

## Quantum Physics and Executive Leadership Challenges



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### The Context for the Health Sector

Mr X is a highly-respected paediatric consultant in the UK. However, mental health issues (including being overwhelmed from pandemic backlog, and unwillingness to make decisions lower down the chain of medical hierarchy), have led him to a decision to leave the UK for a more positive, sustainable work environment. Sounds familiar?

A study published by Mayo Clinic 'Covid related stress and work intentions in a sample of U.S. healthcare workers' (Sinsky et al. 2021), concluded "One in five physicians and two in five nurses intend to leave their practice altogether. Reducing burnout and improving a sense of feeling valued may allow health care organisations to better maintain their workforces post pandemic".

The situation seems to have worsened: in March 2023, Dr Hans Henri P. Kluge, WHO Regional Director for Europe, confirmed "The health workforce crisis in Europe is no longer a looming threat – it is here and now. Health care providers and workers across our region are clamoring for help and support (WHO 2023)".

What a nightmare for the executive leadership shouldering this responsibility, and subsequent accountability, for running healthcare systems.

Might it be possible that principles of quantum physics, and particularly the field of quantum mechanics, can be applied and thus enhance leadership development for both practitioners and executives struggling in an overwhelmed healthcare system?

### Quantum Physics and Quantum Mechanics

The key difference between quantum physics and quantum mechanics is that quantum physics is a branch of science which focuses on quantum mechanics, whereas quantum mechanics, as intended in this article, is the set of principals that explains the behaviour of matter and energy on a scale as small as an atom or smaller. Quantum rules allow connections forbidden by classical physics. For example, classical electromagnetic waves cannot climb over a barrier that's too tall, but quantum waves can.

### 'Quantum leadership' as an Executive Leadership Development Tool

In recent years, many new leadership development offerings have appeared claiming to be quantum. In this critical context for the healthcare system, let's start with a definition of 'quantum leadership'. Interestingly, in both Merriam-Webster (Merriam-Webster) online and the Cambridge Dictionary (Cambridge Dictionary) online, this term does not exist.

According to Merriam Webster, the definition of 'quantum', used as an adjective is '*of, relating to, or employing the principles of quantum mechanics, e.g. quantum physics*'. The proposition of many leadership development offerings seems to be rather different - the word 'quantum' is used as meaning 'large, or significant' in terms of improvements in areas of governance, leadership, performance, etc. It therefore seems

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many 'quantum leadership' performance improvement models avoid any true connection with quantum mechanics (Merriam-Webster). In place seems to be significant organisational or personal performance improvements through long-established tools related to psychology such as collaboration, innovation, creativity, Neuro Linguistic Programming (NLP) and emotional intelligence.

The question is, therefore, are there actual principles of quantum mechanics that might inform and help in the resolution of overwhelm and burnout for leaders, particularly through one-to-one executive coaching? And if so, how?

## **Case Study: Principles of Quantum Mechanics Related to an Executive Leadership Challenge**

My client was a senior executive and Board member of a major stock exchange subsidiary. A global figure in his own right, the firm was concerned he was about to leave.

During our initial interview he expressed feeling unappreciated and under-valued, disengaged, disenchanting, depressed and highly suspicious of any 'coaching' nonsense. However, he knew he had to make a decision about his future – the Chairman had given him six weeks. Despite consistently receiving offers from competitors, he was still conflicted about leaving the firm and, in an attempt to seek more clarity, agreed to meet with me.

After two sessions, he chose to drop the cynicism. After two more he started to get excited. By the sixth he had evaluated his past and designed his future. At eight, had constructed his new job description and by the tenth, prepared the meeting with the Chairman. He turned his situation around, he achieved everything he wanted, and today continues to enjoy a high-profile career feeling recognised and highly appreciated both in the firm and within the global financial sector.

So how does this case apply to senior executives in the healthcare system?

Preparing professional MBA students for examinations, coaching and advising senior executives and leaders across all economic sectors has led me to conclude that all face similar leadership problems, to a greater or lesser extent, depending on hierarchical and cultural differences.

This leads to the big "Why?". Why could these clients, successful, high-powered professionals, not effect this transformation on their own? And what, in this combination of experience, knowledge, leadership capabilities, strategies, tools and tactics, informs and relates to quantum mechanics?

To try and get some answers let me take you to Boston and the 'Presencing Institute' at the Massachusetts Institute of Technology (MIT).

## **Executive Coaching to Concretise the Future as It Emerges**

Although a specialist in the leadership development area, my interest in the subject of quantum mechanics arose in 2012 while studying Theory U online and at MIT's Presencing Institute (Presencing Institute). Theory U was developed by Dr Otto Scharmer and Peter Senge from earlier work of Glasl and Steiner. This practical method includes training in holding very conscious and focused attention on clients, and being deeply present in the client process.

As research informs us that we think around 70,000 thoughts in one day (Healthy Brains), our focus is often disrupted by unrelated thoughts. In this work, the inner observer is trained to develop conscious awareness and self-monitor these disruptive unrelated thoughts arising in the coach, and to develop the ability to quickly release this inner interference to heighten focus on the client.

Further, training at PI to develop the ability to sense at a deep, personal level takes shape in the discipline of Social Presencing Theatre (U-school 2017).

This social technology (a way of using human, intellectual and digital resources in order to influence social processes), was developed to propose a way of enabling a community to see itself collectively and facilitate and enact its future that is already waiting to emerge. Coaching Silicon Valley leaders at MIT, and subsequent university lecturing enabled me to appreciate the value of these concepts first-hand, and to witness systemic transformational change taking place in both verbal and non-verbal sensory situations. Something unexplained by conventional physics was clearly happening.

So, from that experience, the quantum mechanics' concept that seemed to be most closely related was the collapse of the wave function or role of observer. The application of quantum mechanics abounds in the natural world, but the application to humans is hotly debated, with consciousness often at the centre of the debate. Let's take a closer look.

## The 'Collapse of the Wave Function' or Role of 'Observer' and Consciousness in an Emerging Future

The collapse of the quantum wave function means that quantum objects go from existing within many possible states at once to settling into a concrete one understood by classical physics. From this came the suggestion that the settling of multiple loose thoughts into a more concrete one was due to the presence of an observer.

This principle of quantum mechanics became prominent with the 'Double Slit Experiment' conducted by Radel et al (2012). In 'Section B. Studies in context', Radel writes: 'Cumulatively, these experiments suggest that mind-matter interactions occur in a broad range of physical target systems. Observed effects tend to be small in absolute magnitude and are not trivially easy to repeat on demand, but high variance and concomitant difficulties in replication are to be expected because all of the studies necessarily involved focused human attention or intention'. This conclusion resonated with the work that was being taught at MIT and my own executive coaching experience.

### The Observer Principle and Our Case Study

Focused human attention enables us to be conscious of another human. In terms of reducing impending burnout and improving the mental health of clients, the coach's attention should be deeply focused on them. So how might this consciousness have played a part in this case study?

From the literature we glean that Oxford University mathematical physicist Sir Roger Penrose believes consciousness has quantum origins. Penrose, together with anaesthesiologist Stuart Hammeroff of the University of Arizona, developed the Orchestrated Objective Reduction theory of the mind (Penrose and Hameroff 2011). Objective reduction is a quantum process orchestrated by cellular structures called microtubules. The theory suggests that a quantum effect is crucial for consciousness to function.

However, other theories beyond those of quantum mechanics may also explain the success of this intervention. For example, the integrated information theory (Tononi et al. 2022), proposed by neuroscientist and psychiatrist Giulio Tononi, allows that conscious experience is an integration of a great amount of information from sensory and cognitive inputs into our brain, and that experience is irreducible. A second is the global workspace theory of consciousness (Baars B 2005), developed by Bernard Baars, a neuroscientist at the Neurosciences Institute in La Jolla, California, who proposes that consciousness might be the act of broadcasting information around the brain from a memory bank.

If we accept there might be some validity in Penrose and Hammeroff's proposition of quantum origins, how might that be showing up in the role of coach to the above case-study client?

- The observer effect may be twofold in this non-computational environment :
  - *The act of observation is suggested to change what occurs:* As the client's observer through the process, his behaviour was perceived as authentic in that he was openly skeptical about what our work together might achieve, and also, he was open about his mental health, and the destructive effect it was having both in the workplace and with his family. It might therefore be conceivable that the act of the observer changed what occurred from a negative to a positive outcome.
  - *Observing also may change our perception of what occurs:* As an observer, the perception of what occurred was that he transformed his mental health and workplace challenges during our coaching process. This was confirmed by positive changes and outcomes in his external environment, so it seems the observer's perception of what occurred was not changed in this case.
- The role of accountability inherent in the observer effect was strong, particularly relating to the six-week decision deadline imposed by the Board Chairman, enabling this client to keep on track.
- A clearly-defined contextual space of the observer effect was also established. This may have reduced:
  - inaccurate perception of the client's situation;
  - uncertainty, as a confidentiality contract with the firm securing non-disclosure of the coaching process and conversations within it, meant that trust was gained quickly;
  - opacity, as holding a calm space, uncluttered as far as possible by the coach's personal projections, biases and need for any type of quick win, contributed to clarity.

Similarly, inviting open exploration of the client's choice of thoughts concerning resolution, including options outside his current firm, allowed free rein to imagining the future he wanted and felt called to bring into being.

### Outcomes

As was mentioned in the above, in quantum mechanics, and particularly with the collapsing of the wave function, objects go from existing **within many possible states at once to settling into a concrete one understood by classical physics**. Within the six-week process, the client's multiple, and conflicting, loose thoughts on his situation, became settled into a more concrete and positive one. The coach's main tool was deep sensing and presence as explained above, staying strictly in the role of an impartial, and non-judgmental observer holding a creative space. This 'mental dance' between coach and client allowed the client to raise his self-awareness and consciousness through:

- Appropriate sensitive open questions, allowing the avoidance of denial and withdrawal, and bringing an understanding of how the past had

informed the present;

- Delicate timing of challenging questions, bringing the client closer to the reality and understanding of the destructive behaviour he was bringing to the firm;
- Allowing, at the same time, the consciousness of 'ah-ha' moments of clarity both of extremely successful past experiences that could be built on in the emerging future, and enabling the client to move away from his stuck, depressed state and become excited and enthusiastic about his ability to create and implement a new future.

Through this process, the client:

- Explored his true sense of purpose in his work, and settled on his most deeply-held preference among all professional options,
- Designed and created a new role for himself inside the firm that built on all he had achieved in the past, and which included solving a strategic challenge facing the Board at that time;
- Turned around his mental health challenges, becoming inspired, enthusiastic and confident of his working future.

Can we then conclude that this client's consciousness has been demonstrated to have quantum origins? Not beyond doubt. While certain aspects of his transformation seemed to satisfy the observer effect, the Penrose-Hameroff hypothesis itself combines approaches from disciplines of molecular biology, neuroscience, pharmacology, philosophy, quantum information theory, and quantum gravity, which may suggest quantum origins, but cannot be conclusive at present. However, the proposition cannot also be easily dismissed as Penrose is highly regarded.

So, if human consciousness remains one of the great mysteries of our time on earth, why has science not carried out and published more research on this subject? Part of the answer may lie in the diverse and complex approaches listed above, together with the complex economics of the academic business structure.

Indeed, as far back as 2000, in 'Bridging Disciplines in the Brain, Behavioral, and Clinical Sciences' (Pellmar and Eisenberg 2000 (eds)), the following: "The literature is replete with descriptions of the traditional and persistent barriers to interdisciplinary research, including attitudinal resistance, differing research methods and communication barriers among disciplines, the length and depth of training in a single field necessary to develop scientists who will be successful in competing for funds, the difficulty in forging a successful career path outside the single disciplinary structure, impediments to obtaining research funding for interdisciplinary research, the scarcity of interdisciplinary departments in academe, and the perceived lack of outlets for the publication and dissemination of interdisciplinary research results".

A further warning note was added: "Despite the hesitation of some scientists to engage in interdisciplinary research, the nature of the complex scientific challenges that we face creates a need to ensure that it can occur" (Pellmar and Eisenberg 2000 (eds)).

## Conclusion

Reverting to our initial question, is it possible that principles of quantum physics, and particularly the field of quantum mechanics, may help and inform leadership development for both practitioners and executives struggling in an overwhelmed healthcare system?

Maybe...

Yes: understanding and testing the principles of quantum mechanics against practice helps and informs leadership development, and it is extremely important to stay aware of, and foster, new developments in professional education through sharing practical experience.

No: we are not yet in a phase where knowledge and practice are conclusive. We cannot yet establish that we as humans are governed by the same quantum principles as the natural world. We may have to live for some time yet with the fantasy inspired by claims of 'quantum' leadership development offerings and understand they may be 'significant' rather than truly quantum, continuing to rely on current neuroscience, psychology and philosophy.

However, and most crucially in the case of the healthcare sector, it is in everyone's interest to do all we can to speed the advancement and acceptance of interdisciplinary research. In order to support our global healthcare practitioners and executive leaders, and reduce overwhelm, burnout and consequent attrition, we need to appreciate equally the findings of each area of practice to ensure we provide, and have access to, the most advanced and effective leadership development.

## Conflict of Interest

None

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