

Abstract

In this study I have explored scientific insights towards establishing how the biochemistry of the human being could have a significant impact on human learning in a number of different ways. I have discovered that the biochemistry within the whole human being is triggered by the molecules of emotion occurring in a psychosomatic network active throughout the whole being. The molecules of emotion are neuropeptides such as endorphins, linked to their receptors, such as opiate receptors. This triggering of the molecules of emotion constitutes the pleasure principle which enables and encourages learning. In addition, the growth of myelin ensheathing all the neurons, through a process of myelination, also informs human learning biochemically. These biochemical processes make human learning 'active'. These biochemical processes also constitute a network of subtle energies operating in the viscera of all human beings, and so account for the anthropology of learning, viz. what is common to all human learning, regardless of ethnic group, language, economic circumstances, religious belief system, level of education, social class, age, gender, rural or urban location, *inter alia*.

I have then drawn on my own learning experiences – my autobiography - and the experiences of others – an autoethnography - for evidence of the operation of the biochemistry in my and their learning. I have presented evidence of the emotions of joy, love and fun activating *whole-being-learning* that occurs in all of personal, spiritual and educational human learning.

I have described my living spiritual and living educational theory as one where human learning happens when there is joy-filled love and love-filled joy within a safe community of practice. Within this safe community of practice, at least three aspects are argued to be features of *whole-being-learning*:

- the relationships between the learners, their teachers and the subject are characterised by joy-filled love and love filled joy.

- the talents and gifts of both the learners and the teachers are explored, celebrated, and used for inclusive benefit.
- the knowledges of, about, and between, learners and teachers become integrated and coherent.

My original contributions to the body of scholarly knowledge evidenced by my study include the following :

- I have established the link between human learning as a biochemical process and the efficiency of games as a learning tool, thereby showing the link between learning and fun.
- I have explored the holistic, organic intrinsic connections between personal, spiritual and educational human learning.
- I have contributed to a growing understanding of the study of self as a subject and object in terms of my ways of human knowing (my epistemology), my ways of being human (my ontology) and my values (my axiology) which (in)form my attitudes of joy-filled love and love filled joy in all that I do.

Prologue¹

Sitting on my verandah with the strong February afternoon sun shining brightly on the rose bushes around me, I am amazed. Amazed at the energy of the sunshine, amazed at the beauty of the rose bushes, amazed at the talent of Kelvin, my husband, meticulously tending his roses, amazed at the opportunity to just sit for a few minutes and reflect.

In fifty years, opportunities to enjoy - peacefully - the splendour of all of God's creation are rare. This peaceful 'just sitting' in wonderment in God's presence is something I have learnt to value even more¹ in the past two years since being ordained as a priest.

This 'just sitting' in splendour provides a balance for 25 years spent in the often tumultuous kaleidoscope of the university, first as a Chemistry Lecturer and latterly as an Academic Developer.

What are the light and bright moments in this kaleidoscope? There is light when my engagements with academics and students result in learning and participation in communities that bring joy and a sense of achievement. There are joy and light when I can share my knowledge with other academics at weekly Transformative Education/al Studies (TES) sessions on Friday afternoons, share my knowledge at annual self-study seminars and workshops, and share my knowledge at national and international conferences with others as we together "reach into the sleeping heart of the text, so as to awaken life in it and make it beat" (Jousse 2000:108).

I am reminded that as I gaze on the sun, I am not alone on this research and learning journey. I am influenced by many of my colleagues, who have the ability to "[arouse] in [me] a conscious realisation of the living and moving beauty of a dawning day" (Jousse 2000:107). My colleagues share their passion and excitement for learning, teaching and assessment with me. They help me realise the significance of the Games for Learning that we developed in the Effective Learning Centre. We have many exciting and challenging conversations as we share

¹ My Prologue is a copy of my presentation for the American Educational Researchers Association (AERA) conference that I attended in April 2012. I presented as part of the Transformative Education/al Studies (TES) symposium which was chaired by Joan Whitehead, with Jack Whitehead as the discussant.

understandings of the process of learning and engage in self-study methodologies of research (Whitehead 2009a; Samaras 2011).

I have observed that I learn when I love what I am doing, when I am encouraged and supported by people who love me. I believe that when I am doing what I love, I feel a sense of achievement, relief, and joy. All my “molecules of emotion” (Pert 1999) that are hard-wired for pleasure then interact and vibrate synchronously. In this I believe that I am typical of all human beings.

Learning is biochemical because the expression of joy and pleasure throughout the body from the heart, the stomach, the head, the hands and the feet, sets the “molecules of emotion” (Pert 1999), which are all the neuropeptides in the neurons, into motion across the synapses and along the dendrites (Gershon 1998; Goswami 2004; Fields 2005; Lipton 2005; Schulte-Korne *et al.* 2007; Fields 2008b; Stewart and Williamson 2008). As I grow in consciousness through the “widely distributed psychosomatic network of communicating molecules” I experience a change in my bodymind and hence my learning (Pert 2006:5). Which is why as an Academic Developer I create educational environments in which the pleasure principle operates, in which learning occurs and in which new understandings develop. I provide opportunities for learners to experience the leading out of their imagination, creativity and heart, to feel alive and fed in what they are doing. It is from “knowing more about [myself] as [a] teacher and teacher educator [that I have been] changed...” (Pithouse *et al.* 2009)

So as I reflect, under the sun, on my transformative journey as a Doctoral Researcher and Academic at a University of Technology in South Africa, I am reminded that

“doctorates are very personal qualifications...[candidates have] a sense of ownership... the thesis represents a piece of work in which the author has belief. The belief relates to its merit and wider relevance” (Trafford and Leshem 2008:4)

My transformative journey has compelled me to get to know and value my origins, has developed within me a sense of authority in my work and enabled me to identify who I am in relation to other academics and researchers (Jousse 2006). During my research, I have been “jolted out of complacency” (Pithouse *et al.* 2009) and

experienced both the social benefits and the “direct contribution to [my] own self-realisation” (Mooney 1957:155).

As I journey, I remember too that “the world does not exist to be recorded in the pages of a book. The world exists to transform itself, through the book or, better still, without the book, into living and self-creating thought” (Jousse 2000:109).