

*Conscious and unconscious minds:
Implications for teaching and learning literacy.*

Abstract:

This study considers the roles of our conscious and our unconscious minds in education. It suggests this is fundamental to teaching and to learning. Basic assumptions are clarified and the characteristics of consciousness and unconsciousness explored. Surprising and counter-intuitive conclusions are reached.

The differences between our conscious and unconscious minds are considered, and their respective roles in learning debated in the light of these. A distinction is made between learning detail and understanding meaning and it is suggested that one may naturally be an unconscious task, the other a conscious one. The educational implications are considered, using the teaching of homophone spellings as illustration.

Finally, using grammar as illustration, the case is made for better formal recognition of the power of the unconscious mind and its proper place in educational theorising and praxis. This would radically inform theory, but would also validate the intuitive, but important, wisdoms of experienced teachers.

Maybe we really do think too much?

Is it easier to learn literacy when it is less *intellectualised*? Does it 'sink in' better when it is embedded in something other than the 'literacy' *per se*? Is it sometimes learned easier when *considered* less? Many feel exactly this; for example, that overtly teaching grammatical or spelling 'rules' doesn't always 'work' well, doesn't engage or 'stick', frustrates and demotivates. I know that's how I feel, on occasion, and now I think I know why.

Coming into school, I spot a poster. It showcases three words: *there, their and they're*. My reactions include personal anxiety and professional discomfort. What about yours?

I was learning Welsh, as an adult, when I first noticed anxiety induced by a teaching approach. Presented with overt grammar, I felt discomfited. My mind resented, and resisted, what it clearly experienced as unnatural. Grappling with rules, explanations and conventions grated and chafed. It felt as if my mind was being 'rubbed up the wrong way'. It dawned on me that 'I' (by which I now understand I mean my consciousness) was being deliberately

focussed, *from without*, on aspects of this new language of which I was cheerfully ignorant in my own. (I 'know' very little English grammar.) I have since noticed exactly this anxiety and disempowerment engendered in literacy learners presented with explicit 'rules' or overt 'explanations' of linguistic conventions - often precisely those they already deploy well in practice, as I do, in spite of our apparent ignorance of them.

Is there a fundamental lesson for teachers here?

I want to consider the usefulness (or otherwise) of consciousness in the classroom – to examine the roles of consciousness and unconsciousness in learning. This is a lens which explains a lot of teachers' intuitions and enables considerable forward movement. But there is one impediment to our understanding. Our common sense tells us that we are creatures of conscious will, living consciously observed and consciously directed lives. It is quite wrong.

An example: I was driving to work. Suddenly, a car pulled out of a side road before me. On the other side of the road a lorry sped towards us. There was, as we say, "no time to think". I accelerated hard, swung out across the front of the car and in again in front of the astonished lorry. And then I pulled up to recover. Only at that point did I understand what had just happened - that I had, correctly, accelerated rather than braked. While it was happening, I understood nothing. And I wondered: Who, then, had been driving my car? Well, I had, of course – but who is this 'I' person; this person who doesn't seem to know what's going on while it is going on; this person who seems to 'get it' only in retrospect?

I hope, here, to undermine our misguided faith in, and dazzled over-estimation of, our conscious mind, but I also hope to bolster our reverence for, and delight in, our scandalously under-estimated unconscious one.

Let us take a speculative and wary ramble towards the borders of psychology and philosophy. The undergrowth is tangled and high in this part of the intellectual world, as a couple of quotes will confirm: "Without consciousness the mind-body problem would be much less interesting. With consciousness it seems hopeless." (Nagel, in Block *et al* 1997 p. 519); "There is a feeling of intense confusion, but no clear idea about where the confusion lies." (McGinn in Smith & Jokic 2003 p. 397).

Some basic assumptions:

There are (at least) two aspects of the unconscious: a *Freudian unconscious* (that odoriferous collection of passions, repressions, egos and ids) and a *cognitive unconscious* which deals with the mechanics of mental activity - the 'how do we do that?' questions. What actually goes on when we read or spell, for example? How do we do it? This *cognitive unconscious* is what I mean when I write 'the unconscious'. I use '*mind*' to refer to mental activity (of which we may or may not become conscious) and '*brain*' for the machinery which contrives this for us. I use '*conscious*' to indicate mental activity of which we are aware *and aware that we are aware* and '*unconscious*' for that of which we are *not aware, or not aware we are aware*.

The mind fiercely exhibits *intentionality*. “The central feature of mental states is their ... intentionality: the fact that they are *about* things in the world.” (Chalmers 1996 p. 19 his emphasis.) This intentionality, or ‘*aboutness*’, is fundamental. Crane describes it as being “... the mind’s direction or directedness upon its object” (Smith & Jokic 2003 p. 37). “Every intentional state ... consists of an intentional content related to the subject by an intentional mode.” (ibid p. 39.) It is, in short, (and crucially for teachers) *personally meaningful*.

A *conscious inessentialist* regards consciousness as pointless; an accidental by-product of the brain’s complexity, without function (& see Jaynes 1990). I can see the fun in this idea, but cannot bring myself to believe it. I believe that the conscious/unconscious partnership is a real one in which, although both partners have purpose, the unconscious is the senior partner. The unconscious deploys consciousness when it suits its own, or the partnership’s, ends. The unconscious *manages* consciousness for its own, usually inscrutable, purposes.

The hard problem and the easy problem.

The easy problem is *how?* How do 1500 grey grams of soggy nervous tissue produce consciousness? How, in better words, is the “water of the physical brain ... turned into the wine of consciousness”? (McGinn in Smith & Jokic 2003 p. 397.) One day we will know, at least in principle. (Edelman & Tononi 2000, Seth & Baars 2005, Welshon 2011.)

The hard problem, though, is *why?* Why does consciousness exist? What is it *for?* (Chalmers 1996 p. xii.)

One theory has it that the purpose of consciousness is *social* and another that it is *cognitive*. Both could be right, of course. The social purpose of self-awareness may be precisely the awareness of being a sentient being who is aware of being a sentient being, being self-aware - the famous ‘*theory of mind*’ (ToM). Without a ToM in respect of myself, how could I have one in respect of you? How could we have developed societies? (Block *et al* 1997, Gallagher 2005, Tomasello 1999, Tschudin 2001, Wegner 2002.)

What is *cognitive consciousness* for, though (if anything)?

This seems a silly question. It seems self-evident that ‘I’ am in control of ‘my’ thoughts and actions. This ‘I’ person is my conscious, aware self. It seems preposterous to question this belief. We feel as if we live consciously, as if we *are* our conscious, because, of course, it is the only mental activity of which we are aware. If we think about it at all, we envisage the unconscious as managing all the low level, automatic stuff - enabling us to walk and chew gum at the same time. All real thinking, though, is surely done consciously. How could it be otherwise, we cry? Intellectual activity is a conscious activity, consciously managed.

Isn’t it?

The illusion of conscious will:

This is where reality seems to flip into mirage. You think you are reading this with your conscious mind. It certainly feels as if I am writing it with mine. However, this is a fabulous illusion. Both logic and experiment reveal this disturbing truth very clearly. It is inescapable (Block *et al* 1997, Damasio 2010, Libet 2004, Nørretranders 1998, Wegner 2002, Welshon 2011). Consciousness is a 'virtual reality'; an illusion. This does not mean it has no place in life and learning, but it does suggest we might be wise to consider what that place might be.

In fact, we live in – we *are* - our *unconscious*. It is our unconscious which is 'in the world' and does our mental acrobatics. We become conscious of only a tiny fraction of the result, if at all. It is not clear why this happens; not clear how useful, or otherwise, this consciousness of ours really is. It sometimes seems to be a rather pointless, and intermittent, accessory, dealing in a rather second rate way with second hand material already dealt with in the unconscious.

My conscious can only handle refined, developed, meaningful concepts. All such concepts, though, are, by definition, *constructs*. They are *constructed* from countless, minute pieces of data. These myriad data are almost completely meaningless in themselves. Someone has to gather, identify and prioritise them, correlate, condense and simplify them into concept. Only my unconscious can do this. It is well beyond my conscious.

Vision will do very well as an example. Millions of 'bits' of visual information pour into my brain; a mass, or mess, of details of light, dark, intensity, colours, edges, surfaces, curves and corners, some of it changing from moment to moment. My long-suffering brain, 'I' don't know how, sorts all this out and gives 'me' the answer. After ferociously complicated computing (as researchers into vision find, to their cost and alarm, when they try to model it) my unconscious is able to tell 'me' - my conscious - that I am looking at a blue tit skipping around in a privet hedge. A complexity of detail is reduced to a simplicity of concept; a *meaning* of which 'I' may be made consciously aware.

'I' - my conscious self - cannot process the endless torrent of tiny particulars managed so casually by my unconscious. 'I' have no idea how it is done. We are driven to accept that 'I' would be utterly unable to function without 'my' fabulous unconscious absorbing, digesting, analysing and representing reality for 'me'.

It follows that whatever 'I' consciously experience, feel or think at any moment must already have been experienced, felt or thought by my unconscious. Not only that, of course, but it follows from this that whatever my conscious is experiencing, feeling or thinking is, actually, a presentation given by my unconscious. And there must be a delay between events in the unconscious and their (possible) arrival in the conscious. This turns out to be close on half a second (Libet 2004, Nørretranders 1998). Our unconscious is ahead of our conscious by this small half second, and always will be.

Everything in our conscious mind can only, ever, be whatever the unconscious has assembled from data, and by means, only it understands. Conscious experience is inevitably, and literally, an afterthought. It is history. 'Reality' happened a little under half a second ago. The representation of reality (whatever it is) by our unconscious is all we can ever be aware of. We cannot consciously experience directly. All conscious experience is a

construction. It could be nonsense, and sometimes is. Consciousness is probably deployed by the unconscious for its own enigmatic purposes. Why it exists at all remains unclear.

Consciousness & unconsciousness – how different are they?

We have been discussing them as if they are distinct and different creatures, but are they? Our understanding is incomplete (to say the least), yet we can discern likelihoods and possibilities. And consciousness and unconsciousness really do seem to be radically different. They seem to use radically different processing paradigms, and to have radically different processing capacities. They seem to do things differently, and to be differently effective in different domains.

It's challenging because our unconscious is so completely hidden. Frustrated psychologists refer to it as "the black box". We cannot see inside. At best, we sometimes manage a reasonable surmise as to what might be going on in there, but the wildest experimental approach only ever gains an indirect view.

Estimates have been made of the relative size and abilities of the conscious and the unconscious (Nørretranders 1998). The unconscious seems to process perhaps eleven million 'bits' of information per second, the conscious about sixteen. The unconscious may deploy about seven hundred thousand times the processing power of the conscious.

And the two mental 'organs' use radically different processing paradigms. The conscious processes information serially, one plodding snippet after another. The unconscious, by contrast, processes information in a massively parallel, incalculably interconnected way. To draw an imperfect analogy, the conscious functions like a single, very basic computer whereas the unconscious behaves like a huge number of continuously connected computers, all potentially or actually communicating. (Edelman & Tononi 2000, Damasio 2010, Nørretranders 1998, Welshon 2011)

The conscious and the unconscious are different. The unconscious is enormous, fast, global, holistic, silent and smart. The conscious is tiny, ponderous, local, serial, loud and limited. The unconscious probably organises and directs the conscious, but they probably operate radically different learning paradigms, learning in radically different ways. They probably learn radically different things as a result, and perhaps evolved to do exactly this. (Damasio 2009, Jaynes 1990, MacPhail 1998, Seth & Baars 2005, Tomasello 1999.)

Consciousness and meaning:

I hope our belief in the seeming importance of consciousness and the apparent insignificance of unconsciousness has been shaken sufficiently to address the classroom from the lively potential of our new, but invaluable, uncertainty.

Consciousness, it seems to me, is repelled by, and has difficulty with, meaninglessness. It reacts to it with dismay and anxiety. What it likes is *comprehension*, not

gritty detail. (To me, data feel literally gritty.) Most detail, and most convention, is, in itself, meaningless (grammatical conventions and spelling rules are examples). Is this why being required to consider them *consciously* feels so unnatural, so threatening?

It is very different for the unconscious. Awash in data continuously, it spends its time managing detail. It is at ease with data; apprehending them, filing them and making meaning with them, incessantly, reliably, silently and elegantly.

The attributes of consciousness and unconsciousness are radically different; perhaps their roles are radically different too?

If so, this matters because, although it is an illusion that we can *consciously* direct our own consciousness, it can be very easily directed for us; if someone focusses our attention here, or there, that's where it will go. And teachers direct attention all the time. Teaching *is* the direction of other people's consciousness in highly particular ways. Let us properly consider how best to do this; let us think again about *implicit and explicit learning* (Cleeremans *et al* 1998, Cleeremans & French 2002, Reber 1993).

Imagine an experiment. Some subjects are asked each to memorise some 50 words on 50 cards in a limited time. A second group are asked merely to sort their exactly similar cards into semantic categories. (The words on the cards fall, *if you are invited to look*, into categories – e.g. the names of sports, foods, animals, occupations...) Both groups are then asked to recall the words on their cards. (Gathercole & Baddeley 1993.) The categorisers recall more words than the memorisers. Why? The memorisers perform less well in part because their attention is directed at (and taken up by) a task without inherent meaning. The categorisers' attention, by contrast, is directed at *finding some meaning* among the items. They easily (albeit inadvertently) remember many more because of the meaning they have found among them.

The pedagogical difference between the subjects in these two groups is that their conscious attention is focussed *by the researcher* in radically different directions and made *by the researcher* to do radically different things with data.

Similarly, my own ability to write words in which the letters c, i & e juxtapose has been compromised by a teaching approach hijacking my consciousness and attaching it forever to a spelling rule. (i before e is no help to me ...) I am an automatic speller of almost all the words I use. I do not, usually, 'think about' spelling at all - until these letters turn up together. At that point I must stop to consider my spelling. It is an infuriating and manifestly unnecessary handicap. 'Receipt' is a perfect example of the unhelpful effect; the irregular 'p' I write without 'thought'. It simply arrives at my pen, 'I' don't know how. By contrast, the far more regular i & e have been rendered problematic.

In practice ...

To return to my discomfort about the homophones "*their, there & they're*" on that poster in school. Their similarity is conventional; it is not authentically meaningful. There are orthographic meanings associated with the spellings individually but together, and as presented (purely in phonic terms), there is nothing to interest a meaning-seeking

consciousness and plenty to confuse and intimidate it, now and forever. There is no *traction* in consciousness for this material thus offered. Better, surely, to direct attention at *meaning*.

To avoid confusion we first separate these three words absolutely; teach them on completely separate occasions. We will teach only what is meaningful. In the case of '*there*', this is that a common pattern is within (*h-e-r-e*) and that this pattern is also found in 'here' and 'where'. We might teach these words through Look, Cover, Write, Check / Simultaneous Oral Spelling (Kirk 1983). This focuses consciousness onto the letter pattern ('aitch ee are ee'), onto the fact that these words all contain it and onto applying the LCWC/SOS method itself. Consciousness is focussed onto *genuine orthographic meaning* and a *meaningful behaviour*.

The spelling of the word '*they're*' will be learned when the apostrophe indicating a missing letter is taught - when it has a *real linguistic meaning* and the LCWC/SOS method can again be deployed as a meaningful behaviour to learn a list of words which use this apostrophe.

'*Their*' is a one-off, but may still be addressed using LCWC/SOS and practised with contextualised examples.

Under such learning regimes, the 'data' - the spelling patterns - will be painlessly absorbed into, and appropriately filed by, the unconscious, whose work this is, while consciousness is elsewhere - out in the bigger picture among authentic concepts and genuine meanings.

Perhaps it boils down to a maxim: 'direct consciousness at meaning'. Raw data is usually not meaningful. In such a case, do not overtly teach it. 'Rules' apparently governing linguistic conventions, and 'explanations' of these conventions, are virulently meaningless. Meaninglessness makes the conscious uneasy; it is the unconscious which eats 'facts'. Let us overtly present learners only with meaning, the accompanying 'data' wrapped unobtrusively within it.

A tentative, preliminary conclusion:

I quote from the intimidatingly titled '*Effective teachers of literacy*' (Medwell *et al* 1998), looking through our new lens. It says that:

'Technical aspects of literacy ... tended to be approached in quite different ways by the effective teachers ... The key difference in approach was in the effective teachers' emphasis on embedding attention to word and sentence level aspects of reading and writing within whole text activities which were both meaningful and explained to pupils.' (p. 77) and *'... teaching of language features was contextualised ... and the children understood the purpose of this teaching... Language features were taught and explained ... as a means of managing shared text rather than as a set of rules or definitions to be learnt for their own sakes.'* (p. 78) [*Effective teachers*] *'... foregrounded the creation and recreation of meaning ... they tried, wherever possible, to embed their teaching of the crucial technical features of literacy (how to do it) in a context where the children could see why they were learning about such features.'* (p. 80)

I think these paragons are focussing their students' attention on meaning wherever possible. The mind of the child seems to have very little problem with data. If pattern and purpose are understood, then mere facts seem to slip in without difficulty, fear or pain. Effective teachers direct consciousness at the point, pleasure and fabric of literacy. The rest, all the leaden, incomprehensible and intimidating minutiae, they let flow naturally and unremarked into the limpid competence of unconsciousness. They will be absolutely safe in there.

And finally: How big is mind – and does it matter?

If we are to think properly about what the mind does, we must consider a disabling mental habit we all have, itself based on a fundamental misapprehension we all share.

Our brain is spectacular. We all agree on that, but then underestimate it outrageously when push comes to shove. Our thinking about our thinking is importantly undermined as a result. So let us reconsider: What kind of thing is 'mind' and what should we expect of it?

Our brain is spectacular. There are almost 100 billion neurons in there. Each may connect with some 10,000 other neurons. These connections form networks, and each neuron may be part of many different networks. If we were to count the possible ramifications at the rate of one a second, it would take at least 10 billion years to finish. Our brain is, practically speaking, immeasurable.

The power of mind is correspondingly enormous – I was about to write “mind-bogglingly enormous” except that the mind is seldom boggled. For educational purposes, we may, and should, very respectfully recognise two characteristics of mind: it is more or less limitless and it is utterly dependable.

But we never do this.

Why not?

Spectacular it may be, but our mind is absolutely, and always, hidden. Mind – real mind - is invisible. All we ever experience is our ponderous conscious mind.

The pedestrian performance of the conscious mind stands in extreme contrast to the power of the unconscious, which manages titanic quantities of data with insouciant ease. Every part of the brain may be simultaneously engaged at any moment and very large swathes of it often are. We really can “think without the least congestion upon all sides of every question”.

On this much we all agree, but this insight remains stubbornly theoretical. We seem unable truly to grasp, or believe, that this huge unconscious mind actually exists and really is 'us'; unable to trust this abstract insight; unable to put it to use, theoretically or practically.

The problem is simply put, as we have just seen. Our unconscious mind inhabits an impenetrable 'black box'. We know it's there, but cannot open it. We know a blizzard of stuff goes on in there, but cannot see any of it. And we cannot, apparently, internalise this insight,

or its radical implications. We base no educational theorising upon it, nor do we use it in practice, except accidentally.

We cannot see our real mind. It is as if it were not there at all. It feels as if 'thinking' just happens. So 'common sense' tells us that our mind is our conscious mind, although we often, revealingly, claim we do complicated and clever things "without thinking".

We mistake consciousness for 'mind'. We theorise the mind as if it were roughly as complicated as, say, a gearbox, as a result. The mind we think we know seems robust enough, and quite reliable, but nothing to write home about. Capable, but not dramatically so. We're used to it, and it'll have to do, but we don't expect much of it. And this modest, but wrong, premise underpins, and undermines, all our educational theory. Good educational thinking is thereby headed off at the pass.

Chomsky's innate grammar may serve as an example. He suggested that humans are born with a basic grammar written into the wiring. But he underestimated the power of mind. As we all do, all the time, he equated mind with consciousness. When we do this, it is indeed hard to envisage how we could cope with something as complex as language without an innate grammar. And yet if we could somehow accept the existence, magnitude and dependability of the unconscious mind we would know it is perfectly reasonable to envisage exactly that. The patterns and behaviours of language are certainly a large and complicated matter, but an organ the size and quality of our unconscious mind has no reason to expect difficulty on that account, and will not in fact. "After all," we sagely nod, "toddlers do it without thought". (We mean, of course, without *conscious* thought). And so they do. They need no innate grammar. They learn the patterns of language simply and directly, as and when they turn up, as patterns and nothing more. There is no need for prior rules or structures; no need for an innate grammar.

The brain lives in black silence. All it ever experiences is electro-chemical excitements among its neurons. These have no meaning, in themselves. The brain simply watches for patterns. When it finds them, it stores them and connects them to other patterns. Gradually, they become 'meaning'.

Grammar is not a special case. Like all else, it is 'merely' a matter of the appreciation of patterns, the association of patterns, and the association of patterns of patterns. Language may be symbolic, but it comes as patterns all the same. To the myriad neurons between our ears these are no different to those of any other reality.

A grammar is a collection of patterns inscribing linguistic behaviours which themselves inscribe experience. There seem to be real things in the world (so nouns); things really do appear to have properties (hence adjectives); there really are actions which also have properties (thus verbs and adverbs); there really are connections among, and contrasts between, such things; there really does appear to be time - past, present and future; there really are positives, negatives and nuances. Minds seek meaning by looking for patterns – they soon learn that these categories exist. It is not grammar we internalise, it is those realities which all grammar inscribes, and then their description in linguistic conventions.

A linguistic form often arrives in close association with its meaning. It will be associated with similar patterns already learned, in a network. Once sufficient networks have been built it *looks as if* the mind has learned a rule and is applying it, but this is illusory; it has not. It is an illusion that language obeys rules; that an explicit, prior grammar exists.

There are no rules in there, nor need there ever be. The networks themselves ensure we behave consistently in ways which are compliant with grammatical convention; the rules we think we obey do not need to exist and probably don't.

This ought to be empowering, even voluptuous. And it would be, if we could grasp it.

Some of what we call 'education' involves making explicit, and learning, illusory rules and mechanisms that the mind does not need, contain or desire. We risk making it dull, tortuous and intimidating thereby. Humiliation lurks. It need not.

Conscious mind clearly enjoys ideas and understandings, meanings and contexts, joys and excitements. The data, are none of these things. Let us relax and allow our ancient, dependable but inscrutable mind to deal with them in its ancient, dependable but inscrutable ways. It will not let us down.

Does any of this matter?

It matters fundamentally because although we cannot consciously direct our own consciousness (we think we can, but this is another illusion) *it can be directed for us*. For example, a teacher may direct students' attention at detail or at meaning. Attention may be focussed on mechanism and rule or it may be focussed on meaning and usage. The first was the way I grimly learned (or, rather, did not learn) Latin, 55 years ago, whereas the second was the way I actually did learn Danish in a modern, 'immersion' language class. In the first case, I learned a little Latin grammar but not Latin itself; in the second case I learned how Danes use Danish, but as little explicit knowledge of Danish grammar as I have of English grammar – despite using both tongues easily and correctly.

We are mesmerised by consciousness. Our urge is to direct and control everything, our own mind included. We seem to imagine that this is possible. We neither believe in, nor trust, our unconscious mind. We cannot, or will not, fall back into its arms, safe though they absolutely are. Perhaps we should?

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