

THE NEUROTRANSMITTERS OF LEARNING AND GAMIFICATION

The human brain sends hundreds of trillions of messages across different neural pathways every second¹.

These messages are transmitted by chemical messengers called neurotransmitters. There are over 60² different neurotransmitters and each one has a different function.

In this guide, we're going to examine the four chemical messengers crucial to effective learning. They are: dopamine, endorphins, serotonin and oxytocin.

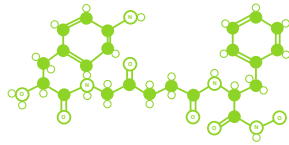


NEUROTRANSMITTERS

DOPAMINE



ENDORPHINS



SEROTONIN



OXYTOCIN



DOPAMINE

What is Dopamine?

Dopamine is a hormone that's released in the prefrontal cortex³ when we do things our brains want us to do again. This acts as a reward, reinforcing positive behaviours with the sensation of pleasure⁴.

Dopamine and Learning

Dopamine is essential to learning because it rewards positive behaviours. It gives learners the motivation they need to focus on learning and it gives them the incentive they need to keep coming back!

This means that dopamine release is essential if you want to make sure information will stick in your learners' memory.

How to Trigger the Release of Dopamine

- Remind learners of past successes with badges and a badge cabinet⁵.
- Use praise badges to provide recognition and appreciation to your learners⁵.

- Reward your learners at every opportunity using points, badges and encouragement⁵.



ENDORPHINS

What are Endorphins?

Endorphins are produced in the pituitary gland and stimulate the sensation of pleasure⁶. In fact, they're the chemical responsible for euphoria⁷! Euphoria is the feeling you get when you overcome major challenges and achieve the impossible. It makes you feel like a real-life superhero.

Athletes and gamers alike get a euphoria-inducing endorphin rush when they push themselves to reach the next level. It's this that gives gamers the drive to spend six hours a week playing video games⁸.

Endorphins and Learning

When endorphins are released they make you happier and more relaxed, which is perfect for learning. Analysts at Research Schools⁹ found that learner performance overwhelmingly improves when the subject in question is happy.

As endorphins make you happy, this means they help improve learning. But what's even better is that learning triggers the release of more endorphins, making you happier still and improving your ability to learn even more.

How to Trigger the Release of Endorphins

- Endorphins help drive us towards a goal. This means that levels and leaderboards are powerful mechanics to help motivate your learners onward⁵.
- Encourage your learners to explore the platform using achievements. Achievements are rewards given every time a new part of the platform is explored or key milestones are hit. They help establish a sense of autonomy and mastery. This triggers the release of endorphins⁵.

SEROTONIN

What is it?

Serotonin is a neurotransmitter produced in the raphe nuclei that affects your mental health¹⁰. It affects your mood, memory, sleep quality, libido, appetite and perhaps most importantly, your ability to learn. All this makes it one of the most essential neurotransmitters in your brain.

Serotonin and Learning

Serotonin plays a key role in the formation of memories. It's even thought that future

research into serotonin will uncover ways to prevent age-related memory decline¹¹!

Serotonin is also responsible for the brain's neuroplasticity¹². This is the ability of the brain to reshape itself so that it can accommodate new information and change behaviours. This means that serotonin can help you inspire your learners to change their behaviour.

How to Trigger the Release of Serotonin

Serotonin release can be triggered by

highlighting and remembering successes⁵. Here are some ways you can help your learners do that:

- Highlight and recognise success with badges!
- Use a badge cabinet to let your learners review past successes whenever they like.
- Help learners recognise peer successes with praise badges.

OXYTOCIN

Oxytocin is formed in the hypothalamus and is then secreted into the bloodstream¹³.

It's nicknamed 'the cuddle chemical' and as you might guess, it's strongly linked to trust and the building of relationships.

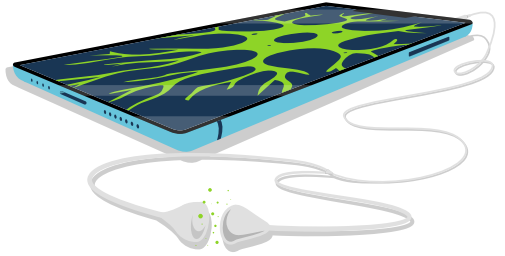
Oxytocin in Learning:

A paper in 'Frontiers' has found that oxytocin is important in any form of training¹⁴. This is because all training requires you to trust the person teaching you.

This means that if you want to develop a culture of knowledge-sharing then you need to build a community of shared trust.

How to Trigger the Release of Oxytocin

- Highlight and recognise success with badges!
- Use a badge cabinet to let your learners review past successes whenever they like.



- Help learners recognise peer successes with praise badges.

WANT TO HARNESS THE POWER OF BRAIN SCIENCE AND SUPERCHARGE THE IMPACT OF YOUR TRAINING?

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FIND OUT MORE

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