



What is PFC deficit... and  
can you fix it in your brain?

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**Michael Hewitt-Gleeson**

*Best-selling author of *Software For Your Brain**

Published by Department of the Future

**DEPARTMENT  
OF THE  
FUTURE.**

“The 4th Brain is  
a wonderful summary!”

– Sir Gus Nossal

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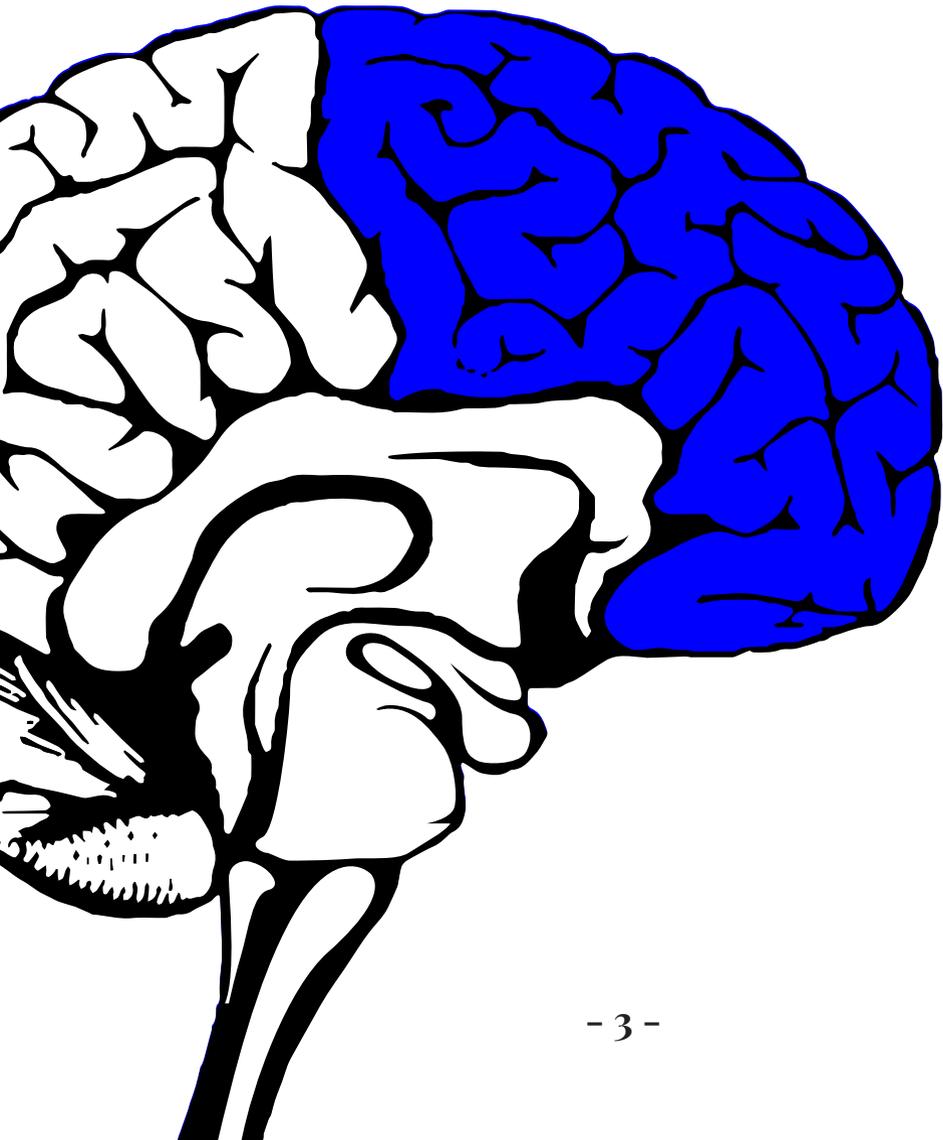
**DEPARTMENT  
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## The PFC

What is PFC deficit... and can you fix it in your brain?



I did my PhD in *cognitive neuroscience* in the late 70s but today nearly 90% of all scientific papers on the human brain have been published *in the just the last decade*. So, there really needed to be an up-to-date summary of our knowledge of this extraordinary machine that is not only accessible to anyone but also accurate scientifically. In particular, so much more has been discovered about the PFC.

**Your PFC is your fourth brain.  
Why the 4th brain?**

If you place your hand across your forehead then you are holding, right behind the palm of your hand,

**your Fourth Brain.**

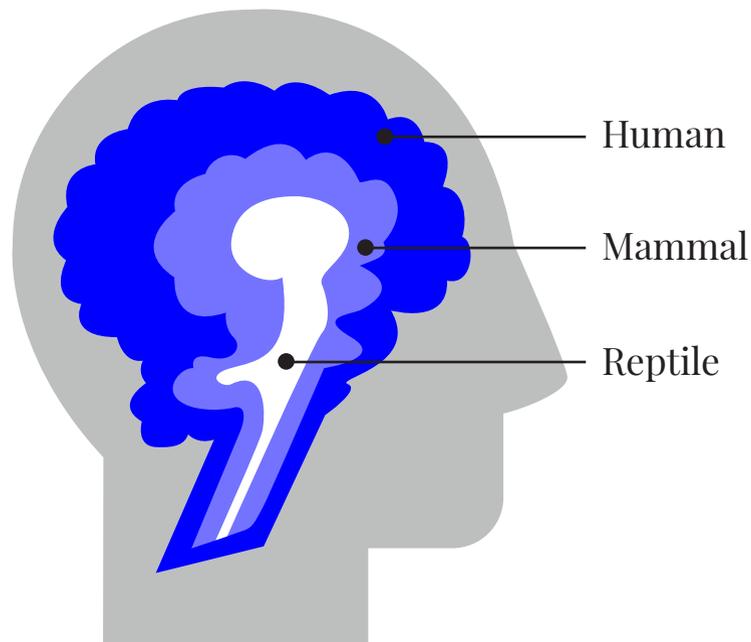
It's called the PFC  
- **Pre-Frontal Cortex** -  
and it's the *decider*. That's where you make the executive decisions that will determine the quality and perhaps the quantity of your life.

**The PFC is your “better brain for better thinking”.**

First, let's just take a step back...

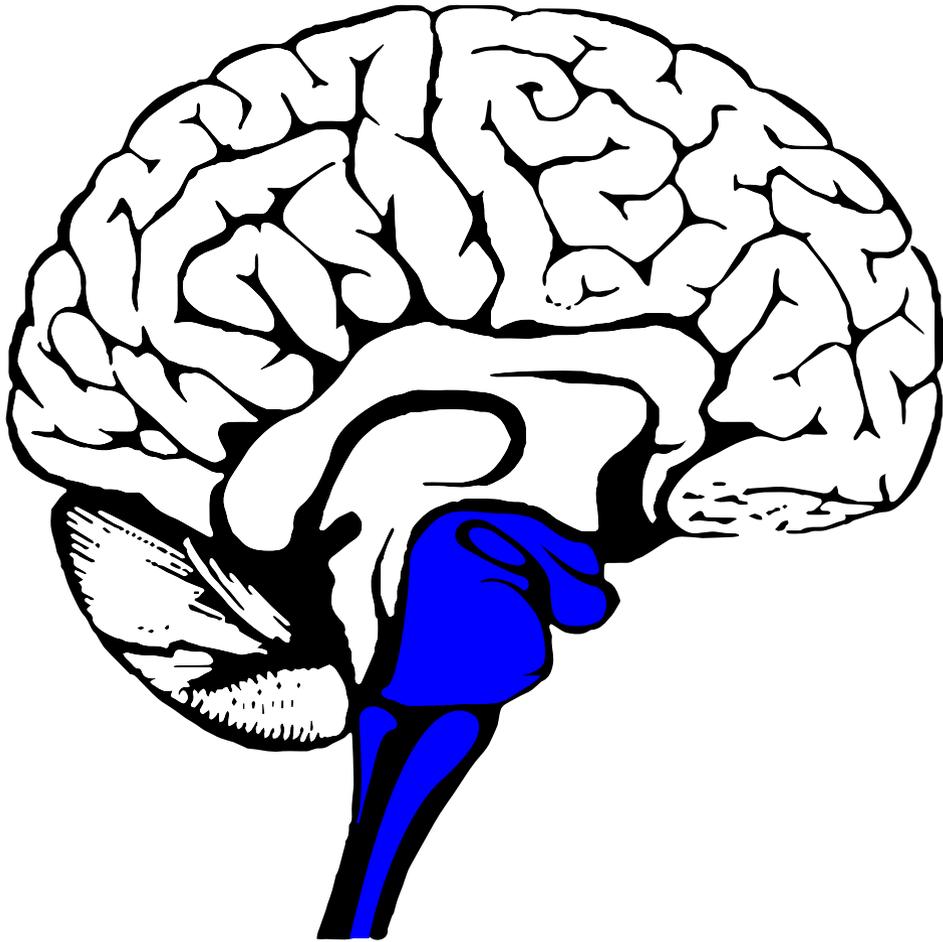
For neuroscience instructional purposes, the human brain is often called the *triune brain* because it has three layers that evolved over many thousands of generations.

1. The *reptile* brain runs the *automatic* body systems.
2. The *mammal* brain is the *emotional* brain.
3. The *human* brain is the *thinking* brain.



*Neuroscientists do not think of the 'triune model' as literally true but they do find it metaphorically useful for instructional purposes. In reality it is rather more complicated.*

## Your Reptile Brain



Your first brain is your inner-most, smallest and most ancient *reptilian brain* and may well be your most treasured possession.

It controls everything you value most:

**your  
daily  
life  
systems.**

Your *reptile brain* runs your body temperature, blood sugar levels, heart rate and blood pressure.

It controls your respiration, releasing hormones for all the daily housekeeping and maintains homeostasis, or balance, in your body systems.



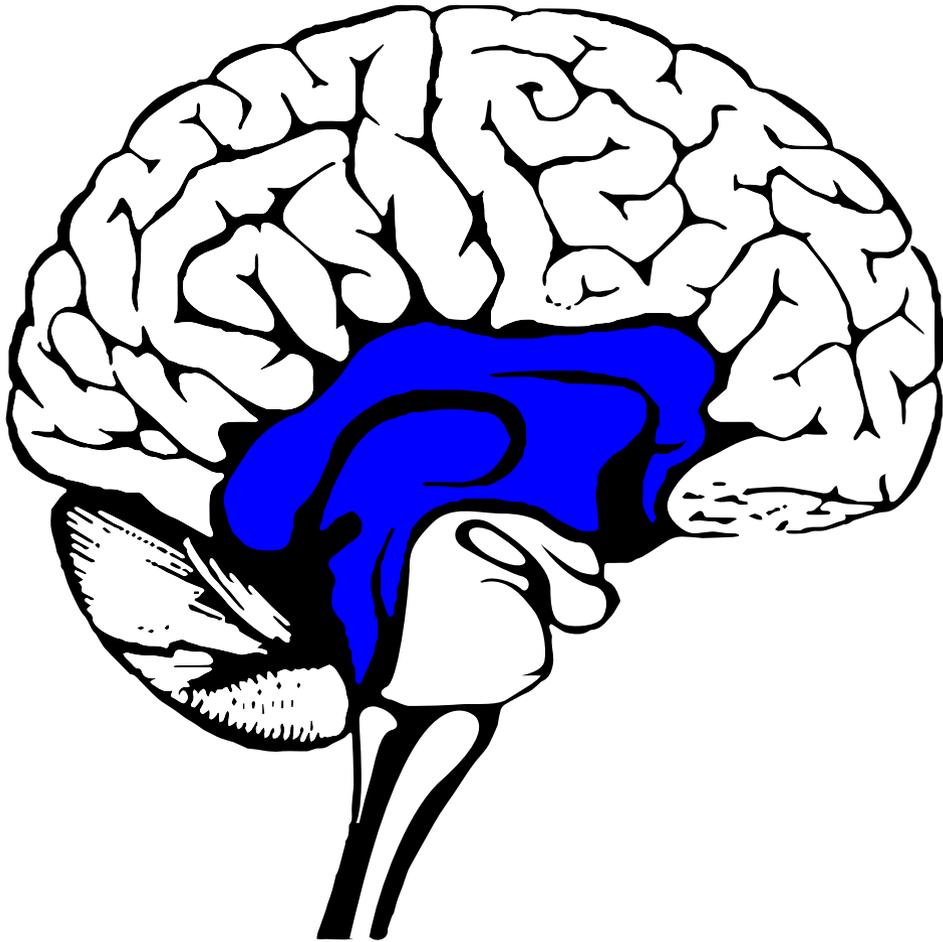
# Your reptile brain

regulates deep evolutionary maintenance and self-healing.

It's hard-earned evolutionary wisdom has been curated over the course of a million successful generations.

It's IP value to you in dollarised terms is simply priceless.

## Your Mammal Brain



Your life systems reptilian  
brain is in

constant  
conver-  
sation  
24/7/365

with your emotional  
*mammalian brain.*

Your mammalian brain offers a wide repertoire of emotions ranging from the big one:

# fear

and the others like shame and anger to sexual longing to surprise, joy, sadness, trust and disgust.



These are all triggered and/or switched in the mammalian brain also known as the *limbic system*.

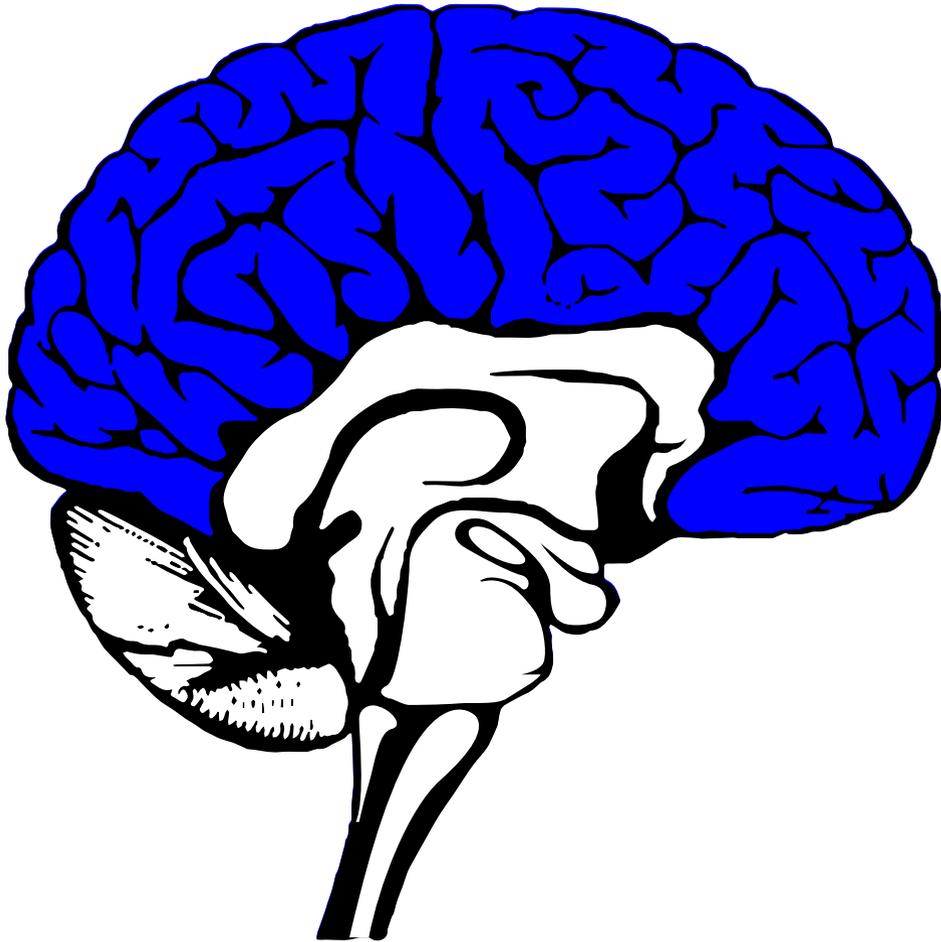
Sub centres here are called the *amygdala* and the *hippocampus*.

These mood changes and emotional switches are *in sync* with high speed parallel processing in the reptilian brain.

So, the reptilian brain can stimulate the mammalian brain and, of course, vice versa.

This is important to know.

## Your Human Brain



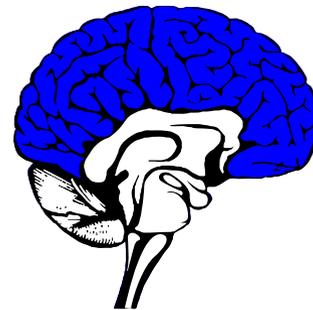
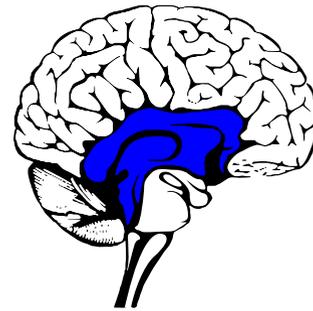
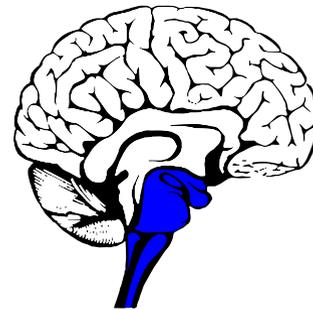
*Enter your BIG human brain! This newest evolutionary brain is the neocortex. It's also in conversation 24/7/365 with both the older brains.*

As you would expect, their conversations can stimulate responses in the big human cortical brain... and, again, viceversa.

*In other words, these conversations continue back and forth and up and down the three layers of your brain all influencing one another, all the time.*

This is very important.

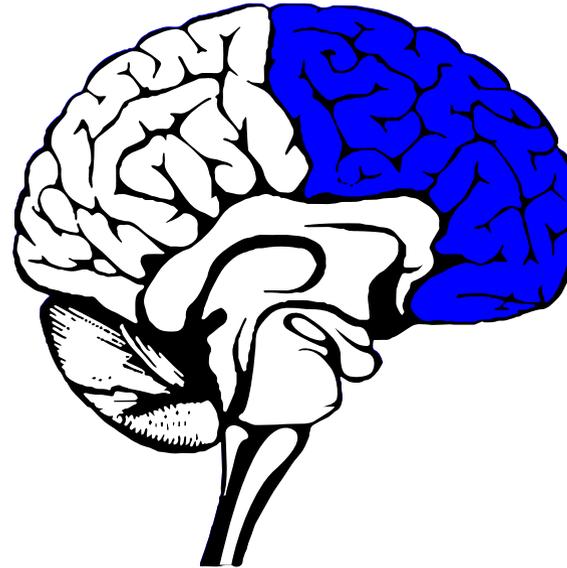
All three evolutionary brains are in constant digital engagement up and down the neuronal layers of the triune brain.



## The Fourth Brain is the PFC.

The PFC is the “better brain for better thinking” and better thinking is all about *reappraisal*.

But wait!  
There's more...



*Reappraisal* is about doing the harder thing when it's the better thing to do.

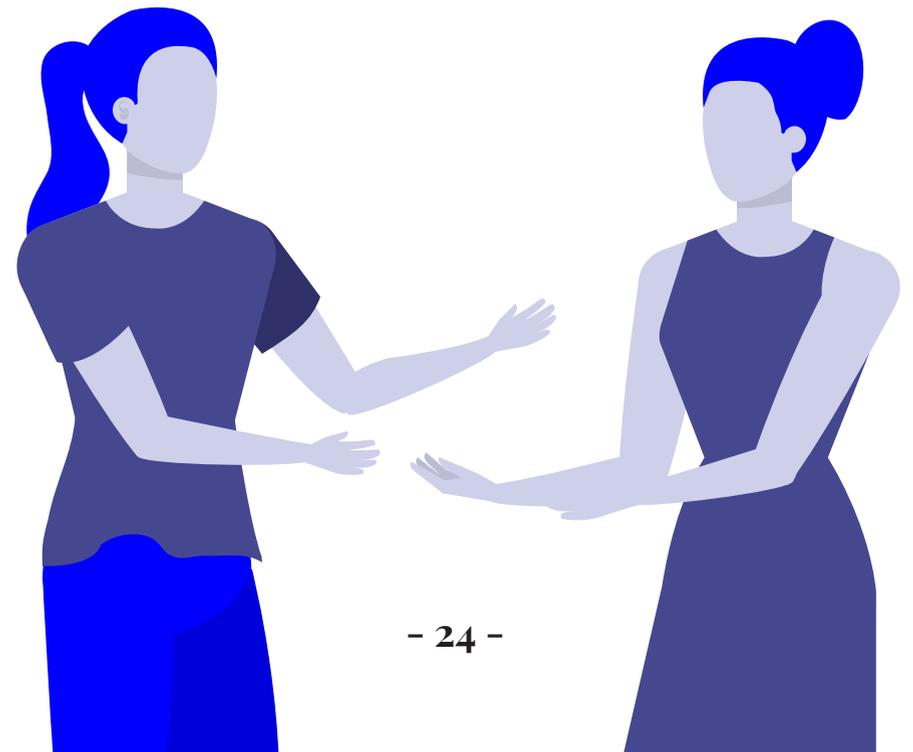
It's called  
*willpower.*

It's also  
called  
*motivation.*

Wisdom and willpower are the specialised work of your PFC, your pre-frontal cortex.

Your fourth brain is your executive brain.

It's role is in planning complex cognition, your personality, your decision making, and moderating your social behavior.



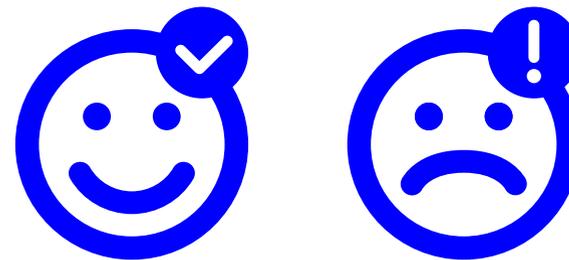
Your PFC is where you orchestrate your thoughts and actions in accordance with your pre-planned goals.

It's domain is

- problem solving
- spontaneity
- initiative
- judgement
- impulse control
- social behavior
- sexual behavior.

Your fourth brain enables you to:

- differentiate among conflicting thoughts
- determine between good and bad, and good and better
- think outside the square
- make predictions about future consequences of current activities.



Your pre-frontal cortex is important for your success in life because it's your

**‘social control centre’.**

It offers you the ability to suppress urges that, if not suppressed, could lead to socially unacceptable outcomes.

Your Fourth Brain is also your strategic command centre.

Your PFC supports game and rule learning at much higher levels of abstraction.

It was your genes that gave you the three layers of your triune brain. Your reptile, mammal and human brains are all developed genetically. However,

**your 4th brain is different!**

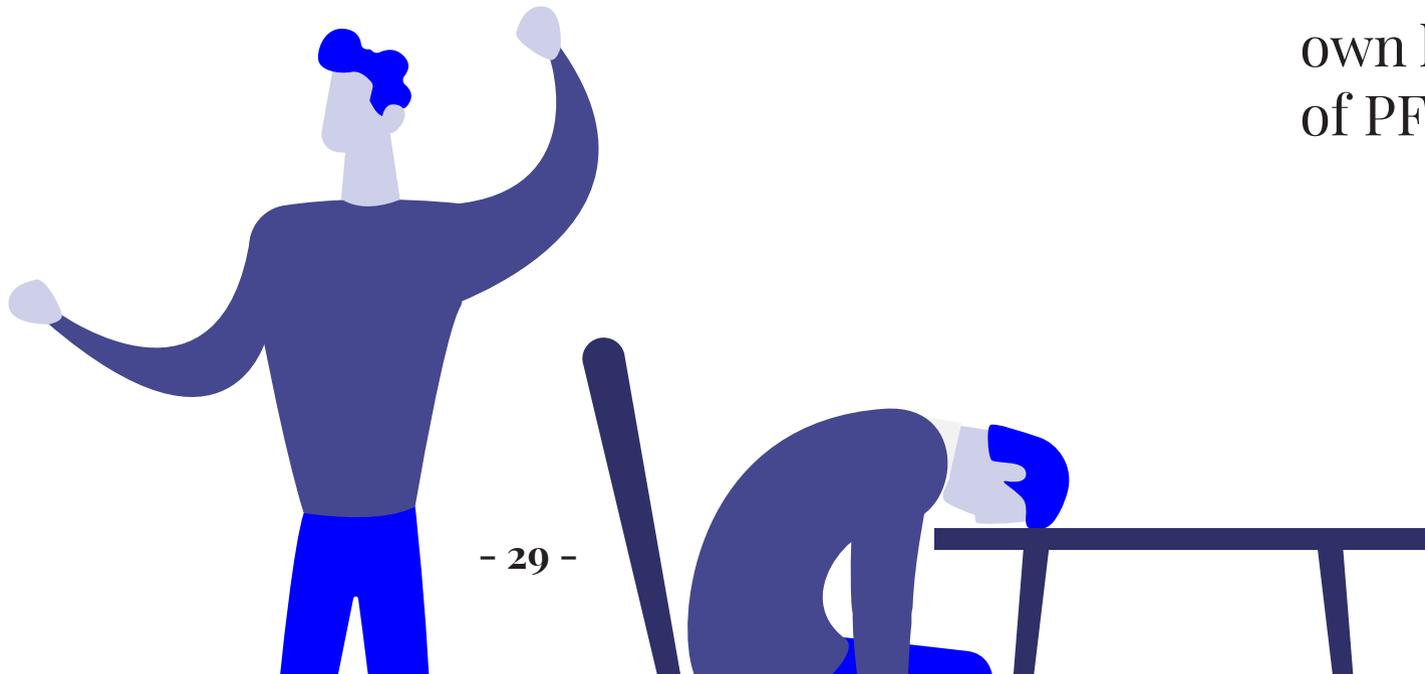
To develop your PFC requires a lot more than genes.

To assemble your PFC brain requires real hard won life experience

- lots of successes and lots of failures

- and therefore it is the last part of the full human brain to develop.

*That's why I call the PFC...  
The Fourth Brain.*



Problem:

In the adolescent brain the PFC *is not yet developed*.

The PFC doesn't fully come online until the *mid twenties*.

This can be a BIG problem and also a big opportunity.

Parents, teachers and employers already know that because they themselves have been adolescents and they once experienced, in their own lives, the consequences of PFC deficit.

For example, teens and adolescents have real difficulty detecting

**irony**

and very often lack discernment.

An adult can take one look at a face and that's enough to detect the subtle contradiction.

Things are not always what they seem.



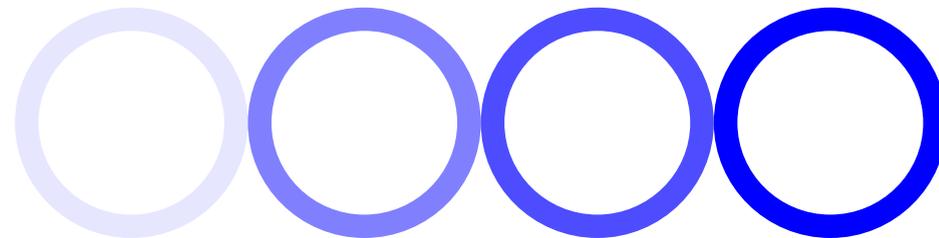
Adolescents with PFC deficit are often too quick to judge.

This may be based on a mere, reactive or hardwired response to the stimuli they receive.

Not everything in life is black or white.

Not everything is either right or wrong.

The shades of grey prevail in life.



The keen discernment of grey...  
or gray if you prefer...  
is specialised PFC work  
because it involves  
*metacognition*.

Metacognition is 4th brain  
business and is the word  
cognitive scientists use  
to describe *thinking about  
thinking*.



Metacognition, like  
mindfulness, is a higher order  
of thinking than the black hat  
thinking of logic.

It requires much more than  
black/white judgmental  
thinking. It requires forensic  
good judgment.

It requires *discernment*.



And, lastly, PFC deficit can help explain why adolescents,

with yet-to-be-developed willpower,

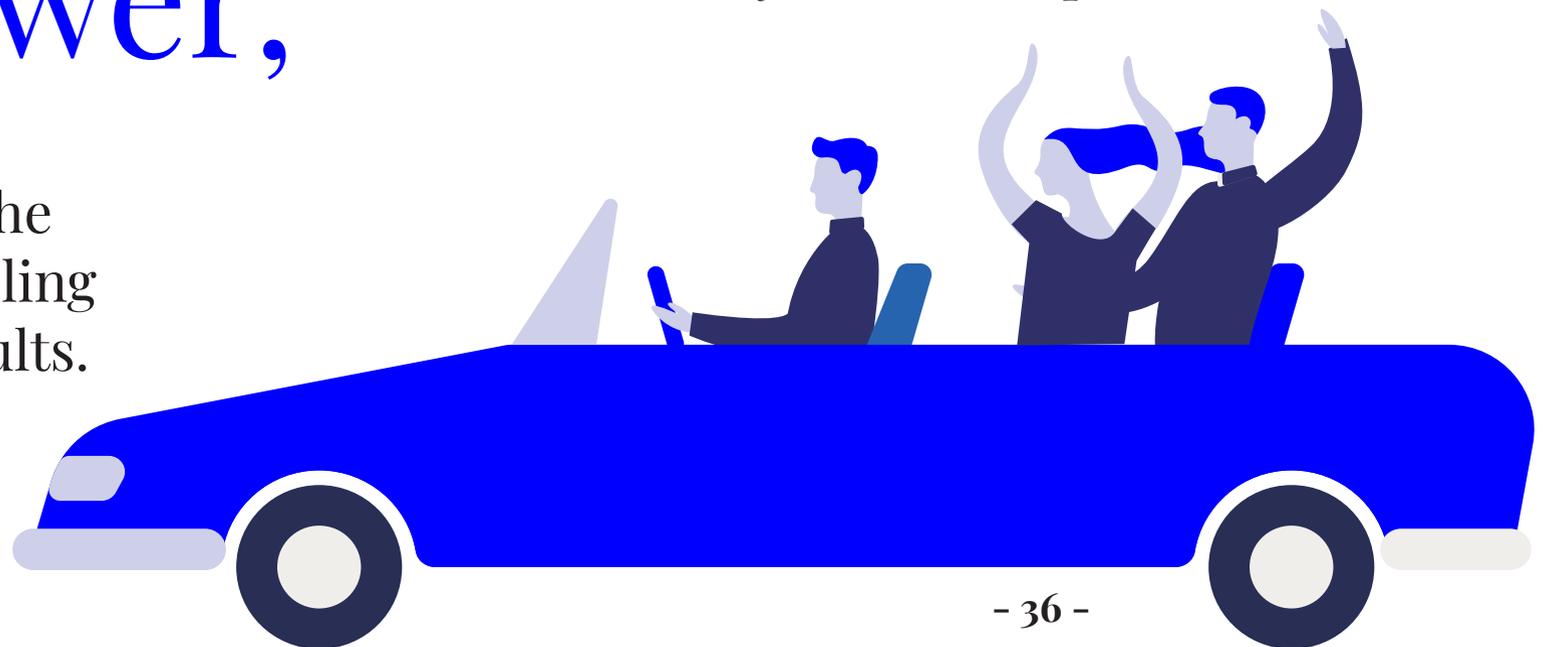
have three times the pathological gambling problems than adults.

Or, why adolescents are more likely to risk driving faster or under an influence of peers, drugs or alcohol.

The problem is that adolescents take more risks than adults even though, without their fourth brain, they are much less adept at risk assessment.

This is not cool.

Fourth brain deficit can have really bad consequences.



A proven solution:

# cvs2bvs is software for your PFC.

cvs2bvs is a very powerful  
*reappraisal* algorithm for the  
human brain.

*cvs2bvs is x10 Thinking.*

It has proved to be especially  
helpful for adolescent thinkers  
with not-yet-mature  
PFC willpower...

Why?

Because at any particular  
moment your 4th Brain is  
secreting a cvs.

It is giving you one cvs.

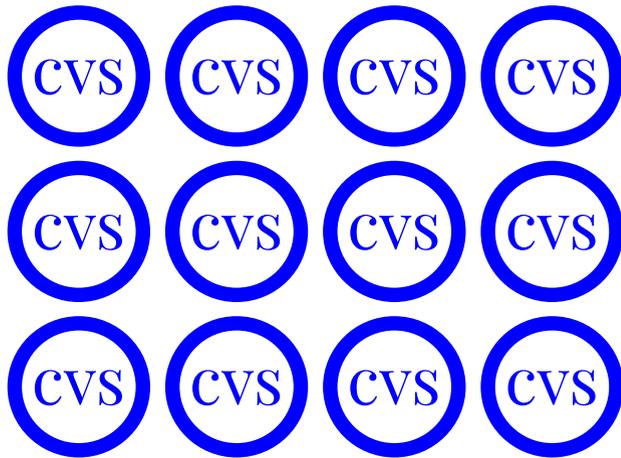
Then another.

Then yet another cvs.

Each cvs, followed by another  
cvs, then another cvs.

# All day long!

So now we see the main survival purpose of your PFC ... which is to secrete a constant stream of cvs output.



Each cvs secreted by the PFC is followed by another cvs.

This is important!

So what is a cvs?



**C**urrent **V**iew of the **S**ituation.

At any given moment a cvs is a current view of a situation.

So this is the clever role of the 4th Brain, your PFC, to let you know what's going on... right here, right now!

Not only a hard-wired reptilian view, not only an emotional mammalian view but a *current* view of the situation at hand.

That's why the prefrontal cortex is built from scratch in our first 25 years of life experience and is not given to us hard-wired.

Our PFC is built out of the here and now, not out of our evolutionary pre-history.

It's wired up in real time from the trials, errors and successes of our body, our family, our street where we live, our geography, our society, our education, our values, our life's personal trajectory.

Each **cv**s secreted by your PFC, at any particular moment of your day (such as right now), is a product of all the conversations going on up and down your neuronal layers...

Your life systems, your internal mood, your experience archives, your expectations, your values, your external stimuli...

All computed through your PFC to give you it's output for that exact moment... your **cv**s.

# The good news is

that this is really awesome.

It's how we can live in our current environment.

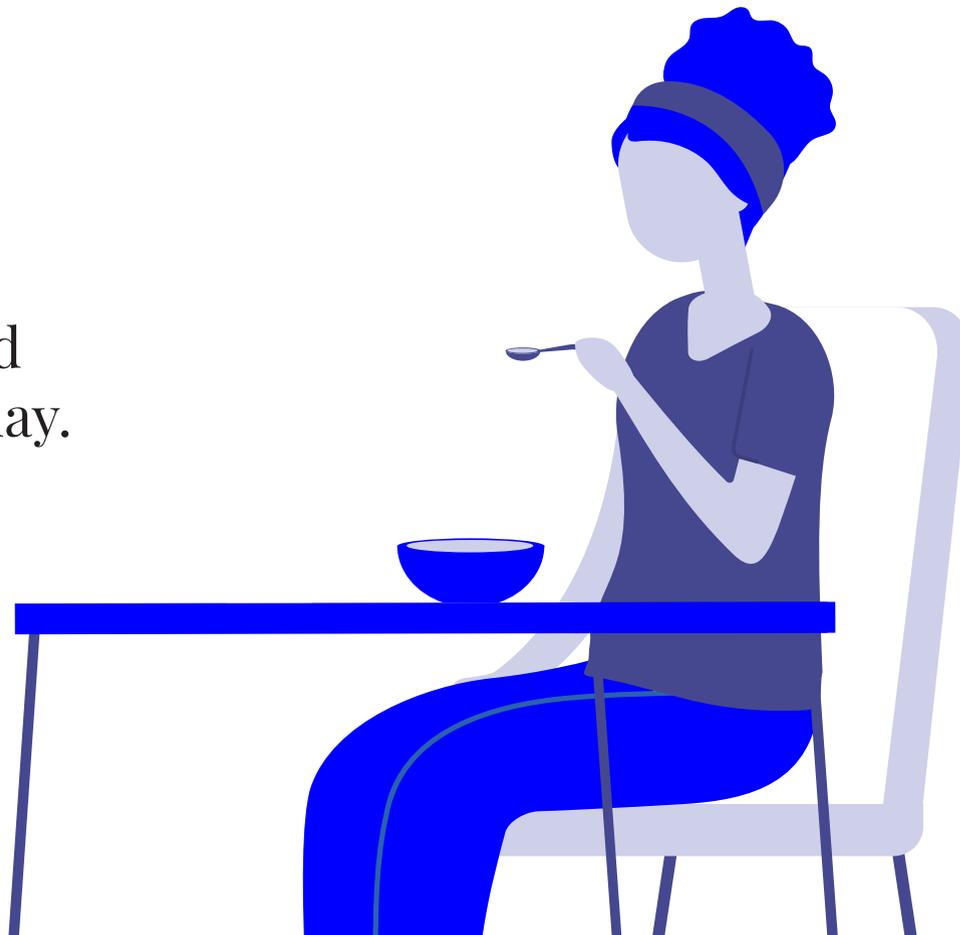
It's how we can survive and grow in the here and now.

If we had no PFC to stream us no cvs flow then we could never make it through the day.

Once we have a **cvs** we can convert thought into behavior.

If our **cvs** is 'hungry in the morning' then we can have breakfast.

If our **cvs** is 'important meeting in an hour' then we can prepare some useful questions.



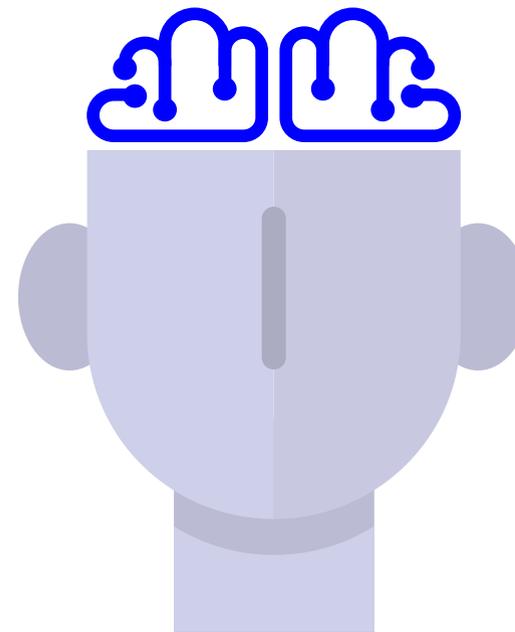
The bad news is that in the human brain any cvs can never, ever be the best possible view of the situation.

The vast possible range of combinations of all the many inputs means that, even though our cvs may well be a very good one, it can never, ever be the best one.

There is always a better cvs!

This bad news can lead to very good news if we are able to *reappraise* our cvs.

*cvs2bus is a very powerful reappraisal algorithm for the human brain.*



It has proved to be useful not only for CEOs like Jack Welch of GE and Larry Page of Google but also for triathletes, for scientists, students and for mums and dads juggling life's daily ups and downs. It is especially helpful for adolescent thinkers with not-yet-mature PFC willpower...

**cvS2bvs**  
**is x10**  
**Thinking.**

**x10**

x10thinking

Escape from cvs

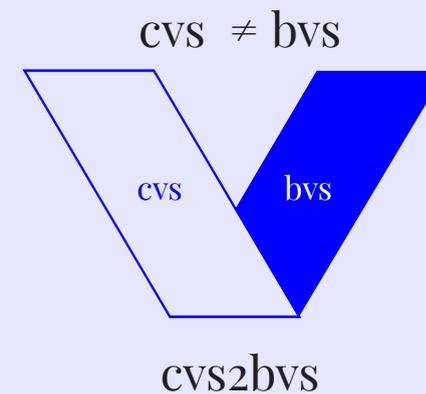
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The First Law of Thinking

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**The Current View of the Situation (cvS)**  
can never be equal to  
**The better view of the Situation (bvs)**

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The Law of x10 Thinking

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**The cvs multiplied by ten is equal to the bvs**  
**cvS x 10 = bvs**

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**Michael Hewitt-Gleeson**  
**schoolofthinking.org**

Australian gentleman, Vietnam veteran  
and intellectual philanthropist. World  
authority on lateral thinking. Author.  
Lecturer. Scientist.

## What **students** say about cvs2bvs and x10 Thinking...

*This x10 stuff is worth more than all the traditional education stuff combined.*

*To focus on the process instead of just the result. I've previously taken a variety of courses on this subject, however none have matched the SOT lessons.*

*Mind-blowing and life changing. Having a daily lesson gives me a few minutes to stop and think. These lessons learnt will be useful for the rest of my life.*

*cvs2bvs simple effective pure genie in bottle stuff.*

*Yes. I can do a 'switch'! This is a large shift from the idea of creativity is a magical process that awaits inspiration.*

*What a relief to be free! If cannot step aside from my cvs then I'm unable to think effectively on any issue.*

*SOT has taught me to think outside the square. A remarkable achievement.*

*Dude! this place is so awesome! they describe thinking process in such cool fashion. Learning from the quotes of all great people plus the cvs2bvs brain software! dude you must check it out.*

*School of Thinking widens your thinking outside the box. It's cool.*

*The main insight for me is the Escape. Escaping from my current point of view, rather than indignantly defending it.*

## What **teachers** say about cvs2bvs and x10 Thinking...

*School of Thinking lessons are quite addictive. The most enjoyable and worthwhile use of the internet I've ever experienced.*

-Neville (Teacher)

*Your training has given me a new view on life. Can't believe the impact it has had on my thought patterns.*

-Karl (Catholic College Teacher)

*I've enjoyed every minute of your training and benefitted more than I can measure.*

-STEM teacher

*I will be recommending the lessons to at least 10 people! Thanks.*

-Kylie (Teach Consultant)

*The lessons gave me simplicity and repetition of mindful tools for immediate use. That is possible for me to x10 my thinking I would have thought was not remotely achievable. Also, the daily routine builds daily habits.*

-Jennelle (Assistant Principal)

*Following your training and your suggestions have been the greatest rewards of my life.*

-Kellie (Primary School)

*I would love to continue to get as much knowledge from you as I can. Your course has changed the way I think and brought me a great turning point in my professional life.*

-Craig (School Principal)

## What **they** say about cvs2bvs and x10 Thinking...

### **Jack Welsh**

*Chairman of GE  
(1981 - 2001)*

*I wish I had a management team that really understood x10 thinking because it's the value-added role in the management process.*

### **Sir Gus Nossal**

*AC FRS, Chairman of the Gates Foundation's Discovery Expert Group*

*I like its simplicity and directness. I like the facets of humour. I like the design. It is so easy to read.*

### **Andrew Bassat**

*CEO and co-founder of SEEK  
Gone through it on my iPhone.  
Given me lots of interesting thoughts.*

### **Professor David Penington**

*AC, former Vice-Chancellor,  
University of Melbourne  
Lessons are commensably sharp and pointed. Easy to read by smartphone.*

### **Professor Jenny Graves**

*Prime Minister's Science Prize:  
I applaud School of Thinking for it's teaching of scientific thinking.*

### **Maria Deveson**

*Telstra Business Woman, 2014*

*So exciting. We can fire bad philosophy and abound with a lot of x10 energy for fun and work-life balance.*

### **Peter Dale**

*CEO of Volgren Marco Polo, Australia's largest bus manufacturer*

*x10 is such a great concept. Easy to understand, punchy and fresh!*

### **Professor German Spangenberg**

*Head of Agriculture Victoria Research. VicGov.*

*I loved it! I couldn't stop opening the file and reading it to the end on my iPhone!*

### **Larry Page**

*Co-founder of Google*

*I live by the gospel of x10 Thinking.*

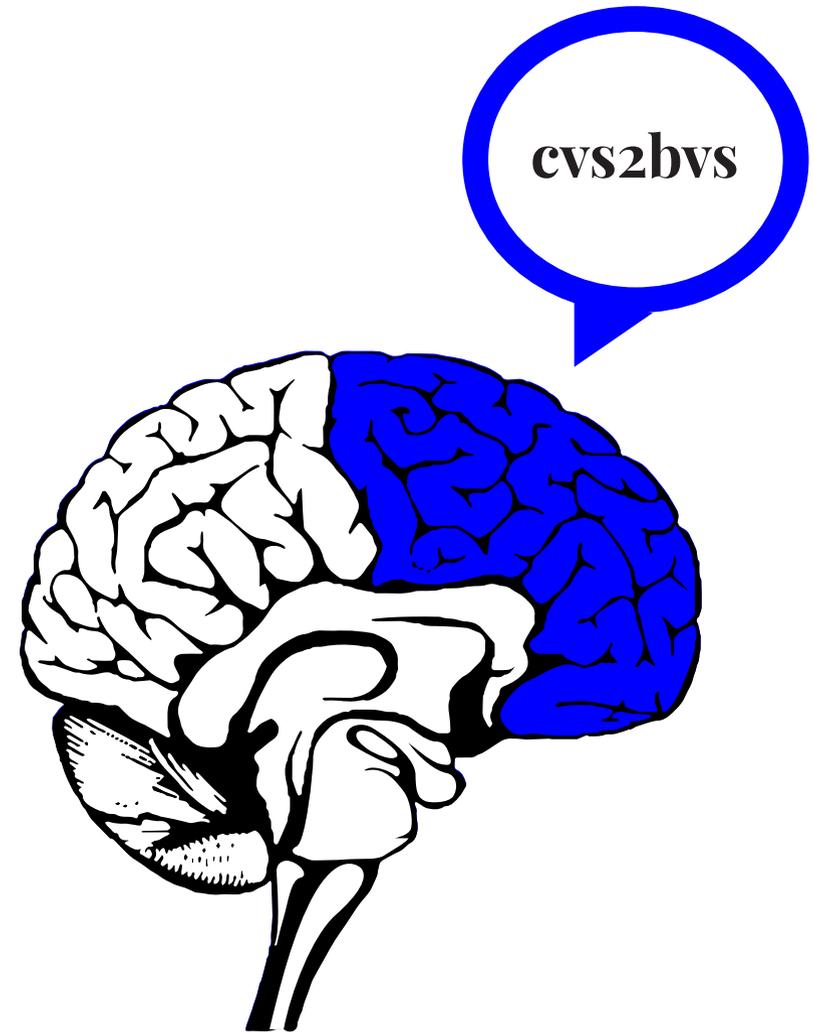
### **Dr. George Gallup**

*Founder of The Gallup Poll*

*I believe the School of Thinking's work in teaching people how to think may be the most important thing going on in the world today.*

These **FASTBOOKS**  
are designed for  
a quick read  
on your smartphone.

*They're free.  
Pass them on.*



**Software for your PFC**



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