

The Psychological Consequences of Content Algorithm Design

Introduction

Social media and its use/overuse are commonly linked to mental health issues, namely anxiety and depression, especially so for young people [1]. This report will look at online platforms from a design perspective, categorising mechanisms that have been linked with mental health or are likely to cause unintended psychological effects on the user.

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Social media mechanisms

The mechanisms described in this report are distinct features of online platforms that can influence users. The platforms chosen are mainly but not exclusively social media, as these mechanisms and their effects are more prevalent when users interact. As these mechanisms do not have universal names, those used in this report are either adoptions of colloquial names or constructed by the author.

Technological Dissociation

Technological Dissociation describes the change in cognition and actions of a person online compared to in everyday life. This is especially prevalent in online interactions that remove or reduce body language perception, accountability, and identifiability. Technological Dissociation was coined by the author, as it describes the disconnect between a user and the effect of their interaction, which technology facilitates. Yikyak was an app where you could type whatever you wanted and people near to you would be able to see the message, but not your identity. The app became popular, especially on university campuses, however soon was “associated with bullying, discriminatory speech and threats of bomb and gun violence” [2] due to hateful posts by the users. The YikYak case study supports the hypothesis that technological dissociation allows more hateful and extreme actions from users. Technological dissociation can reduce empathy [3] arguably contributing to the behaviour seen from users on these kinds of platforms.

Highlight Reels

The highlight reel effect arises from posts about people's personal lives. It is common in most social media but more prevalent in posts from friends, family and acquaintances. It is common for people posting on online platforms to only share the best and happiest moments from their lives; when people see this, they compare it to their whole life, this creates an unfair comparison. "Highlight reel" is a colloquial phrase for this effect, sometimes described as the "Facebook effect" as it is commonly identified on the platform and has been shown to cause depression. [4]

Virtual Herding

Herd mentality, sometimes known as mob mentality, describes the change in actions of those acting in large groups. Herd mentality can affect decision making [5]. Acting within a large group can also pressure an individual to ignore their own convictions or ethical qualms, as well as reducing fear of individual consequences [6]. Virtual Herding describes how the design of online platforms can encourage herd mentality. When analysing the structure of a platform's social network¹, it is hypothesised that clustering² negatively correlates with the level of Virtual Herding. One concern is that virtual herding, if facilitated, can allow herds to grow to a much greater size than feasible with face to face communication. On December 20th 2014, Justine Sacco posted to Twitter before boarding an 11 hour flight [7]. She expected only her friends and family to see it, she had 170 followers; By the time her plane landed her tweet was seen across the world, the virtual herd created found and distributed her personal information, the time and location that her plane lands, as well as attempting to force her company to fire her.

Virtual Echo Chambers

The connectivity of the internet changed the world quickly, allowing people on opposite sides of the planet to communicate instantly. While this might be expected to increase diversity in the people and ideas we interact with, we have seen the opposite effect. This allows groups of specific and extreme ideologies to form. To add to this, online platforms often show the user content similar to what they have previously shown interest in, which steadily provides more information in agreement with their ideas and less in disagreement. We have known that the earth is a sphere since the ancient Greeks [8], but despite this a recent movement depicting a flat earth had erupted. Many within the flat earth movement cite what started them into this movement as the popular video platform YouTube [9], which has allowed this movement to grow massively within the last couple decades. The environment created within these echo chambers removes opposing ideas, allowing ideologies to run unchecked and extremism to form.

¹ The term "Social Networks" is describing the mathematical modelling of human interactions [10] rather than being a synonym for "social media platforms".

² "Clustering" describes the interconnectivity of Social Networks, a highly clustered network has groups with high interconnectivity, but groups have relatively low connectivity within other groups. A network with little or no clustering can have low or high connectivity, but lacks groups of relatively high interconnectivity compared the whole network.

Conclusions

The internet has been a world changing resource, the defining factor putting us in the “Information Age”, but it is by no means perfect. This paper explored facets of popular online platforms, and how design choices can adversely affect those using it. This information can be used to aid online platform design, to mitigate or avoid unwanted mechanisms. Further research into these mechanisms as well as methods to identify and mitigate them would be useful, especially if done by a joint team of Psychologists and Computer Scientists to fully explore this topic.

References

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