FINDING A HOME FOR MY PROFESSIONAL SOUL

Prof J Bezuidenhout

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"Let your life lightly dance on the edges of Time like dew on the tip of a leaf." – R. Tagore

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Juanita Bezuidenhout was born in Johannesburg and went to school in Johannesburg, Cape Town, Windhoek and Lichtenburg, where she matriculated. She obtained her MBChB degree from Pretoria University and her MMed and PhD degrees in Anatomical Pathology from Stellenbosch University. She is employed as a pathologist in the National Health Laboratory Service and as Deputy Director: Research in the Centre for Health Professions Education of the Stellenbosch University (SU) Faculty of Medicine and Health Sciences. She is a clinician-educator pursuing scholarship in anatomical pathology and teaching and learning, as demonstrated by a PhD in Anatomical Pathology; the Rector's Award for teaching excellence; a FAIMER fellowship; her position as deputy editor of the *African Journal for Health Professions Education;* and her role as co-founder and co-director of the sub-Saharan FAIMER Regional Institute. She also has received a Teaching Fellowship, has published in the fields of pathology and education, and received international awards for conference presentations in education. In 2012 she led the College of Pathologists in the process of blueprinting assessment in all pathology disciplines and organised the first ever comprehensive education theme at IAP2012, a leading international anatomical pathology conference. Most recently she was awarded the regional award for excellence as a pathologist by the National Health Laboratory Service (NHLS). She has served as national and international examiner in anatomical pathology, and considers quality assurance as being essential to improving practice. She serves on committees of the Faculty, the University and nationally, specifically the Postgraduate Education and Training Committee of the Medical and Dental Professions Board of the Health Professions Council of South Africa (HPCSA). She believes in fostering a culture of collaboration in research, and in continuously improving the training and empowerment of students in their personal and professional development.

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"Our imagination loves to be filled with an object or to grasp at anything that is too big for its capacity. We are flung into a pleasing astonishment at such unbounded views and feel a delightful stillness and amazement in the soul at the apprehension of them."
– Joseph Addison

FINDING A HOME FOR MY PROFESSIONAL SOUL

"Let your life lightly dance on the edges of time like dew on the tip of a leaf" – R. Tagore

The process of engaging with my inaugural lecture served as an ideal moment to pause for reflection, on both my journey to date and my journey ahead. Part of this reflection was to engage in conversations with colleagues and friends, including Stewart Mennin, who said the following in a recent e-mail about my relationship with my two academic loves, anatomical pathology and health professions education. This sparked the concept for my lecture. *"…I envision a couple dancing to the music that for you is the most soothing and healthful – and that dancing couple would be pathology and medical education, you are one, unified, yet separate, dancing in the moment, swaying, feeling each other, responding, being playful and creative. The music is passion and inquiry, the dance represents your life history - only you can know the steps …"* I want to share with you some of my dance steps … so take out your favourite piece of music, put on your headphones, and let's dance. I am not going to make each step explicit, but I hope that, in hearing your own music while observing my steps and the different dances with various partners, you will adapt the steps you like to your style and develop your own dance. This, at its heart, is a story of my dancing with reflection, role models, mentorship and learning.

The title of this inaugural lecture was inspired by Bleakley *et al.*'s (2011) "Medical education for the future: identity, power and location". As part of their research on learning, they observed and recorded the interactions during ward rounds in hospital in the United Kingdom (UK). They tell the story of a junior intern on a specialised oncology ward round who had to pass the drug chart that had just been amended by the pharmacist from the registrar to the nurse. Instead of just passing it on, he paused and deliberately and authoritatively took out his pen, hovering his hand over the chart as if to write, and scrutinised the chart, before eventually passing it on. When asked why he did this, he replied that it made him feel genuine, just like a doctor. It was an attempt by the intern to cover up his ignorance and bewilderment by indicating competence and control. The authors then pose the question: "Who would not wish to shed the skin of the early learner, the apprentice, the junior, as quickly as possible, to assume the identity of the resident in the house of medicine, finding a home for one's professional soul? …sometimes the wish for the new identity runs ahead of the establishment of the expertise that would guarantee legitimate entry into the community of practice." I immediately identified with this phrase, invoking as it does images of Odysseus.

Do we ever do what the intern did: fake understanding and knowledge to appear to belong? I know I have. I have experiences like that every day. Every day, while driving home and listening to John Maytham, I think about the day. There are usually a few snapshots that I interrogate specifically. They may be related to teaching and learning moments; meetings; individual or social encounters; decisions I have made regarding the whole spectrum of issues I encounter at work – the list is never-ending. I replay what happened and then unpack it. I look at what I did well and ask what I could do better. I ask why I responded the way I did, what had an impact on me, what I am trying to hide from. I then think about how to do it better next time. Part of doing it better, of course, is the delicate dance with the literature and finding the evidence to improve my practice.

"We learn by practice. Whether it means to learn to dance by practicing dancing or to learn to live by practicing living, the principles are the same." – M. Graham.

Now that I have introduced evidence-based practice, what does the literature say about reflection? Reflection is defined as "a metacognitive (thinking about thinking) process that creates greater understanding of both the self and the situation so that future actions can be informed by this understanding" (Sandars, 2008:685). This is a simple enough statement, and we all reflect every day, don't we? So why do we need to consider reflection, as if it has some greater meaning? I suddenly hear an echo: *"I am a doctor at an academic institution, so I know how to teach. Don't tell me about teaching, I have been doing it for 20 years."* In an academic's life there appears to be a moment of divine intervention when one is capped by the vice-chancellor; we miraculously acquire the ability to teach well, despite the fact that our degree is in a completely different domain than teaching. Where is the reflection in that?

So, back to reflection. Continuous professional development and evidence-based practice are at the heart of our professions. These practices are underpinned by self-regulated and lifelong learning, of which reflection is an essential aspect. However, this is not the random reflection of thoughtfulness; it is the critical reflection that leads to the quality of analysis, interrogation and reframing required for transformative learning/ shift in perspective (Aronson, 2011). It is "the process of becoming critically aware of how and why our presuppositions have come to constrain the way we perceive, understand, and feel about our world; of reformulating these assumptions to permit a more inclusive, discriminating, permeable and integrative perspective; and of making decisions or otherwise acting on these new understandings. More inclusive, discriminating, permeable and integrative perspectives are superior perspectives that adults choose if they can because they are motivated to better understand the meaning of their experience" (Mezirov, 1990:5). The acquisition of new knowledge or skills may improve my ability to perform certain tasks or increase my knowledge, but will not impact on my lifelong learning in the same way that a wider understanding of me and the specific situation will (Dennick, 2012). Reflection therefore is a process with purpose. Making sense of a situation is pointless unless it can change actions or responses to future situations.

The crucial first step towards developing understanding is 'noticing'. Mezirow describes this as the "disorienting dilemma". It occurs when I start to realise the discrepancy between my current actions and the actions for effective resolution. Although this may be blatantly obvious, prompts like feedback may also be required. My lecturer or colleague may have to point the discrepancy out to me. I could even request them to do so specifically. Or, in the case of our students, as lecturers we may even consider building feedback into our practice. I should then follow this 'noticing' through by applying my new understanding in subsequent situations. Reflection now becomes a cyclical process of action, reflection and action, with each opportunity increasing the depth of understanding.

Does reflection work? Questions have been raised regarding the evidence that reflection is effective, and recent studies elegantly demonstrate the value of structured reflection as a strategy to foster the acquisition of diagnostic competence by medical students. Structured reflection while practising clinical cases appears to foster the learning of clinical knowledge more effectively than generating an immediate diagnosis or differential diagnosis (Chamberland *et al*., 2011; Mamede *et al*., 2012). Why not do the following? The next time you make a diagnosis (or come to a conclusion after collecting information), stop for a moment and perform the following exercise: 1) List your findings that support the diagnosis; 2) List your findings that do not support the diagnosis; 3) List the findings that would support your diagnosis but are not present. Now, decide whether or not you should reconsider your diagnosis.

Of course, reflection is not only about my actions in isolation, but also about other critical elements that may have an impact on me, such as the flow of information between members of a team, the context in all its complexity, how I engage in understanding the context and integrate it into my next actions (Bleakley, 2006).

LEARNING THE BASIC STEPS

"To be creative means to be in love with life. You can be creative only if you love life enough that you want to enhance its beauty, you want to bring a little more music to it, a little more poetry to it, a little more dance to it." – Osho

In my dance of life, from my father I got the steps of inquiry, a love for reasoning, and the heated side of my temperament that will stand me in good stead for the *tango* or the *paso doble*. My mother's contribution is linked rather to the more subtle dances like the rumba and the waltz. I get my love of reading, my creativity and the caring, collaborative side of my nature, reflected in my efforts to be consistent in how I act towards individuals, irrespective of their rank or status, from her. Both parents gave me passion, and an inherent love for music and dancing.

I never really had a chance to choose my profession. By the time I was four I informed everybody that I wanted to be a doctor. The fact that our GP was a close friend of my parents and a REAL family physician definitely had something to do with this. He probably was my first professional role model, but more about role models later. By the age of five I ran away for the first time … to the public library; by the age of eight I had publicly declared my intention to become a researcher, while seated at the piano, performing for my much older cousins. I clearly had no idea what I was talking about, especially since I am a first-generation student.

I should have realised that I was destined to be a teacher when, in high school, I became a maths and Latin tutor to my friends, but I was only paying forward my experiences with good teachers, weaving in and out of the dance as teacher and student. When my maths teacher, Mr Meintjies, revised our homework in class, he would explain the solution and, once done, would turn to me and say: *"Bezuidenhout, and how did you do it?"* How many of you had this privilege? My Latin teacher, Mr Bosman, actually managed to get us to the point of conversing in (albeit rudimentary) Latin. We had a secret language! In the seventies, when asking questions and not conforming equated to a risky venture, this was such a fortuitous and valuable experience. It allowed me to harness and explore my creativity and gave me the freedom to think laterally. I was not taught to; I received feedback and I learnt. I could start practising the first small steps of the dance.

"When you dance, your purpose is not to get to a certain place on the floor. It's to enjoy each step along the way." – W. Dyer

Going to university I learnt the act of balancing student life and academic responsibility the hard way. It was a case of dancing before I could walk. I take responsibility for that, but I do wonder whether, *if in my first year it was less about listening to droning voice after droning voice and more about active learning, it would not have been different. I think that this was the lesson I had to learn then: engage my students.*

This brings me back to feedback – this time from my physics lecturer, no less. After scraping into the end-of-year physics exam with a 40% class mark, or dancing on thin ice, I ended up writing a supplementary exam, only to receive a phone call from my physics lecturer that very evening, saying in a very loud voice: *"Bezuidenhout, what is wrong with you? Now that it doesn't matter you get 93%. If you ever decide not to continue medicine, come and see me."* This is an extreme example of both an adult's need for a good reason to learn, as well as the value of immediate feedback. During the rest of my undergraduate studies, whenever I doubted my abilities I always thought of that day. My physics lecturer did not have to phone me, but the fact that he did, changed me forever.

This reminds me to take a moment to think about feedback. Feedback clearly is an essential element of any educational process. It enables good habits to be reinforced and flawed ones to be corrected. I look at Ramani and Krackov's twelve tips for giving feedback effectively, and I reflect on whether I practice these twelve steps. This is an instance where I feel the answer will lie more in the feedback from the recipients of my feedback than in me (Ramani & Krackov, 2012). Let's break up the intimate moment between dance partners and join the group while we look at these twelve

tips: 1) Establish a respectful learning environment, 2) Communicate goals and objectives for feedback, 3) Base feedback on direct observation, 4) Make feedback timely and a regular occurrence, 5) Begin the session with the learner's self-assessment, 6) Reinforce and correct observed behaviours, 7) Use specific, neutral language to focus on performance, 8) Confirm the learner's understanding and facilitate acceptance, 9) Conclude with an action plan, 10) Reflect on your feedback skills, 11) Create staff development opportunities and 12) Make feedback part of institutional culture.

STEPPING ONTO THE DANCE FLOOR

Dance macabre. Who does not remember the angst accompanying that first cut through the skin in the dissection hall. *"Will I recognise the brachial plexus before I destroy it?"* Quickly followed by: *"Oh my God, I completely destroyed it",* and the embarrassing realisation days later that the brachial plexus is so big that it is impossible to miss. But through all of this we had Dr Marais. She had the grace not to laugh in our faces, but gently guided us to discover all the truths of the body; to develop a love for the gentle dissection of the thalamus; to envision the relationships in the anterior mediastinum, always showing respect towards our cadaver, which so easily could have been flippantly dismissed. I developed such a love for anatomy that I again turned tutor, and Herman, my dear friend to this day, still acknowledges my tutoring as the only reason he passed anatomy. Dr Marais – a role model and mentor to honour and remember.

"There is a vitality, a life force, an energy, a quickening that is translated through you into action, and because there is only one of you in all time, this expression is unique. And if you block it, it will never exist through any other medium and will be lost." – M. Graham

What then is this thing we call a role model? Teaching is at the heart of the future of our professions; after all, it is how the next generation of health professionals comes about. It is therefore not only a privilege to be a role model, but an obligation. An important part of this process, as every one of us can attest from the experience of having role models, is being the trusted and respected teacher: the role model, those individuals we "admire for their ways of being and acting as professionals" (Cote & Leclere, 2000:1117). Immediately some spring to mind. I have already introduced you to Mr Meintjies and Mr Bosman. You have also met Dr Marais, and right at the start you met Stewart Mennin. I will still introduce you to Profs Simson and Dreyer. Then there are the role models I will not introduce you to here, not because they are not important, but because I do not have the space to do justice to them. In this list I include Janet Grant, Debbie Murdoch-Eaton, Page Morahan and Henry Campos, among others. I have literally danced with some of them, but with all of them I have engaged in the dance of learning.

We instinctively identify with particular individuals and tend to model our behaviour and activities on them, either unconsciously, or consciously and deliberately, aided by a process of reflection. I have encountered individuals with whom I initially had an antagonistic relationship, but, over time and on reflection, I identified the qualities in them that spoke to me, and I have developed lasting friendships with some of them. Role modelling is central in our experience of learning "how to become and be", and it therefore can be said to be at the heart of professional character formation (Kenny *et al*., 2003). A concerning fact from the literature is found in studies reporting on positive and negative role models, which show that students and junior doctors identified only about half of their teachers as positive role models (Wright *et al*., 1998; Cote & Leclere, 2000; Yazigi *et al*., 2006). An important aspect in relation to recruitment into specialties is that students and junior doctors also identify with role models at a time when it may influence their choice of career (Basco & Reigart, 2001; Ravindra & Fitzgerald, 2011). This definitely was true for me.

Role modelling takes place in the formal curriculum (represented by the mission statements and documented curriculum) and, as positive role models, teachers often have the most profound effect in this regard, especially through their passion for their profession and discipline. Role modelling requires a constant awareness of who you are and

how you are while you are teaching. In the informal curriculum (all encounters outside of scheduled teaching), all participants can be role models – from peers to the most senior staff. This is the arena where negative role models are most often identified, especially in the clinical environment. At the level of the hidden curriculum, aspects such as a culture that tolerates poor interpersonal relationships or inadequate clinical care can serve as role modelling. This can be very subtle, for instance through giving mixed messages to students. If, for instance, I portray myself as a happy, fulfilled person in class, but I stomp and slump in the corridors of the hospital, what will students remember? On the other hand, if I sing and dance (figuratively), the message is consistently reinforced.

Interestingly, and disturbingly, although students have identified a certain set of characteristics as attributes they seek in role models (enthusiasm, compassion, openness, integrity and good relationships with patients), they are inclined to imitate the senior doctors with responsibility and status, who do not share power and responsibility and do not demonstrate the required characteristics (Paice *et al*., 2002). This raises questions regarding the discrepancy between what qualities students and junior doctors want in their role models, and what they actually adopt in their own practice. I think it again speaks to elements of the hidden curriculum.

"You've gotta dance like there's nobody watching, Love like you'll never be hurt, sing like there's nobody listening, and live like it's heaven on earth." – W. Purkey

One fine morning I woke up and realised that I too was a role model. I had to re-evaluate myself and my being, and I started to learn more about learning from role models. This process has been described elegantly by Ronald Epstein and co-authors (1998). It starts with active observation of the role model. Three simultaneous processes then occur in the student, and all three lead to generalisation and behaviour change: 1) Unconscious incorporation of observed behaviour, 2) Exploration of affect and values, and 3) Making the unconscious conscious. The pathways of the first two processes are implicit and unexplained, but the third process is more defined. Once the unconscious has been made conscious, there follows a period of reflection and abstraction, and the student then translates the insights into principles and actions, which result in generalisation and behaviour change.

Because we are potential role models, we have responsibilities as role models (Cruess *et al*., 2008). We have to be aware of being role models. It is important to consciously recognise the importance of role modelling as a teaching and learning strategy. We should model competence, positive attitudes and enthusiasm for the practice of medicine and share our awareness with our students. We should take time to teach, and to facilitate dialogue, reflection and debriefing. We must make the implicit explicit, examine and explain what we do while doing it (reflection in action), then discuss the impact of an encounter afterwards (reflection on action) and relate this to future actions (reflection for action). It is not possible to achieve this on our own. We should participate in staff development. This affords us the opportunity to acquire skills, also in improving role modelling, and allows us to role model the desire to improve ourselves. Through this we also contribute to improving the institutional culture, as long as it does not involve any form of formation dancing, as I will always be out of step.

MEETING MY DANCING PARTNER FOR THE FIRST TIME

"Dance for yourself. If someone understands, good. If not, no matter. Go right on doing what interests you, and do it until it stops interesting you." – L. Horst

On the first day of the second semester of my second year, Prof Ian Simson walked into the classroom to give the first lecture on anatomical pathology: nomenclature. Is there anything more boring than definition after definition after definition? Despite this he managed to grab my attention, to the extent that I walked out of that class and said to my friend Herman: *"This is what I want to do."* A few days later, in walked Prof Leonora Dreyer and, if there still was an inkling of doubt, it left my mind

immediately and I was hooked for life. This, to me, is the power of role models. Here I saw individuals who carried themselves with integrity and grace and engaged students in their discipline through their passion and their knowledge. For the first time as a medical student I was dancing on air.

The aspect of anatomical pathology that intrigued me the most from the first was, and still is, pathogenesis. The how and the why, with pictures. Anatomical pathology is a branch of the medical specialty of pathology that focuses principally on the diagnosis of human disease through the examination of cells, fluids and tissues, using appropriate technologies. It is a broad, dynamic discipline that continuously changes as medicine itself changes. For example, areas of emerging importance within the field of anatomical pathology include molecular diagnostics, proteomics, molecular genetics, forensic identification and image analysis. In addition to diagnostic activities, anatomical pathology practice includes performing procedures on living patients (e.g. fine needle aspiration), as well as performing and documenting post mortem examinations (College of American Pathologists, 2001). In short, we are the ones who decided whether the mole that was removed from your arm yesterday is cancer or not.

TAKING A BREAK

"Dance me through the panic till I'm safely gathered in" – L. Cohen

"We should consider every day lost on which we have not danced at least once." – F. Nietzche

At the end of my third year, things did not look too good. I had such a good time as a member of our house committee that I had to repeat my third year. Three months into my repeat year I decided that I did not want to continue with medicine. I was restless, did not feel that medicine was for me (despite my love for pathology), and I was bored and frustrated. My dance partner frustrated me and we were falling over each other's feet. It should be obvious that I returned to medicine, however, and I will not bore you with the intervening years. Suffice it to say that I believe those years provided me with life experience that stood me in good stead, and I have never regretted that interruption. I learnt to dance with regular people.

Of course, because I went back to medicine *two* years later, I also met my future husband in my new class. Nowadays I probably would not have been able to return to medicine, and I do regard myself as lucky. The rest of my career as a student was fairly uneventful. I had a crush on orthopaedics, and on obstetrics and gynaecology; *the first, again, partly due to role models (the latter not), and both due to the hands-on practical experiences during the clinical years, the feeling of becoming a doctor and being part of the community of practice*. My first love, however, remained pathology, even though I could still not distinguish liver from kidney and the only thing I ever could recognise was a Reed-Sternberg cell.

Our small group made it through all the clinical years together, spent many an afternoon in the Pretoria Zoo discussing cases and reading journal articles from the library rather than attending lectures. We never would have guessed that not all students go to the library to do literature searches, and request and read articles.

"It's the heart afraid of breaking that never learns to dance." – X. Guo

I want to pause here for a brief moment and acknowledge the lives of three of the members of our small group: my friends Gabi Krenzer, who died of uncontrolled diabetes at 32, and Norval Aylward, who was killed in a carjacking after becoming a psychiatrist, and my late husband, Francois Hugo.

PRACTICE MAKES PERFECT

"All that is important is this one moment in movement. Make the moment important, vital, and worth living. Do not let it slip away unnoticed and unused." – M. Graham

At this point we are moving towards my current life. I made a commitment to myself not to mention any of my role models and mentors who might be present at my inaugural lecture, because I will be bound to forget someone and feel guilty about that for ever.

My husband and I moved to Cape Town to do our intern year at Tygerberg Hospital. I specifically wanted to be here because it was the only place in the country where you could rotate through anatomical pathology as an intern, and my husband just wanted to be in Cape Town. So we packed our little Toyota Conquest to the brim, loaded it, and ourselves, onto the Trans Karoo, and headed South 25-odd years ago. My intern year consisted of: orthopaedics (two months), internal medicine (four months), psychiatry (two months), urology (two months) and anatomical pathology (two months). Just as well I became a pathologist. The following year I had the opportunity to rotate through all the pathology disciplines as a medical officer and then I became a registrar in anatomical pathology. One of my earliest experiences as a registrar was when I asked one of the senior registrars a question. She got up from her chair, took a very thick textbook (Rosai) from the shelf and said: *"I don't know the answer either, but let's try and find it together."* She blew my mind! Since that day I have always made a point of trying to do that, even when I am at my most irritated.

Anatomical pathology is of course about learning how to see. Nothing you learn as an undergraduate student really prepares you for this. Many of us never even managed to focus our microscopes properly, never mind identify diseases histologically. As I learnt to identify the basics, like the difference between a neutrophil and a plasma cell, I helped many registrars after me through the same difficult but satisfying experience. There is a rhythm to looking at a slide, which is even accompanied by specific and rhythmic sounds. The movement from the lowest magnification lens through to, sometimes, the highest magnification is a dance of its own. It may be quick or it may be slow and iterative, but the lenses do dance. Once you have acquired that rhythm, you know that you are becoming a pathologist.

Any medical student knows about the pathologist's obsession with visual heuristics, especially related to food: 'nutmeg liver', 'sago spleen', caseous necrosis' and 'strawberry gallbladder' are all terms we have encountered, often accompanied with expressions like "yuck". Bleakly *et al*. (2003:303) describe this as educated seeing, and state that the point of such language is to "allow vivid metaphor to inform or educate the naïve senses". Clinical reasoning in the visual domain (anatomical pathology, radiology, dermatology) therefore can be regarded as an aesthetic issue, rather than a technical or ethical issue, and thus has inherent ambiguity.

Anatomical pathology is a discipline that is expected to strive to reduce uncertainty at all costs; after all, the specimen is sent to us so that we can make a definitive diagnosis. But this brings with it the danger that the tolerance for ambiguity, which is the main feature of deliberate practice, may be lost. Bleakly *et al*. (2003) argue that the intrinsic ambiguity in pathology should not be regarded as an impediment, but as a resource. Uncertainty provides a context for the development of an attitude, an identity and a practice that is accepting of such ambiguity, that is aesthetically refined and offers greater proficiency and expertise. The imagination of the senses should be fostered and the practitioner should be mindful of the limitations of the ambition to reduce uncertainty. There is an element of this uncertainty present each moment when I put the next slide on the microscope stage and am not sure exactly what picture I am going to see.

There are five main factors that have an impact on the diagnostic abilities of expert medical practitioners in the visual fields: 1) Habitual practice: where I see what I expect to see, not what is really there. 2) Saturated practice: over-exposure to everyday materials, resulting in fatigue. Both habitual and saturated practice call for the challenge of reframing images by looking at them differently, or to practise the eye by exploring other visual fields, such as the fine arts. When you come across a pathologist at an art exhibition, s/he is working, practising extending the eye. 3) Restricted practice: this speaks to the balance between an evidence-based technical approach and the tolerance of ambiguity as expressed by practice artistry that promotes more flexible diagnostic abilities in conditions of complexity and uncertainty. If you integrate this well, it allows you the freedom of collaborating with others to reach understanding. 4) Aesthetic practice, as an extension of 3): the

practitioner explicitly accepts that the work of diagnosing requires an aesthetic dimension. 5) Ethical practice: the sensitivity in the context of the diagnosis is extended to the patient, resulting in the humanising of the isolated matter. So, the next time you hear me say, "oh, it is beautiful" while looking at a slide, understand that I am engaging in aesthetic practice.

BEYOND THE DANCE

"Let me see your beauty when the witnesses are gone"– L. Cohen

"Life is the dancer and you are the dance." – E. Tolle

The dance performed at a post mortem is a very intimate one. It is, in a sense, the counterpoint of the operating theatre, where there is a lot of activity and a sense of urgency to preserve life. In the mortuary you will find the same infrastructure. There is the table, with a person lying on it. There are the sterilised instruments, laid out on a green sterilised cloth. There is the pathologist, gloved and dressed in scrubs, face mask and eye protection, and the prosector dressed the same. It may sound ghoulish, but doing a post mortem is one of the most fulfilling activities I think I can perform as a pathologist. To outsiders it appear gruesome, but, when standing over the body of a person whose family and physician care enough to find out exactly what caused that person's death, to be able to identify all the clues and solve the puzzle, and to provide loved ones closure and your colleagues feedback, surely has to be considered rewarding. The mortuary is where I met Kosie, the prosector. At that stage he did not even have matric, but no-one else ever taught me as much about post mortems, both in terms of practical skills and interpreting findings. Kosie always had a smile and always called me doctor, even though we were the same age and I requested him repeatedly to call me by my first name. A role model and teacher of note!

The post mortem, of course, serves a number of purposes. One the most important is that of clinical audit. Unfortunately this is also one of the most neglected. The diagnostic error rate at autopsy varies from 15% (Kirch & Schafii, 1996) to 30 to 50% (Leape, 1994; Pidenda *et al*., 2001; Shojania *et al*., 2002; Burroughs *et al*., 2005), with almost 50% of tuberculosis and fatal pulmonary embolism cases in the USA going undetected and unsuspected to autopsy. Diagnostic errors in internal medicine are attributed to 1) cognitive-related factors – 74% (cognitive limits); 2) system-related factors – 65% (communication management and the use of technology); and 3) no fault (a rare presentation of disease or third-person errors) (Graber *et al*., 2005).

Cognitive errors occur especially in the initial stage of information synthesis, when the doctor is required to frame a problem that will lead him/her to collect particular information from a variety of sources. These sources then need to be allocated relevance and reliability, before being integrated into a cognitive model (Reason, in Lucchiari & Pravettoni, 2011). Doctors need to develop this initial cognitive model as soon as possible in order to simplify and accelerate decision making. This initial cognitive model then serves as the departure point for future decisions related to this particular problem. Numerous modifying factors, such as biases and cognitive shortcuts, can have an impact on the development of the initial cognitive model, resulting in cognitive failures, especially when the doctor is required to evaluate different causes and factors simultaneously and attempt to simplify the case to save time and resources (Lucchiari & Pravettoni, 2011). These activities are called heuristics or rules of thumb that provide an effective way of managing complex problems in a short time. Unfortunately they do not always work in the clinical setting. The two heuristics that affect cognitive decision making the most are premature closure and overconfidence. The pathologist performing the autopsy is of course especially vulnerable, as applying these heuristics could further complicate the issues around diagnostic error.

"Dance, when you're broken open. Dance, if you've torn the bandage off. Dance in the middle of the fighting. Dance in your blood. Dance when you're perfectly free." – Rumi

And so I became a pathologist and was appointed as a consultant in the Department of Anatomical Pathology. Two years after I qualified, our head of department, Prof Niel Rossouw, died suddenly and

I literally inherited respiratory pathology, which gave birth to my PhD five years later. A few months after Prof Rossouw died I became a widow when my late husband succumbed to his pethidine addiction and left me destitute. This was a truly harrowing time and, but for my friends, especially Shaun and Herman (still the same one as earlier), my family and my five little dogs I would have struggled to survive. During this period I tongue-in-the-cheek said to one of my friends – now an established neuropathologist in the UK – that all that was left for me was to become an academic, so here I am.

LEARNING MY FAVOURITE DANCE

"I had this dance within me for a very long time" – H. Matisse

In 1999 I met my life partner, Hester de Vos, and we have been together ever since. We are a good match. She keeps me grounded when I take off too far into the clouds. She is an artist, so I get the opportunity to *foster the imagination of my senses* at home. And we both love to dance!

In 2002 I received the Rector's Award for Teaching Excellence. I used it to travel to the Association of Medical Educators in Europe (AMEE) conference in 2004 and that was that. This was a true turning point in my career. I have always loved pathology, but I loved teaching pathology even more, and what gives me the most satisfaction is the moment when a student realises that he or she has the ability to reason and can come to a diagnosis by applying reasoning. At the heart of teaching in any discipline in the health professions is the ability to facilitate this process of developing clinical reasoning. I remember well the day that I learnt that my teaching style is called the Socratic style. I just knew that I always wanted to challenge my students to answer their own questions by reasoning and formulating an argument. My undergraduate students used to say that, when you ask Dr Bezuidenhout a question, you have to be prepared to think. I can think of no better compliment than that.

How does clinical reasoning work? This is what I learnt: Clinical reasoning consists of two parallel thinking systems, system 1 and system 2, as described in dual process theory. System 1 is an intuitive process; it is automatic and implicit, associative and experiential (Lucchiari & Pravettoni, 2012; Marcum, 2012). This is the system you activate when you look at a patient or hear a set of symptoms and know the diagnosis, without being aware of it. On the other hand, system 2 is serial and slow, and is activated when we are faced with new and/or complex problems. It therefore is analytical, has to be activated consciously, and requires resources. This system is what you should use when you are faced with a case you have not seen before.

We can see immediately that novices will rely more on system 2 than experts, as experts have already developed the implicit knowledge to make intuitive decisions. I may not even be aware that system 1 has been launched. This is particularly noticeable in the visual disciplines, such as anatomical pathology, where I may glance at a slide for a second and make the diagnosis. Novices use guidelines, while experts use mindlines (Lucchiari & Pravettoni, 2012). Success or failure in making a diagnosis does not depend on which system is used as much as it depends on the heuristics I mentioned earlier. It therefore is important to be aware of when to activate system 2, and to do so. This is another role that reflection plays in our daily activities. Questioning your original diagnosis is an important component of minimising diagnostic error (Coderre *et al*., 2010). A rational diagnostic process should implement both systems to find a balance between intuition and analysis.

A model that helps us understand this balance is the cognitive balance model (Lucchiari & Pravettoni, 2012). The information we gather about a clinical case activates our cognitive processes. The rapidly reactive systems (value and emotional structures) that precede even system 1 are activated first. System 1 is activated through these reactions. System 1 is very strong and may now inhibit the activation of system 2, which is slower and only becomes activated after system 1. The combination of education and experience should guide us to balance the two systems. This is a delicate balance and is impacted on by numerous other factors, including context, culture and organisation and, even (or especially), the mood I am in. I know that I must be especially careful of not making rash decisions when I am irritated or frustrated.

Linked to dual process theory, and to help unpacking the complexities even more, is a very elegant model developed by Charlin *et al*. (2012), based on a series

of encounters with a group of experienced clinicians. When I saw this model for the first time I had an acute attack of jealousy, because it is so elegant and so beautiful. The model is hierarchical and portrays the multidimensional processes of clinical reasoning, highlighting the signposts of reasoning processes that are common across different disciplines. The fact that the model has been developed with seventeen levels does justice to the levels of complexity of clinical reasoning. We can use this model to support curricular development, especially to identify suitable moments for learning specific aspects of clinical reasoning. Perhaps even more importantly, we can use it as a diagnostic tool to identify and remediate reasoning errors. Have I used it yet? No. It is a concept I have discovered only recently, but I already have ideas of how to apply it in my teaching and in my research.

"Dance is the hidden language of the soul" – M. Graham

In 2005 I became a FAIMER (Foundation for the Advancement of Medical Education and Research) fellow. The purpose of this fellowship is to provide educational, research, leadership and management training for health care professionals in developing countries in the context of multicultural exchange and based on adult learning principles.

I went to Philadelphia in the USA for the three week on-site session at the start of the fellowship and returned a changed person. During the two years of the fellowship, with its two brief on-site sessions and the bulk of the fellowship in a distance learning format, I learnt so much about education and leadership, and I met Page Morahan, Janet Grant, Ara Tekain, Stewart Mennin, John Norcini, Jack Boulet, Jim Hallock and many more – a veritable who's who of medical education. I got to dance with the big guns. This experience expanded my horizons in ways I never expected. But this was only the beginning. I learnt about communities of practice (COP), and the concept of learning as a cognitive apprenticeship within a COP, also called situated learning, by experiencing it (Lave & Wenger, 1991). We all learn bodies of knowledge that inform and structure our practice. This learning also contributes to shaping our identities, and these identities are realised in COPs (Bleakly *et al*., 2011). Some of the characteristics of COPs are that there are sustained mutual relationships that may be temporary; it is, after all, not a marriage, but a community in relation to the learning and work environment. A COP may have unique ways of communicating and sharing information, based on common understanding and implicit knowledge of processes and procedures. There is a sense of membership based on common experiences of working together. The student enters this COP as a novice and functions on the periphery of the COP. In time, as you negotiate your place, you may move towards full participation in the centre of the community.

BECOMING THE DANCE TEACHER

The concept of a COP is at the heart of the next steps I want to share with you, namely SAFRI (the sub-Saharan FAIMER Regional Institute). This is a fellowship we started in 2008, based on the same model as, and funded by, FAIMER. The "we" were the 11 South Africans who had completed or were busy with the FAIMER fellowship. From its inception, SAFRI was an inter-institutional, interdisciplinary and inter-cultural endeavour. To date we have reached 77 fellows from 15 countries and seven professions. This year we graduated our fifth group. The approach we use in the fellowship is for fellows to be immersed in their learning by focusing on an educational innovation project they have to implement in their institution. Through the fellowship they learn to design, plan and implement the intervention and are equipped with the research, leadership and project implementation skills to achieve this. This approach is aligned with the argument that educational approaches that focus only on the intellect and acquisition ignore or turn invisible the other components that are integral to learning, including openness, wonder and passion (Dall'Alba & Barnacle, 2007). To be able to integrate knowledge into practice, students need to be assisted and supported in locating and placing knowledge within specific manifestations of practice. This means that, in learning and in practice, we do not primarily access things theoretically or intellectually, but by being immersed in the "messiness" and complexities of activities, projects and practices. Therefore, what is, how it becomes what it is, and what we know are interdependent. It is not about the acquisition or

accumulation of information, but about the constant review of memories, capacity for action and ranges of possibilities, and of keeping pace with changing circumstances (Davis *et al*., 2008). Our challenge is to reposition our focus from the incomplete task of knowledge acquisition to assisting the student in becoming, through integrating knowing, acting and being. The *student* I refer to here is of course not only my students, but also me as student, in my process of constantly becoming. We are, after all, in the business of lifelong learning. Learning in the health professions is messy, as is demonstrated in the model of Charlin *et al*. (2012), with its 17 levels. This messiness is also reflected by Engström (2004), who took the notion of learning as a social activity even further into the realm of cultural-historical activities theory (CHAT). Here is my understanding of CHAT. There is a complex relationship between the activities of people (patients, their families, all the health professionals and the auxiliary staff, including cleaners, porters, etc.), which is mediated and influenced by a variety of tools and artefacts, such as patient folders, tablets (the electronic kind and the pharmaceutical kind), stethoscopes, syringes, telephones and all the many others. Learning occurs through time and space and there are complex interactions and relationships between people and artefacts. There are aspects of collectivity, uncertainty and systemic connections between personal agency, social context, artefacts mediating learning, rules of practice and the development of roles and identities. All these components play a role in the development of a professional identity. This professional identity is very complex and aspects included would be 1) a moral commitment to the highest level of patient care; 2) commitment to the community of practice and the responsibilities associated with that, especially role modelling; 3) implementation in the workplace, such as the quality of clinical team interactions, teaching, coaching and assessment, and the impact of the hidden curriculum on professionalism and the shaping of identity (Bleakley *et al*., 2011).

DANCE ME TILL THE END OF TIME

"Opportunity dances with those already on the dance floor." – H. Brown

I have now reached the present. I have looked back and reflected on my dancing skills thus far, and can now stop and ask myself whether I am satisfied with my dance. Do I feel I can step onto the dance floor with ease and confidence? Yes, I can dance, and pretty well, but I know that there are more steps to learn and new dances to dance. The moves become more intricate and complex, and I have come face to face with the four truths (Human Systems Dynamics Institute, n.d.; Holladay, 2013), namely: 1) The objective truth: this is what is observable, evident and present; the "facts". There are fewer facts than we want to believe, but an example of a fact is that we all experience cycles of about 24 hours with periods of light and dark. This is true irrespective or where you are or who you are. 2) The normative truth: people who speak English agree that the part of the cycle that is light is called "day" and the dark is called "night". 3) The subjective truth: this is my truth. It is based on my beliefs and principles, perspectives and opinions. I may be having a good day because I mastered a new dance step. 4) The complex truth: this is about acknowledging the existence of all three other truths, acknowledging that all three are valid, and selecting which one is most useful in a specific situation. Understanding the existence of these truths provides perspective in complex situations and offers insight to inform actions. Through a perspective of inquiry I can understand others' truths and this can aid in establishing conditions for productive relationships in every context in which we found ourselves.

The four truths form part of the terrain I am venturing into now. I am moving into the world of complexity theory and its relation to learning. Learning and practice occur in a complex environment, also called reality, and the more related factors there are, the greater the complexity and the more unpredictable the system. It is in this area of emergence where learning takes place (Mennin, 2010). The dance becomes a conversation between the conditions for the emergence of intelligent collectives, where

the result is greater than the sum of the parts. These conditions are diversity and commonality, openness and constraints, and decentralised interactions and organisation (McMurty, 2010).

I contemplate the emergence of my personal dance and I see it rooted in the exuberant, provocative, slightly defiant Sophiatown jive, with a good dose of kwaito, a little bit of samba and quite a few steps that I cannot yet predict. I trust in the *emergence* of the normative truth that how we teach and the way we are have an impact on who our students will become and where they will go. My future is a "lucky packet" and still holds many surprises, but my subjective truth is that, as long as my feet keep moving and I am engaged in understanding learning and in guided reflection, my personal insight, my teaching and the meaning of my life will blossom.

I echo Steve Maraboli in saying, ***"Live your truth. Express your love. Share your enthusiasm. Take action towards your dreams. Walk your talk. Dance and sing to your music. Embrace your blessings. Make today worth remembering."***

Just as a good teacher should, I leave you with a question: ***"So we shall let the reader answer this question for himself: who is the happier man, he who stayed securely on shore and merely existed or he who braved the storm of live and lived?" – H.S. Thompson***

BIBLIOGRAPHY

Aronson, L. 2011. Twelve tips for teaching reflection at all levels of medical education. *Medical Teacher* 33, 200-205.

Basco W.T., Reigart, J.R. 2001. When do medical students identify career-influencing physician role models? *Academic Medicine* 76, 380-382.

Bleakley, A. 2006. Broadening conceptions of learning in medical education: the message from teamworking. *Medical Education* 40, 150-157.

Bleakley, A., Bligh, J., Brice, J. 2011. Medical education for the future: identity, power and location. e-version e-ISBN 978-94-007-3518-7. Springer.
Bleakly, A., Farrow, R., Gould, D., Marshall R. 2003. Learning how to see: doctors making judgements in the visual domain. *Journal of Workplace Learning* 15, 301-306.

Burroughs, T.E., Waterman, A.D., Gallagher, T.H. 2005. Patient concerns about medical errors in emergency departments. *Academic Emergency Medicine* 12, 57-64.

Chamberland, M., St-Onge, C., Setrakian, J., Lanthier, L., Bergeron, L., Bourget, A., Mamede, S., Schmidt, H., Rikers, R. 2011. The influence of medical students' self-explanations on diagnostic performance. *Medical Education* 45, 688-695.

Charlin, B., Lubarsky, S., Millette, B., Crevier, F., Audétat, M., Charbonneau, A., Caire Fon, N., Hoff, L., Bourdy, C. 2012. Clinical reasoning processes: unravelling complexity through graphical representation. *Medical Education* 46, 454-463.

Coderre, S., Wright, B., McLaughlin, K. 2010. To think is good: querying an initial hypothesis reduces diagnostic error in medical students. *Academic Medicine* 85, 125-129.

College of American Pathologists. 2001 [Online]. Available from: http://www.cap.org/apps/cap.portal?_nfpb=true&cntvwrPtlt_actionOverride=%2Fportlets%2FcontentViewer%2Fshow&_windowLabel=cntvwrPtlt&cntvwrPtlt%7BactionForm.contentReference%7D=policies%2Fpolicy_appIII.html&_state=maximized&_pageLabel=cntvwr

Cote, L., Leclere, H. 2000. How clinical teachers perceive the doctor-patient relationship and themselves as role models. *Academic Medicine* 75, 1117-1124

Cruess, S,R., Cruess, R.L., Steinert, Y. 2008. Role modelling – making the most of a powerful teaching strategy. *BMJ*. 29, 1282-1287.

Dall'Alba, G., Barnacle, R. 2007. An ontological turn for higher education. *Studies in Higher Education* 32, 679-691.

Davis, B., Sumara, D., Luce-Kapler, R. 2008. Engaging minds: changing teaching in complex times. Routledge, New York.

Dennick, R. 2012. Twelve tips for incorporating educational theory into teaching practices. *Medical Teacher* 34, 618-624.

Engström, Y. 2004. New forms of learning in co-configuration work. *Journal of Workplace Learning.* 16, 11-21

Epstein, R.M., Cole, D.R., Gawinski, B.A., Piotrowski-Lee, S., Ruddy, N.B. 1998. How students learn from community-based preceptors. *Archives of Family Medicine* 7, 149-154.

Graber, M.L., Franklin, N., Gordon, R. 2005. Diagnostic error in internal medicine. *Archives of Internal Medicine* 165, 1493-1499.

Holladay, R. 2013. Adaptive action: true and useful [Online]. Available from: http://www.hsdinstitute.org/learn-more/online-learning-and-products/adaptive-action-true-and-useful-2013-05.pdf
Human Systems Dynamics Institute. N.d. The four truths [Online]. Available from: http://wiki.hsdinstitute.org/4_truths

Kenny, N.P., Mann, K.V., MacLeod, H.M. 2003. Role modeling in physicians' professional formation: reconsidering an essential but untapped educational strategy. *Academic Medicine* 78, 1203-1210.

Kirch, W., Schafii, C. 1996. Misdiagnosis at a university hospital in 4 medical eras. *Medicine* 75, 29-40.

Lave, J., Wenger, E. 1991. Situated learning: legitimate peripheral participation. Cambridge University Press, Cambridge.

Leape, L.L. 1994. Error in medicine. *Journal of the American Medical Association* 21, 1851-1857.

Lucchiari, C., Pravettoni, G. 2012. Cognitive balanced model: a conceptual scheme of diagnostic decision making. *Journal of Evaluation in Clinical Practice*. 18, 82-88

Mamede, S., Van Gog, T., Moura, A.S., De Faria, R., Peixoto, J.M., Rikers, R.M.J.P., Schmidt, H.G. 2012. Reflection as a strategy to foster medical students' acquisition of diagnostic competence. *Medical Education* 46, 464-472.

Marcum J.A. 2012. An integrated model of clinical reasoning: dual-process theory of cognition and metacognition. *Journal of Evaluation in Clinical Practice* 18, 954-961.

McMurty, A. 2010. Complexity, collective learning and the education of interprofessional health teams: insights from a university-level course. *Journal of Interprofessional Care* 24, 220-229.

Mennin. S. 2010. Self-organisation, integration and curriculum in the complex world of medical education. *Medical Education* 44, 20-30.

Mezirow, J. 1990. Fostering critical reflection in adulthood: a guide to transformative and emancipatory learning. Jossey-Bass, San Francisco.

Pidenda, L.A., Hathwar, V.S., Grand, B.J. 2001. Clinical suspicion of fatal pulmonary embolism. *Chest* 120, 791-795.

Ramani, S., Krackov, S.K. 2012. Twelve tips for giving feedback effectively in the clinical environment. *Medical Teacher* 34, 787-791

Ravindra, P., Fitzgerald, J.E.F. 2011. Defining surgical role models and their influence on career choice. *World Journal of Surgery* 35, 704-709.

Paice, E., Hear, S., Moss, F. 2002. How important are role models in making good doctors? *BMJ* 325, 707-710.

Sandars, J. 2009. The use of reflection in medical education: AMEE Guide No. 44. *Medical Teacher* 31, 685-695.

Shojania, K., Burton, E., McDonald, K. 2002. The autopsy as an outcome and performance measure, evidence report/technology assessment. Agency for Healthcare Research and Quality. AHRQ Publication No. 03-E002.

Yazigi, A., Nasr, M., Sleilaty, G., Nemr, E. 2006. Clinical teachers as role models: perceptions of interns and residents in a Lebanese medical school. *Medical Education* 40, 654-661.

Wright, S.M., Kern, D.E., Kolodner, K., Howard, D.M., Brancati, F.L. 1998. Attributes of excellent attending-physician role models. *New England Journal of Medicine* 339, 1986-1993.

Quotations in the text were obtained from the following sources:

Addison, J. http://www.quotationspage.com/quotes/Joseph_Addison/

Brown, H. http://www.brainyquote.com/quotes/authors/h/h_jackson_brown_jr.html

Cohen, L. http://www.azlyrics.com/lyrics/leonardcohen/dancemetotheendoflove.html

Dyer, W. http://www.brainyquote.com/quotes/authors/w/wayne_dyer.html

Graham, M. http://www.goodreads.com/quotes/

Guo, X. http://www.goodreads.com/quotes/

Horst, L. http://www.goodreads.com/quotes/

Maraboli, S. http://www.goodreads.com/quotes/

Matisse, H. http://www.quotesby.net/Henri-Matisse

Nietzsche, F. http://www.goodreads.com/quotes/

Osho. http://www.goodreads.com/quotes/

Purkey W. http://www.goodreads.com/quotes/
Rumi. http://www.goodreads.com/quotes/

Tagore, R. http://www.goodreads.com/quotes/
Tolle, E. http://www.goodreads.com/quotes/

Thompson, H.S. 2013. In: Keefe, M.G. *365 Days of happiness: inspirational quotes to live by.* Hot Tropica Books Publication: 49. https://itunes.apple.com/au/book/365-days-happiness-inspirational/id630840752?mt=11