



PUSH quick guide to...

## The Unchained Brain

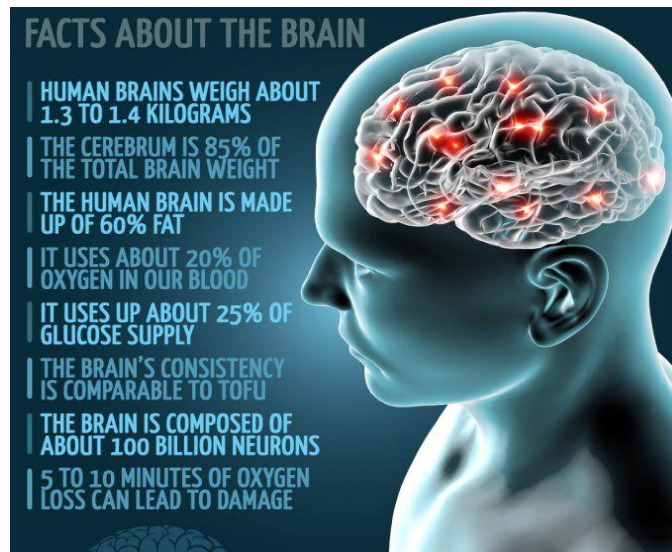
### Why learn (not study)?

Learning is different to studying. Studying is usually done by repetition of hearing, seeing then repeating this process, in an often unemotional way. Learning is a way of achieving the rewards you want in life. Why are they called rewards? Well, because studying gives you the knowledge and skills to be able to do things, and usually if you can do a specific role or task (and be able to do it well with a good attitude to match), then people reward you with the things that bring you personal and professional fulfilment, like exciting experiences, respect, recognition, the chance to progress, flexibility and of course money. Figuring out what you want from life is the first step in being able to effectively study...since you'll have an awareness (and awareness fuels confidence and motivation) in what all this studying is leading to.



### Learning can be fun (really!)

If you're happy, you feel more empowered and enabled to make decisions about your life that matter. If you're more empowered and enabled, you feel more career satisfaction as you're aware of exactly why you're getting yourself out of bed each day (to get your rewards). That is essentially employability: developing each day in something you love, because you love what you do. Every job in life will require you to continue learning new things (at times quite a lot), so if you already love what you're doing...studying won't feel like studying...in fact; you'll relish the new things you have to learn. We often don't even think about our brains unless we've hurt them. We know more about our solar system than we do about the brain. We're still trying to figure out its wonders. Try and sometimes stop and marvel at this incredible thing in your head, and you'll most likely want to befriend it, and put it to the test each day. Here's just but a few brain facts, to get you marvelling...



## How does the brain learn?

It learns through memory. Think back to your childhood - ever wonder why certain memories stick in your head? Stop and ask yourself; what's your earliest memory and why? Can you close your eyes and picture it? Do sounds, smells and tastes come flooding back into your head? If so, then you have subconsciously formed a strong connection to the storage part of your brain, and a strong connection means you can access it in milliseconds. We know nothing of the world apart from through our senses...

[Here's our founder Johnny Rich with 2 videos on how we learn \(practically and in attitude\)...](#)



Evolution has taught us to see patterns in sensory information...and to recall similar patterns. In other words: our senses make us remember things. The reason you remember certain childhood memories is because that moment in your life involved a strong emotional event (pleasure, pain, fear), and therefore your brain has formed a strong pattern to store and recall that event for the future. The brain sees it as something worth remembering as it triggers one of two things...

**Firstly, a survival response:** if you were stung by a bee, the brain registers the emotional trauma of that experience and ensures you remember it for the future, so if you sense a bee is near via a strong connection to a buzzing sound, your survival instincts kick in and you flee. Or – 100,000 years ago in the nomadic tribe you are in, you notice that someone goes missing overnight every time the camp fire has been left to go out. You see a lion pull someone away the following night as the last embers of the fire wilt. Your brain now forms a strong connection to fire keeping lions away, and you remember every single night from then on to always keep the fire lit in areas with predators, and for people to take sleep rotations to fuel the flames.



**Secondly, a reward pathway:** if you know that an experience lead to something great, the brain will store it...which shows just how important it is to figure out those personal and professional rewards you want from life. Once the brain has stored it, it creates more and more links to it, so eventually you've repeated accessing the memory so much that it doesn't even feel like you're remembering things anymore...it's just instinctive.

## 2 types of memory:

You have short term and long term memory. Your brain stores things firstly as a short term memory (30 seconds – 1 minute), but if not repeated or recalled, it will fizzle away very quickly as the brain deems it not important as you've not revisited it or thought again about it. According to Learning Solutions Magazine “**within one hour, people will have forgotten an average of 50 percent of the information you presented. Within 24 hours, they have forgotten an average of 70 percent of new information, and within a week, forgetting claims an average of 90 percent of it.**”

Regularly recalling but also thinking about things (or practicing a skill repeatedly) helps the hippocampus section of your brain establishes enough strong neural pathways to convert it into a long term memory that you're highly unlikely to forget.

Here's our team member Jake, on the process of remembering



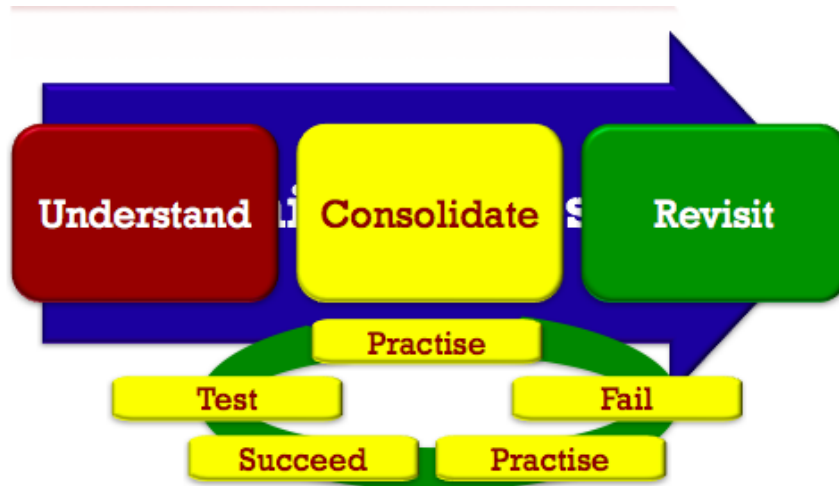
## 3 Steps to becoming an effective learner:

Everyone is different, and only you will know through trial and error what works best for your brain, but follow these 3 simple steps and you'll be a great learner:

- **Prepare the brain:** the worst thing you can do is launch into trying to learn something without firstly understanding the bigger picture as to why it would be useful to store it in your mind. Simply ask yourself (and your teacher) “why?” and “how does small fact fit into the larger topic?”. It's called metacognition: a learner who knows that they're learning and what they're learning will learn more (and learn it better).
- **Feed the brain:** if you know the brain learns best through doing and teaching, instead of reading, then get doing: different techniques work best for different people. Explore different techniques and see what you find most enjoyable and effective. Think of your senses: viewing things (relevant documentaries), smelling and tasting things (visit relevant environments based on your topic), hearing things (record your notes and play them back to yourself through the day). The more you can feed all your senses into what you need to learn, the more emotional you make it, and the more emotional it is (fun, exciting, challenging), the more the brain creates links to it for future recall. There's also revision techniques like mind maps, pneumonics, speed reading.



**Fix it in the brain:** here's the bit that turns it from a short term memory to the long term memory so you can remember it instantly when tested mentally or practically. The best approach is 4 fold, and it's called The McKinsey Model = Hear, See, Do, Teach. Simply put; if you see something you're 4 times more likely to remember something than just hearing it. If you hear something, see something, then do it (or act it out physically or vocally) you're 8 times more likely to remember it. If you hear, see, do then teach this to someone else (your friends in study groups or on trips or even just walking home together) you're 16 times more likely to remember it. Creating a learning community: by helping a friend learn better, you're helping yourself remember it too.



### **The importance of Testing (and failure):**

Testing is a crucial part of learning. It's not designed to catch you out or make you feel stupid – it's to allow you to work out what's gone in and what's not. The brain won't just send you an email in the morning and with a list of things that have gone into your long term memory and stuff that hasn't. It requires testing and assessment to work out not only what you've learned, but how effectively you've learned it. It also helps you figure out what kind of memory techniques work for you best. If you ace an exam and realise it was because you chose to give a particular revision technique a go, then go you: you've just worked out your personal learning techniques. All your other learning will now be better. Failure is a crucial element to the process of self-development, and your brain learns through constant doing and re-doing...

Here's Johnny Rich again, with some top tips on revision, and Guy on working smarter not harder...





## Get up and Do:

There is a famous phrase: “Memory is the residue of thought”. To create 'sticky' connections in your brain that allow you to bring information to your mind in milliseconds, it is always better to get up, do and immerse yourself in thought and imagery about what you are trying to learn. When Benedict Cumberbatch had to learn 1,480 lines to portray Hamlet (Shakespeare’s longest play) in his acclaimed 2015 Barbican Theatre performance, he says



*In the same Independent article, the journalist Boyd Tonkin highlights that “learning by heart continues to thrive in many cultures. Islamic custom cherishes the achievement of the “Hafiz” – the guardian – who can recite from memory every verse of the Koran. Scholars suggest that Homer’s Iliad and Odyssey crystallised in their written form around 750BC, out of an already ancient school of oral transmission. In Serbia, as late as the 1930s, the Homeric investigator Milman Parry came across folk bards who could recall, and embroider, traditional stories thousands of lines long.” Through the 20<sup>th</sup> Century, we in the West lost a lot of what we (mistakenly) simplified in our models of education as ‘by rote’ learning.*

Michael Pennington, an English actor, writer, director studied Hamlet long before playing him. He immersed himself in the show, performed by different people, and found he imbedded most of the lines before he ever got offered to role himself. And by that time the 1,480 lines posed little difficulty to absorb. "By that time, I'd heard (the play) over and over again, in my mouth and other people's mouths. I hardly had to learn it at all...although it's very long, the language is surprisingly simple to learn – it's very practical, down-to-earth language." He says this made it easier to imbed, as it was connected to the way we commonly express ourselves with emotions – even though the play is nearly 425 years old. Pennington says “What could be simpler than "To be or not to be ...'?"





Just like actors singers and rappers learn by repeatedly saying their lines out loud. Not sat down - but on their feet. Rehearsing it. Jay-Z - arguably the World's most famous rapper and one of the top 5 most commercially successful of all time - said in an interview in 2008 that he hasn't written down a single rap lyric in over a decade, since his debut album Reasonable Doubt - released in 1996. His songs contain 10,000s of lyrics learned in sync with a beat.

Jay-Z highlights though, how things aren't ever spontaneous - he "thinks things through" endlessly. His key areas are all organized in his mind, then he immerses himself in a beat and the words fall into place. They cement in his mind through endless repetition of those lyrics. Not just in the studio - but everywhere: in his kitchen, in his car, when he walks his wife Beyonce's dogs through New York. Take your learning outside the classroom or study group, and live it through actions.

[Here's our PUSH team, along with our friends at HOP Humber outreach, giving some tips on forming powerful memories...](#)



### **Hear, See, Do, Teach:**

In other words, Jay-Z revises his lyrics. Endlessly, with emotion and imagery. Words are said out loud, with gestures and music: composing in his mind powerful unfolding imagery: a 4 minute story. He learns through immersion into complete musical solitude. He doesn't think: he gets up and just does. When he is then faced with a live audience, he teaches to them what he has taught himself 1,000s of times. They are in awe, repeating his words back to him: a beautiful symbiotic learning relationship where everyone is the teacher. And if you teach something to someone else you are *10 times* as likely to remember something for yourself - as opposed to just reading it. In it's simplest form, it's a model called [Hear, See, Do, Teach...](#)



## WE LEARN...

**10% OF WHAT WE READ**

**20% OF WHAT WE HEAR**

**30% OF WHAT WE SEE**

**50% OF WHAT WE SEE AND HEAR**

**70% OF WHAT WE DISCUSS**

**80% OF WHAT WE EXPERIENCE**

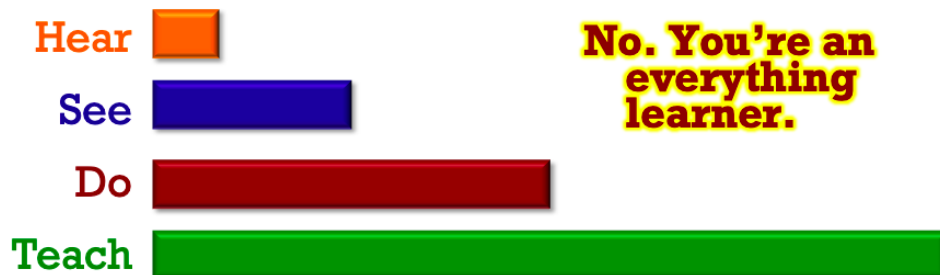
**95% OF WHAT WE TEACH OTHERS**

*William Glasser*

Friedrich Nietzsche noted, on Maxim 34 in his 1889 introduction to his philosophy 'Twilight of the Idols' that "only thoughts reached by walking have value", with him believing that "the sedentary life is the very sin against the Holy Spirit". Nietzsche loved long walks. He found philosophical thoughts flowed better that way. When we get up and do things, we force the brain to experience new things - or new ways of looking old things. Our brains are always striving for new, more efficient, connections to things - via sensory stimulation and unfolding emotions from them.

The more we get up and do, the more we tap into the ways our ancestors learned, before books and digital media. Our brains have not changed much in 40,000 years, but the World (and all its distractions) certainly has. Simply getting on your feet and taking your curiosities on a subject outside the classroom, can help your mind slow down and form new connections to your subject. New connections can spark new understanding and meaning, and that's where the never ending joy of lifelong learning unfolds.

**"Oh, but I'm a  
visual learner"**



**No. You're an  
everything  
learner.**



## Reward yourself (bit by bit):

A bit like a dog with a biscuit, the brain works on a reward mechanism. If a thought or piece of information helps you survive better, or there is a dopamine release (often through positive emotions) then your brain will lock it in and want to come back to that memory more often. Rewards can be for genuine effort and tiny improvements, not always huge changes in result. Our brains mainly work through marginal gains, as we slowly build new connections to different ideas, and then strengthen them through practical repetitions (spider diagrams, cue cards, drawings, rhymes, songs).

Be honest with yourself: test yourself, and when there is a real sense of achievement and you truly feel a small gain in your result, reward yourself with a small treat - maybe an episode of your favourite Netflix show, 20 minutes of video games, an ice cream from the freezer or a walk with the dog. Then, once you know that information for your exam and it's solidly in your mind after more tests, remove the small reward the save it for the next thing you need to learn solidly.

Here's our team member Guy, on what high performance looks like...



Remember, exams and assessments are not designed to be a doddle. They're there to challenge and push you. Also, a lot of it is about 2 things: time management and controlling your nerves. It's not that you don't know what you've formed memories on during your learning sessions, but more often than not that time gets away from you and your nerves (panicked by time or lack of) block your brain's memory channels as it focuses on controlling your nerves.

So, test test and test again – so you've muscle memory galore by the time you enter your real exam. It's why footballers will do repeated training – with set piece and penalty drills. And why Benedict Cumberbatch or Jay Z can reel off 1,000s of lines of memorized text, in front of entire live audiences. The nerves are still there, but they've learned to be controlled through 100s of rehearsals, lasting sometimes 1,000s of focused hours. Take a leaf out of their books, and perform your exams as much as possible, in timed tests in school settings – with no phones, tablets, text books, notes or chatter. If you rehearse it so much, the real exam will just feel like something you've already done time and time again (because you have).

Here's our presenter Moj Taylor on exam techniques

*(since he delivered this, you're now not allowed to take watches into an exam – and you need to ask for water which will be provided to you)*







If you've managed to recall particular memories under the pressure of an exam situation, you've genuinely achieved something special. Pat yourself on the back, go and celebrate. It helps the body and mind understand that if it revises again for a test, and does well, it will get rewarded again. Eventually, after enough repetition (the 10,000 hours' theory) something that once seemed hard to learn will appear instinctive and easy to your brain...so again: you remove the gratification and save it for when you challenge yourself with the next new thing to learn.

## **Independent learning:**

Companies, universities, apprenticeships, employer-training: they never ever stop testing you...they'll just do it in their own way. To get the rewards you want in life, you're constantly assessed, and expected to process the day and learn new things, because you're constantly being required to learn and develop new skills. That's why doing the same job over and over can seem boring. People want to progress and ensure they're learning new things daily otherwise things feel monotonous. People get promoted and expected to learn new things quickly, with the chance of challenging the mind and body with new emotional and sensory experiences. That's what makes for an enjoyable and fulfilling career that keeps giving you (and your brain) reeling in the rewards you want.

## **Some closing words:**

Guy Reynolds would know a thing or two about independent learning...as he's now on his third (yes, mad) degree – undertaking a PHD at the University of Southampton, in the field of Ancient History. Throughout history, our brains have helped us to invent groundbreaking things, survive better and live longer. They've also helped us to process the ever-changing World around us, to develop compassion for other people, and find or even create art in the smallest of things. We've also been able to overcome immense stresses and challenges, via the power of the mind. Here's some final words from Guy, on how we can take a moment each day to reframe what learning really means for our lives...

*The Roman philosopher Cicero wrote about reframing over two thousand years ago, using a metaphor of an archer...*

*“One's ultimate aim is to do all in one's power to shoot straight, and the same applies with our ultimate goal. In this kind of example, it is to shoot straight that one must do all one can; none the less, it is to do all one can to accomplish the task that is really the ultimate aim. It is just the same with what we call the supreme good in life. To actually hit the target is, as we say, to be selected but not sought.”*

*[Cicero, DE FINIBUS 3.6]*

*What Cicero is saying here is this: an archer wants to shoot straight, but they can't control things other than their aiming. A wind might start and blow the arrow off course. The target might fall over. An enemy soldier [who probably doesn't want to be shot] would actively be trying to avoid the arrow and hide behind his shield. Therefore, an archer who's goal is to hit the target is bound to be disappointed as they can't control whether the arrow hits or not – despite their skill. They've set their hopes on achieving something that is not within their power to achieve.*

*What they can do is make sure that they aim as well as possible – that this is their goal – and then even if the arrow misses, they'll not be disappointed as they've still fulfilled their goal.*

*They have reframed their problem...*



*Cognitive reframing is a powerful and simple tool that each of us can use in every aspect of our daily lives – whether in education, the workplace, or our personal life. Cognitive reframing simply means changing our thoughts so that we are able to look at a situation in a slightly different way. Doing this, we're able to make negative things become positive and gain more control over our lives.*

If you've found this useful, do sign up to our newsletter. We've monthly articles written by our team, on learning, employability and choices...



**FURTHER INFO: LINKS TO THE BEST OF THE WEB**

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