



Role of Social Media on Our Brain and Behaviour

Psychology Term Paper

IHS201 - Psychology
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Topic

Write a summary on the 'Role of Social Media on Our Brain and Behaviour' and compare the impact in light of 'online and offline social engagement'.



Introduction & Background

"A day not wired is a day not lived."^[1]

Since the early 2000s, the number of people regularly using social media has been exponentially increasing. In 2017, the total number of social media users around the world was recorded at 2.46 billion.^[2] Due to its widespread use and permeation into our day-to-day lives, social media has become the defining culture of our generation. It hasn't just affected our society, but has impacted humans at a core behavioural and physiological level.

Social media capitalizes on pre-existing social drives^[4]: to connect with others and to manage the impression we make on them. Our motivation for social connectedness isn't new; interpersonal relationships and shared communities are manifestations of a basic evolutionary need of belonging. On social media, we are presented with the opportunity to unboundedly expand our connections and share information with people halfway across the world. Interactions via social media can be classified into several major types - broadcasting and observing personal or non-personal information, receiving and providing feedback on these broadcasts and engaging in social comparison of your broadcasts, feedback and other factors with respect to others in your network^[3]. These interactions draw from various cognitive

processes in our brains such as social cognition, self-referential cognition, and social reward processing.

Social cognition or mentalizing is the ability to infer the mental states and motivations of others^[3]. This helps us manoeuvre the minefields of social interactions so as to preserve and optimize our relationships^[4]. For instance, thinking about how a person might react after you broadcast something enables you to understand and predict their behaviour. Studies have linked mentalizing and information sharing with parts of the brain including the dorsomedial prefrontal cortex (DPFC), anterior temporal lobe (ATL), bilateral temporoparietal junction (TPJ) and posterior cingulate cortex (PCC)^[5].

When we think about ourselves so as to convey personal information, like our opinion on the President or what we ate for breakfast, we indulge in self-referential cognition. This sort of thought makes up about 80% of our social media posts and involves the medial pFC and PCC.^[3] In contrast, we tend to speak about ourselves in real-life conversations only 30-40% of the time.^[6]

Another major cognitive process is the reward system. Most of our online social activities are tagged with some form of a social reward; these could be in the form of a 'like', a new follower or even an instant reply. Our reward system labels social cues as positive stimuli and encourages behaviors consistent with pursuing social acceptance^[4]. This system consists of the ventromedial pFC, ventral striatum and ventral tegmental area^[3]. The ventral striatum is also involved when we compare our social rewards with somebody else's, or when our curiosity is sparked as we read tweets on our feed. Every time we receive a social reward, a small amount of dopamine is released, which compels us to repeat the activity for more rewards. On an

online platform like social media, rewards are numerous and easy to obtain. But repetitive enactment can lead to a sort of addiction, characterized by a compulsive 'want' to seek out rewards and a hypersensitization of the reward system.^[9] Addiction can radically alter our offline behaviour, causing us to neglect our day-to-day activities and mental and physical health.

Man was built for social connection - our dopaminergic reward system and mentalizing abilities work in tandem to seek out social interactions and maximize them. A study conducted in 2010 suggested that a person with a larger and more complex social network would have a larger amygdala to process his relationships.^[7] This increase in grey matter volume (GMV) was transposed onto a person with a large online social network and the relationship still held - which suggests an interplay between actual social experiences and brain development.

Social media places users in a immensely different environment from real-life, one that is vast yet restricted at the same time. This change in environment is the prime reason our behaviour changes so much online. Real-life conversations are reciprocative in nature: people contribute to conversations in a more or less equal manner. However, it is perfectly acceptable for someone to carry out a unidirectional exchange on social sites. This, along with increased self-referentiality leads to an emergence in narcissistic behaviour online. Moreover, people are compelled to follow a normative demeanour when interacting face-to-face. But when there's a screen between users, a degree of anonymity is produced which lends them the freedom to speak and behave without constraints. This can help normally introverted people be more forthcoming, but could also augment hate speech and bullying. On social media, people tend to express more sensation-seeking

and risk-taking behaviour, such as unlimited self-disclosure in the form of tweeting or sexting.^[10]

In spite of the differences between online and offline environments, social interactions affect our brains and behaviours similarly. Researchers found the orbitofrontal cortex and insula showing heightened activity after a person experienced exclusion from an activity, signaling increased arousal and negative affect.^[8] Likewise, social acceptance evoked activity in the ventral striatum, a region usually sensitive to monetary gain or pleasant tastes.

Adolescent brains are particularly susceptible to social media. Acceptance or rejection online, as well as engaging with media content evokes strong emotional responses, even when purely fictional events are taking place. This is possibly due to the late maturation of the DLPFC and heightened emotional reactivity in their brains. Another huge component in social relationships is peer influence. Adolescents are most susceptible to this and are quick to adjust their behaviour and opinions according to peer norms. In fact, the brain recognizes a deviation from peer norms as a norm violation and increased activity in the ACC and insula is observed.^[1] A striking example of this induced behavioural change is the female obsession with the 'ideal body image' and their efforts to model it.

Man is a social animal in a digital world. We have started to replace social interactions at gatherings and events with digital supplements as a way to increase our 'social currency' using lesser effort, without realizing that it may not always increase our social connectedness. Social media may have the power to connect people across oceans but the basic human characteristics of communication, such as gestures, intonations and emotion are irreplaceable.



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