Visible Learning and the Science of How We Learn

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Why don't students like learning at school?

The Willingham thesis

Why don't students like school? This simple question was posed by noted educational writer Daniel Willingham in his 2009 book of the same title. A simple question, yes. But as we attempt to answer it, we can learn a good deal about the human condition, about learning, about how motivation works, and also about our own minds.

It is important to recognise that Dr Willingham was not suggesting that students actively dislike school. In fact, there is no serious evidence indicating that students, on average, dislike going to school. This aspect has been known since the 1920s, when research surveys were first carried out in this area. The findings remain much the same today. Researchers ask students how much they like school by inviting them to respond to items on a survey instrument. Surveys typically allow responses along a 5-point scale such as $-2, -1, 0, 1$, and 2, where, minus 2 means *strongly dislike*, 0 stands for *neither like nor dislike*, and 2 means *strongly like*.

There is always an inevitably wide spread of scores, with about 10 per cent to 20 per cent of students ticking the negative or minus side. However, the mean comes out somewhere between 0 and 1. That is, on average, students neither love nor hate school. They tolerate school, or are mildly positive towards the experience. School remains an important aspect of their lives that provides numerous benefits. Overall, the picture is slightly more positive than negative.

A thesis close to the bone

Even so, Dr Willingham's question cuts disturbingly close to the bone. Teachers are frequently disappointed by the lack of student response to what ought to be richly stimulating activities and experiences. Student apathy and lack of motivation are frequently cited as factors underlying teacher stress, burnout, and lack of job satisfaction. Teachers work hard to provide engaging learning

sequences designed to challenge young minds and make them think skilfully. This manifest apathy becomes a serious professional issue, faced by teachers every day, and which, on the individual level, stretches coping resources severely.

It is frustrating for teachers when the level of student response to carefully organised instructional materials is underwhelming compared with the time and effort invested in their preparation. To the beginning teacher, this is a hard lesson to learn. Whether we like it or not, we are human and depend on feedback we get from our students. How we interpret this feedback can determine how well we teach in the future, how motivated we are to go that extra mile. Every teacher has sacrificed a good deal to get to his or her position, and needs to affirm the journey has been worth the effort.

Surely, students ought to appreciate school more?

So let us view Willingham's question from a different perspective by asking: (a) Why do students not like school more? (b) Why does the average student naturally orient towards the middle attitudinal point? and (c) Why is learning at school so effortful for many students? As teachers and educators, the authors and likely readers of this book tended to enjoy school and its collateral benefits. Collectively, we understood what this game was about, how it was played. When we were students, many of us witnessed undesirable practices. So our generation of professional educators has worked hard to have such practices overturned. Our current crop of students have benefited from reforms and developments in modern attitudes and democratic practices. Such ideas ought to have made the experience of schooling more enjoyable, more stimulating, and considerably more positively affirming, than the experience of previous generations.

Whenever there are deceptively simple questions, there will be a multitude of answers that become possible. Some of these can be acknowledged quickly. Liking for school is aligned with social and emotional factors such as personality and social factors such as the number of friends the individual student has at the specific location. Being at school has numerous benefits. Schooling is an inherently social process, and the attitudes of peers exert a strong impact upon the individual. We tend to align our attitudes to the attitudes of people we perceive as similar to ourselves.

Similarly, family background and parental pressures will play a significant role. For example, in one South Australian study, it was found that students tended to report higher levels of enjoyment at school when their mothers had endorsed a parental style that encouraged children to take greater responsibility. This makes sense in that schools expect students to accept responsibility, so consistency between home and school appears to play a role. Girls often report liking school more than boys and higher ability students more so than lower ability students. Attitudes to school may dip as students move through the high school years, but have often been found to increase again in the senior school years.

Making them think: the demands of the classroom

The answer that Dr Willingham offers, however, in accounting for why students do not like school, is that the human brain does not naturally want to think. Indeed, he notes 'The mind is not designed for thinking' (2009, p. 3). This is a provocative argument that initially appears at odds with human characteristics. Thinking is supposedly one key attribute that makes us human. It is what we do naturally and spontaneously. It is the attribute that separates us from other species. Surely, we were born with this massive cerebral cortex specifically so that we could use it to think? From an idealistic view, thinking ought to be fun. Or, if not exactly fun, it ought to be at least inherently rewarding. We all can experience the pleasure in thinking well, in becoming competent, in solving problems, and taking pride in the successful outcomes of our mental work.

However, the notion that thinking is not great fun fits with a sizeable body of opinion within cognitive psychology. Indeed, this theme emerges in a later chapter about being in two minds (thinking fast and thinking slow), referred to as System 1 and System 2 (see Chapter 30). Thinking is a product of System 2, but this system is clunky, and its outputs can involve high levels of uncertainty.

So just why is thinking not much fun? For a start, it requires effort. Human beings are naturally resistant to squandering resources whenever effort is involved. However, do not think of this trait as laziness. Instead, it relates to a careful allocation of personal energies. Effort is a factor that has to be consistent with one's personal motivation and committed goals. Further, it is tied to one's **self-efficacy** level or confidence that we can succeed. To ask someone to invest effort is never a simple request. It involves a cost that they must consider in relation to other demands being placed upon the mind at the same moment in time. We are resource-limited creatures, but thinking uses up resources remarkably quickly. So to resist an invitation to think is not necessarily an indication of laziness. It could reflect a decision to be economical, cautious, or even prudent with our personal resources.
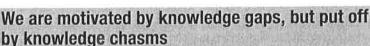
Thinking also involves high levels of uncertainty. There are too many unknowns in this deal. The dominant motive is often to conserve energy and so to avoid initiating actions when outcomes are uncertain. Since there is never any guarantee that thinking will result in a satisfactory result, any invitation to think brings along with it an invitation to be punished through failing to live up to expectations.

Avoiding failure is a robustly strong motive, several times stronger than the motive to obtain an objectively similar level of positive success or reward. Such notions are expressed in terms of two well validated cognitive principles: (a) whenever called on to commit to decisions we are risk-averse and (b) bad is stronger than good.

Difficulties in using the knowledge in our heads

Furthermore, there is the interesting problem of mental **availability**. Such availability refers to the mind's ability to have appropriate information on hand and sufficient cognitive resources to deal with the problem at hand. Thinking relies directly on our ability to access information held within long-term memory. Our judgements are linked into, and will be strongly biased towards, whatever information we can immediately recall. But one of the most important attributes of any stored information is the *ease* that it can be accessed with and then processed. When information is not easily forthcoming, people feel uncomfortable, less confident, and less motivated to act.

Whenever the mind is stressed by difficult recall demands then the fact that difficulties are experienced itself becomes a factor determining how people use the information recalled. As shown in the research of social psychologist Norbet Schwarz, **ease of access** can produce strange effects. For instance, in one study he asked people to recall past incidents when they were assertive, and then asked them to rate how assertive they were themselves. Half the people were asked to recall 6 incidents, but the other half was asked to recall 12 incidents. People who recalled 6 incidents rated themselves as *more* assertive than those who recalled 12 incidents. Why? Because it easy to recall 6 such incidents. It is hard to recall 12. Within your mental world, the difficulty of recall determines the value and meaningfulness of the experience. Difficulty of recall becomes more important than the volume recalled. It is known that as information becomes difficult to recall, it becomes unlikely to influence one's active thinking. Much validity can be expressed in the popular adage 'out of sight, out of mind'.

We are motivated by knowledge gaps, but put off by knowledge chasms

Central to Dr Willingham's argument is the role played by curiosity. We are naturally curious animals, well motivated to find out more about our world. While this sounds wonderful, there is a huge constraint placed upon such motivation. *We are highly selective in what we pay attention to*. This selectivity creates a major problem whenever we expect another person to exert effort in learning or thinking. Any such thinking, as driven by natural curiosity, has to involve successful levels of comprehension, skill mastery or problem solving. There simply is no such thing as 'general curiosity'. It is something that works only when turned on.

We cannot be curious about all possible things: instead, we are attuned to **knowledge gaps**. We will seek out and pay attention to things we already know about in an effort to increase our personal knowledge base. But we do so provided the knowledge gap itself is perceived as bridgeable within the short term. In allocating our personal resources, this factor is critical. We strive to close worthwhile gaps, but not chasms. Most of us have little interest in how devices

such as computers and radios work. We are unmotivated to find out since the perceived knowledge gap is too high to stimulate interest. We are not motivated by relative ignorance, or by our general lack of knowledge. This lack of motivation to learn things we know little about has been demonstrated even in intelligent college students in laboratory studies.

But we become curious when we can see both (a) a knowledge gap relevant to us, together with (b) the means by which it can be closed. Paradoxically, having some prior knowledge provides impetus for wanting to acquire even more knowledge. This effect is strong if the new knowledge can be acquired in the short term with relatively low cost. Metaphorically speaking, when we build our knowledge, we invest effort most strongly when foundations are already securely laid down. But we show disinclination to start construction when there is nothing to build upon.

We rely on memory, rather than thinking

One major plank of the Willingham thesis is that much human functioning relies on activating memory, rather than thinking. By nature, we try to avoid thinking but strive to solve problems by using our memories. As Willingham bluntly put it, 'The mind is not designed for thinking' (2009, p. 3). So what is the mind designed for? It is possible to note several areas in which the brain naturally excels. This curious list includes (a) the bipedal gait and balancing the moving body over undulating terrain, (b) using visual information to make complex assessments and judgements involving time, distance, and space, (c) developing a receptive vocabulary of about a quarter of a million words, (d) instantly being able to name between 20,000 and 30,000 common objects, (e) being able to recognise and attach names to several thousand individual faces, (f) being able to use social cues to accurately assess the mental states of others, along with (g) being able to hold a conversation taking into account another person's orientations, timings, dispositions, and intentions. Note how (e), (f), and (g) are consistent with the **social brain hypothesis**. This is the notion that we have evolved large brains that enable us to establish and maintain crucial social relationships, an idea that will resurface in several chapters of this book (specifically Chapters 3, 4, 8, 15, 17, 27, 28, and 30).

The ability to think well, to learn efficiently, and solve problems successfully are attributes that do not figure in most descriptions of natural human adroitness. A philosopher might argue that some do think well. But this is not an argument that can be pushed far. Certain individuals can be seen as the products of a well-socialised 'thinking community', such as highly intellectual families or institutions that have sponsored high levels of academic achievement. But this is not the general human condition. Instead, humans naturally assimilate the vast bulk of their knowledge through direct social influence processes that do not make great demands on thinking capabilities.

This notion is taken up by the science writer, Michael Shermer, who, in summarising the research into how we think, described the brain as a 'belief machine' (2011, p. 5). We form beliefs through social learning factors, and then learn how to defend them, particularly if we perceive them to be under attack from other social agents who do not share our same views. In jocular vein, Shermer noted that Homo rationalis – the species that carefully weighs all decisions through hard logic and rational data analysis – 'is not only extinct, but probably never existed' (p. 343).

How schooling differs from previous social learning

We can see where these ideas are leading. Although mental work is a natural human capacity, nevertheless, many students are unlikely to be comfortable thinking for themselves. From their earliest years, their home backgrounds required them to copy adults and learn closely from them. While they have mastered a complex language, the focus of life has been to assimilate the tools of the culture in such a way as to store vital elements of information within their personal memory banks. This has been the major effort in their lives, and a singularly important goal: to build a repository of social and interpersonal skills enabling them to read human interactions with great sensitivity and intelligence. Thus, instead of attempting to *go beyond the information given*, the major achievement has to be able to *assimilate the information given*. Suddenly asking young students to begin to think beyond what is immediately visible is a request out of sync with their personal developmental histories.

IN PERSPECTIVE: Evaluating the Willingham thesis

We can summarise the Willingham thesis in the following six ideas: (a) your mind is not naturally well-suited for thinking, (b) as an activity involving the brain, thinking is slow, effortful, and has uncertain outcomes, (c) deliberate or conscious thinking does not guide most people's behaviour in the real world in which they have to interact and survive, (d) instead, our brains rely on memory, and follow paths that we have taken before, or seen others undertake, (e) although we are curious creatures, our interests are restricted to areas in which we have some prior knowledge coupled with confidence in our ability to learn, and finally (f) we are unwilling to invest any serious level of effort in thinking activities until we can perceive the link between immediate effort expenditure and likely success.

In addition, we can also note that when thinking occurs, its content is influenced strongly by whatever the working memory can access immediately. The quality of thinking drops away quickly once **cognitive load** increases beyond four items (see Chapter 16). Not only is the human brain relatively unaccustomed to thinking, but

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its ability to do so well is very much limited by the ease it can retrieve items from the long-term memory system. This scenario is then further complicated by the average student's lack of confidence. Not only is the student (a) unsure that it is worth investing mental resources in activities that may or may not be successful, but (b) the awareness of substantial knowledge gaps between what he knows currently and what the teacher wants him to know can become a recipe for discouraging any natural curiosity.

To state the Willingham view bluntly: teachers are confronted with a roomful of students whose minds are designed not for thinking, but for saving themselves from needing to think. The thesis is not that students cannot think. It is that thinking in a 'school way' is not what comes naturally or happily for many individuals. Asking them to think about issues becomes an uncomfortable experience. But when it comes to complex learning and thinking, we err in assuming students will do so with enthusiasm and aplomb. Thinking means considering different perspectives. It means withholding impulses and avoiding making judgments in the absence of data. It means allowing evidence and research to overtake prejudice and opinion. It means an openness of mind to ideas that your students may never have encountered before. For many students, these are heavy expectations that may well stand in direct contrast to what their homes have expected of them to this point.

Throughout this book we draw upon a cognitive theory of the human mind consistent with Dr Willingham's basic ideas. One key notion (covered in Chapter 30) is that our brains are set up with two operating systems, a fast-operating System 1 that relies upon well learned habits and routines, and a slow-operating System 2 that can be brought into play when the automated system fails. But, System 2 brings with it costs, uncertainties, and discomfort. It is much easier to travel the path of least resistance, and remain within one's comfort zone. Many struggling students are asked to invoke System 2 thinking often throughout the day, and this is tiring, threatening, and does not always lead to sufficient 'overlearning' that would then allow the faster System 1 to be used. As Dr Willingham would assert, expecting students to stop relying on their fast acting system (System 1) and getting them to use effort to change anything already stored in their minds, or to add to what is already there, represents a substantial challenge for any teacher.

Study guide questions

1 Do students like school? What has been the answer to this question, one that seems surprisingly constant over some 90 years of research, ever since survey research was invented?

2 Notwithstanding the traditional answer to the above question, just what professional issue was Dr Willingham addressing?

3 Willingham alleged that 'the mind is not designed for thinking'. How easy or difficult is it for you, as a professional educator, to accept such an apparently dismal proposition?

4 The present chapter extends this notion by noting that thinking is an activity demanding high levels of effort. Since effort is a limited resource, an invitation to think implies precisely what?

5 Besides effort, an additional issue is referred to as mental availability. The mind wants to use and act upon only that knowledge which it can access immediately. How does this factor work against our educational goals?

6 Although all people are naturally curious, this motive will hit its head against a hugely constraining factor. What is this?

7 If one accepts that the mind is not designed for thinking, then just what is it designed for?

8 Overall, the Willingham thesis provides an interesting perspective on how teachers' goals naturally differ from the goals of their young students. So is the way forward to try to dispute the Willingham thesis, or to recognise its perspective and what it is telling us about student needs?

Reference notes

- Dr Daniel Willingham is a significant writer within educational research and frequent contributor to the *American Educator*, the house journal for the American Federation of Teachers, writing under the banner 'Ask the cognitive scientist'. His 2009 book, *Why Don't Students like School?* (Willingham, 2009) is a stimulating read.

- Students tolerate school, or are mildly positive. Support for such a notion is found across many studies including an Australian study (Ainley, Batten, Cherry, & Withers, 1998), a large British survey (Attwood, 2011), and a New Zealand study (Wylie, Hipkins, & Hodgen, 2008).

- Student apathy creates stress for teacher (Geving, 2007; Tsouloupas, Carson, Matthews, Grawitch, & Barber, 2010).

- South Australian study into mothers' support (Annear & Yates, 2010).

- By default, we protect what we have. We are risk averse, and strongly avoid placing assets under threat (Kahneman, 2011). Bad is stronger than good (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001).

- Ease of availability in cognition produces strange effects (Schwarz et al., 1991).

- Motivation through perceivable but closable knowledge gaps (Litman, Hutchins, & Russon, 2005; Loewenstein, 1994).

- The brain as a belief machine (Shermer, 2011).

CHAPTER

2

Is knowledge an obstacle to teaching?

To teach a topic or a skill, it is important to know the topic thoroughly. This idea would seem axiomatic, a virtual truism. The kindly mentor who teaches you chess must be familiar with the game, its goals, and basic moves. It makes inherent sense to assume that knowledge of a topic will enable an individual to teach that topic to others. This principle has been used in industry and virtually all forms of employment for several hundred years. Many areas of employment involve considerable levels of training, and instructors are drawn from the ranks of individuals deemed successful in plying their craft. Such ideas are incorporated in the rich notion of apprenticeship. The apprentice learns the craft through direct interpersonal contact with a master or expert. Within many fields, it is mandatory for experts to share their knowledge with newcomers.

But does disciplinary content knowledge really enable you to teach? A curious finding that has emerged repeatedly from the scientific literature is that teachers' actual depth of knowledge of the content of what is being taught bears little relationship to the attainment level of their students. This finding surely contradicts the underlying ideas expressed in the preceding paragraph?

We suggest you read this chapter in connection with Chapter 12, which describes expertise in the domain of teaching. This present chapter will take a different tack since expertise in teaching is distinct from expertise in knowledge about content material being taught. In reviewing the literature in this area, two strangely negative aspects appear to stand out:

a It is *not* the case that one can be a reasonable teacher when ignorant about what is to be taught.

b Possessing a high level of knowledge about a topic *does not* automatically bring with it the ability to teach this topic well. In fact, all too often, it is the reverse. The more you know about an area, the more difficult it can be to see the same area from another person's position.

Experts underestimate task difficulty for novices

A number of research studies have shown how experts in a field often experience difficulties when introducing newcomers to that field. For example, in a genuine training situation, Pamela Hinds (1999) found that people expert in using mobile phones were remarkably less accurate than novice phone users in judging how long it takes people to learn to use the phones. Experts can become insensitive to how hard a task is for the beginner, an effect referred to as the 'curse of knowledge'. Dr Hinds was able to show that as people acquired the skill, they then began to underestimate the level of difficulty of that skill. Her participants even underestimated how long it had taken themselves to acquire that skill in an earlier session. Knowing that experts forget how hard it was for them to learn, we can understand the need to look at the learning process through students' eyes, rather than making presumptions about how students 'should be' learning.

Experts can be poor in cueing and communicating

David Feldon (2007b) reviewed many studies indicating that experts frequently are poor communicators of what they are doing. Experts possess knowledge that is well organised but encapsulated in ways that can be understood only by people already familiar with their field. Experts can become great communicators once they follow highly structured and sequential procedures, but this is rarely the case. Their expertise has a basis in high levels of tacit knowledge that can be difficult to convey to another party. In this sense, tacit means unspoken, and possibly unknown. For instance, you can ride a bicycle quite expertly, but be absolutely unable to explain to someone just how you can do this. As has been demonstrated in controlled studies, people are unable to explain to others how to catch a ball.

Experts may not know exactly what they are doing since their skill is automated and unconscious. Indeed, Dr Feldon found that possessing a high level of expertise within a domain may become a *disadvantage* within a teaching context. Even when attempting to make it easy, experts still tend to leave out information a novice would find valuable. They fail to convey information in a step-by-step manner. They will employ a vocabulary that is relatively unfamiliar. Several studies have shown experts find it remarkably difficult to gauge how much knowledge a novice possesses.

In one laboratory study, Hinds, Patterson and Pfeffer (2001) asked senior graduate-level students in electronics (as experts) to design and record instructional materials for beginners on a circuit testing task. Another group was asked to do the same, but these people were less advanced students and hence were relative novices. The experts were found to teach using abstract statements and advanced-level ideas since these terms define their customary vocabulary. The novices taught at a more basic or procedural level, using concrete, and

direct statements. The effect of these instructional differences was remarkable in that (a) the novices' instruction was *more effective* in teaching the task to total newcomers and (b) these newcomers then rated the experts as less effective teachers.

However, when it came to a task of transfer, those instructed by the experts were able to transfer their new skill to a second different task more quickly (but not any more accurately). It seems that the level of abstraction and complex language inherent in the manner experts talk and instruct other people can create initial problems in learning, although the effect is not always negative.

Students do appreciate knowledgeable teachers

What should we conclude about teacher subject knowledge as a determinant of student learning? First, it is a positive influence, as was found in the research as reviewed in VL (Hattie, 2009). However, its overall effect appears low.

Second, it is likely that its effect appears relatively greater in specialist curriculum such as science. This finding could reflect the fact that students do appreciate being taught by knowledgeable and motivated individuals, especially those who demonstrate passion for their subject matter. It has been established that students will rate their best teachers highly on traits such as competency, credibility, and fairness. Such traits appear more strongly linked to student motivation than to actual learning. Notably, students value the interaction and feedback received from teachers they recognise as clever and knowledgeable adults.

Studies under laboratory conditions have found that children learn less from adults they view as relatively ignorant individuals. After all, if a person knows only as much as you, or is incompetent, then he or she cannot serve as a source of learning. Although it is not crucial to be able to represent yourself as the 'know all' teachers or 'guru', nevertheless, it helps considerably when you can show strong levels of mastery coupled with a willingness to learn and increase your knowledge. It is apparent that one advantage of demonstrating clear and coherent knowledge, together with positive attitudes toward developing your knowledge further, is that your students will regard you as a credible and motivating teacher.

But as the research has now shown, there is a flipside. Problems can emerge when your strong depth of knowledge of a specific topic creates a gap between (a) what you know, how you can think, and what you can do, and (b) your students' current instructional needs. Mathematics educators have referred to such a discrepancy as the **expert blind spot effect**, since individuals who excelled at mathematics were found in one project to make poor judgements as to how mathematics content can to be taught within high school lessons. In itself, your mastery of subject matter does not allow you to easily teach this same content to others who are at a beginning point. At times your expertise will create obstacles that can make you less sensitive to students' needs.

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IN PERSPECTIVE: What content knowledge does for a teacher

Despite what common sense and the industrial apprenticeship model suggest, knowing a topic thoroughly and deeply does not automatically translate into knowing how to present and teach that topic well in the first instance to beginners. A particular type of cognitive empathy gap can become apparent (see the next chapter for further analysis on the notion of empathy gaps between people).

However, it is not all bad. While you do not need to know everything, students still appreciate that their teachers are clever and capable people, and they will devalue any adult they see as lacking in basic competency. In particular, your depth of knowledge about a subject is of immense value when giving feedback to students and in evaluating the quality of their work. When your knowledge of an area is shallow, it is so much harder to detect and correct for errors, or to provide extra depth and elaboration when helping individuals develop in their understanding.

Hence, rather than being an essential prerequisite for conducting high quality group-level instruction, curriculum knowledge helps you to identify what is needed for an individual student to improve. Your curriculum knowledge enables you to diagnose individual learning problems, provide corrective instruction, and set new achievable goals. In short, depth of knowledge of the curriculum becomes critical in any situation calling for individual remediation and guidance. It is within this context that you can become sensitive to just how an individual is experiencing problems in understanding. As a knowledgeable teacher, when dealing with individuals, you are able to perceive knowledge gaps that are difficult to identify when teaching large groups.

Study guide questions

1 The apprenticeship model developed in the Middle Ages as a means of accomplishing several goals, such as maintaining and developing new crafts, accomplishing complex projects that demanded division of labour, inducting the new generation to take over, and ensuring that cultural knowledge and inventions would be transported across the entire society rapidly. The model still exists in teacher training. What are the assumptions that underpin the placement of preservice teachers in schools today?

2 In studying how instructors taught mobile phone skills, Pamela Hinds found direct evidence for the 'curse of knowledge'. What is this effect? What are the implications for how we may teach something that we ourselves can do so well?

3 After reviewing many studies, David Feldon noted that experts often have acute problems in communicating with beginners. What specific problems were found?

3

The teacher–student relationship

Before looking into the teacher–student relationship, it is useful to consider findings from the study of interpersonal relationships in general. In particular, one key phenomenon studied has been the *empathy gap*. An empathy gap occurs when people are relatively unable to put themselves in the place of another person. When warm and secure, it is difficult to conceive of another person's pain and insecurities. If you have never been bullied, it is hard to imagine the pain. People who have been bullied, or socially rejected, rate these experiences as severely painful. Others, who have not had such experiences, underestimate the level of hurt. It is not easy to empathise with someone whose shoes you have never walked in.

Similarly, individuals in powerful positions underestimate how others can be affected adversely by their decisions. Studies into aggression have shown that perpetrators are adroit in using a number of powerful defences. Aggressors excuse themselves, justify the actions undertaken, underestimate how much hurt they have inflicted on the other party, and blame the victim for his or her situation. On the other hand, their victims view perpetrators with resentment, anger, and experience a desire for retribution that may increase over time.

Such gaps in perceptions create the basis for deterioration in relationships through **negative escalations**, sometimes called **snowball effects** or **negative cascades**. A minor hurt leads to a retaliation, which is seen by the original instigator as out of proportion to his sin, which thereby justifies further aggression. We have all witnessed unfortunate situations where relationships break down due to escalations. Indeed, consequences can be tragic. Where people are locked into relationships, such as parent–child, then escalations can take the form of becoming so highly aversive towards the other party that havoc, social pathology, or self-damage may ensue.

Toward positive relationships

Thankfully, coercive relationships are rare. For the most part, we can work on the positive side. Behavioural escalations readily work to establish and maintain rich social relationships of mutual benefit. There are sound reasons for teachers

to be concerned with developing high quality relationships with their students. A sizable body of research studies has found that the early years of school represent a critical period in the development of an individual's life adjustment pattern. Establishing positive relationships between young students and their teachers has been shown to cascade and so result in lasting benefits involving trust and affection.

For example, Erin O'Connor and others (2011) tracked 1,364 students across the school years into early adolescence. Teachers rated the quality of their relationships with each student in terms of closeness, warmth, and absence of conflict. Positive teacher–student relationships in the early years (a) predicted reduced levels of externalising and antisocial behaviour in these students, and also (b) served to prevent students who began school with initial levels of internalising (such as worry and emotional problems) from developing long-term trajectories of behavioural problems.

The notion that teacher–student relationships have enduring effects was supported by a recent American study that used a professional development training model to induce teachers to focus on improving relationships with their students at the high-school level. It was found that marked improvements in student achievement occurred not in the year the program was carried out, but in the year *following* the intervention, with student grades improving nine percentile points in the targeted students. The trained teachers were observed to improve the way they interacted with their classes, and this was found to have a deferred, rather than immediate, effect upon student learning and motivation.

Closeness and conflict

The work of Dr Robert Pianta has indicated that teacher–student relationships in the early school years can be described in terms of two dimensions: **closeness** and **conflict**. Closeness refers to the emotional context of teaching interactions. A sample item from the research questionnaire, as completed by teachers, is 'If upset, this student will seek comfort from me'. Closeness appears more under the teacher's control. It has been established that when teacher–student relationships are characterised by closeness, students show greater levels of overall school adjustment relative to peers rated as scoring at the lower end of this dimension.

On the other hand, conflict refers to the teacher's tendency to endorse such items as 'Dealing with this student drains my energy'. The research has found that teacher-reported conflict correlates with students' school avoidance, unwillingness to undertake school-like tasks, decreases in pro-social behaviour, as well as increases in aggressive behaviour. Besides such clear findings, we must add that, virtually by definition, conflict adds considerably to levels of teacher stress and reduced job satisfaction. It has also been found that teachers who report lower levels of professional satisfaction, and also those who are observed to provide lower levels of emotional support for students, do report considerably higher overall levels of conflict than other teachers.

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Of course, we must be careful not to over interpret this type of child developmental research finding. Although such studies display relationships, we must be ever cautious about assigning cause and effect. It would be unfortunate to hold that teacher–student relationships cause poor social and academic adjustments within the student population. When a teacher reports a child as 'draining my energy', then the teacher is likely to be responding to a genuine context, possibly associated with the child's presenting characteristics. The teacher's dilemma is not to overreact to students who present with such traits. The existence of the difficult-to-teach child is well recognised in educator's parlance, but does not justify negative escalations.

Developing positive and close relationships becomes difficult if the focus is on responding to uncooperative individuals. There is danger in moving into punitive mode too quickly. Research into social psychology has found that when people disguise emotions, a good deal of **emotional leakage** still occurs. Efforts to hide emotions often fall short, and even when striving to be polite to someone you find uncooperative, some level of leakage may occur. For instance, your tone of voice may be inflected (unwittingly) high, suggesting anxiety, sarcasm, or insincerity.

No major theory of learning recommends moving into punitive modes in response to students' lack of cooperation, and this strategy is counter-indicated by a large body of findings. For instance, one Australian survey found that when high school students are disciplined, they attribute the event to the teacher ('teacher hates me', 'teacher picks on me') rather than accept personal responsibility. This is not the place to delve into classroom management research, and citations to this literature are found in the reference notes for this chapter. But the simple, thoroughly validated, proposition is that aversive control methods such as punishment, criticism, shouting, sarcasm, belittlement, or overt rudeness, are tactics that produce only a superficial level of student compliance.

In terms of managing your classroom, negative tactics are ultimately self-defeating. Compliance is not a strong educational goal, especially if achieved to the detriment of other more important educational goals. Application of aversive methods in any interpersonal situation triggers strong emotions and motivations in recipients. Such motivations take the form of resentment, anger, general negativity, helplessness, and passivity, which thereby provide impetus for on-going negative escalations.

School as a buffer

The quality of the relationship that a student has with you is likely to be an important factor in that student's well-being. Clinical research has often reported that children who present with developmental problems tend to be relatively more dependent than others on the available adults within their wider social worlds. Close and supportive relationships with teachers have the potential to mitigate the risk of negative outcomes for children who may otherwise have

difficulty adjusting and succeeding in school. Surveys have shown that relationships with teachers can serve to operate as a protective factor against risk for a range of problems, including anti-social predispositions.

When a child has an unsupportive home environment, the school context becomes a major source of social and cultural learning. It is within this scenario that teacher–student relationships exert a strongly influential role in personal development. Individual teachers, without realising it, can serve as effective role models for students who experience less than adequate adult models within their wider social and family life.

School as moderator of developmental trajectories

A sensible perspective on what the research into relationship factors reports is inherent in the notion of *moderation*. Metaphorically, the idea of moderation is that of a switch. When the switch is in one position, good things tend to happen with relative ease. One good thing can flow directly onto another good thing. Further, certain aspects that seem heading toward negative directions may be slowed or stopped altogether, i.e., the buffer effect kicks in. A student who presents with relatively poor developmental traits may encounter positive teacher–student relationships that then reset the likely trajectory pattern of his or her life. Finding positive factors operating within the school environment buffers the child from otherwise predictable but adverse life patterns.

But what if that switch has *not* been set into the more favourable position? Then opportunities are missed, positive events are less likely to interact with, and support each other, and developmental trajectories can proceed as though nothing of importance has happened. In the absence of positive relationships, the student may fail to identify with the goals and purposes of schooling. Our goal as educators is to have a positive impact. Hence, we strive to set the moderation switch away from passive or neutral mode, and into positive agency mode. Actively working towards developing positive teacher–student relationships becomes a primary goal, one that establishes your professional standing, and allows you to have a strong effect on the lives of your students.

Shifting the switch across

Is it possible to shift the switch to a position where good things happen? The most direct answer is that this is what excellent teachers do all the time through their positive interpersonal behaviour. Positivity can apply in dealing with the class in general, but also in particular whenever a teacher interacts with individual students. As noted earlier in this chapter, professional development can be used to focus on developing teacher–student relationships.

Another interesting approach was investigated in an experimental study by Driscoll and Pianta (2010). Over a six-week period they asked early childhood teachers to spend additional time, just several minutes each day, with individual

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at-risk students. These were brief sessions devoted to non-directive child-centred activities. Although this short-term intervention study did not show any immediate effects on the students, the study found that the teachers' views on the students changed in the positive direction. In addition, the researchers found positive changes in the teachers' self-reported closeness with these targeted students. It makes much sense to conclude that the quality of teacher–student relationships can depend on how much time teachers interact with individual students in a non-coercive and friendly manner. A few minutes regularly listening to individual students can make a major difference in their lives.

Thus the evidence shows that positive school relations can buffer the child from the likely effects of less than optimal experiences in their homes. It is also important to acknowledge, however, another side to this coin. It is also known that positive attitudes and expectations from parents will affect their children in a manner somewhat independently from teacher effects. In one American study into educational achievement outcomes in students from low income families with young adolescents, it was found that positive family support and expectations generated by mothers counteracted the effect of low expectations expressed by their teachers. The researchers noted directly and dramatically the 'evidence that even in the face of low teacher expectations, some youth fare well. For these youth, mother expectations play a critical role in buffering some of the negative effects of low teacher expectations' (Benner & Mistry, 2007, p. 151).

So we find that (a) positive student–teacher relationships can buffer effects associated with poor home background factors, and (b) good home and parental factors can buffer effects associated with less-than-optimal teacher–student relationships. But furthermore, Benner and Mistry established that students with the most favourable educational outcomes enjoyed congruence between the home and school. That is, positive relationships and expectations stemming from *both* parents and teachers predicted just who the most successful students were. The worst outcomes were associated with low expectations from both parents and teachers. Such research findings give strong support to the notion that *every child needs a significant adult* to express positive regard in him or her.

IN PERSPECTIVE: Why teacher–student relationships are important throughout childhood and adolescence

The existence of the inevitable empathy gap can make us less sensitive to the reality that students place value on their relationships with the immediate people who teach them. When relationships are positive so are developmental patterns over time. One of the surprising findings stemming from Dr Pianta's extensive research programme concerns the impact of initial student–teacher relationships over the entire schooling period. Follow-up studies show students who have the advantage of establishing positive relationships with their teachers from their initial contacts with the school

system continue to show such advantages a decade later. The benefits of positive teacher–student relationships are persistent and profound, and appear to follow positive escalation patterns. Positive relationships produce good experiences, and good experiences promote positive relationships.

A major reason for developing closeness and reducing conflict is to build the trust needed for most learning. Learning requires considerable investment. It requires confidence that we can learn, it requires an openness to new experiences and thinking, and it requires understanding that we might be wrong, we may make errors, and we will need feedback. Learning for many students is a risky business. The positive teacher–student relationship is thus important not so much because this is worthwhile in itself, but because it helps build the trust to make mistakes, to ask for help, to build confidence to try again, and for students to know they will not look silly when they don't get it first time.

We began this chapter by noting the empathy gap research. We will close by citing other pertinent findings that stem from this same area in social psychology. It is a common finding that people will quickly extend a level of empathy to people they perceive as similar to themselves, but not to those seen as different. People's feelings of empathy closely follow group allegiances, social identities, and cultural alliances. But it is also known that people can shift allegiances quickly once they join a new group. It appears we come built with a natural ability to 'switch sides' with remarkable ease. We may be team players, but have no problem in joining a new team when a better offer comes along.

It is also known that although young children will express empathy for others, they still have immense difficulty seeing the world from another's perspective. We noted earlier how students are inclined to blame the adults in their world for the punishments they receive, even though the adults are striving to be fair and just in applying an agreed-upon system of rules and conventions. The ability to deeply understand others' viewpoints is not evident until late adolescence or early adulthood.

New evidence concerning adolescent (im)maturity

In the scientific literature there has been much recent discussion about brain development maturity requiring an extended period through the adolescent years. While cognitive capacities and reasoning skills are well developed by early adolescence, considerable development still has to take place in terms of social and emotional maturity. Consider, for example the need for older adolescents to develop risk management skills. It used to be thought that adolescents believe themselves to be relatively invulnerable. They may drive fast, or experiment with dangerous drugs, feeling they are unlikely to be harmed. Although appealing, this explanation generally lacks mileage. The evidence was not strong in the first place, and differences between adolescents and adults in such beliefs appear minimal. On the verbal level, most adolescents will show a mature capacity to understand and reason about costs and benefits of choices and decisions that flies in the face of the invulnerability hypothesis.

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Recent research indicates that accuracy in assessment of risk continues to develop through the entire adolescent period, and even later. Teenagers know a line is to be drawn, but are unsure where to draw it. Such judgements hinge substantially on the availability of sensible adult models. Adolescents are characterised as sensation seeking, and as having strong approach tendencies unlikely to be reined in by fears. For instance, analysis of adolescent gambling patterns (under simulated laboratory conditions) reveals the tendency to accept bets seen as too risky by adults. Adolescents are strongly influenced by peers who are seen to value risky behaviour (see Box below).

Left to themselves, adolescents often display poor judgement in areas such as social responsibility, risk management, and future planning. Taking genuine risks can be one means of establishing one is no longer a child: but the paradox is that teenagers need guidance in risk management. During the adolescent years, large differences between individuals in their social competencies become apparent. Those who begin this period with high social competency and strong bonds with adults become even more competent. The psychosocially rich become richer, and the psychosocially poor become poorer.

We continue the theme of teacher–student relationship in the next chapter through looking further into the characteristics of teachers who have a positive effect on their students. More specifically, we attempt to answer the question: *Just what aspects of a teacher's personality will make a difference in the classroom context?*

ADOLESCENTS IN THE DRIVING SEAT

Researchers Margo Gardner and Laurence Steinberg asked people from three different age groups (14, 19, and over 24 years) to participate in a driving simulator game, discretely assessing for level of risk in their driving. When people were tested individually, the three age groups showed similarly low levels of risk taking. However, half of the people in the study participated in the presence of two same-aged peers. Having peers watch made no difference to the driving performance of the adults. But with peers present as onlookers, older adolescents showed a 50 per cent increase in risk taking, and the younger adolescents took twice as many risks. There were no gender differences.

These effects were found with peers being mere silent observers, without interaction. Do such laboratory findings translate into real life? Expensive research using cameras and other recording equipment (such as gravitational force sensors) installed into the motor cars of 42 drivers at 16 years of age, of both genders, over the course of a year, has revealed dramatically different patterns of driving contingent upon the nature of the passengers being carried. More dangerous driving became likely with certain friends in the vehicle. However, other peer friends, and adults, facilitated safer driving, which stands surely as a most reassuring finding.

It is well established, from decades of accident research around the globe, that incidents (such as fatal accidents peaking at driver age about 18 years), become more likely through a combination of elements such as powerful cars, late nights, young inexperienced male drivers, and peer influence. This phenomenon was described by one team of researchers as 'the perfect storm' (Allen & Brown, 2008, p. 289).

One curious fact emerging from traffic research is that the accident rate over the first 250 miles of a driver's career is three times that of the next 250 miles. Younger drivers do continue to have accidents, and it takes another four years for the accident rate to settle down to the adult population level. This settling down appears to tie in with a personal goal shift from 'learning driving skills', to 'driving safely and defensively', which is substantially a matter of minimising risk (i.e., one of the key indicators of maturity).

Study guide questions

1 If there is one universal characteristic concerning human interaction, it has to be the notion of the empathy gap. Is it possible to ever put yourself in someone else's shoes? What obstacles exist?

2 A good deal of pathology is implicated in the type of interaction called the negative cascade. What are some other terms used to describe such effects, and just what are the mechanisms at work in such interactions?

3 To what extent does early school experience play a role in establishing positive patterns?

4 And specifically what teacher traits and characteristics have been implicated in maintaining these continuing effects?

5 Robert Pianta's work has mapped student–teacher relationships in terms of two dimensions: closeness and conflict. Which dimension is more directly under the teacher's control?

6 Is it possible to interact with people whilst suppressing your inner emotions? What has been your personal experience in so doing?

7 When students are disciplined, quite fairly, then just what do they attribute (blame) the experience towards?

8 One key notion in this area is that the school can serve as a buffer against adverse societal influences. Can you express this idea in terms of social learning concepts (such as identification)?

9 Another key idea is that the school is able to moderate the relationship between unhealthy backgrounds and otherwise unfavourable outcomes. What mechanisms are involved here?