

Name of concept

Confirmation bias

Description

Confirmation bias is the tendency to process information in a non-objective way, so that information is processed more in line with beliefs that people already have. There are three forms of confirmation bias, 1) the way in which people remember information, 2) how they interpret information, and 3) the type of information people are searching for.

Confirmation bias results in people remembering more easily the facts and instances that support their world view. For example, if someone has the view that a friend is always late when they meet up, they will usually find it easier to remember the times that the friend let them wait, and do not recall as easily the times that the friend was on time, or when they let their friend wait for a while.

In terms of interpreting information, people are more likely to critically assess information that goes against their worldview and be more likely to take information at face value when it is in line with what they believe to be true.

The searching of information relates to people looking mostly for information that supports their idea or world view, instead of looking for information that could prove them wrong. At the end of this document, there is a website that can be used to get this point across in class.

Application within the field of cybersecurity

Confirmation bias plays a large role in the distribution of fake news. People are more likely to endorse messages that they agree with on social media, search more for information that fits their world view and will be more likely to share these stories with their followers and friends. Furthermore, the presence of echo chambers and filter bubbles have an increased effect as people are presented more often with views they support, than with views that go against their beliefs. For reference, echo chambers are groups of people with similar views who bounce ideas off each other, which are then 'echoed' between them, as they are more likely to agree with the statements from likeminded people. Filter bubbles are created by tech companies using algorithms that present end-users with information they are likely to be interested in, based on earlier engagements with other pieces of information. These bubbles then support end-users in their views by suggesting posts and videos that are in line with what they have been reading and watching before.

Annotated bibliography

Corbu et al. (2020). Corbu and colleagues investigated third person effects for the detection of fake news. The third person effect is the notion that people think others to be more affected by information than they themselves are. The authors conclude that people indeed think others are worse at detecting fake news compared to themselves, and link these findings to a confirmation bias, where this factor is a predictor of the third person effect observed in their study.

Kim et al. (2019). Kim and colleagues investigated how fake news could be combatted on social media, looking at the potential of source ratings. While these source ratings were indeed effective in reducing the spread of fake news, the authors found that confirmation bias played a role in the spread of fake news. Stories that were more in line with the beliefs of the participants were more likely to be shared by them.

Murungi et al. (2019). Murungi and colleagues discuss confirmation bias in a political setting. In a survey study carried out in Alabama, they show that people who are confronted with news stories that go against their worldviews are more likely to critically assess these arguments and discuss them, compared to how they deal with news that support their worldview. This was the case for participants from both sides of the political spectrum. The authors do note difficulties in objectively assessing these codings, as there is a subjective element in deciding when arguments are considered of high quality or fallacious.

References

- Corbu, N., Oprea, D. A., Negrea-Busuioc, E., & Radu, L. (2020). 'They can't fool me, but they can fool the others!' Third person effect and fake news detection. *European Journal of Communication*, 35(2), 165-180.
- Kim, A., Moravec, P. L., & Dennis, A. R. (2019). Combating fake news on social media with source ratings: The effects of user and expert reputation ratings. *Journal of Management Information Systems*, 36(3), 931-968.
- Murungi, D., Yates, D., Purao, S., Yu, J., & Zhan, R. (2019). Factual or believable? Negotiating the boundaries of confirmation bias in online news stories. In *Proceedings of the 52nd Hawaii International Conference on System Sciences*.

Website for confirmation bias in finding information

<https://www.nytimes.com/interactive/2015/07/03/upshot/a-quick-puzzle-to-test-your-problem-solving.html>

On this website, you are asked to discover a rule that is set by the website for a set of three numbers. You can enter any set of three numbers as you wish, and the website will tell you whether it obeys the rule or not. You can then formulate what you think is the rule, before checking what the actual rule was. People are likely to only enter numbers that support their hypothesised rule, instead of entering numbers that might prove them wrong.