability of the person as responsible agent, and to vigorously promote critical thinking and the importance of dissenting voices. All of this depends on subject matter knowledge, because enquiry and critical evaluation is not divorced from knowing something. This notion of *critical evaluation* is a core notion throughout this book – and particularly in that teachers and school leaders need to be critical evaluators of the effect that they are having on their students.

Outline of the chapters

The fundamental thesis of this book is that there is a ‘practice’ of teaching. The word *practice*, and not *science*, is deliberately chosen because there is no fixed recipe for ensuring that teaching has the maximum possible effect on student learning, and no set of principles that apply to all learning for all students. But there are practices that we know are effective and many practices that we know are not. Theories have purposes as tools for synthesizing notions, but too often teachers believe that theories dictate action, even when the evidence of impact does not support their particular theories (and then maintaining their theories becomes almost a religion). This rush by teachers to infer is a major obstacle to many students enhancing their learning. Instead, evidence of impact or not may mean that teachers need to modify or dramatically change their theories of action. Practice invokes notions of a way of thinking and doing, and particularly of learning constantly from the deliberate practice in teaching.

This book is structured about the big ideas from *Visible Learning*, but presented in a sequence of decisions that teachers are asked to make on a regular basis – preparing, starting, conducting, and ending a lesson or series of lessons. While this sequence is not intended