Chapter 2
Examining Age-Related Differences in Cognitive Biases in Acquiring Knowledge About AI

Adrienne Bethany Barretto
http://orcid.org/0009-0008-7143-1541
Parvatibai Chowgule College of Arts and Science, India

Vanessa Bonita Pereira
http://orcid.org/0009-0003-9392-0577
Parvatibai Chowgule College of Arts and Science, India

Pratiksha Gurudatt Mallya
http://orcid.org/0009-0000-3559-5583
Parvatibai Chowgule College of Arts and Science, India

Shalyn Angel Cardozo
http://orcid.org/0009-0009-1906-5860
Parvatibai Chowgule College of Arts and Science, India

Evira Daniela Pereira
http://orcid.org/0009-0007-8035-2434
Parvatibai Chowgule College of Arts and Science, India

Jeanne Marie Cotta
http://orcid.org/0009-0006-4619-4463
Parvatibai Chowgule College of Arts and Science, India

Saloni Joanna Rodrigues
http://orcid.org/0009-0007-2920-2852
Parvatibai Chowgule College of Arts and Science, India

ABSTRACT

The rise of artificial intelligence (AI) necessitates understanding how cognitive biases shape our perception of this evolving technology. This study examined the relationship between age and susceptibility to biases in acquiring AI-related knowl-

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edge. It addressed three objectives: to explore the influence of cognitive biases in AI knowledge acquisition, to identify the types of biases involved, and to examine age-related differences. Sixty participants were evenly divided across young, middle, and older adulthood. The findings indicated that younger adults demonstrated higher levels of confirmation bias (80%), middle-aged adults exhibited declinism bias (70%), and older adults displayed availability bias (75%). The least evident biases were distinction bias and authority bias among young adults (30% each), belief bias among middle-aged adults (20%), and belief bias and distinction bias among older adults (30% each). The overall findings provides an understanding of how biases influence AI knowledge acquisition across age groups, laying groundwork for future research.

INTRODUCTION

We humans often pride ourselves on our ability to be objective and rational in our thinking (Holm, 2015). However, at times, we may deny reality because of our tendency to overestimate our own rationality. And one way this happens is through cognitive biases. In our effort to make sense of the world, we often simplify complex information and, in doing so, become vulnerable to these biases. Cognitive biases are unconscious, systematic errors in thinking that occur when people process and interpret information in their surroundings, influencing their decision-making and judgment (Da Silva et al., 2023). These biases can distort an individual's perception of reality, resulting in faulty interpretation of information and decisions that deviate from making rational choices. To better understand why such biases occur and how they challenge our assumptions about human rationality, it's important to examine the theoretical foundations that have long guided our understanding of decision-making. The theory that has dominated all research on making judgments was the "Rational Choice Theory," introduced by Adam Smith (Friedman, 2023). According to this model, the rational man makes his decisions based solely on his assessment of each probable outcome and his ability to maximize utility. He is assumed to evaluate a complete set of information using mathematical logic, which involves calculating the potential utility derived from each option and selecting the one that offers the highest utility within the constraints of their budget (Wong, 2021). On the contrary, evidence suggests that people's assessments of likelihood and risk often deviate from the laws of probability (Gilovich et al., 2002). As a result, this traditional view has been questioned over the past few decades.

This growing skepticism about human rationality paved the way for alternative perspectives on decision-making. In fact, Herbert Simon in 1957 argued against the idea that people make perfectly optimal decisions aimed at maximizing utility