Social Media and Human Behaviour: How Social Media has Exacerbated Myopic Perspectives among Individuals and How can we Tackle it

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ABSTRACT

This paper investigates the impact of social media on human behaviour, specifically focusing on the exacerbation of myopic perspectives among individuals. Social media platforms, driven by algorithmic systems and filter bubbles, have created a digital landscape that reinforces pre-existing beliefs, fosters echo chambers, and hinders exposure to diverse viewpoints. This myopic environment, characterised by selective interpretation and biased memory, has significant implications for societal discourse, and polarising opinions. To tackle this issue, various strategies can be employed, including raising awareness about algorithmic bias, promoting media literacy and critical thinking skills, fostering open dialogue across diverse communities, and encouraging platform design changes that prioritise balanced content curation. By understanding and addressing the adverse effects of social media, we can strive towards a more inclusive, informed, and intellectually vibrant digital ecosystem.

Chapter I: Introduction

Social media has become an indispensable aspect of contemporary human lives, providing a medium for ubiquitous communication and facilitating greater civic engagement. Nonetheless, while social media platforms have rendered valuable contributions to society, they have also inadvertently exacerbated myopic perspectives among individuals. These digital domains frequently instantiate echo chambers, where individuals are confined to insular bubbles that reinforce their pre-existing beliefs and biases, ultimately engendering narrow worldviews. Therefore, it is imperative to scrutinise the factors that engender these deleterious effects and to examine how such outcomes impede individuals' psychosocial well-being and impair human interaction. By identifying these underlying dynamics and evaluating strategies to ameliorate them, we can constructively address these issues and promote greater digital literacy and cultural proficiency among social media users. Approaching the problem statement at hand, the very issue of myopic perspectives has a plethora of significant implications which include an innate and deep-seated capacity for prejudice and sticking to prior preconceived notions. Therefore, the present study endeavours to delve into the underlying factors that engender such perspectives and assess the measures that can be taken to foster more expansive and dynamic modes of thinking to tackle what can be termed as "crystallised opinions" (The Psychology of Closed Mindedness, 2013).

Social media algorithms utilise a sophisticated methodology that automatically prioritises and sorts content based on each user's individualised likelihood of engagement (Petrescu & Krishen, 2020). Through intricate analysis of user interactions, the algorithm tailors content delivery to cater to each user's unique preferences. This results in a personalised social media experience that closely mirrors the individual's interests and activities. Put simply, individuals who exhibit a strong affinity for basketball and the environment, for example, will be presented with content containing game highlights, player interviews, and of course, nature and climate related discussions. In essence, social

media platforms operate on a reciprocal system wherein users provide input that ultimately shapes the content they receive in return.
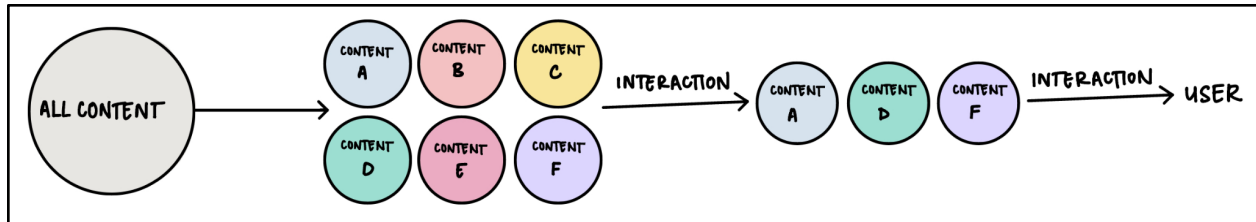

Fig. 1 Simplified Algorithm Function

At first glance, such content reciprocity may appear innocuous and even beneficial, as it allows us to peruse social media platforms and indulge in content that resonates with our interests and preferences. In fact, the very foundation of social media revolves around the provision of engaging and enjoyable content. However, this symbiotic system of content creation and consumption is not without its potential implications.

CHAPTER II: Literature Review

The Issue of Myopic Perspectives– Leading Contributors and Impacts

Conformational Bias

Conformational bias or selective exposure bias is cognitive bias that favours information that confirms your previously existing beliefs or biases (Sachin Modgil et al., 2021). Confirmation bias is a cognitive inclination where individuals tend to assign greater significance to evidence that aligns with their existing beliefs, while downplaying or disregarding evidence that challenges or contradicts those beliefs (Allahverdyan & Galstyan, 2014). This bias leads people to prioritise confirmation of their preconceived notions over the objective evaluation of all available evidence (Axel Westerwick et al., 2017). The degree of conformational bias, however, depends on the type of bias ingrained into an individual (biased attention, biased interpretation, biased memory) (*The Influence of Confirmation Bias on Memory and Source Monitoring*, 2015).

Type of bias		
Biased attention	Biased interpretation	Biased memory

Fig. 2 Types of conformational bias

Amidst the allure of personalised content tailored to our preferences, there exists a subtle yet consequential tendency to gravitate towards information that aligns with our existing beliefs, inadvertently disregarding data that challenges or contradicts our perspectives. This phenomenon, known as selective confirmation or biased attention, operates within the intricate framework of social media algorithms, subtly reinforcing our preconceived notions and inadvertently limiting the breadth of knowledge and insights we are exposed to. Embedded within the fabric of our cognitive processes lies the intriguing tendency to consciously decipher information in a manner that intricately aligns with our preconceived beliefs—a phenomenon known as biased interpretation. In the realm of social media, this cognitive disposition subtly influences our perception, leading us to selectively filter and interpret content through the lens of our existing convictions. Such a predisposition inadvertently reinforces our subjective viewpoints, constructing

a nuanced landscape where information is intricately intertwined with our pre-existing cognitive frameworks. Within the intricate workings of our cognitive architecture, lies the fascinating tendency to selectively retrieve and retain information that harmonises with our preconceived notions, while inadvertently relegating contradictory data to the recesses of oblivion. This intricate cognitive phenomenon, aptly termed as biased memory, engenders a delicate dance between recollection and omission, as our mental faculties consciously or subconsciously filter and prioritise memories that reinforce our existing beliefs. In the realm of social media, this cognitive predisposition contributes to a nuanced landscape where our memory reservoir becomes imbued with a curated collection of information that faithfully echoes our subjective perspectives.

Echo Chamber

In the realm of social media, the prevalent emergence of echo chambers represents a noteworthy phenomenon wherein individuals find themselves enveloped in virtual spaces that resoundingly amplify and fortify their own perspectives. These echo chambers, in essence, result from the proliferation of filter bubbles—elusive constructs woven into the fabric of algorithmic systems governing our online encounters. (Street, 2017)

Fig. 3 Components of the Filter Bubble

Across diverse media platforms, this mediation leads to a highly personalised content ecosystem, characterised by the propensity to segregate individuals into insular bubbles, shielding them from external or divergent viewpoints, while adeptly serving them a curated assortment of information that aligns with their own cognitive landscapes (Fig. 3). Innocuous in its essence, the filter bubble's ramifications became glaringly evident amid the turbulent COVID-19 era. Unveiling its potency during this unprecedented period, it became abundantly clear that the human inclination to gravitate towards information conforming to prior exposure and deeply ingrained hypotheses holds profound implications (Sachin Modgil et al., 2021). This propensity, further intensified for emotionally charged and deeply entrenched subjects underscores the importance of comprehending the perils lurking within the filter bubble's seemingly benign facade. In the contemporary landscape, unregulated social media platforms have become fertile breeding grounds for the rampant proliferation of information, particularly misinformation (*LibGuides: Fake News: Personal Bias*, 2023). In the digital age, a significant portion of the population increasingly relies on these platforms as primary sources of information, inadvertently tumbling down a perilous rabbit hole of content suggestions aligned

with misleading narratives. This phenomenon was particularly conspicuous during the pandemic, as anti-vaxxers found themselves progressively descending deeper into this labyrinth, encountering information disseminated by non-experts with limited fact-checking mechanisms in place. Consequently, the accuracy and veracity of such information became increasingly elusive, perpetuating a challenging predicament in discerning truth from falsehood (Online "Echo Chamber" Can Lead to COVID-19 Vaccine Hesitancy | University of Southampton, 2021).

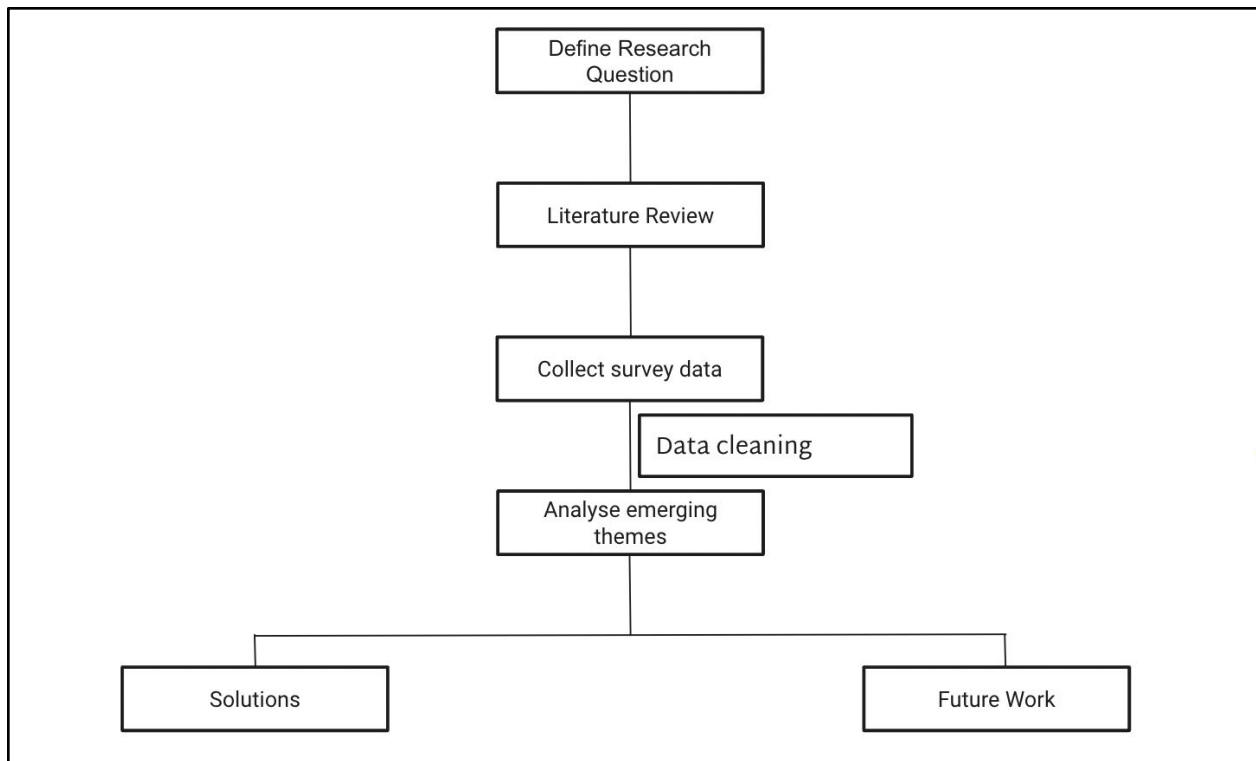## CHAPTER III: Research and Key Findings

Research Methodology

Fig. 4 Research Paper Outline & Methodology

This study adopts a survey approach to understand the demographics of social media users and their interaction with and understanding of media. The study gathers data from students aged 17 to 20 in Singapore. In this research, we utilise linear regression graphs and other forms of graphical analysis to study the data set and mainly analyse emerging themes (MALI, 2021). The variables considered were time spent on social media platforms, extent of diverse view-points available on media platforms and user's emotions in response to social media algorithms.

Key Findings

Social media and narrow worldviews

In order to gauge the collective sentiment surrounding the narrowing of worldviews attributed to social media, an initial analysis sought to ascertain the existence of a prevailing consensus. This endeavour aimed to encapsulate the broader zeitgeist, to form a collective understanding of the multifaceted impact social media has on the constriction

of cognitive horizons. By capturing the collective pulse through this preliminary exploration, a more nuanced and holistic comprehension of the issue at hand begins to unfurl, enabling a richer and more informed discourse on the subject matter.
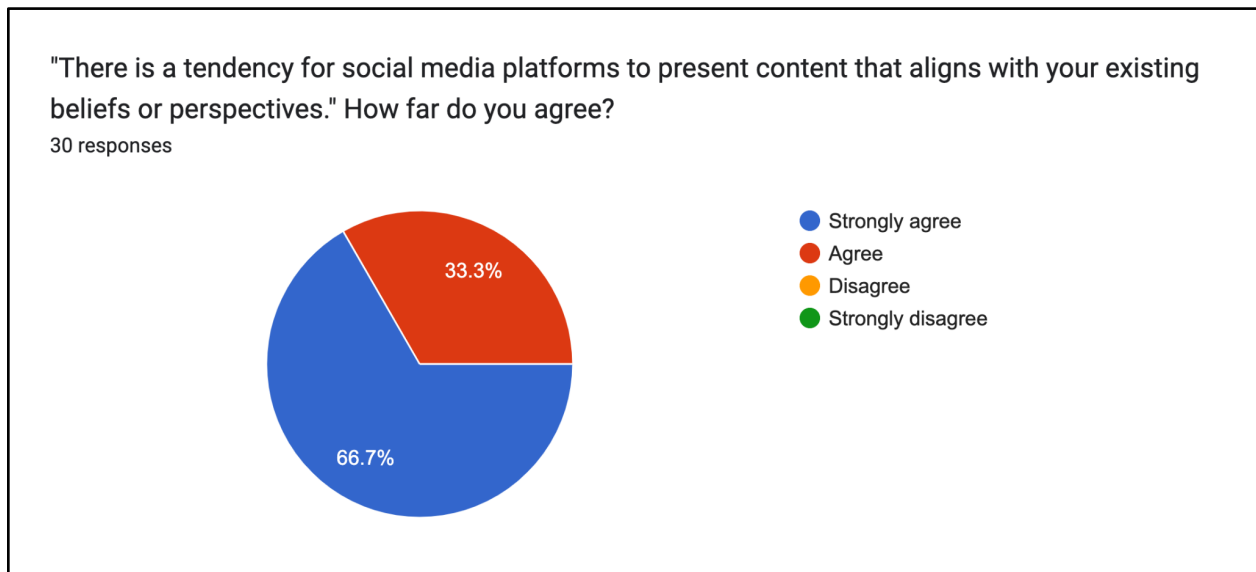

Fig. 5 Confirming pre-existing notions with social media

In accordance with respondents' assertions that social media platforms tend to cater to their pre-existing beliefs or perspectives, a robust argument surrounding the influence of confirmation bias is fortified (Sasahara et al., 2021). This aligns seamlessly with the insights gleaned from Literature Review I, highlighting the intrinsic awareness among individuals of the potential development of myopic perspectives through media consumption (Woolley, 2022). By attesting to the pervasive presence of confirmation bias within the social media ecosystem, respondents contribute substantially to the overarching discourse, shedding light on the intricate interplay between individual cognitions and media-induced cognitive limitations.

Usage of social media and extent of polarisation

An intriguing revelation surfaces with regard to the association between social media usage and the nature of content encountered on media platforms. Notably, a captivating discovery emerges, indicating that individuals who engage with social media "somewhat often" are exposed to a richer tapestry of diverse content in comparison to those who partake in social media "very often."
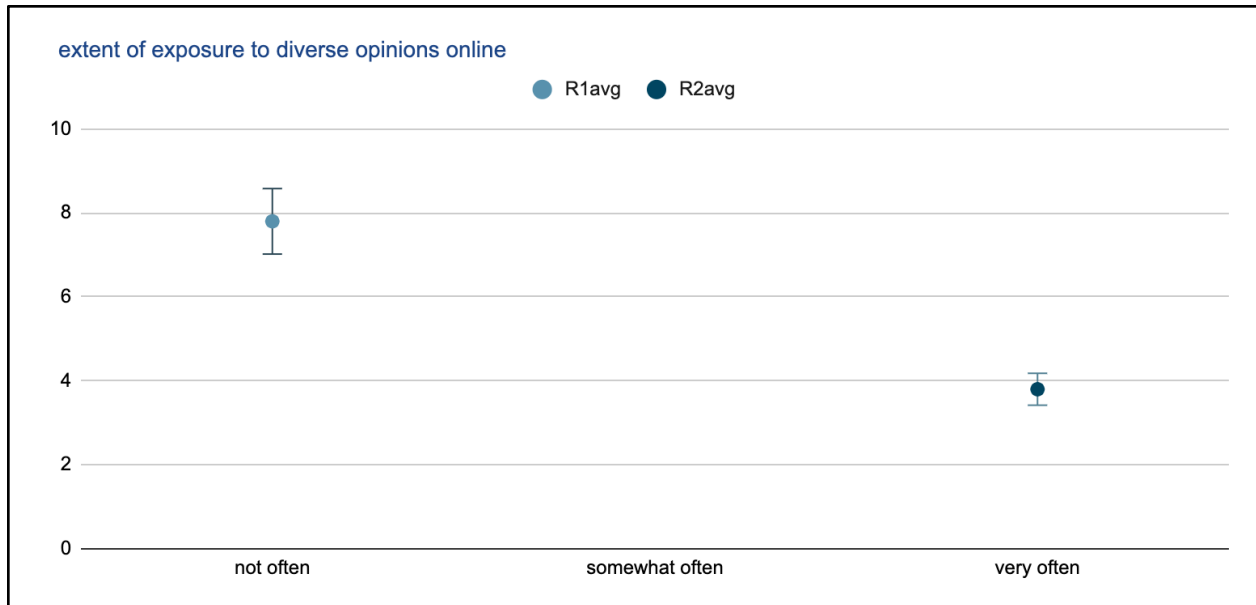
Fig. 6 Usage of social media and extent of polarisation

Through rigorous data quantification, a visualisation is encapsulated in a graph that depicts the intricate interplay between two vital variables (Fig. 6). R1avg represents the approximate level of exposure of diverse opinions for respondents on social media not so often meanwhile R2avg represents the approximate level of exposure of diverse opinions for respondents on social media very often. This is calculated by taking Ravg as [Estimate of extent of exposure to diverse opinions/Number of respondents]. Serving as the independent variable, the time invested in social media consumption assumes a pivotal role, while the dependent variable, symbolising the extent of exposure to diverse opinions online, serves as a poignant indicator of the ever-evolving digital landscape. Expected trend can be illustrated using the line of best fit (Fig. 7).
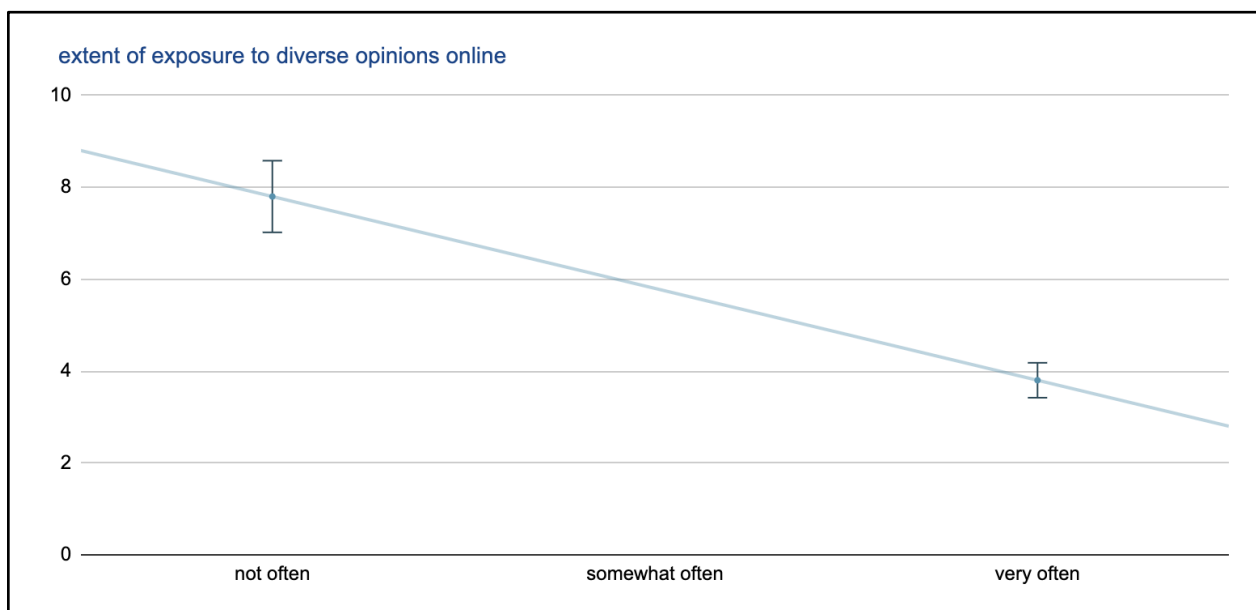

Fig. 7 Exposure vs Time trendline

It is imperative to underscore that this phenomenon transcends mere quantitative measures of social media usage, suggesting a complex interplay between an individual's social media activity, personalised algorithms, and other multifaceted factors. This captivating finding adds a layer of nuance to our comprehension of the intricate relationship between social media behaviour and the breadth of content experiences, warranting further exploration and meticulous consideration of the underlying dynamics at play.

Social media algorithm

Delving deeper into the intricate workings of social media algorithms and their profound influence on content dissemination, this study ventures into the realm of users' responses to varying forms of algorithmic regulation. Recognizing the profound interplay between algorithmic mechanisms and human emotions, this research endeavours to unravel the complex tapestry that binds user sentiment to algorithmic interventions (Nicol Turner Lee et al., 2019). By associating users' emotional responses with specific algorithmic regulations, a profound understanding emerges, shedding light on the delicate equilibrium between digital curation and individual affective experiences. Through this exploration, a more nuanced comprehension of the relationship between algorithmic governance and the landscape of human emotions within the social media domain is unveiled, inviting further exploration.
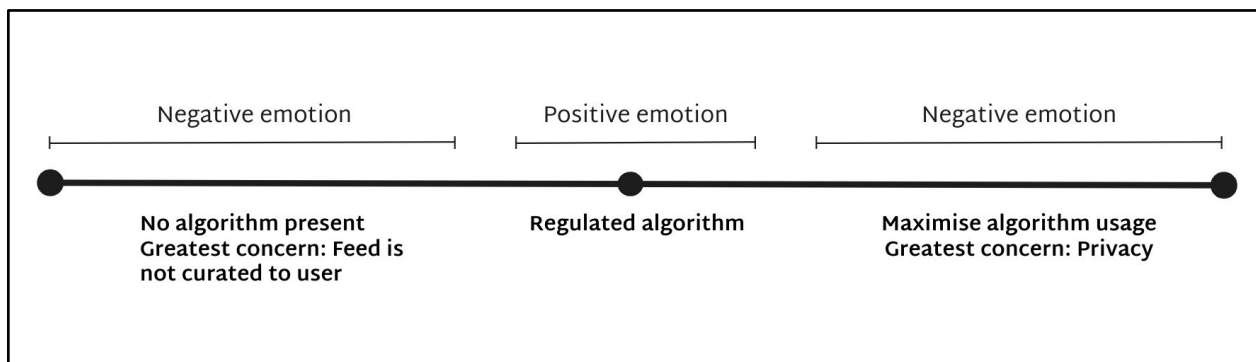

Negative emotion | Positive emotion | Negative emotion

No algorithm present
Greatest concern: Feed is
not curated to user

Regulated algorithm

Maximise algorithm usage
Greatest concern: Privacy

Fig. 8 Spectrum comparing algorithm regulation and emotion

Through meticulous analysis, an intricate classification of respondents' emotions has been achieved, unveiling profound insights into their perspectives on algorithms. Within the collected dataset, negative emotions manifest prominently in connection with two emerging concerns: the provision of uncurated feeds and apprehensions regarding privacy. These salient themes resonate across respondents, accentuating the unease evoked by algorithmic practices that compromise content curation and infringe upon privacy boundaries (Atske, 2018). However, amid this spectrum of emotions, a cohort of respondents expresses positive sentiments aligned with a harmonious coexistence with algorithmic regulation. Notably, one respondent mentions "though algorithm is scary, it is too convenient a resource to let go completely" which alludes to the juxtaposition of privacy concerns with the undeniable allure of the convenience offered by algorithms. Such recurring motifs are present among all participants and serve to deepen our comprehension of the interplay between emotional responses, algorithmic governance, and the undeniable appeal of algorithmic convenience in the contemporary digital landscape.

Possible Solutions

To unearth potential solutions to this issue, an exploration of its root cause becomes imperative. Is the crux of the problem embedded within individuals themselves, with their control over their social media feed and the algorithm simply responding to their expressed preferences? Delving into this intricate web of influence, we begin to fathom the intricate dance between users' active choices and the algorithm's reactionary nature. This contemplation prompts a

profound examination of the role individuals play in shaping their digital experiences, engendering a deeper understanding of the delicate equilibrium between user control and algorithmic intervention.
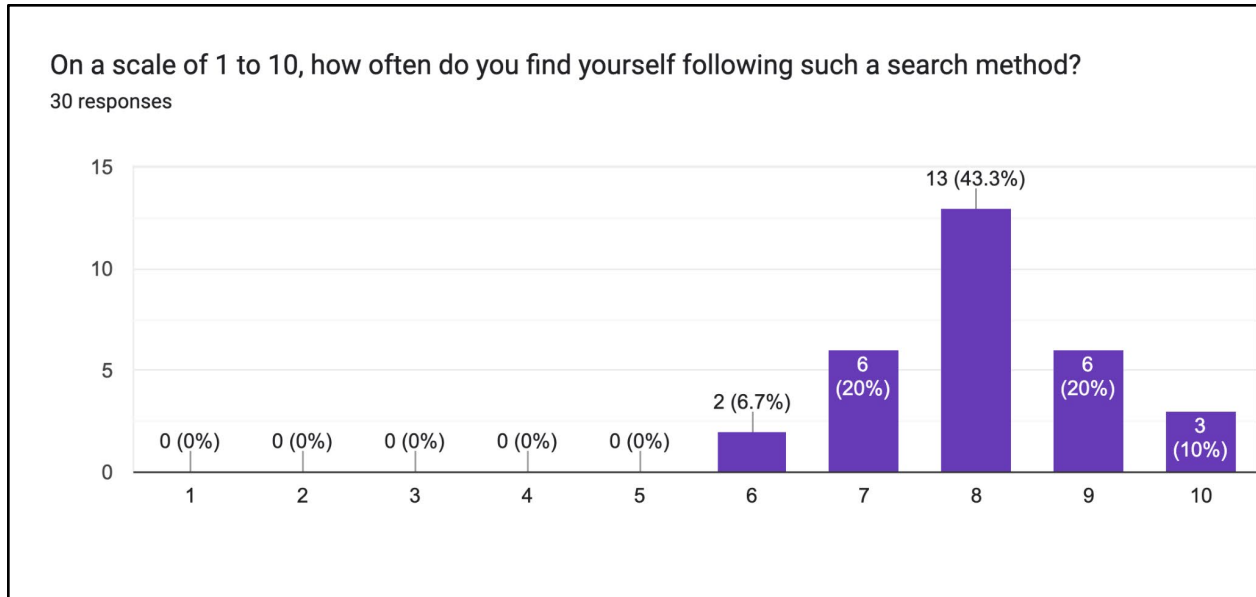

Fig. 9 Respondent search method

Intriguingly, the data reveals a prevailing average score of 8.1, indicating that a substantial number of individuals acknowledge their own agency as a potential catalyst for the emergence of one-sided feeds. Termed as "bias search" within the encompassing realm of conformational bias expounded upon in the Literature Review, this phenomenon accentuates the self-perpetuation of echo chambers, engendering the formation of myopic perspectives (Pursel, 2023). Hence, one possible solution is increasing digital self-awareness. In the quest for knowledge, it is not uncommon to succumb to the allure of one-sided narratives, where our search inquiries are subtly tailored to yield predetermined answers. This phenomenon can manifest when we pose questions such as "Why does money lead to happiness?" instead of adopting a more impartial stance, as in "The impact of money on happiness." By veering towards the former approach, we unintentionally subject ourselves to a refined filter that shapes our understanding within the confines of preconceived notions. Thus, it becomes imperative to recognize this tendency and strive for a more comprehensive and unbiased pursuit of knowledge, one that transcends the limitations of one-sided perspectives. Additionally, in the grand orchestration of social media platforms, they assume the pivotal role of mediating the extent to which their artificial intelligence systems exert control in content recommendation to consumers. Within this intricate dynamic, lies the potential for these platforms to foster a more balanced and diverse content consumption experience. By periodically refreshing and recalibrating their algorithms, social media platforms can actively encourage users to venture beyond the confines of their echo chambers, proactively mitigating the risks of cognitive myopia (*What Do We Do about the Biases in AI?*, 2019). This strategic intervention seeks to strike a delicate balance, harnessing the power of algorithmic mechanisms while simultaneously preserving the integrity of individual agency and fostering a more expansive and multifaceted digital landscape.

CHAPTER IV: Conclusion

Future Direction

While acknowledging the inherent limitation of a confined demographic, specifically encompassing Singaporean individuals aged 17-20, it is crucial to emphasise the potential for future research to transcend these boundaries. By encompassing a more expansive and diverse demographic range, future investigations can glean insights from a broader spectrum of individuals, thereby enhancing the breadth and depth of this research endeavour. This expansion holds the promise of unearthing emerging themes and nuances that may remain undiscovered within the confines of the current study, thus enabling a more comprehensive understanding of the complex interplay between social media and myopic perspectives. By broadening the horizons of inquiry, future researchers can propel the discourse to unprecedented heights, transcending geographical and age-specific limitations to illuminate the multifaceted dimensions of this enthralling domain.

Acknowledgement

References

Atske, S. (2018, November 16). *2. Algorithms in action: The content people see on social media*. Pew Research Center: Internet, Science & Tech; Pew Research Center: Internet, Science & Tech. https://www.pewresearch.org/internet/2018/11/16/algorithms-in-action-the-content-people-see-on-social-media/

Axel Westerwick, Johnson, B. K., & Knobloch-Westerwick, S. (2017, May 8). *Confirmation biases in selective exposure to political online information: Source bias vs. content bias*. ResearchGate; Taylor & Francis Group. https://www.researchgate.net/publication/316803129_Confirmation_biases_in_selective_exposure_to_political_online_information_Source_bias_vs_content_bias

LibGuides: Fake News: Personal Bias. (2023). Libguides.com. https://bakersfieldcollege.libguides.com/c.php?g=729002&p=5909941

MALI, K. (2021, October 4). *Everything you need to Know about Linear Regression!* Analytics Vidhya. https://www.analyticsvidhya.com/blog/2021/10/everything-you-need-to-know-about-linear-regression/

Nicol Turner Lee, Resnick, P., & Barton, G. (2019, May 22). *Algorithmic bias detection and mitigation: Best practices and policies to reduce consumer harms*. Brookings; Brookings. https://www.brookings.edu/research/algorithmic-bias-detection-and-mitigation-best-practices-and-policies-to-reduce-consumer-harms/

Petrescu, M., & Krishen, A. S. (2020). *The dilemma of social media algorithms and analytics*. 8(4), 187–188. https://doi.org/10.1057/s41270-020-00094-4

Pursel, B. (2023). *Search Neutrality*. Unizin.org; Pressbooks. https://psu.pb.unizin.org/ist110/chapter/2-4-search-neutrality/

Sachin Modgil, Singh, R., Gupta, S., & Dennehy, D. (2021). *A Confirmation Bias View on Social Media Induced Polarisation During Covid-19.* https://doi.org/10.1007/s10796-021-10222-9

Sasahara, K., Chen, W., Peng, H., Giovanni Luca Ciampaglia, Flammini, A., & Filippo Menczer. (2021). *Social influence and unfollowing accelerate the emergence of echo chambers*. 4(1), 381–402. https://doi.org/10.1007/s42001-020-00084-7

The Influence of Confirmation Bias on Memory and Source Monitoring. (2015). The Journal of General Psychology. https://www.tandfonline.com/doi/full/10.1080/00221309.2015.1084987

The Psychology of Closed Mindedness. (2013). Google Books. https://books.google.com.sg/books?id=64ayJ9S1B50C&printsec=frontcover#v=onepage&q&f=false

What Do We Do About the Biases in AI? (2019, October 25). Harvard Business Review. https://hbr.org/2019/10/what-do-we-do-about-the-biases-in-ai

Woolley, K. (2022). *Down a Rabbit Hole: How Prior Media Consumption Shapes Subsequent Media Consumption - Kaitlin Woolley, Marissa A. Sharif, 2022*. Journal of Marketing Research. https://journals.sagepub.com/doi/abs/10.1177/00222437211055403