SENDING OUT A CROW IN SEARCH OF NEW MUD: AN EMAIL FROM DICK

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My first FLM article appeared in 1993 in a special issue focusing on psycho-analytic and therapeutic dimensions of mathematics education. In that article, I tried to reconcile some Jungian concepts with my experience of teaching mathematics in South Africa (Breen, 1993). My involvement as an FLM author was a result of the encouragement and badgering of the editor of that special edition, Dick Tahta. I had first met Dick in 1990, at the insistence of Arthur Powell and Marty Hoffman, fellow participants attending what was my first post-academic-boycott international conference in London, who noticed the resonances in my paper's bibliography. At the conclusion of that conference I had made my way down to Wiltshire to meet him.

The poet Robert Bly (1988, p. 7) writes:

> We notice that when sunlight hits the body, the body turns bright, but it throws a shadow, which is dark. The brighter the light, the darker the shadow. Each of us has some part of our personality that is hidden from us. Parents, and teachers in general, urge us to develop the light side of the personality - move into well-lit subjects such as mathematics and geometry - and to become successful. The dark part then becomes starved. What do we do then? We send out a crow.
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> The dove returns: it found no resting place;
> It was in flight all night above the shaken seas;
> Beneath dark eaves
> The dove shall magnify the tiger's bed;
> Give the dove peace
> The split-tailed swallow leaves the sill at dawn;
> At dusk, blue swallows shall return
> On the third day the crow shall fly,
> The crow, the crow, the spider-colored crow,
> The crow shall find new mud to walk upon

It seems to me that the field of mathematics teaching and research could also be considered a well-lit subject as we search for best practice and new knowledge. Certainly this story starts in the light at a time when I was particularly excited and pleased with myself at the turn of the century. I had started pulling together the work that I had been doing over the past decade, working in a mathematics methods course with pre-service primary teachers who were severe under-achievers in mathematics. I had developed some theories about the roots of their problems lying in their internalised fear of mathematics and had constructed a curriculum that would attempt to challenge their assumptions and change their attitudes to mathematics (see Breen, 2001, for a description of the main features of this course and a theoretical underpinning of the reasons for taking this approach). One of the main features of this approach involved a role-play in the first session of the year, where I became 'Mr. Smith'. This terrifying teacher strode into the classroom demanding instant obedience and proceeded to give the class a test to find out 'who the stupid ones were in the class' and humiliate them in ways which might be familiar to many from their school days.

Enter Monica in 2001

Having arrived at this satisfying position of being in possession of what seemed to me to be a clear, simple and theoretically sound curriculum for the course, I decided that I would research the new intake of students so that I could prove the success of this new curriculum to my colleagues. Monica was a member of this class and immediately caught my attention:

> I notice a small woman sitting near the front of the class chewing away frantically and blowing gum. She could be trying to draw attention to herself. Is she going to be one of those cocky students who think that they are wasting their time in this class because they can already do the maths? She doesn't say anything, but I sense that this is not the case. At the end of the session, I test the latter view out by saying to her that it seemed to me that she was chewing her gum furiously to try to ease her tension. She agrees with me. (Chris, February 27)

Monica turns out to be the ideal case study for my new programme.

> When I first realised maths was inclusive in this course I immediately felt physically ill. I can honestly say I dreaded the first lesson. Maths since school for me has always been a stumbling block. I always felt inferior to those who were able to do it. I (and it is my own insecurity) always felt that people thought less of me that I did not do maths. (Monica, February 27)

Monica is exceptionally poor at mathematics and highly resistant to any attempts to change her attitude or approach. However, I persevere and work hard on making sure that she engages with the course. I keep records of all her interactions and work so that I am able to write an account of the main features of her progress during the year. At the end of 2001, I am excited when she manages to pass the course. I set to work writing a proposal for a conference paper and attempt to demonstrate the success of the course by reporting from both Monica's and my perspectives.

Monica's version

I felt that I was incapable of learning any maths concepts and my expectation of failure induced the behaviour that increased the likelihood of that outcome. I believe my failure in maths was as a direct result of my negative self-expectancy. [Research essay]. I think it all started in Form 4 when I couldn't understand a thing about division. (13 November, interview)

Indirectly my negative attitude towards maths can be attributed to the fact that both my parents also believed that they weren't good at maths and would often comment that "our family is just not good at maths" [Research essay] This self-fulfilling prophecy was the legacy I brought with me into my maths method course this year. I hadn't had to face my fear of maths since school and I thought I would never have to again. [Research essay]

It helped such a lot this year to have a teacher who believed in me - that I could do the mathematics I liked the way he asked us to visualize things with apparatus. Talking it through with him always helps as he has a calming effect on me [13 November, interview] You can see that it worked because my marks improved so much during the year. I almost completely conquered my difficulties with division

Chris asked us to keep a journal to record what we felt like after each lesson, I found this to be therapeutic in that it was the first time in my life that I was able to express my total anxiety with regards to maths and to know that someone cared whether I passed or failed. [Research essay, October, 2001]. The experience on teaching practice was the most significant event. I do not think anyone can realise what a personal triumph this was for me. I cannot believe that I did not panic or end up crying in the lesson. Although my anxiety towards maths still exists, I REALISED THAT I CAN DO IT! I felt as though years of suppressed anxiety had literally been lifted off my shoulders. [Research essay]

Chris's *light* version

It seems that I'm really getting somewhere with this course on two levels In the first instance, the first term's focus on enactive principles has allowed Monica to voice her feelings in a reasonably 'safe' environment. She has been forced to stand back a bit from the events of the day in the class by the set task of keeping a reflective journal which forms part of the assessment portfolio. This first-term work is really important and it showed when she plucked up the courage to teach maths on teaching practice and it worked for her!

It also proved to be important to be strict with her at times as shown, for example, in the incident where she wanted to revert to her school strategy of leaving the room for the rest of the class with a headache. Even in the final revision session, being firm with her allowed her to bring the taught example of using $6 \div 3$ as a reference point for understanding how to order the numbers in a division sum The gradual improvement in her ability to tackle division problems during the year was also encouraging, especially as this was the very same topic that had started off her whole path of negativity towards mathematics. Monica also showed me the important lesson of always believing in a student no matter how much they might push you or how little mathematics they know. It really feels good to be getting somewhere with this method

Enter the crow

In June/July 2002, I was fortunate to be invited to facilitate a three-week course in Devon and this gave me the opportunity to spend some time in conversation with Dick. One of my techniques for engagement was to send Dick a file of some current research or writing and then wait to see what aspect would interest him. One of my emails contained some of the raw data from my work with Monica. I soon received a reply from Dick.

Tahta, 2002

Well, I couldn't resist opening the files you sent me And I was soon drawn in. Oh dear. And I woke up this morning with a medley of thoughts which I thought I would scrappily set down and send off to you now - partly so that I don't get too far into a conversation with you in my head, and partly to lay down a marker or two for some further exchange if you are interested

It is always interesting to read accounts of your classroom and I thought you not only did this well in the article but also offered a cogent and well-argued rationale for the way you go about things. It seems clear from the transcripts that your course must be an enormously valuable experience for people like Monica - from both a professional and a personal point of view.

What is always difficult about thinking about other people's professional practice is to distinguish between what takes place and the "story" that sustains the practice ...

So, when I read your accounts of work with Monica, I find I am thinking more about the things that sustain you in your work, rather than what you are reporting about the students You will recognise the issue when students talk to you about some experience on teaching practice. They are - rightly - concerned about the children, you are more involved with them Thus, in a sense, I now respond to your writing as if I was a supervisor - working on you working on your clients. So, for instance, I might muse - non-judgmentally - about what sort of investment Chris has in his role-playing Mr. Smith. ...

You take your pick. And as always you ask what is in it for the one who proposes a particular theory. In particular, I am curious about the particular explanations that the actual "patients" supply. Where do they get these from? What is "in the air"? So, for instance, I note that your presentation of Mr. Smith at the start of your course immediately offers students an attractive account that almost all will be able to relate to. I am not, of course, suggesting that you shouldn't be introducing Mr. Smith. Just emphasising that anything you do can chime with an old story or perhaps offer an attractive new one. ...

And coming to Monica for a moment, I got the impression that she would thirstily take on board any interesting and dramatic story that was available It seemed (and I emphasise that I can't know the real Monica, that I can only report on the Monica on paper - I mean on screen!) that she was ready to respond to your inquiries about early teachers. But that there were also some other pre-conceived scripts. Thus,

her father made sure she knew her tables, and "our family is just no good" There was also, it seemed, a strong sociological issue for her, it was peer pressures that seemed at times most important to her - this might stem from family sibling issues ... She seemed to leap into your proffered image of a cage. She certainly gained a lot from her private and public contacts with you - and this, I thought, enabled her to work on a possibly familiar script that no one had any belief in her - until Chris ("you make me feel at ease", "you believe I can do it", "you are comforting" - not like ...?)

There was something disturbing about Monica that you seem to have picked up. It is tempting to suppose that the disturbance you felt was hers. I was intrigued by the occasions where you were clearly driven into being firm, into setting boundaries ("You are going into one of your states", "you got sulky ... that's what you do", and your pointing to her headaches as devices enabling her to withdraw.) As if that was also part of her script - the adolescent tantrum, simultaneously wanting to rebel, but also to conform, to be hugged. In some contexts, Monica (the literary figure I was presented with) would be labelled a hysteric (whatever that means) And would have to be treated accordingly. But it would be known that she could always very powerfully resist any fundamental treatment. Changing our life-sustaining scripts is very difficult - it has to be an internal personal choice, certainly not one that can be done for me by others

I am moved by your sensitivity to these issues. But need to remind you that sometimes in the work of teacher-training you are in the position of an army psychiatrist patching up the shell-shocked so that they get back to the front. You may know the interesting fictionalised account by Pat Barker of the pioneer psychiatrist W. H. Rivers who treated people like Siegfried Sassoon, Wilfred Owen in World War 1. There is always an underlying tricky issue of whether it is part of our job to steer people away from teaching I only did this once - in the case of what I thought was a very damaged man with sadistic tendencies. Monica is of course different. I feel she has sensitivities and some self-knowledge, and a lot to give. Whether teaching is the right choice for her, is her business You helped

As for an account of "mathematics phobia": I felt you perhaps quite sensibly ducked explanations in your article. ... Sure, it is an emotional issue - and you enlist appropriate affective energy in your classroom. But is there actually such a thing called mathematics phobia? Is there a common source? If so, where? I wasn't clear what your story was. In the case of Monica, mine would be that the mathematics part of her problem is irrelevant. Mathematics has been latched on to as a symbolic condensation of something far deeper, with very early roots. As it has of course (I say) for all of us.

A final comment. I noticed that in the course of your interview you were seduced (I put it that way deliberately) into helping Monica through some step-by-step procedures (*e.g.*, 636 divided by 2) We all do this in classrooms. Some students are very good at getting us to do it with them. It leaves them - and us - feeling good. But

> [t]he spoken or written symbols are *listened* to or *looked* at in the physiological sense but they do not seem to have been *heard* or *seen* in the sense of any accompanying mental construct or 'meaning' in the mind. (p. 4)

I indulge myself by quoting my own words about a concocted Karen at the beginning of the *Association of Teachers of Mathematics* pamphlet, *Geometric images* - I don't know whether you may have seen it. The point is that we know that Karen will still have problems the next day. What she has quite reasonably gained is a personal, meaningful contact. And why not? That may be more important. But meanwhile how does one help Karen gain self-confidence and improved mathematical skills? There is a technical issue here, emphasised by the fact that it didn't seem to me that I had any idea from the transcript of what might have been in Monica's mind as she was led through the sums.

And then.....

Suddenly the light has disappeared and I become aware of a great deal of mud - mud that I realize that I had always known was there but which my field of study does not seem to encourage Perhaps this is an ideal time to see what it is like to walk on the mud. I decide to add a muddy interpretation of the data to the research report proposal and then become concerned that if Dick can show me a new space of muddy terrain, presumably there are still other muddy patches that the light is still hiding. I decide to take a chance and include yet another version to end the report.

Chris's *muddy* version

Over the years I have developed a strategy to get students who struggle with mathematics to talk to me. It's based on the 'good cop, bad cop' routine. In the very first session, I introduce them to a nightmare teacher called Mr. Smith who draws out memories of bad times in their school mathematics classrooms At the end of the role-play I remove the symbol for my transformation to Mr Smith (an academic gown), and return to the class as the good guy, Chris. It's a good routine and generally seems to work, although at times when I get rattled in class later in the year, the distinction between the two characters seems (to me) to be fairly tenuous. The acceptance of feelings and the use of apparatus and visualization as ways of getting into the mathematics, helps distance both my class and me from Mr. Smith and his world. It also promises the students the possibility of a different mathematics experience. While I do believe in the importance of these enactive moves, the major pay-off lies in positioning me as a good-guy teacher.

Monica's script has basically been written many years ago - long before she came to this university course. In fact, it is probable that most of her mathematics script was written in her very early years before she encountered school mathematics This powerful condensation of mathematics is considered by many to be a common heritage for all students (Tahta, 2002).

In this particular class, I am both a teacher and a teacher educator, but not a psychologist, so this early script is none of my business. My task is purely to play along with the idea that this fear has everything to do with mathematics and little to do with early-life experiences. I tackle this problem with mathematics as a short-term problem needing patching up as quickly as possible. However, I also aim to leave

open the possibility for Monica to choose to work on whatever else comes up - in her own way. In Monica's case, my strategy of positioning myself as a 'good guy' works and she comes to view me as someone who at last has belief in her.

I listen to and read about our interactions in class and in her journal writings. I try to pick up her cues as to when to be firm and when to give her space. Even on the day before the final test she still does not understand division, so I am forced to take her on one of those meaningless step-by-step routines where she ends up with correct answer because I have been firm and she has been anxious to please. Fortunately, this lesson stayed with her (almost) for 24 hours as is shown by the improvement in her performance in division problems. However, I choose not to dwell on the fact that she is unlikely still to be able to do the problem next week. Cabral and Baldino (2002) discuss the concept of pedagogical transfer where positive transfer is identified with love. However, they warn that this "love is to be distrusted, since the student is only seeking the way to produce the right answer, so that [...] [s]he will be recognized as one who knows" (p. 172). Monica ends the examination session by checking whether I will be in my office the next day, as she wants to bring me a gift of appreciation.

I'm relieved at the end of the year that it has all worked out, even though at times it became increasingly difficult to be supportive. She has had a good teaching practice experience and she has improved from a mark of around 10% to one of about 60%, and has passed the year. However, a year later, she has still not arrived with the present! Is this proof that the love is to be distrusted? What would your, the reader's, version be?

Turn the light back on

The paper was rejected at its first submission as a potential conference contribution in 2003, but a slightly revised version was accepted for the same conference the following year (Breen, 2004). One reviewer, in 2003, felt that the topic would not be of interest to conference participants because someone as mathematically incompetent as Monica should never be allowed to become a mathematics teacher. Another was uncomfortable with the results contained in the paper, and affirmed that results are answers to research questions which emerge from the informed interpretation of empirical evidence. This reviewer is clear that she does not recognize any results in this paper.

I return to Bly's quotation from the start of this article where he claims that parents and teachers encourage us to "move into well-lit subjects such as mathematics and geometry - and to become successful". It seems clear to me that these two reviewers were urging me to move into the light of the well-lit subject of mathematics education and to keep Monica in the shadows. If I follow their considered and well-intentioned advice, there is no doubt that I will become successful in my subject.

In strong contrast to this advice, Dick invited me to feed the dark part where the shadows played with the data. In revisiting Dick's e-mail, the data, my papers, and the reviewers' reports, I have noticed for the first time that one reviewer of the revised proposal (2004) took it upon herself to offer a "reader's version" although in that proposal she had not been invited to do so. She wrote,

> I think another result that is not made much of is the emotional reactions of the teacher Chris. An analysis of his highs, lows and at times nearly giving it away would be rather interesting to explore as well, but that is clearly for another paper perhaps.

And suddenly, a new path opens up before me that seems to lead into total darkness. As I approach the path I notice a warning sign, which reads "Did you like Monica?" As I peer into the darkness ahead I see more questions ahead: "How much did Monica really irritate you?"; "How much of your own story did Monica hook?"; "Was Monica really scared of Mr. Smith or was it you she feared?"; "Was it really the maths that made her physically ill at the start of the course?"; "How much of a desperate role was she playing to win your regard if she felt that you really wanted to reject her?"...

I understand the "perhaps" in the last reviewer's comment. Perhaps I've seen enough mud for a while and it is time to return to the light and join the conspiracy to consign Monica to the darkness.

A lingering thought

> The poem refers to the Noah story, though I drew the images from an earlier version composed by the Babylonians, in which three birds took part. The poem came two or three years after college, and it seems to say that if any help was going to arrive to lift me out of my misery, it would come from the dark side of my personality. I remember this as one of the first things I understood clearly for myself. (Bly, 1988, pp. 7-8)

What would it mean if future progress in mathematics education depended on our willingness to move it out of the light, in order that it might bring help to lift many out of their misery?

A single email - so many layers.

Thank you, Dick, for turning my gaze away from the light.

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In the editorial of FLM27(1), I invited reflections on how Dick Tahta's (1928-2006) work had influenced readers. Chris Breen wrote, "I offer this piece of writing as a tribute to the many valuable conversations that I was fortunate to share with him". This contribution is followed by a piece of writing by Dick sent in by David Pimm. [ed.]