Cheatography

4 Essential Neurotransmitters in Gamification Cheat Sheet

by [deleted] via cheatography.com/2754/cs/8569/

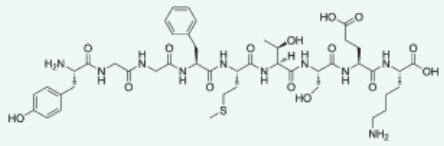
Introduction

In gamification there is often a lot of mention of things like “Neuroscience”, “Neurochemistry”, “Neurotransmitters” or “Brain Chemistry”. In particular you will hear people speak about neurotransmitters such as Dopamine.

Neurotransmitters are chemicals that transmit signals around the brain. They all have different functions and have different effects on us.

Credit: https://www.gamified.uk/2015/01/05/neurotransmitters-you--should-know-about-in-gamification/

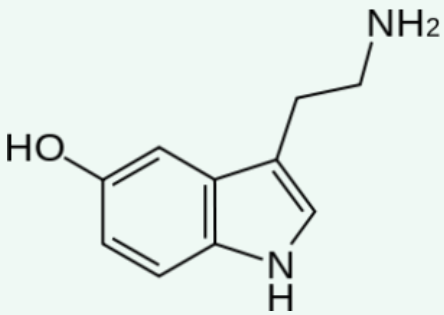
Endorphin



Endorphins

Endorphins are opioids that we produce naturally as a reaction to certain stimuli. When they are released, we feel good. Actually it can be a lot stronger than that, we can feel high or euphoric. They also reduce pain and fatigue in response to stress (or indeed pain), giving us our “second wind” that helps us push through. It is what gives runners the ability to keep going when they think they are done for physically. It is also released during less physical activities – such as video games. Overcoming the challenges in games can stimulate the release of endorphins, making gamers feel better about themselves and giving a sense of achievement.

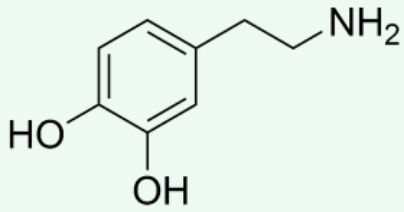
Serotonin



Serotonin

Serotonin is a mood regulator. If you have enough you will be happy, if you don’t – you will be miserable. It is triggered when you feel wanted, important and proud. This could be when we are thanked or have achieved something that required true effort. When people feel that they are unappreciated or worthless, they will have low serotonin levels

Dopamine



Dopamine

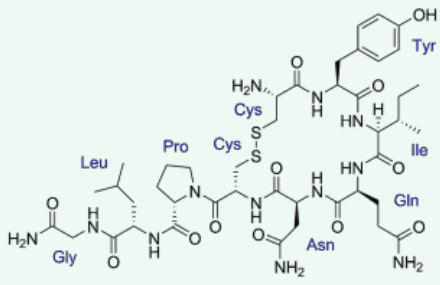
Dopamine has many functions, but I only want to talk about a couple that have relevance to us in gamification.

⬛Motivation: It is released before an event that requires some sort of response, pleasurable or otherwise, and drives us to act. So when it comes to a reward, dopamine is released in anticipation of receiving the reward, rather than after (1) (known as incentive salience).

⬛Learning: It is thought that dopamine plays a major role in associative learning, i.e. forming associations between an action or activity and its consequences (2). Andrea Kuszewski puts it rather nicely;

⬛Excellent learning condition = Novel Activity—>triggers dopamine—>creates a higher motivational state—>which fuels engagement and primes neurons—>neurogenesis can take place + increase in synaptic plasticity (increase in new neural connections, or learning).

Oxytocin



Oxytocin

Oxytocin is key to how we bond to others (mothers to babies, lovers, friends etc). It can give us a strong feeling of contentment. Studies have show that this can even occur remotely, with Paul J. Zak suggesting that using social networks like Twitter can create a similar reaction to falling in love! (5). Oxytocin has also been shown to increase trust in groups, altruism in individuals, arousal, bonding and much more.

However, there is a flip side to to this. Previously thought to just promote the nicer side of social bonding, strengthening your feelings and reactions in social situations may not always be positive. In reality it could lead to strengthening feelings of anger and dislike depending on the situation

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