Article

Stereotype: Cognition and Biases

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ABSTRACT

Stereotypes can be considered as certain mental sets or cognitive schemas developed by an overloaded brain for the ease of categorisation. In the general sense of the term, this process appears to apply certain attributes of a group to its individual members thus leading to drastic generalisations. While stereotyping can be considered as a cognitive bias, it also appears to serve a cognitive function, which is to ease the computational load on information processing. This is done with the aid of a set of cognitive processes such as that of categorisation, differential attention to feature salience and pattern recognition. These processes are interrelated and interdependent often leading to stereotyping along with other factors such as that of one's cultural schemas. It is important to understand the types of biases that play a role in the formation of stereotypes. These are the implicit bias, explicit bias, confirmation bias, in-group and out-group bias. While confirmation bias appears to be an intrapersonal bias, the rest are interpersonal which shapes the manner in which social relations are perceived. While stereotyping leads to prejudice and discrimination, it appears to be a process that could lead to near- to- accurate predictions of human behaviour by attributing their physical and behavioural characteristics to a group, often learned from personal or vicarious learning.

The term cognitive bias was introduced by Tversky and Kahneman (1996) to highlight the natural predisposition of humans to ease information processing amidst a clear lack of data. While their list of cognitive heuristics won them a Nobel Prize, it also revealed a rather inherent tendency our species have in common. While such thinking patterns offer a personalised and customised version of reality, it is said to have a biological and evolutionary reason meant for survival (Korteling & Toet, 2020).

Is Stereotyping a Cognitive Bias or a Cognitive Function?

Stereotypes can be considered as certain mental sets or cognitive schemas developed by an overloaded brain for the ease of categorisation. In the general sense of the term, this process appears to apply certain attributes of a group to its individual members thus leading to drastic generalisations. While this appears to serve a function, it leads to discrimination in a culture-rich society where certain attributes are considered to be more socially acceptable than others (Hamilton, 1979). Cognitive biases can be considered as filters that are shaped and pruned to meet the individual's understanding of the world whereas cognitive function as a term points to essentiality. While the former differs in its individual components, the latter appears to

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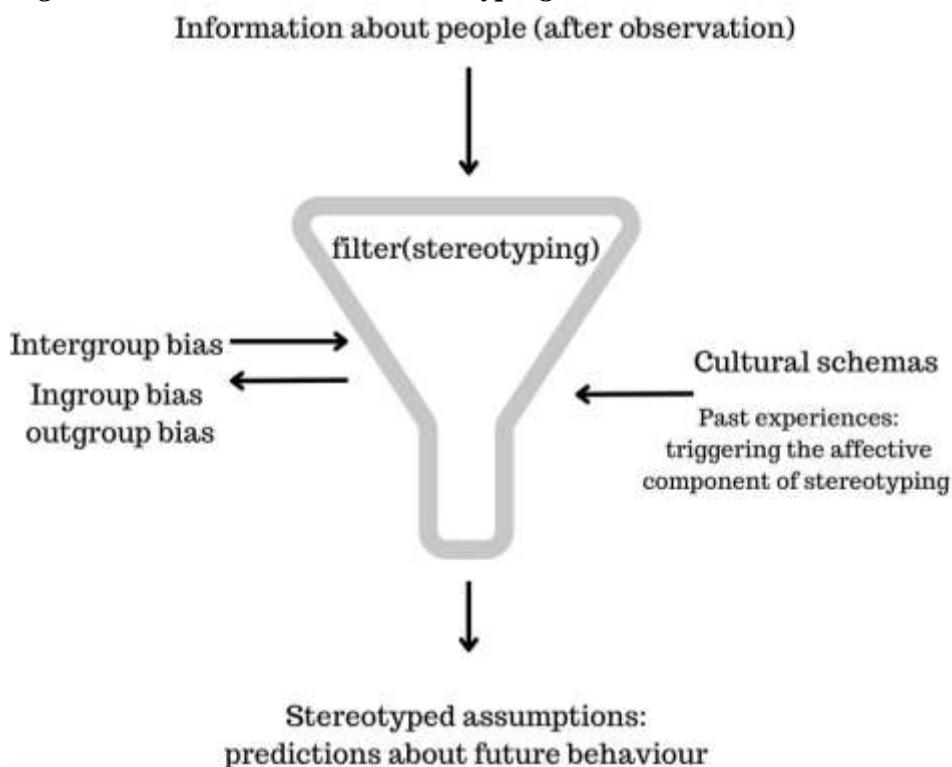*Corresponding Author

point towards an inherent process that shapes how the human brain is wired. However, while the difference between the two is negligible, there is a stark difference in outcome when living in a social world. A cognitive function that is meant to relieve the brain of large computations can be a bias if the filter causes only certain parts of the information to be processed. Hence while the process in itself can be considered as a boon (Shapira et al., 1997), the outcome is what can be considered as problematic.

The debate about whether stereotyping can be considered a cognitive function or a bias can be approached from an objective lens if we attempt to break down the process to what it really is. If we look at the process alone, it appears to be a process that occurs between object recognition and object categorisation aiding the latter process. This process, at the neural level appears to offer computational efficiency (Shapira et al., 1997) for both animate beings and inanimate objects, with societal implications for the former and without for the latter. Figure 1 depicts the factors that could affect the filter of stereotyping.

Figure 1 Factors that lead to stereotyping

Information about people (after observation)

filter(stereotyping)

Intergroup bias

Ingroup bias
outgroup bias

Cultural schemas

Past experiences:
triggering the affective
component of stereotyping

Stereotyped assumptions:
predictions about future behaviour

Note. In-group bias is a social phenomenon wherein one perceives individuals from their identified group more favourably than others, leading to outgroup bias.

Cognitive processes underlying stereotypes
Social cognitive neuroscience as an interdisciplinary field attempts to understand the cognitive and neurobiological underpinnings of social interactions. This is done by taking an integrated approach between three different levels, the levels being social, cognitive and neural (Ochsner & Lieberman, 2001).

At the cognitive level, two major cognitive mechanisms are said to lead to the process of stereotyping. These are the categorisation process and the effects of feature salience

(Hamilton, 1979). In addition to what Hamilton suggested, I propose a third cognitive process that leads to the process of stereotyping: Pattern recognition.

Categorisation Process. Known as one of the most basic cognitive processes, categorisation in cognitive science is the process by which one divides objects into various categories based on common attributes. While these attributes tend to be physical in nature, categorisation can be done based on other factors as well (Cohen & Lefebvre, 2005). The presence of this neural mechanism can be an attempt of the brain to lessen the computational and cognitive load by making quick and fast inferences and divisions based on commonalities, most often relying only on physical attributes. These divisions play a major role in shaping and pruning one's perception of reality (Gärdenfors, 2020).

Feature Salience. Object features not only play an important role in whether they are perceived, but also in how they are perceived along with the rate at which they are perceived. Salient and distinctive features are more likely to be perceived faster than familiar features with respect to themselves and their identified group. In the context of social psychology, the most distinctive features appear to be race, age and gender (Hamilton, 1979).

Pattern recognition. While pattern recognition applies at a physical level, this cognitive process aids in categorisation at the behavioural level as well. This could arise out of one's inherent tendency to find patterns within an ambiguous world, as a means of gaining a sense of control. Finding patterns and placing them into certain categories can be a cognitive process that aids information processing. While certain patterns are likely to be recognised faster, especially if they align with one's existing cultural schemas, certain other patterns are much less likely to be recognised, even when they appear to be salient. This seems to happen because of what is known in social psychology as the confirmation bias (Viskontas, 2018)

Cognitive Distortions: Biases that lead to Stereotyping
As depicted in figure 1, there are various social factors that can lead to the process of stereotyping. While some of these biases appear to be interpersonal, others appear to have an intrapersonal role. Table 1 lists out some of the biases.

Table 1 List of biases that play a role in stereotyping

Bias	Type	Meaning
Implicit bias	Interpersonal	Specific unconscious mental sets that affect how one sees and understands the world.
Explicit bias	Interpersonal	These are attitudes and beliefs that are conscious and can be either positive or negative leading to treating others in an unfair manner.
Confirmation bias	Intrapersonal	This refers to the interpretation and perception of events that align with one's existing beliefs.
In-group bias	Interpersonal	Social phenomenon wherein one perceives individuals from their identified group more favourably than others.
Out-group bias	Interpersonal	Social phenomenon eliciting negative feelings about individuals that are in groups different from that of the individual.

While these biases contribute to stereotyping which is a cognitive bias, this often leads to prejudice which is an emotional bias and discrimination, which is a bias that occurs at a behavioural level (Fiske, 2023).

CONCLUSION

This chapter delved into the social and cognitive aspects of stereotyping, exploring the various cognitive processes that play a role in the process of stereotyping. There are various cognitive distortions or biases that lead to stereotyping taking the form of prejudice (emotional bias) and discrimination (behavioural). While stereotyping can be considered as a cognitive bias leading to societal implications, the purpose of this process appears to be reflective of a mere categorisation process based on one's salient features, appearing to exist due to evolutionary reasons. While stereotyping leads to prejudice and discrimination, it appears to be a process that could lead to near- to- accurate predictions of human behaviour by attributing their physical and behavioural characteristics to a group, often learned from personal or vicarious learning.

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