



## **Coaching and Neuroscience**

*The 4 Key Principles of Neuroscience  
Every Coach Should Know*

# The 4 Key Principles of Neuroscience Every Coach Should Know

## #1 Why Neuroscience Matters

The word 'coaching' is an interesting one. Etymologically, the term "coach" traces its origins to the Hungarian word kocski, which means 'carriage', that is to say, a method of carrying you to where you wished to go. As a term for tutoring or training, it seems to have first arisen in Oxford around 200 hundred years ago as slang for tutors who were 'carrying' their well-heeled but often inbred and not very bright students through their exams. Sometime around 1830 the word then became linked more with sporting prowess than intellectual ambition. It is probably fitting that the man who is most associated with kick-starting what we now think of as modern and brain based coaching, was a certain Benjamin Karter, football coach turned motivational speaker in the early 1980's. Although very little is known about Mr Karter, 'life' coaching quickly became recognised and deserving of professional status in America. It was the best part of a decade before it received similar recognition in the UK.

However, even now, nearly a quarter of a century later, comparatively few people outside its practitioners could define its meaning with any certainty. Along with that ignorance often comes a certain cynicism – the 'we didn't have that in my day and we managed OK' school of thought. Therefore having established the origins of the term, let us now try to define practice of coaching. We must keep in mind that coaching means carrying you from where you are now to where you want to go. Coaching is a future-focused practice that aims to help clients determine and achieve personal goals. Its practitioners are not therapists, and psychological intervention is outside the scope of their practice.

Coaching draws inspiration from various disciplines including sociology, psychology, positive adult development, career counselling, mentoring and other types of counselling. The coach may apply mentoring, values assessment, behaviour modification, behaviour modelling, goal-setting and other techniques in helping their clients. Coaching focuses on effecting

change in a client's current and future behaviour. Additionally, coaching does not delve into diagnosing mental illness or dysfunction.

**To attempt to sum up in a few phrases what a coach hopes to achieve is ambitious, but here goes:**

- **To attain clarity around the present and the future.**
- **To create a vision and mission to live and/or work by.**
- **To discover your brilliance and learn how to let it empower you.**
- **To construct your goals and support system.**
- **And then – put it all together and use it to renew and energise you at every level.**

Coaching has come a long way in a relatively short time. It is important for us to see where it should now be going. Indubitably, the most recent technical breakthrough in terms of research into human relationships is neuroscience, or 'brain science'. We now know more about our brains than ever (for example, did you know that your brain is capable of processing 30 billion bits of information per second?). As this branch of science discovers more and more about how our brains work, coaches should be using this knowledge to help their clients not only bring about desirable change but also to understand why they behave in certain ways.

***"...did you know that your brain is capable of processing 30 billion bits of information per second?"***



## #2 Understanding Change and the Brain

Essentially, brain science, or neuroscience, shows that our brains are built to detect changes in our environment and are more sensitive to negative change. Any change that constitutes a threat can trigger fear causing the brain's fear centre to stimulate a defensive emotional or impulsive response. Altering our reactions to change is very difficult for the brain, even though logically we may want to. The lesson for coaches and leaders here is the harder you push people to change, the harder they will push back.

So, how can coaching work effectively with the brain? First, brain research reveals that focusing on problems or negative behaviour just reinforces those problems and behaviours. Therefore, as we are aware, the best coaching strategies focus on the present and future solutions. This requires the development of new neural pathways in the brain and learning new thinking patterns. When new learning occurs, it literally changes the very architecture of the human brain.

It is worth noting that reading this information is changing your brain as you mentally process these words. Food for thought indeed.

The fundamental task of all coaching is to provide a context for change. This is true whether the coach is an external coach, an internal coach, the manager acting as coach, or is self-coaching. Change (especially for adults) is not easy due to the way that our brains are wired. Unfortunately we tend to get more, rather than less, set in our ways as we get older. New research supports this understanding and explains why old habits are hard to break and new habits are hard to form.

Think how much more weight can be given to facilitating change if the coach can talk in a straight forward manner about the science of the way our brains work. Would it not sometimes be easier to say *'Ah, yes, you are finding this difficult because...'* and use your knowledge of the way the brain works to bring clarity and weight to what you may know instinctively, but is now scientifically reinforced. Such a response may also trigger a very positive reaction from the subject, removing, as it does, any question of fault.



Let us try to expand upon what we have learned already from neuroscience without getting too technical. After all, we are interested in using the results of research not delving into how they were attained. To execute a task, our brain first breaks it down into its component parts with each part then stored away. The parts are associated with each other by our brain stringing together a line of neurons to form a neural pathway. When we practice or further learn something related to this area this neural pathway grows larger as nearby neurons are recruited to learn how to perform the task.

As we repeat and practice the task the connections through the central core get stronger and the nearby neurons return to their previous state. And as we physically perform the activity the movements required then begin to become encoded in the brain's motor cortex. Sports coaches refer to this process as "muscle memory". For example; the ability to perform a specific movement such as catching a ball, without conscious thought. We now know that the movements are actually encoded in the brain's motor cortex.

The more you practice the task, the stronger the neural pathway becomes and the greater your ability to perform these motions using the non-conscious parts of your brain. Take a simple illustration – learning how to drive. For many, even most, people, what is going on under the bonnet





is a mystery. So they learn to do as they are told, more or less by rote, understanding when to change gears without much idea of the mechanical process involved. But learn they do. Initially, every movement, every gear change, has to be thought about before proceeding. But before long, driving will become 'second nature', ie we do it without conscious thought. Ergo, the brain has absorbed the information needed to do the task.

In coaching, we help people create new neural pathways for positive behaviours. It just takes some work and support because you are often working with well-worn paths in the brain. It may be that it is far more effective to focus on creating new positive actions that stopping old negative ones. After all, if the negative pathway doesn't get used as much because you are going in a new direction, the negative one will eventually become less slick and strong and yes, even die off from lack of attention. And the new pathway will get stronger each time it is used.

Coaches must point their clients toward this choice every time. Which pathway will it be? Some clients really need a lot of help and accountability as they strive to create new patterns. And for others – a quick nudge and they are on the positive path!

We now know that our brains are not "hard wired" from birth. New connections between previously unconnected brain cells are formed each time we learn a new skill or form a new association. As we learn new skills, we really are physically "sculpting" our minds. This brain

transformation occurs because "cells that fire together, wire together."

When you are coaching a person to change behaviour, there are competing forces at play. Broadly speaking, these are forces "for" and forces "against" the change. Several brain processes need to be in order for this change to occur: In fact, transformational leadership relies on the leader's own ability to change.

### #3 Using The Language of Neuroscience

Life, as we all know, is not simple. If we could lie in a darkened room and concentrate on the change we wanted to bring about, then our brains could avoid the overload we are all so familiar with. But in the real world, many managers receive several hundred emails a day and countless other diversions are present. This creates distraction and obstructs change. The language and tools of neuroscience can help coaches to explain this frustration and hopefully enable the client to deal with it more positively.

Long-term memory also feeds into this equation of pros and cons, in part by its connections to the emotional register. Most people recognize that for change to occur, they have to think about the relevant situation. But many people also discount feeling, or emotion, when they are trying to change. If they do this, the brain is missing vital information. Where there is resistance to change, it is very rarely because of a missing thought process. It will almost always be because of a missing emotion..

Coaches or managers can say to leaders, ***"When you are trying to make a change, your brain has to assess the pros and cons of your decision. Before you act, your brain does a quick calculation, but it relies on more than just your rational thinking to do this. It will also rely on your emotions. So we need to consider how would you feel if you were to make this change?"***

This will allow leaders to add the emotional component to their analysis more readily and will move them closer to change.

Also, as we illustrated earlier, using the language of brain science can be a powerful way for people to understand their behaviours whilst feeling slightly

removed from them. This helps to separate the client from possible stigma. 'The brain' becomes the third entity in the coach/client relationship.

For example, if a coach feels that a client's overconfidence is getting in his or her way, the coach cannot simply say to the client that they are being overconfident. However true, the client may well feel insulted and become defensive. Instead, if a coach explains that confidence is tricky, because there are two types of confidence - real confidence (which reflects the truth) and illusory confidence (which does not reflect the truth) - and that both of these types of confidence activate different parts of the brain without us being able to know which one we have used, this would soften the impact on the client by depersonalising it. It would then encourage an exploration of the type of confidence possessed by the client and open up the way forward.

You do not have to learn the names or purpose of the various brain regions, but it is important to remember that more brain

A long time ago, scientists believed that this was in part because the brain was hardwired in childhood, and that asking people to change in adulthood was impossible. Now, neuroscience has shown that this is not true. It has been shown that the right kind of behavioural intervention can actually change the way in which the brain works. Often, this requires practice, and in its most effective form, requires both a change in thinking and emotions. Research has demonstrated that when people make decisions that require moving from one situation to another, they will most often change their attitudes so that they view the new decision more positively and the old decision more negatively.

Not every coach will want to use brain science as the predominant mode of interacting. These tools provide an additional approach to conventional tools used in coaching. If we ask brain questions, we may get brain answers, which might illuminate your approach to a coaching or business problem from a completely different perspective.

***The basic neuroscientific principles related to memory and change are as follows:***

- **Old habits require less energy. New habits require more brain processing and therefore new energy.**
- **For change to occur, the new process has to be remembered.**
- **Remembering occurs in steps : first short term, then intermediate term, and then longer term. Reducing conflicts with old tasks will help the client remember new tasks. Make these conflicts conscious.**
- **The brain will tend to remember things that are reinforced in an emotional context. Therefore, for change to be successful and for the various brain regions to consolidate memory, emotions must be involved. This can be done by involving a person's imagination or experience and through the use of examples. Some people will use tools such as music or visual aids (such as pictures) to enhance learning.**
- **The brain will not register rewards for the new changes if there is high anxiety.**

regions and more energy are needed for new learning.

Most managers and coaches realize that unless change is self-initiated or starts from within, it is a very difficult process to undergo, in part because it is so painful.

#### **#4 Be Aware, Be Very Aware**

Neuroscience has another major contribution to make to coaching - behavioural preference awareness and an awareness of the importance of adapting behaviour appropriately. Adapting behaviour is crucial to effective coaching. As a first step, coaches must become aware of their own behaviour preferences.

Internal coaching is a key communication strategy that holds the promise of greater productivity and employee development, but recent research reveals that managers across the country are failing miserably at their coaching duties. A 2011 survey of human resource and training professionals, managers and chief executive officers examined to what extent supervisors and managers are effective at performance diagnosis and how adept they are at adapting their coaching style.

Sixty one percent of managers and supervisors were unable accurately to assess employee performance issues to determine the right type of corrective action and/or necessary coaching. Only 8 percent were considered excellent.

When asked how effective managers and supervisors are at adapting their coaching style to meet the variety of performance situations they encounter, more than three-quarters of managers and supervisors failed to adapt their coaching behaviour appropriately, and only eight percent were deemed excellent at adapting their coaching style.

In the absence of specific training, managers assume that good coaching equals good communication skills. However, good coaching requires much more than that. It starts with an accurate understanding of one's own behaviour preferences and that of the one being coached. Behaviour preferences refer to the way people prefer to act and interact at work, or their "default" behaviours: keeping to themselves, being an encourager, dominating conversations and so on.

Because people have never operated in another behaviour preference, they tend to assume that their way of operating is the best or correct way. Understandably, this leads to assumptions about motives, character, effort and even the relative worth of various employees.

People unaware of individual behaviour preferences typically coach others with the unconscious intent of creating a mirror image of themselves. Coming into a coaching session, or into a coachable moment, with such misconceptions sets the stage for ineffective coaching, at best, and discouraging or hostile interactions, at worst.

Fortunately for all involved in the coaching process, behaviour preference



awareness can be learned and quickly put into practice, to great effect. One study has shown that managers with better behaviour preference awareness are better at leading teams, better at coaching others, and more likely to be promoted. Becoming a context-specific coach requires adaptability and perseverance, but behaviour preference awareness can be learned, practiced and improved. It's a soft skill that pays off in better coaching, better team leading, greater engagement, higher productivity and less conflict.

Awareness of behaviour preferences provides a sort of "power boost" that improves the effectiveness of communications and increases the productivity of coaching efforts. Behaviour awareness helps managers conduct the kind of robust one-on-one coaching that produces change and unleashes employee potential.

So have we demonstrated that neuroscience can help a coach to become a better coach? That understanding how the brain works make a real difference? We can only hope so, for without doubt this research will soon become essential, rather than optional in the profession. The language of coaching, which concentrates on setting goals, making connections, and seeking breakthroughs, perfectly parallels what neuroscience tells us about how the brain operates. By understanding the structure of personal growth, coaches can better tailor their coaching language, strategies, and goals to be in alignment with their clients' brains.

Neuroscience can be used in practical and effective ways to enhance the execution of all coaching techniques. Furthermore, because the brain is universal, the language of brain science is also universal. Brain science is a useful tool for cross-cultural coaching too, in allowing the coach to use a more "neutral" language to facilitate the coaching process.

It has been our intention to demonstrate absolutely that building on the existing foundation of coaching by adding neuroscience as an evidence base for the profession, we have shown that it is possible, even certain, to become a better professional coach by understanding how

the brain works. That an understanding of neuroscience research can help coaches and leaders fulfil their potential as change agents in the lives of others.

As we all know, historically, an ability to quickly recognise 'invisible' advances, from electricity to neuroscience, is the gift of the minority, but more and more coaches are beginning to realise that the inevitable and invaluable partnership of coaching and brain science are undoubtedly the future. And the future does indeed look bright.



---

If you would like to know more about **Coaching and neuroscience**, please contact us at:

[info@prismbrainmapping.com](mailto:info@prismbrainmapping.com)  
Telephone: +44 (0) 8452 417 552

