
ONLY AWARENESS IS EDUCABLE

John Mason

'Only awareness is educable.'

Caleb Gattegno

Gattegno's assertion is challenging enough when construed as applying to students. What does it mean when applied to teachers and educators?

Change

To think of changing others is presumptuous; to work on changing myself may serve as a role model for others. To work on changing my self is essential if I wish to be able to help others to change.

To change how I respond in a given situation, I must notice, in the moment, the possibility of choosing to act differently.

To act differently, I must have available a different form of acting, perhaps picked up from watching someone else, or possibly from reading or discussing with colleagues.

Only my awareness is educable, in the sense that my power to notice can be developed and refined, and my noticing can be focused and directed. Only when I notice spontaneously, for myself, can I choose. Only when I notice my self, do I become awake and free.

Fragments

Contrary to the standard cliché, we do not, in fact, learn from our mistakes. How often have you said 'I won't do that again!' and then gone and done it?'

What does it mean to 'learn from experience'?

Experience is fragmentary. We re-call fragments, re-member them or in other words give them shape. Fragments can be woven into stories, whose complex structure assists in re-calling related fragments. Memory is made up of fragments linked to and structured by stories.

Disparate fragments, unconnected by a story, remain unrelated in memory. To help students make sense, I need to help them develop their own stories. My own stories structure my own fragments, but may or may not help others structure theirs.

The term 'fragment' can be made precise by using it to refer to the details of events which can be agreed by all participants and observers. Even though all

experience is construed and constructed, some details can usually be agreed, while others are more variably interpreted. Fragments tend to be re-called atomically, in one piece. The details which follow or accompany re-remembering are linked by association and story.

Understanding

Explanation is the weaving of stories to account for the concatenation of a sequence of possibly overlapping fragments.

Understanding consists of fragment-linking stories, which provide rapid access to relationships whenever one or more fragments are re-sonated. The quality of understanding is based on the coherence of the stories, the extent of resonatable fragments, and the complexity of the connections thereby activated.

Very often we move so quickly from fragment to story, from an account of what we recall, to accounting for what we recall, that we confuse the story for the experience. Confusion and Babel arise when we believe our own and other people's stories.

To act *as if* a story were valid, as if a conjecture were valid, is not at all the same as believing the story or the conjecture. But it is easy to slip from *as if* to belief.

To try out a new word, a new idea, a new gambit in the classroom, I have to act at first *as if* it is useful and effective, in order to get the feel. I can only become convinced in myself if I pretend, yet simultaneously observe my self, remembering that it is only *as if*. All too often mathematics students become so identified with the 'doing', whether it be using apparatus, machines, or just doing exercises, that they lose contact with the *as if* (the only thing that mattered was the doing), and hence with the real purpose of the doing. All too often teachers become identified with one way of coping, lose contact with the *as if*, and are unable to grow or develop.

Mathematics educators, experienced travellers in the mental world of mathematics, can help pupils by bringing to mind the *as if*, by evoking the pupil's undoubted inherent mathematical powers where necessary, by re-minding pupils what they could be attending to – the general in the particular, and the particular in the general.

A discipline of mathematics education

Disciplines can be characterised by the ways in which they set about expressing and justifying generality, the types of invariance that they attend to, and the domain in which they ask questions and propose solutions.

What is the domain of mathematics education? What are the characteristic ways of expressing and justifying generality? What are the invariants in mathematics education?

Mathematics education is not just a particular case of general education. Mathematics is characterised by the fact that the objects studied are mental, not physical, and by the manner in which assertions are justified. It is people who do mathematics, alone and in groups. They need each other, and they need to be alone with themselves. Mathematics education is characterised by the application of psychological and social ways of noticing to inform the action of awakening and evoking of pupils' mathematical awarenesses, and to release their inherent powers to manipulate and communicate mental mathematical objects. Only awareness is educable.

Assertions that people in such and such a context will act in such and such a way, (a form of social laws analogous to laws of physics), may be valid for a time, but their validity is not robust, for awareness develops, changes and produces new behaviour. Weaker forms of such assertions, in terms of propensities, or possibilities, end up as descriptions of particular events.

'Mere' descriptions are looked down upon as too particular, as ungeneralisable. Yet if a description is sufficiently graphic and vivid, then it can resonate with my experience, summoning up both vivid particular incidents or ideas, and strong but generalised images or awarenesses. Only awareness is educable. If your description 'speaks' to me, it is far more general than some assertion to which I am unable to relate because I cannot see the particular in the general.

Seeing the general in the particular, and the particular in the general is fundamental to human functioning. It is the means whereby we simplify and structure our experience so as to make sense of it. It is the mechanism of resonance, the educating of awareness.

Why then are these notes not filled with vivid descriptions and anecdotes of classroom and in-service events? Because my conjectures (masquerading as assertions), although general, are also particular, and are intended to strike a chord, to resonate fragments in your experience, to stimulate reflection.

Reflection and separation

To educate awareness, to help teachers and students develop themselves and their selves, requires

- support for positive (non-judgmental) reflection;
- support for noticing moments when they could have acted differently, or wished they had acted differently;
- support for preparing themselves to notice similar possibilities in the future.

Two birds, fast-yoked companions

Both clasp the self-same tree;

One eats the sweet fruit,

The other looks on without eating.

Rig Veda

Effective reflection is not just dredging up fragments from the recent past, and it is certainly not judging past behaviour. It is the creation of an inner separation. It is the awakening of the other bird, in order to break out of identification with mathematical computations or details of teaching, freeing part of the self to notice and monitor, to suggest alternative action – in other words to change. Only awareness is educable. ■

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