The role of information processing in group intertemporal decision-making processes

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"Kingfisher takes up the mission and convenes the village for a final decision: We shall all join hands to visit Snake at his home. I will speak up on our behalf; if he doesn't listen, we will battle it out with him right there."

—In 'The Virtue of Sacrifice'; *Wild Wise Weird* (2024)

[SCIENCE COMMUNICATION]

Individuals tend to make judgments or choices conditionally regarding outcomes that occur at different times, and this leads to intertemporal decision-making [1]. While individual intertemporal decision-making was widely investigated, the trend to study group intertemporal decision-making seems to be down-streamed.

Lack of evidence in the group intertemporal decision-making process has led a group of Chinese researchers to conduct a short review in this area and eventually suggest adopting a "two-process" approach to study the mechanism of group intertemporal decision-making [2]. The approach employs self-assessment questionnaires, audiovisual recordings, and visual decision-making tools for quantifying the interpersonal interaction processes and information processing in the settings of group intertemporal decision-making. Using this approach, the differences between individual and group intertemporal decision-making

mechanisms, in terms of psychological and theoretical mechanisms, may be better distinguished and explained.

Illustration. Generated by Windows Copilot

Group intertemporal decision-making focuses on how individual choices are shaped by the influence of others and the broader social environment. Since these decisions are inherently social, studying them within the context of group interactions is most effective. At the level of interpersonal dynamics, Sun et al. [2] found that the 'two-process' model can reveal distinct mechanisms that differentiate group decision-making from individual processes. Group interactions can systematically alter individual attitudes, allowing decision-makers to reconsider and adjust their initial preferences. Common interpersonal dynamics in group settings include sharing opinions, persuading others, and negotiating.

Group decision-making can be understood as an information-processing system shaped by interpersonal interactions [3]. For instance, Granovetter's [4] behavioral contagion model implies that group interactions can systematically shift individual attitudes, enabling decision-makers to alter their initial preferences. The nature of interpersonal interactions between group members and leaders indirectly influences the quality of group decisions by shaping the flow and exchange of information during discussions. At the same time, the depth of information processing within the group has a direct impact on decision quality

[2].

Sun et al. [2] also applied the mindsponge theory (MT) to explain the mechanisms linking information exchange, value formation, and the decision-making process in group intertemporal decision-making. MT views group intertemporal decision-making as the result of collective information processing across different time contexts, with the exchange of information among members resembling the exchange of information quanta in physical systems [5]. As a result, Sun et al. [2] suggest that future research can explore how the exchange of individual information and values between members influences group intertemporal decision-making.

References

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