

**“I FOUND THAT I’VE BEEN FREE ALL ALONG”:
KNOWLEDGE, MEANING, CREATIVITY AND HOLISTIC SCIENCE**

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*“And an eternal, living Activity
Works to create anew what has been created
Lest it entrench itself in rigidity.*

*It is intended to move, to act and create –
First to form and then to transform itself;
Its moments of immobility are only apparent.”*

Johann Wolfgang von Goethe (1749-1832)

In: Naydler (1996); p 113.

“My mind seems to have become a kind of machine for grinding general laws out of large collections of facts...If I had to live my life again I would have made a rule to read some poetry and listen to some music at least once every week... The loss of these tastes is a loss of happiness.”

Charles Darwin (1809-1882)

In: Barlow (1993); pp 138-139.

Introduction

These quotes reflect two polarities: one sees the creative dynamism in nature (Goethe’s), while the other (Darwin’s) is an admirably honest, but somewhat belated and sad self-reflection, a recognition that when the mind becomes “*a machine for grinding out facts*”, we are in a very unhealthy situation indeed. This seems to me to be our current predicament, and it would appear that science, as both a reflection of and a driving force within society, is at the heart of it.

We are not helping students appreciate the creativity inherent in nature, as epitomised by Goethe’s dynamic view. The doctrines of mechanism, reductionism and absolute objectivity are inculcated into science students at the expense of their creative self-expression and their ability to appreciate the sacredness of nature and the wholeness of phenomena.

The malaise is reflected in declining enrolments, confusion and disengagement of science students (Schmidt, 2010), as well as lack of motivation, epitomised by reduced student attendance of classes (Massingham & Herrington, 2006). This is perhaps for good reason, since this is “*not a flight from rigour but from rigor mortis*” (McWilliam *et al.*, 2008).

So, how can we re-invigorate science students, to enable them to appreciate the dynamism of nature, to see and feel the beauty and the poetry? What has happened to the artistic sensibility in science? Where is the mystery and the meaning? Where is the love of knowledge (Figure 1; (Zajonc, 2006))? We are asking fundamental questions about what is the domain of science and the very nature of the ‘official’ scientific method. Is it still there in individual scientists and students, but hidden perhaps in the collective scientific enterprise? How can we overcome ‘*rigor mortis*’?

My own feelings on these questions stem from my experience of twenty years of University teaching and a certain frustration with the *status quo*. We are still very focused on quantification and dumping knowledge, comprised of ‘text-book facts’, into science students, even though we know that there are no absolute ‘facts’ (Popper, 2002). Knowledge has been emphasised at the expense of meaning. Peter Medawar, biologist and philosopher of science, went as far as to say:

“A ‘good’ experiment is precisely that which spares us the exertion of thinking: the better it is, the less we have to worry about its interpretation, about what it ‘really’ means” (Medawar, 1969), pp14-15.

So, qualities such as meaning and wisdom have been side-lined, denied or excluded, because curricula are focused so much on knowledge. It is very hard to get out of this way of thinking. How can we ‘re-create’ science to creatively balance knowledge and meaning?

Learning from Nature

I am filled with a sense of awe and wonder when studying embryos. The gradual appearance of form of a zebrafish embryo is astounding. The cells move in an intricate dance of creative exuberance, co-operating and

responding with ease to the rhythms in the silent music, creating intricate, interweaving patterns that are beautiful to behold. We cannot appreciate the process of embryo development without 're-cognising' this inter-connectivity and these dynamic relationships. We see that there is "*multiplicity in the unity*" and that as cells differentiate to become the seeming different 'parts' of the embryo, they are indeed 'distinct' but not 'separate'. The potential for development, the archetype of the whole organism, is in the fertilized egg from the very beginning, just as the potential for learning and realising new meaning is immanent in the student. We can learn from the embryo.

The Metamorphosis of Meaning

Recently, on the MSc Holistic Science complexity module, along with Philip Franses and James Wakefield of Exeter University, we explored the emergence of meaning, as the potentials within the fertilized egg are expressed during development. At the same time, the students undertook their own metamorphosis of meaning. They were encouraged to reflect on their journey during the process, to feel their way, and to relate this to the dynamic changes occurring in the embryo: cell migration, proliferation, differentiating and death.

'Re-Creating' Science

Schumacher College's educational approach is transformative, participative, meaningful, playful and creative, particularly regarding the ability to develop the ability to see the wholeness and dynamism of nature through Goethe's way of science (Bortoft, 1996; 2012). During the research for my MEd Dissertation (Wride, 2014), I carried out interviews with Schumacher teaching staff and MSc Holistic Science students to explore their personal experience of the Schumacher educational approach. The views of one student 'Sally' are presented here as a testimony to her personal transformation during her MSc Holistic Science 'pilgrimage' and her thoughts and fears about working with her experiences upon leaving Schumacher.

"Alive in a Dead World"

'Sally' reflected on the deadening effect of the science education she had experienced as a child:

"I love physics, but I didn't like the way it was taught. Biology....I just felt I wanted to ask different questions and the questions I was asking weren't welcomed with open arms.... So, I just thought I was no good at science, so I put it to one side I drink anything that I can put into context in my life and my experience, because to me then the whole world comes alive.....I was learning about a dead world..... What's alive for me, what's dead for me? I think my whole life everything around me has been dead because I've not been able to access or have my creative side fed. So, I'm alive in a dead world."

"Saying the same words, but people don't see what it is you're saying"

'Sally' also reflected on how important language is in creating the world and the limitations of communication in finding shared meaning. Such reflections have profound importance for a creative education in enabling space and open-ness, versus closing down and fixing the student-teacher relationship. Both the choice of words and allowing space for silence and reflection are vital:

"If you're going around thinking that you've got to 'tackle' something or 'surrender' to something or 'win' something or 'lose' something then actually you're kind of on the back foot already with creativity....So, for me language is extremely important because that's how we view the world and that's then in our perception, it's what we createThe creativity of the unspoken can actually bring you to a place where you can both be together and understand each other...Because you can be saying the same words, but people don't see what it is you're saying, they don't hear what it is that you're saying and for me it's the space between and is that space open?"

"What's the louder voice?"

'Sally' also reflected on what is required to balance different modes of seeing within the individual for creativity to blossom. Specifically the artistic modes of insight and intuition, with the analytical approach, the cultivation of mindfulness and becoming aware of feelings in the body as they arise:

"I think the key is to be mindfully aware of when they're coming together. What dialogue is happening between them as it's happening, what's the louder voice? What's going on within you at the time? And cultivating that mindfulness Do you enter into a battle with these things? Which is how we've been brought up....If we think

about entering into a relationship with your right and left hemispheres [of the brain], with your analytical side and your artistic side - that for me has a totally different energy about it.... I think that's where creativity is born."

"What the hell am I doing? I'm not supposed to be doing this"

'Sally' also described the profound challenges she had in coming to terms with the new ways of seeing she was being asked to develop:

"I had the most profound experience with the groundsel plant when I did Goethean science. ...I was sat there in front of this plant thinking "Oh my God! What the hell am I doing? I'm not supposed to be doing this! If my Dad saw me doing this? And if my friends saw me doing this, they'd think I'd gone off my rocker!" I was trying to let this plant talk to me or see it differently....to go upstream and be with it outside of labels or pre-judgements.... And I dropped into this chasm, this void for a week where I couldn't say anything. It was like this whole silence thing - it freaked me out, it really, really freaked me out. And I didn't know what was happening to me....I was in a completely different relationship with the plant - allowing - not coming to it with any preconceived ideas and not knowing what to do with that. Not knowing how to be with it. And I was just totally overwhelmed. I felt energetically that something was happening, but I had no words. And I remember saying to Philip [Franses] "I've got no words, I don't know what I'm supposed to be doing". He says, "You're not supposed to be doing anything". Because I wanted... "this is what you do"...and you can't do that with phenomenology or Goethean science. You just have to 'notice' and 'be with' and I don't think I'd ever 'noticed' or 'been with' (in relationship with) anything before in that way. So, I was in a place of the unknown and quite fearful I think because I kept dropping into "I've got to justify this" and I couldn't justify it....Even though I was spiritual and I had a spiritual way of understanding, I was only understanding in the mechanistic way."

"A newborn baby"

'Sally' reflected on perception and the challenges of maintaining the state of Being of the dynamic way of seeing, rather than slipping back into old patterns of mechanism, while at the same time accepting the dynamic nature of the process of transformation with its ebbs and flows:

"So it is our perception that shapes the world around us. And then you know it sort of does open the question as to what [is required] to move into a different paradigm. We need to be having these conversations between these different ways of seeing. So, how do we come together with these different ways of seeing in an open and free way?...I'm still trying to ground this way of looking at things into my psyche, into my way of Being. And it's not something that can happen to anybody overnight for a transition to take place.... I've been exposed to the opposite of what mechanistic thinking and the mechanistic paradigm I've been brought up in is.... This is like this brand new way of viewing the world that I'm like a newborn baby in and I'm trying to find language for it, to articulate [it] and be with [it]. And so, how would I bring that to mainstream scientists? I don't know, because I'm still trying to live this and understand it myself. Does that make sense? I'm really worried that when I leave here I'm not going to be able to speak to anybody because of my experiences and the way that I am now viewing the world. I don't want to keep falling back into an old way of Being....So, I had 35 years of keeping things apart, the mechanistic way of thinking and now it's like, have I got another 35 years to integrate, so that they're both balanced? If we can start with children before they get indoctrinated, programmed and everything else it's going to be so much easier. But you need to have this seed change within the people that are the elders first of all to bring this to the younger people."

"I found that I've been free all along"

'Sally' ended on an optimistic note, recognising that it was her perceptions that had trapped her. She found her own sense of freedom and self-expression:

"Expressing yourself is surely an act of creativity. But when you're not allowed to express yourself fully - how you are - that is stopped. So part of who you are is stifled to conform into this box that defines you. And that's why I came here because I didn't want to be defined. I didn't want to be boxed in. I wanted my freedom. Interestingly, I found that I've been free all along. It's just my perceptions, my programming that's boxed me in! So, there's something about Schumacher that enables you to be you and people don't judge you and they just allow you to express yourself, which means that these things that you've buried or have been embryonic through the whole of your life start to be watered and out they come..... It is completely open and I think that's

what I've learned here. Well, yeah, OK, we have to turn up at certain times for things, we have to learn certain things, but there is an openness too. It's how do you actually walk that really fine line of paradox, the line between the yin and the yang in the Tao, knowing that we are literally a walking paradox ourselves."

Post-script: November, 2014

"It is now three months since I completed my MSc thesis and left Schumacher, and I am still integrating the experience into my whole being. It was an incredible year of learning and deep transformation, which gave me far more than I could ever succinctly put into words.

I feel very much like a baby, taking my first tentative steps out in the world, but this time as a free human being; connected to my human family, the Earth and the Universe, but in my own way. I am finally able to be myself, differently, and not be forced to be like everyone else. And therein lies the paradox; by being myself, I realise that I share the same ground as all phenomena (animal, mineral or vegetable), but I am free to express that common ground differently – in my own way, which allows me to fully access my authenticity and creativity. I feel like the living expression of Bortoft's 'multiplicity in unity', instead of the reductionist world that I had inhabited which created 'unity in multiplicity'.

Oftentimes I feel overwhelmed and sense that people do not understand me, however, I feel more comfortable with who I am becoming. Before Schumacher, I always felt that there was something missing in my life, but didn't know the reason why! Of course there are times when I find myself acting in a mechanistic/ fragmented way. However, what is interesting is that I am able to notice this, if not immediately, then very quickly and remember the truth of my authentic self.

I am looking forward to my future as I continue to see the world in a brand new way (yet paradoxically, a way that feels true and familiar), and embrace the wholeness of who I am; so that I can be a creative, dynamic, authentic expression of the wonder and mystery of the force that animates 'All That Is'."

A fine achievement

This is surely a fine achievement— a student set free, to “embrace the wholeness” of who she is becoming— “her authentic self”, a “walking paradox” balancing knowledge and meaning and ready to participate in and face the challenges of a rapidly changing world, where the old ways and the new ways co-exist in creative tension.

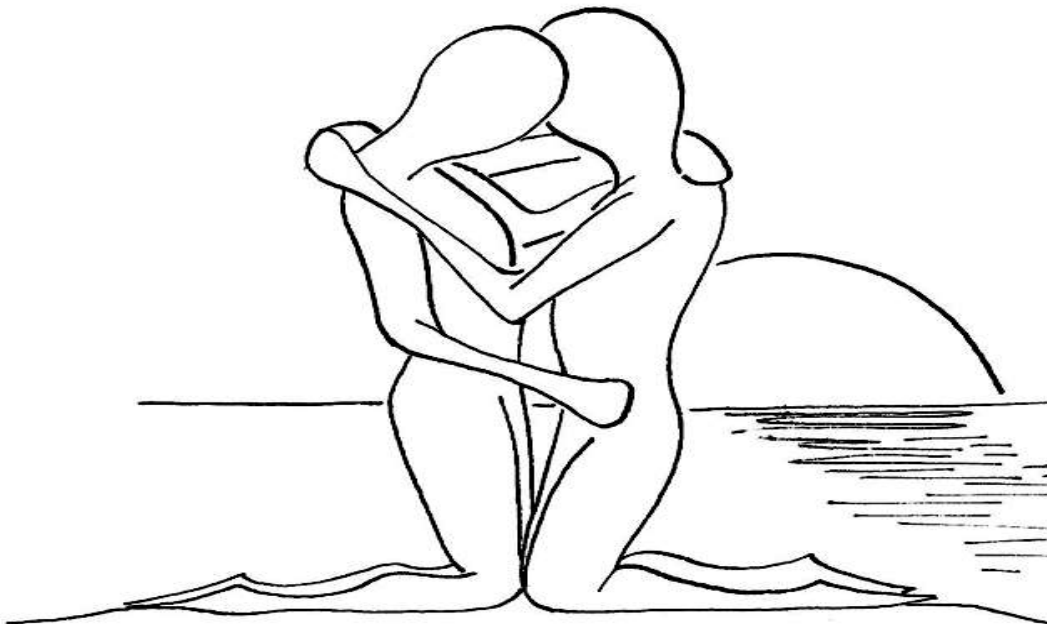


Figure 1: "In all things we learn only from those we love." Goethe (Zajonc, 2006). Pen and Indian ink drawing by MW.

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