To Jill [redacted]

Language Education and Research Centre

Kwansei Gakuin University

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From mario@[redacted]co.uk

Dear Jill,

Here is my 1500 word article that plenary folk customarily have to write + a 50 word summary for rendering into Japanese.

Looking forward to meeting you.

Mario

Jall

NEUROLOGICAL FRONTIERS

by Mario Rinvolucri, Pilgrims, Europe

For 25 years I have worked as a modern language methdologist and now, suddenly, in mid-career, I see a whole new horizon opening before me/us. For 25 years, in the excellent company of people like Alan Maley, Bernard Dufeu, Andrew Wright, Paul Davis, John Morgan, Jean Marc Care, Herbert Puchta, Luke Prodromou, Donald Freeman, Tessa Woodward, Seth Lindstromberg and Peter Grundy I have beavered away at exercises that have certainly made the language classroom much less tedious than it was in the early 70's, a time when I greeted the poverty-stricken bag of activities proposed by Robert O'Neill In Kernels Interdmediate with rapture - they were so much better than what we had had before. We now have available a powerful edifice of techniques to use in the EFL classroom, and it is the methodologists who have borrowed them, adapted them, created them. The fact that maybe not more than 10,000 of the 400,000 colleagues who teach EFL on China's secondary schools know anything about these techniques is a sad one. The fact that you can do a Master's in EFL in the US or the UK and learn very little about the sizeable toolbox now

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available is a sad fact, too.

However the knowledge and experience is there and available in 200-300 teachers handbooks, from where it gradually filters into the internationally produced course books.

The Snag with the Methodologists' work

Our main problem over the past 25 years is that we have devised exercises with very little knowledge of how people learn language. We have had to work with little or no scientifically validated knowledge. We have had to follow our hunches and work artistically. Having devised an exercise we have been able to watch students using the scenario in question and then been able to think analytically about how the exercise appears to be helping or not helping the learner.
In this area, sadly, the writings of most of the "applied " linguists, have been of little help.

The neurologists of the brain, folk like A. Damasio ( Descartes'Error, Avon 94 ), have recently started publishing material that begins to describe how learning may take place, and which areas of the human brain are involved. With the growth of these neurological studies we are gradually building up a physiological picture of how learning happens. If this continues, then language methodologists will have some basis for favouring Activity A over Activity B in terms of the brain activity provoked by each.
Let me illustrate the way discoveries in neuro-science can suddenly throw light onto an area of language teaching where before what we did was little more than psychological guessing.

Correction as an example of an area illuminated by Neuro-Science.

When I first came into teaching 35 years back correction was not an area of worry or concern. The student make a mistake and you said : " Not taiburu, Hiroi, say "table" "
Wasn't that what teachers were there for?

The next step, for me, was to observe students as I corrected them and to wonder what they were really doing with the correction. I began to notice that the Hiroi's went on saying "table" wrong, despite my best correction effort. I noticed that oceans of scrupulous red ink did not

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much improve my students' writing.

After doing some psychological reading and after working with some master teachers, like Gattegno I realised that the acceptability of correction , like the acceptability of any advice, depends on who is giving it, when and where. By looking at behaviour correction in the family it became clear that there is a big difference between parental correction and sibling correction, which is parallel to peer and teacher correction in the classroom.

This brought greater clarity in to my thinking and since then I have devised a variety of parental correction techniques and sibling ones.

When I began writing letters to students I realised that I DID NOT WANT to correct the letters they sent me. It seemed to run against the grain of the communication to give them their letters back with marks all over them. As I corresponded more with students I realised how right my instinctive refusal to correct had been. By not focusing on the negative I helped students to open their wings and fly across the page, to take risks and try to say things they really could not yet say.

I then added principled zero correction to parental correction and sibling correction.

All this thinking about correction up to this point had been teacherish and psychological.

I had only dealt with correction from the outside, social correction. But what about self-correction? How come second language speakers will correct oral mistakes they make a second after making them? How do they do this?

Using some of the tools offered by NLP, I set out to find out how. I discovered that people are very different in the way they self-correct, at least according to the accounts they are able to give of the process.

Here is one native English speaker:

" when I am speaking Russian or German and waiting for a speaking turn in a conversation, I will suddenly get an abstract picture of the shape of the grammar I intend to use… when this happens my sentence usually comes out correct…..my visual monitor serves me well when it is activated before I speak.

However, if it switches on while I am in mid sentence and allows me to see I am making a mistake

then I go to pieces……I pause and stumble…. This is a very bad feeling. "

This speaker seems to see grammar as a visual entity. This not always the case. Here is another English speaker describing what happens when she is speaking Spanish:

" If I am in mid sentence and I make a mistake I am aware of, I hear one of two voices in my head. One is on the left side and it comes up from below, curls round the left side of my head and then goes out in front of me. This voice is kind, soft and low and it very easy to accept correction from it. The other moves in a directionally similar way but on my right side. It is harsh, loud and accusatory and I hate accepting correction from it. I fear it. "

Accurate, self-reported information about students' inner process of self-correction is of immediate practical use to the teacher. If I were teaching Person 1Russian it would make sense to NEVER interrupt him while in conversational flow to correct anything- why imitate the dysfunctional side of his inner monitor? If I were teaching person 2 Spanish I could cause a major negative effect by offering her correction in a voice that was loud or harsh.

Self-correction also fascinates the neurologists. They want to know what exactly happens in the the brain when some one self corrects. They have used brain scanning to discover that during error correction there is intense activity in a curve of gray matter just under the frontal lobes, an area known as the anterior cingulate cortex, or ACC. Carter and Cohen from Pittsburg University report in SCIENCE Vol 280, p.747 that the ACC, when monitored with magnetic resonance imaging, seems to activate whenever its owner gets a simple task wrong. In their experiment the subjects were asked to distinguish between different letter sequences. As a language teacher I am amazed to learn that a discrete set of cells are activating Speaker 1's abstract pictures about Russian grammar or setting off one or other of speaker 2's correctional voices. The anterior cingulate cortex is the place where the internal process that students have described to me in conscious words happens. WOW!.

As a citizen and a person I am amazed to read these scientists' hypotheses about the wider functions of the ACC. Some are suggesting that hyper active signals from the ACC contribute to obsessive compulsive disorder (OCD) in which a person anxiously repeats menial

tasks, like washing their hands or locking the door. Last year a scientist called Gehring found that OCD sufferers display excessive ACC impulses when they make mistakes in experiments on reaction time. John Allen of the University of Arizona has preliminary results that suggest that people with unusually weak ACC signals may be more likely to steal because they don't physiologically sense the wrongness of their actions.

Maybe those of our students who happily ignore their language inaccuracies in English are blessed with weak ACC signals!

If only I were properly competent to read and evaluate what the neurology boys are producing, week by week, month by month. Knowledge of what the brain does when we self-correct, when we are corrected by a teacher, when we don't notice our mistakes is central to how we EFL folk should go about teaching.

In my view brain neurology already is and will increasingly offer us language teachers answers to questions we have not yet had the wit to ask but which, unknowingly, we need answers to.

Synopsis.

Scientists studying the neurology of the brain are opening up new areas of knowledge that will be of more use to us practical language teachers than all the acres of applied linguistic print. The article looks at the way anterior cingulate cortex seems to be the seat of error-correction.

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