

Supporting information of the MS: "The effect of community-bounded social learning on political discourse"

Authors: Widler, Valeria^{1,2}; Kamińska, Barbara³; Martins, André C. R.⁴; Puga-Gonzalez, Ivan⁵

Affiliations:

¹Modeling and Simulation of Complex Processes, Zuse Institute Berlin, Berlin, Germany

²Institut für Mathematik, Freie Universität Berlin, Berlin, Germany

³Faculty of Management, Wroclaw University of Science and Technology, Wrocław, Poland

⁴Escola de Artes, Ciências e Humanidades, Universidade de São Paulo (EACH-USP) at São Paulo, Brazil

⁵Center for Modelling Social Systems, Norwegian Research Center (NORCE) at Kristiansand, Norway

Corresponding author: Valeria Widler, valeria.widler@gmx.de

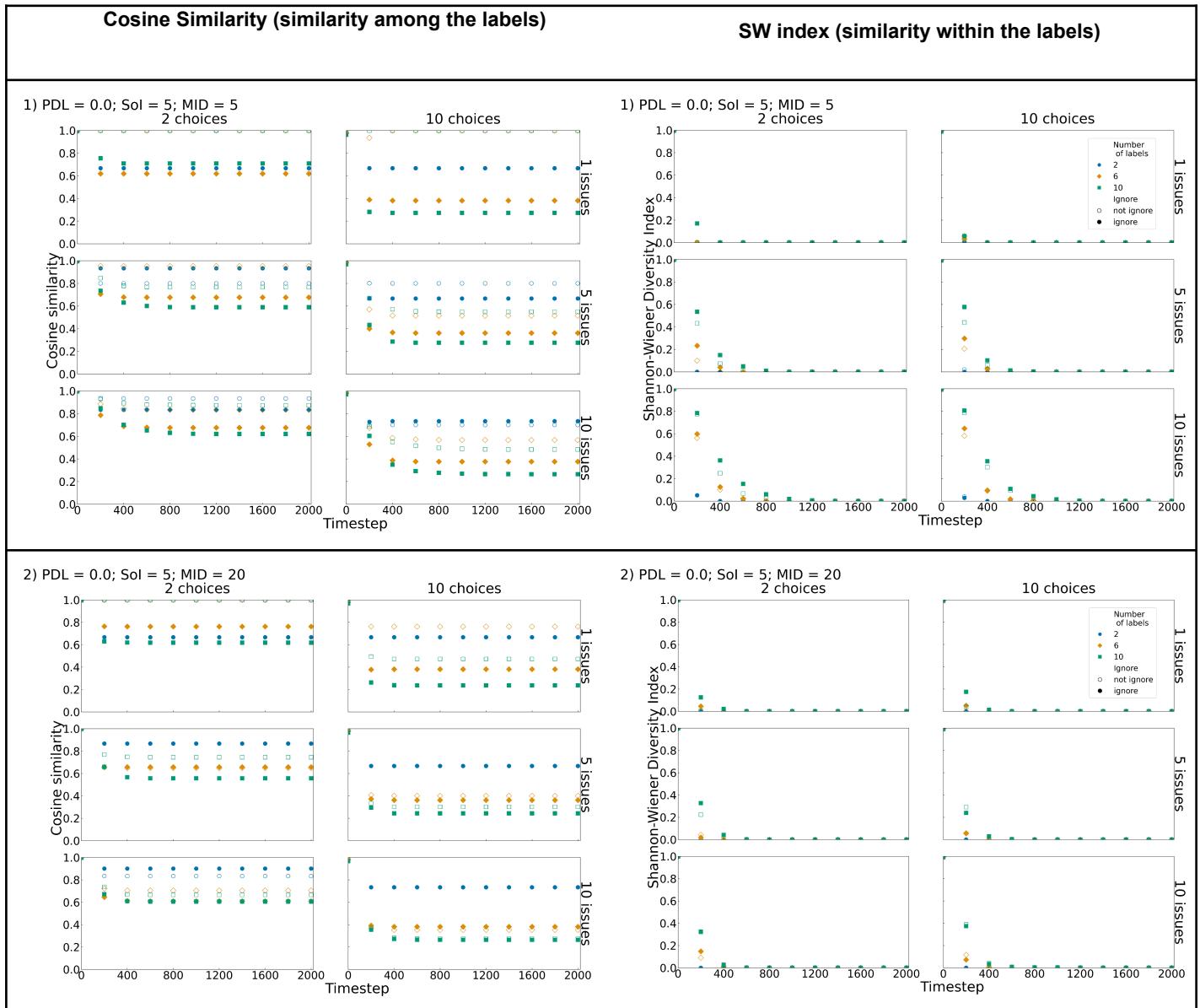
Results - sensitivity analysis

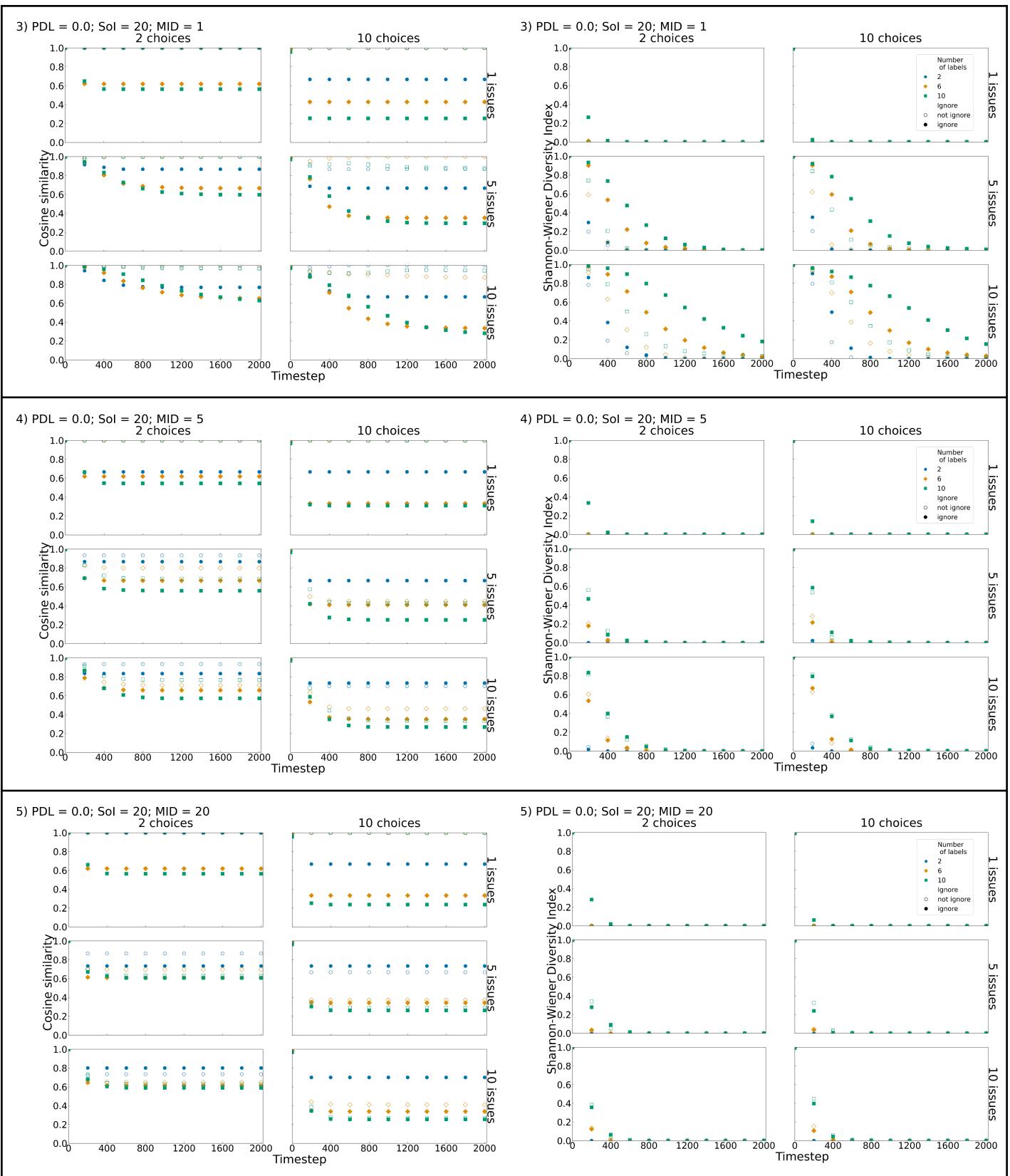
Here we present the results of the simulations run with the following parameter settings:

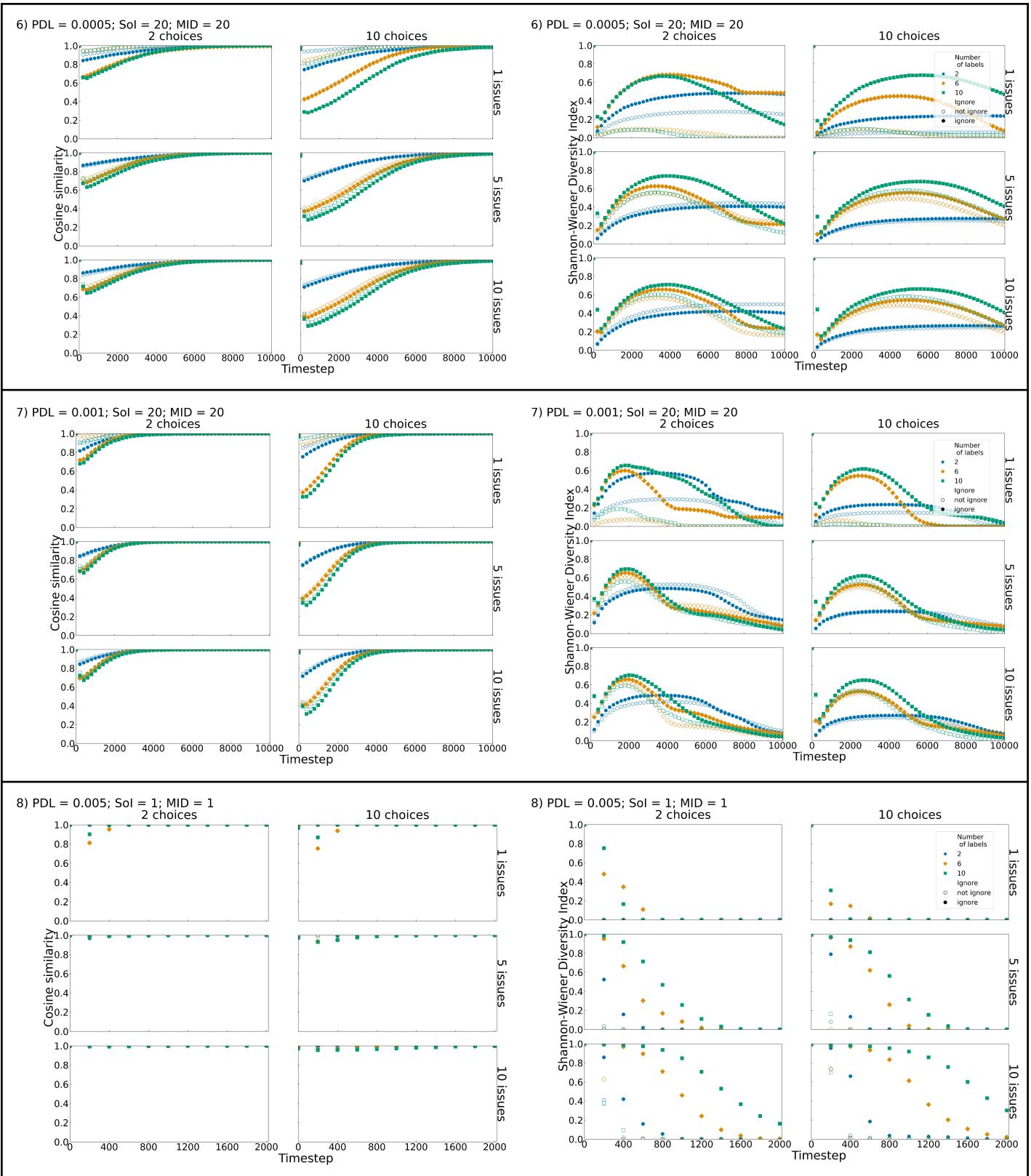
Parameter	Values explored	Description
Pop-size	2500	Number of agents in the model
num-labels	[2,6,10]	Number of labels in the system
num-issues	[1,5,10]	Number of issues (problems or topics) that agents face
num-choices	[2,5,10]	Number of potential choices (solutions) for each issue
multi-issue-discourse	[1,5,20]	Number of issues discussed during a single interaction with same-label agents
strength-of-influence	[1,5,20]	Degree of influence that agents with the same label exert on each other
Ignoring	[on/off]	whether agents ignore the choices expressed by agents from a different label
prob-dropping-label	[0.000, 0.0001, 0.0005, 0.0010, 0.0050]	Probability that an agent drops its current label
prob-adopting-a-label	0.1	Probability that an agent without a label adopts a new label

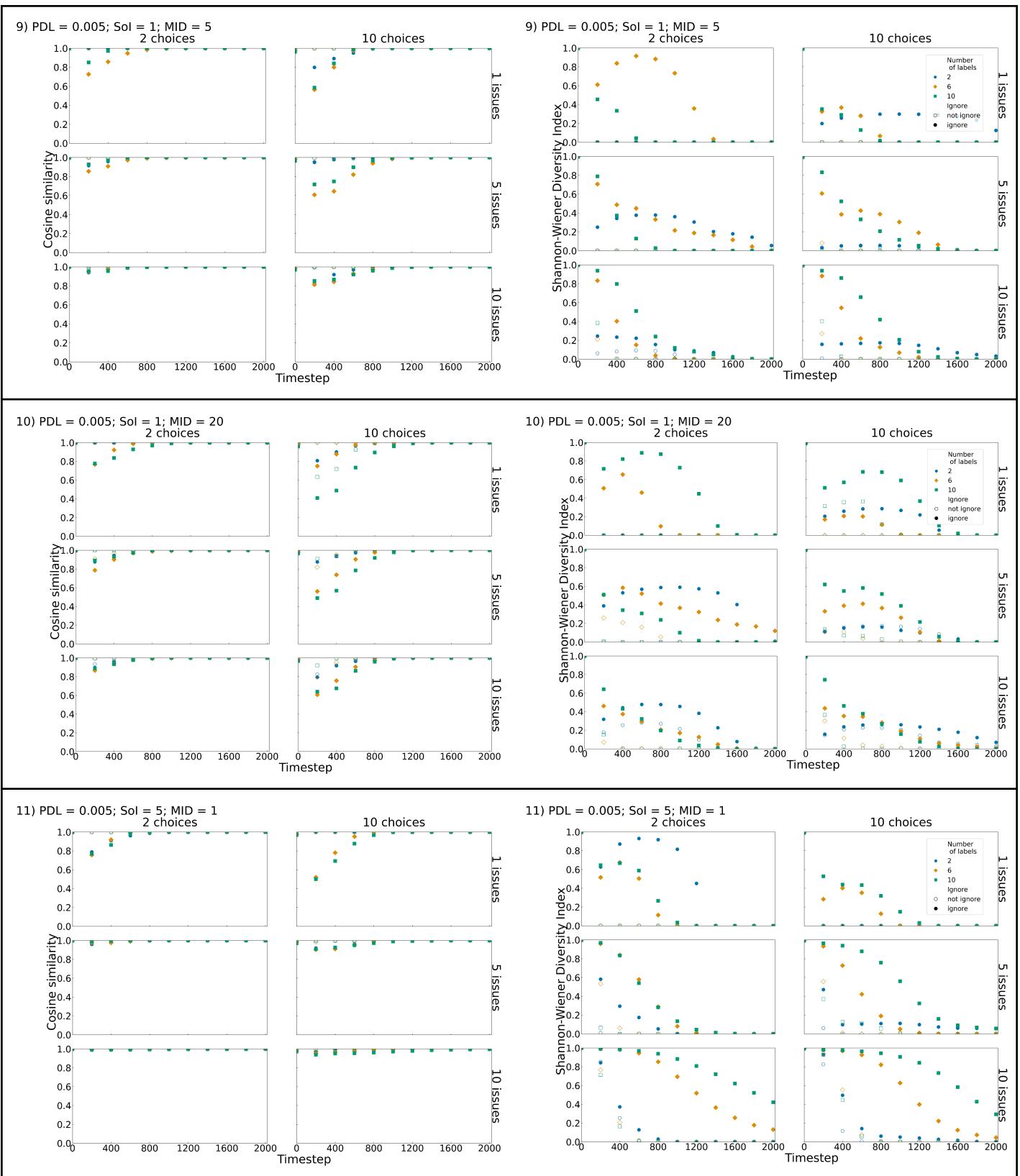
Similarity among the labels (cosine index)

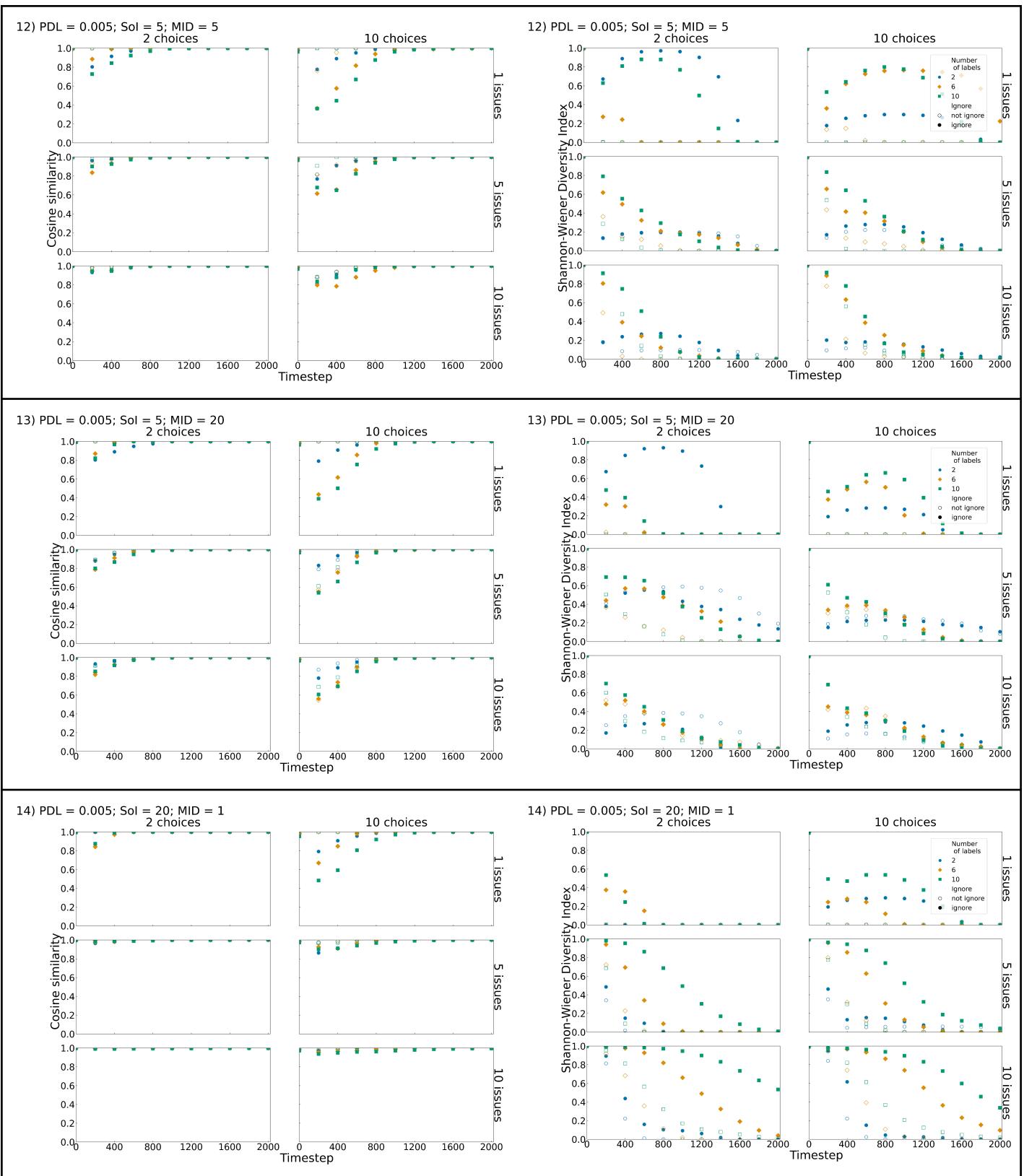
Figure 1 presents the results regarding the measurement of similarity among labels represented by the cosine index (0 = lowest similarity; 1= full similarity). Several factors appear to influence the degree of similarity among the labels: similarity decreases with increasing strength of interactions, number of exchanged issues, number of choices and number of labels. On the other hand, similarity among labels increases with higher probability of dropping labels (PDL) and when ignoring agents with other labels is off, i.e., when agents can more easily change and move among labels and if interactions among agents holding different labels still influence agents' choices, respectively.

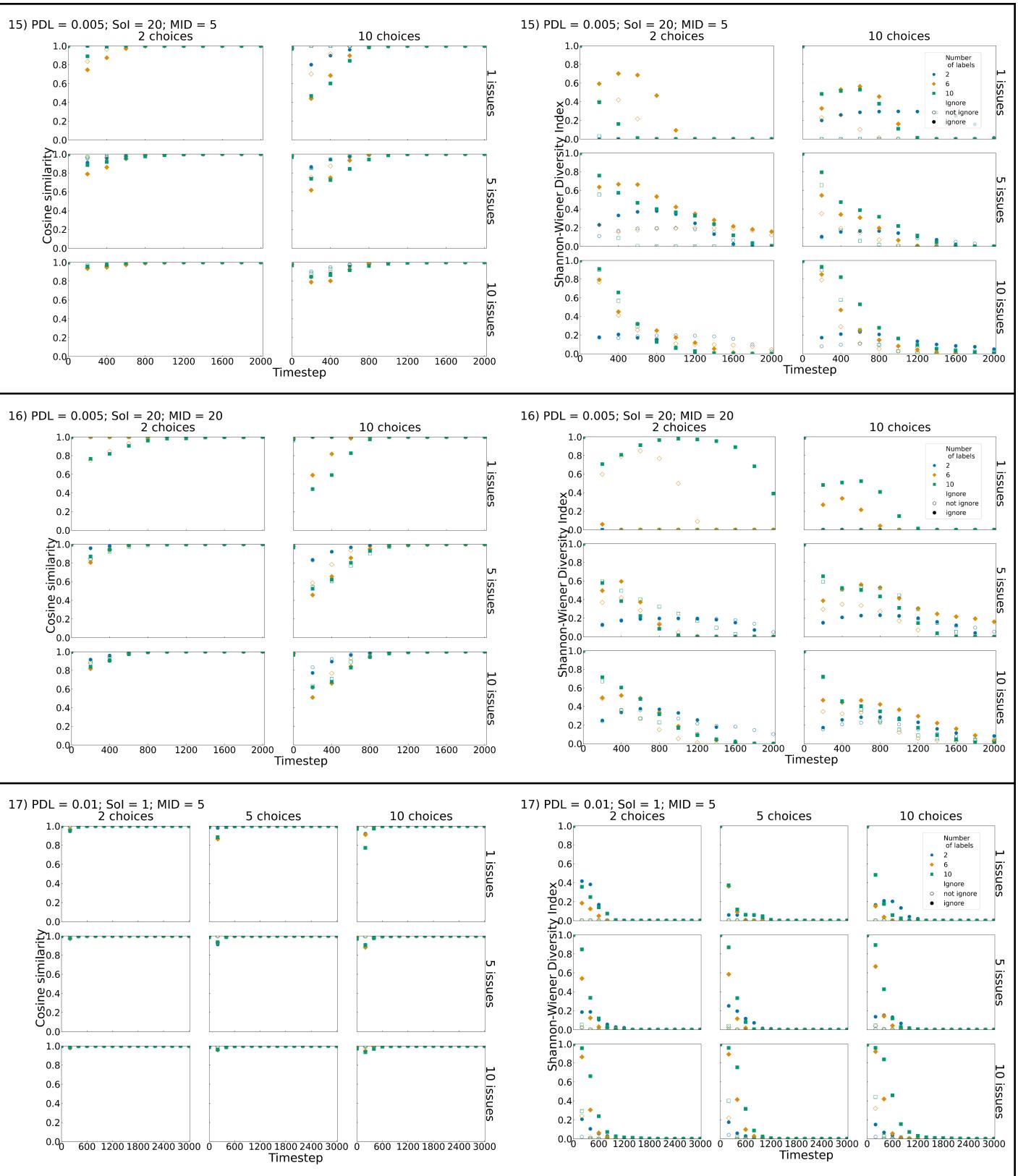


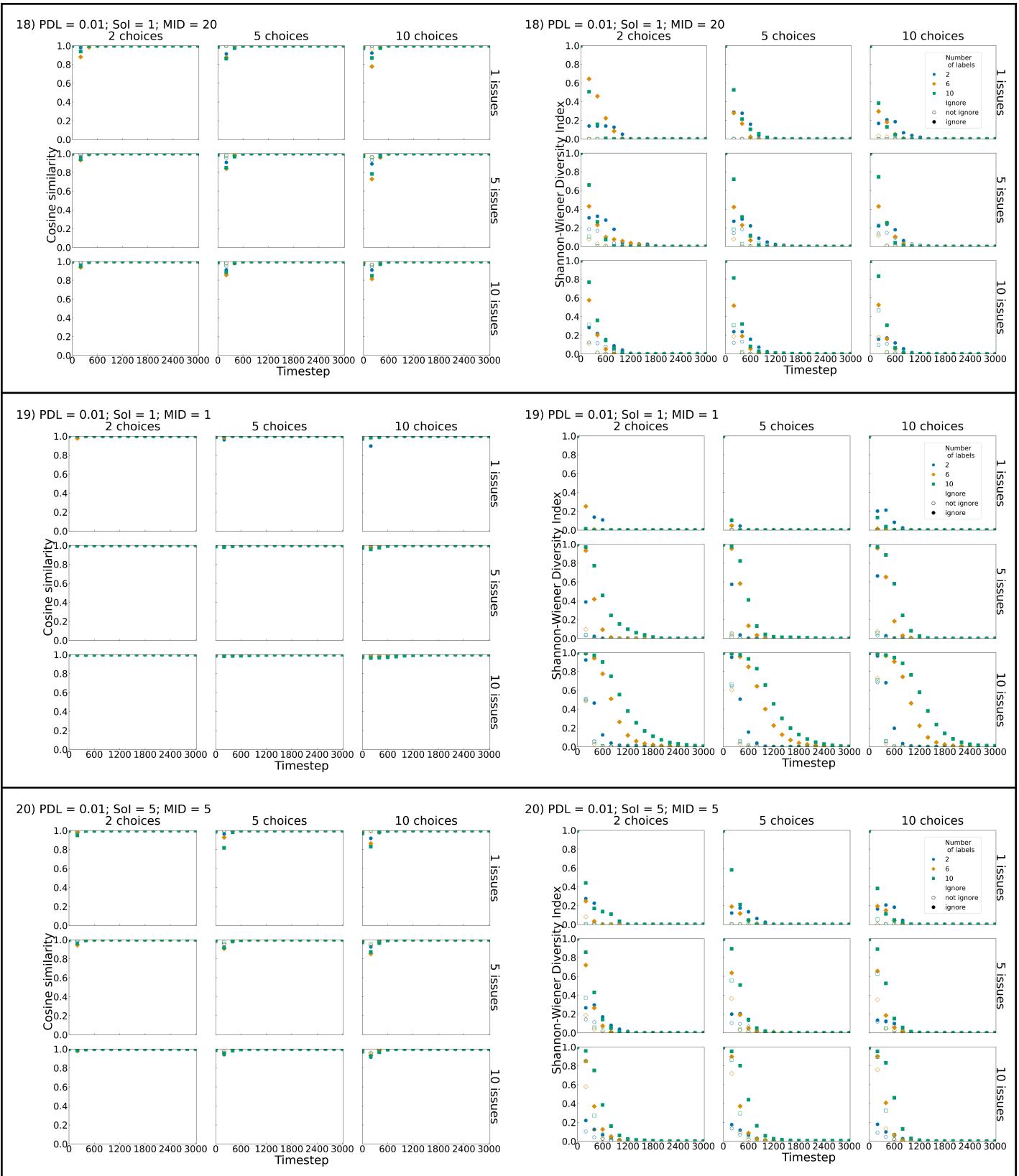


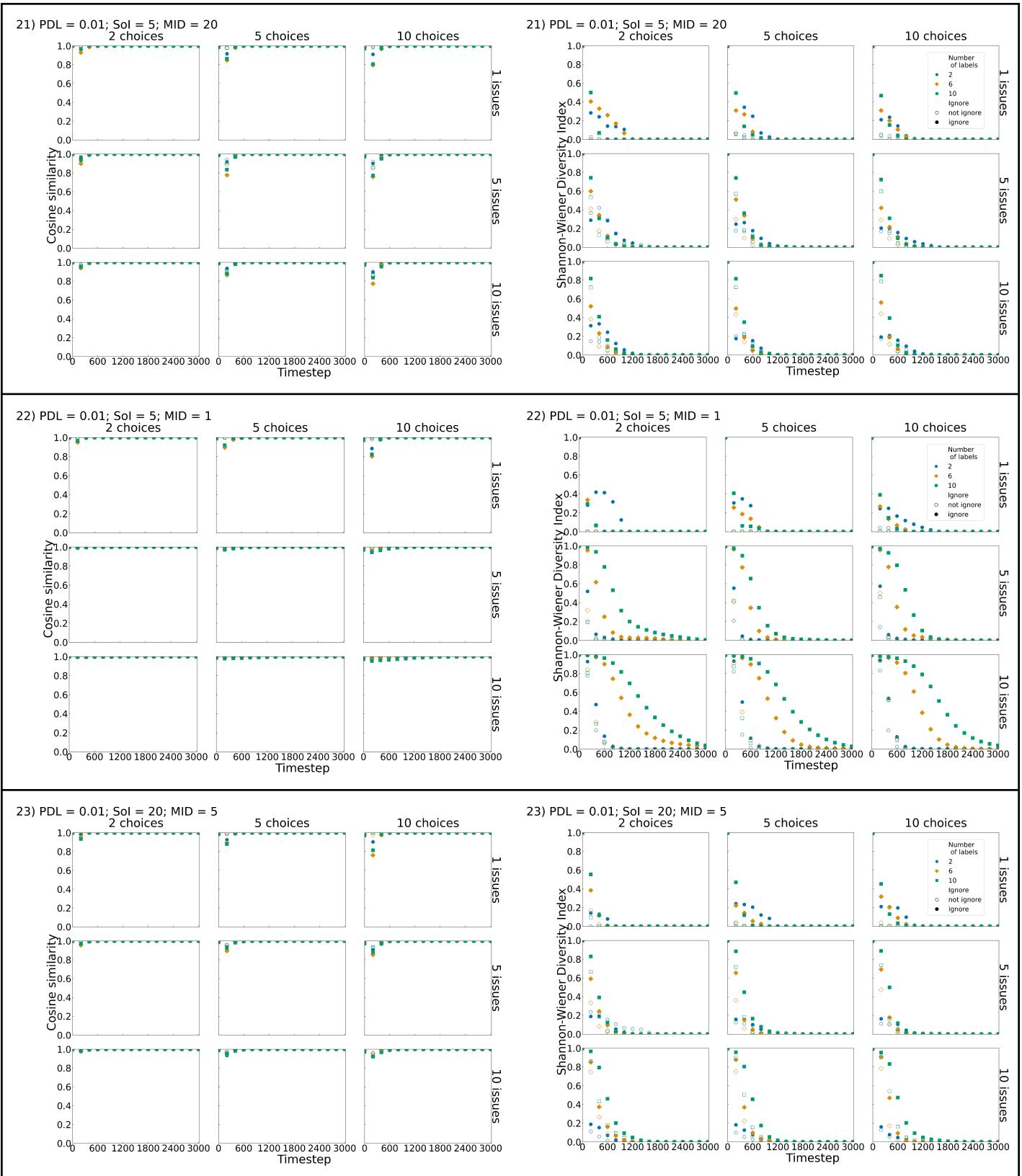


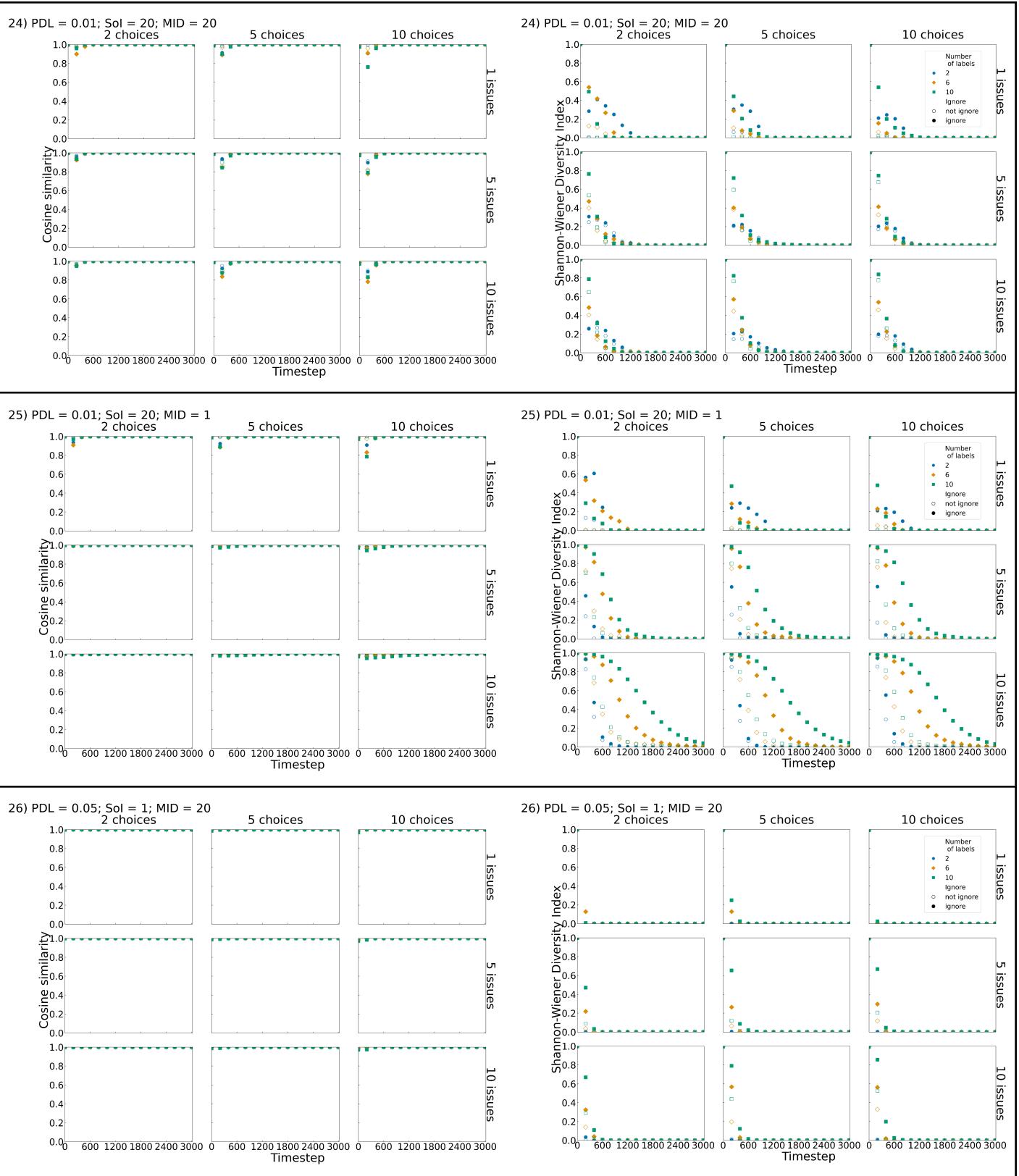


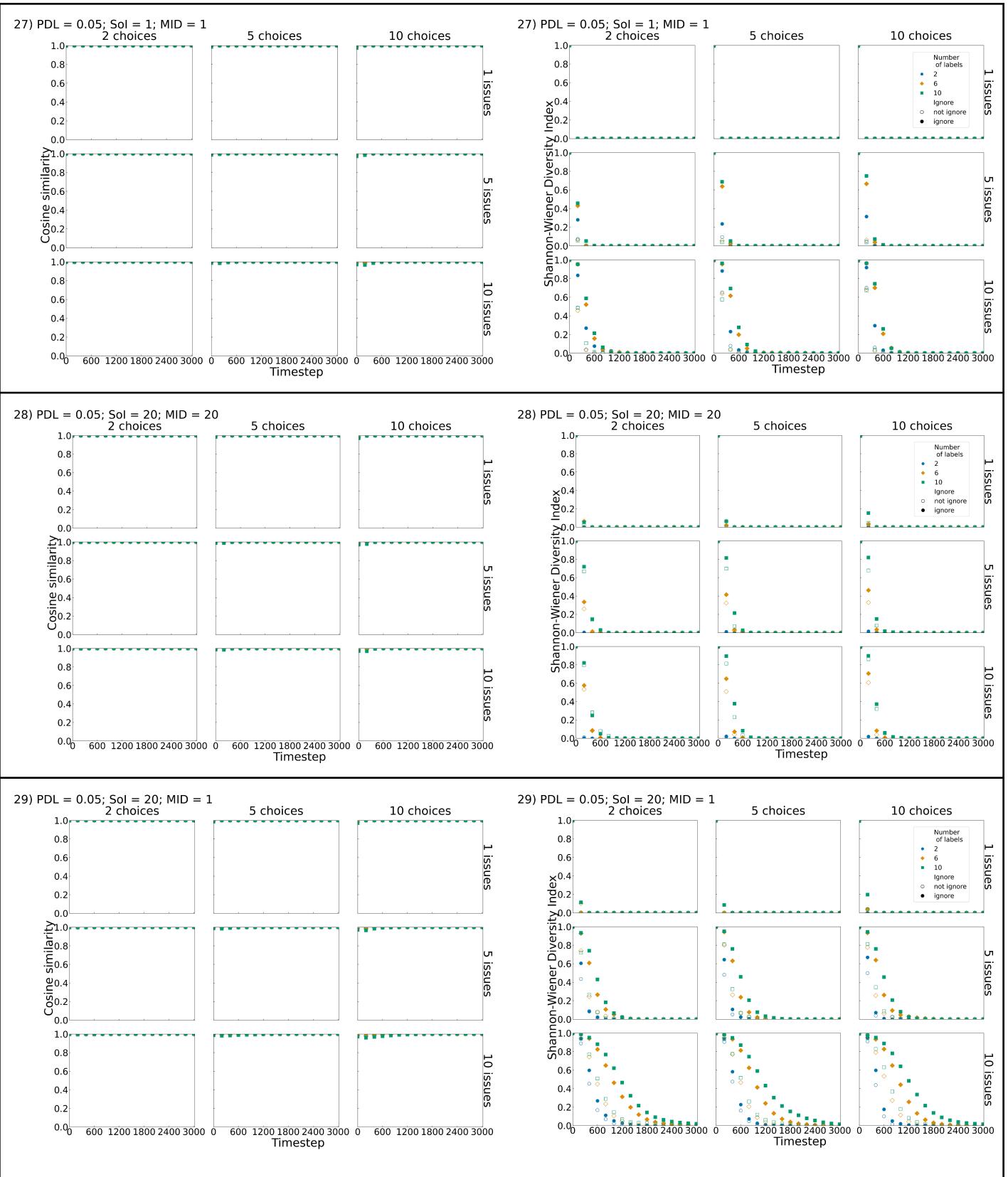


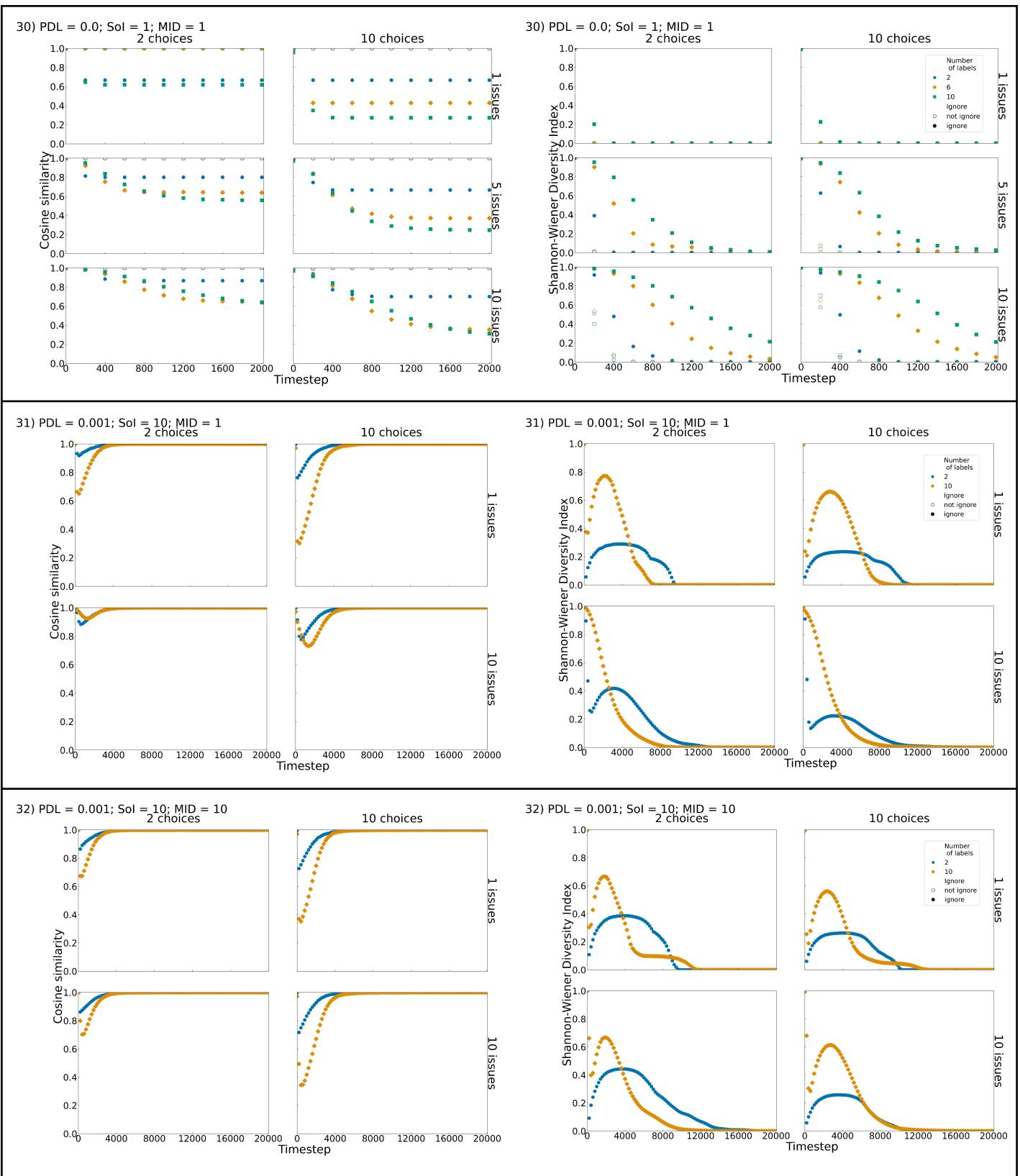


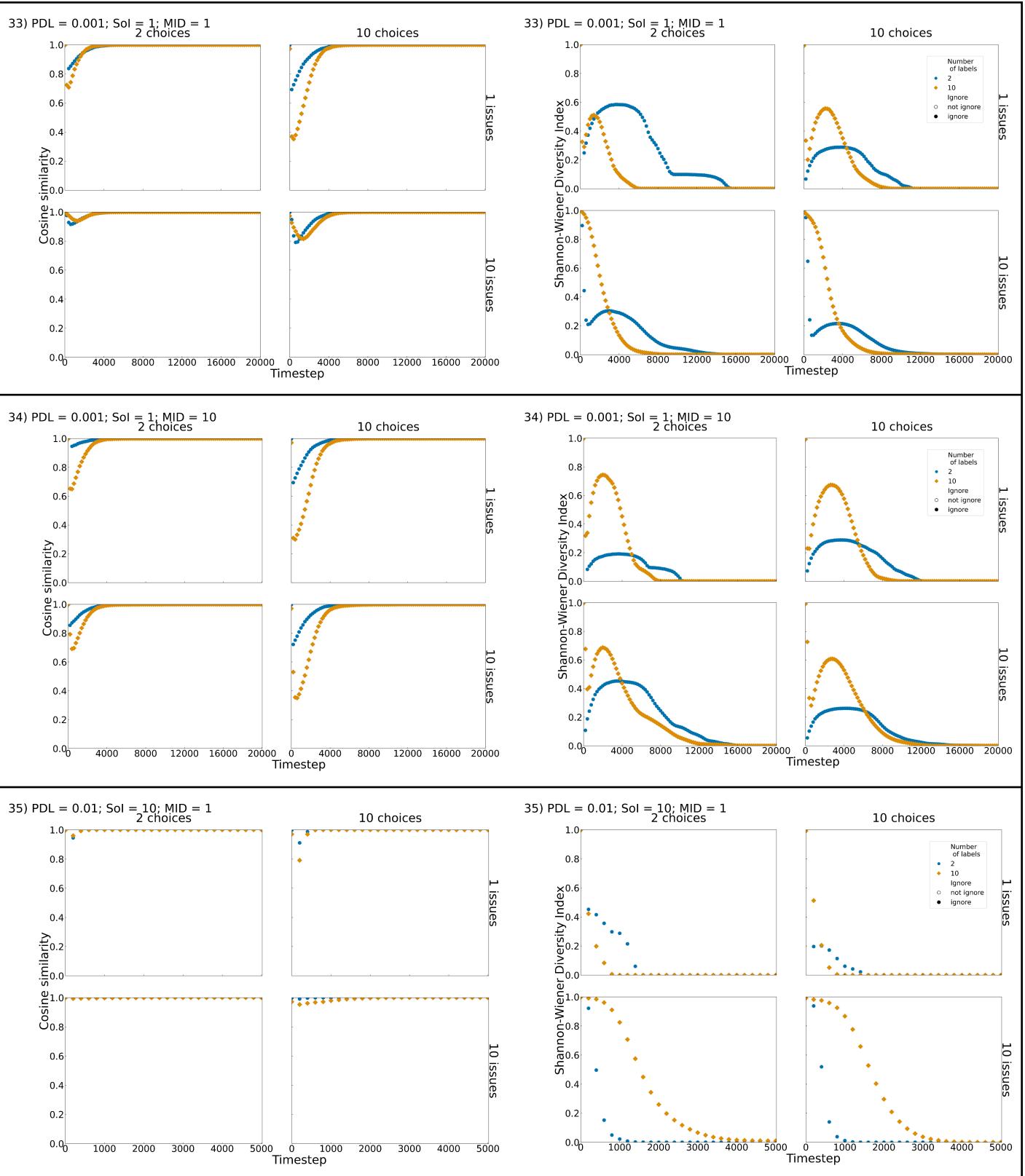


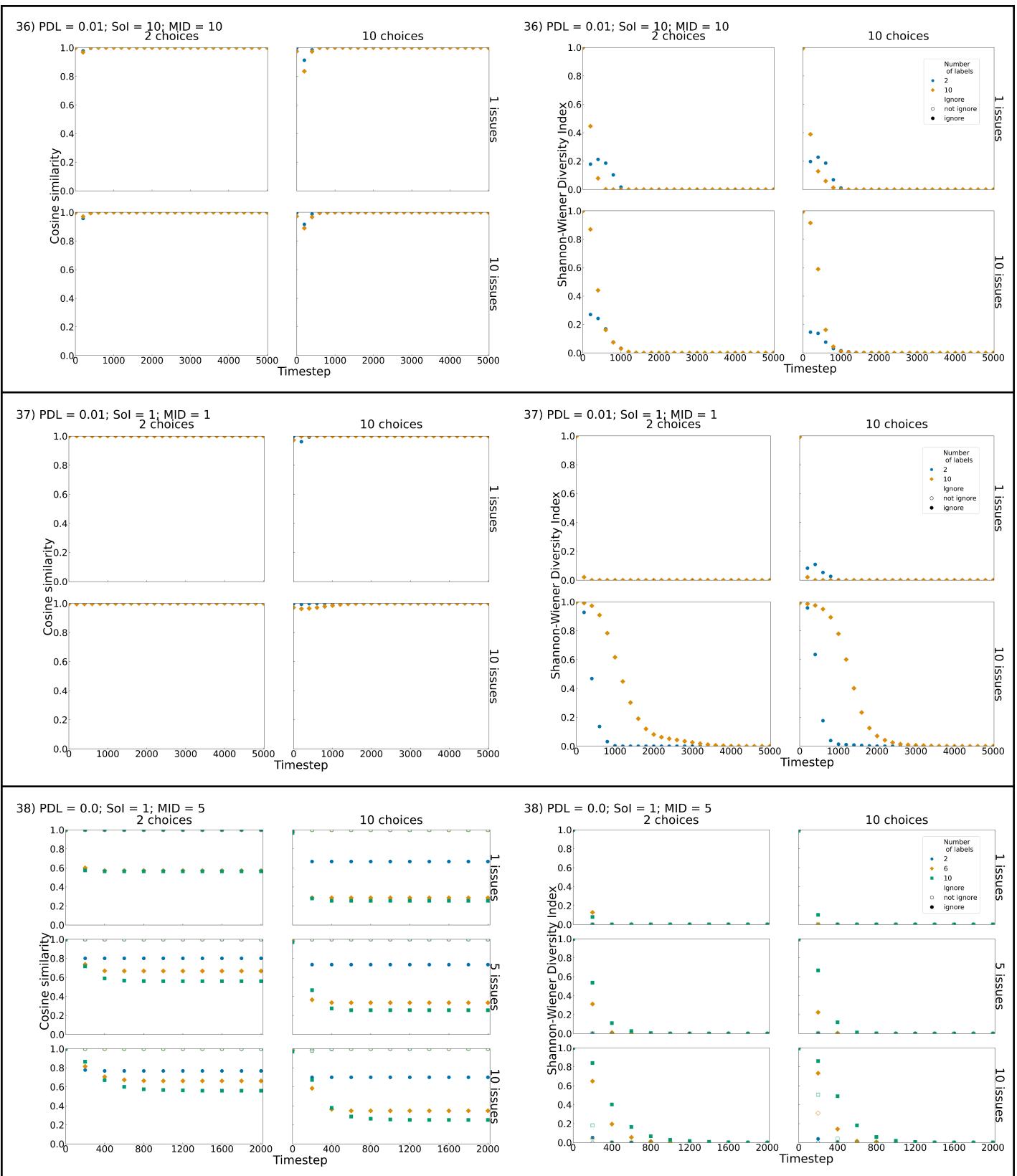


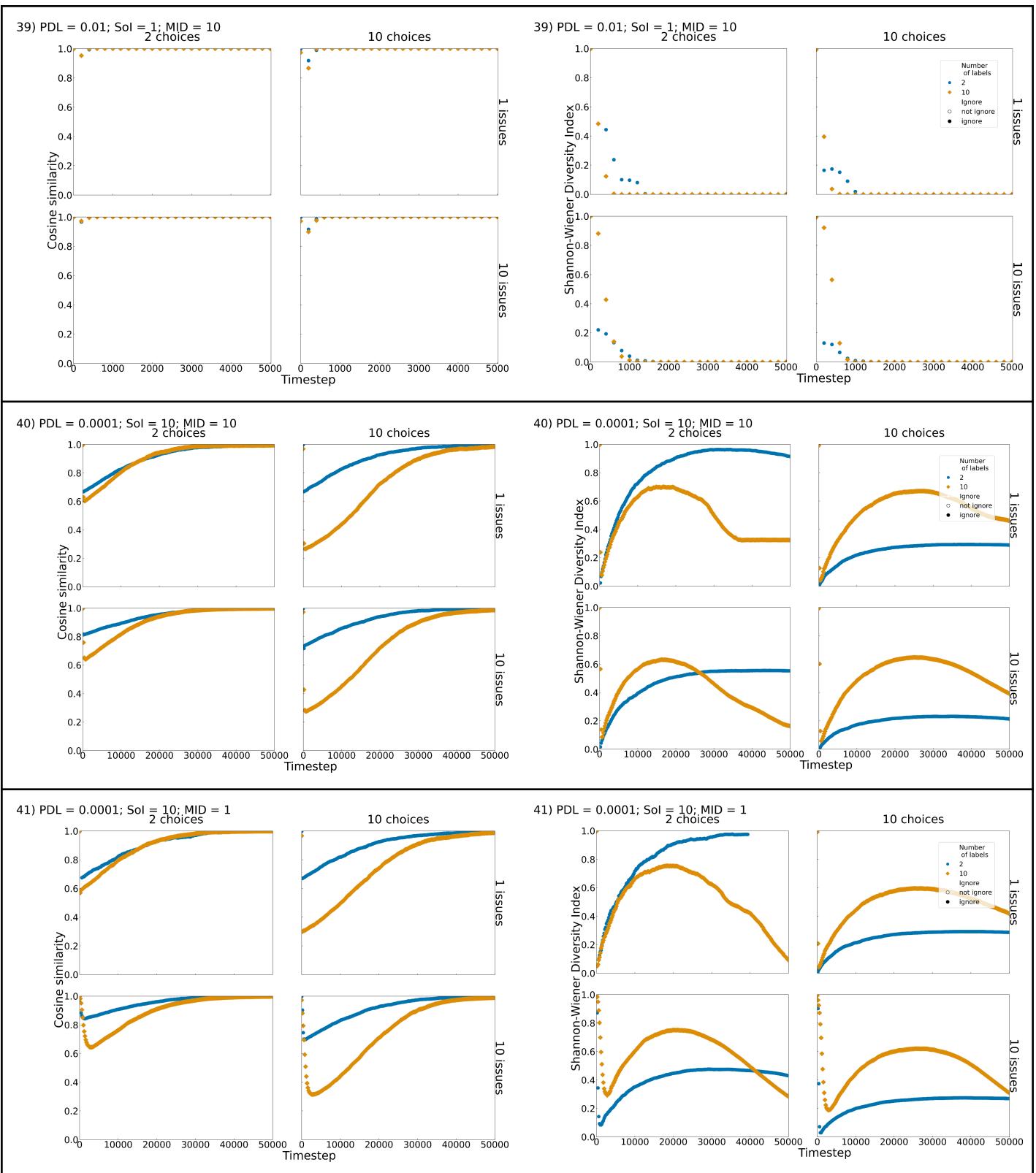


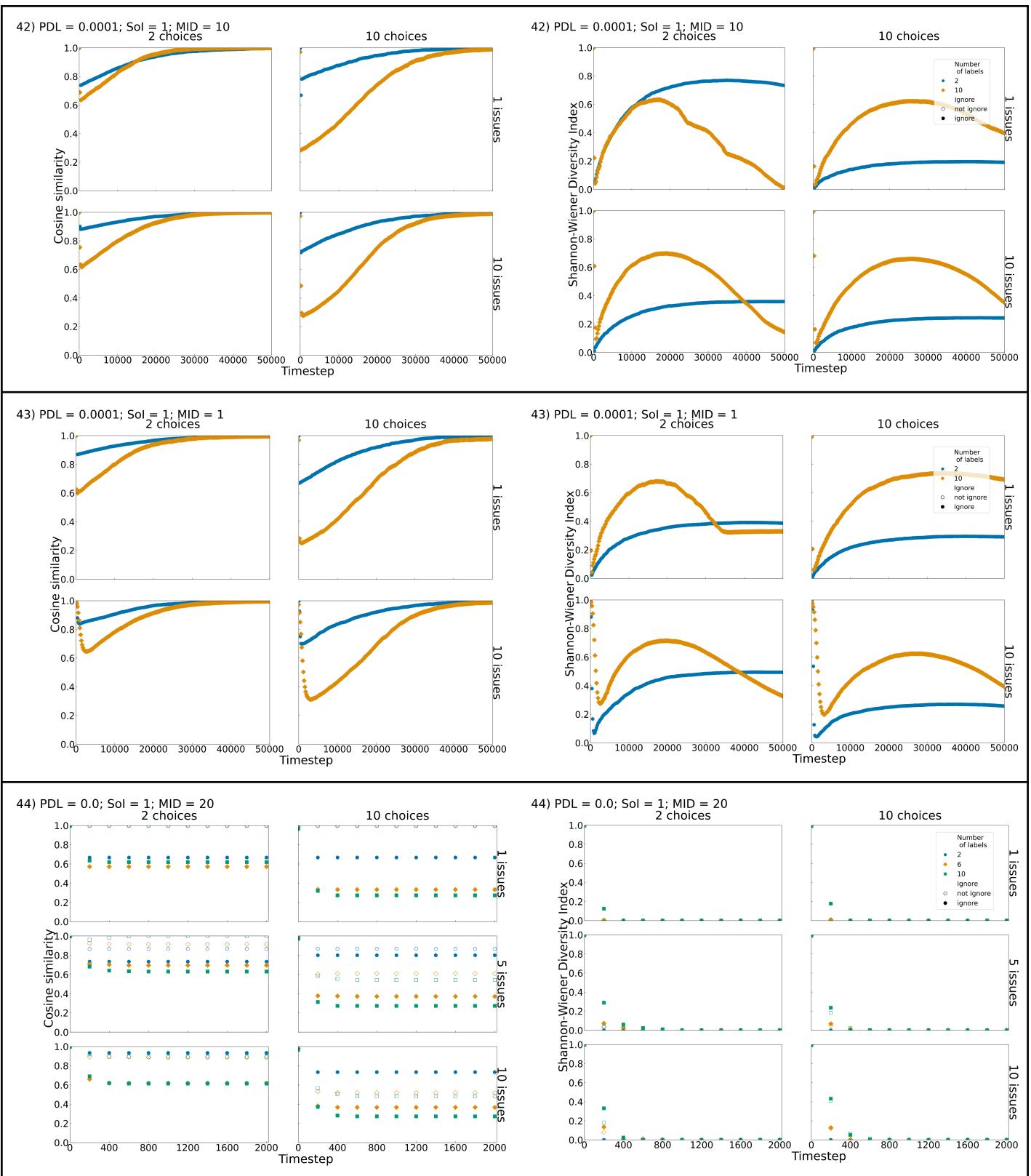


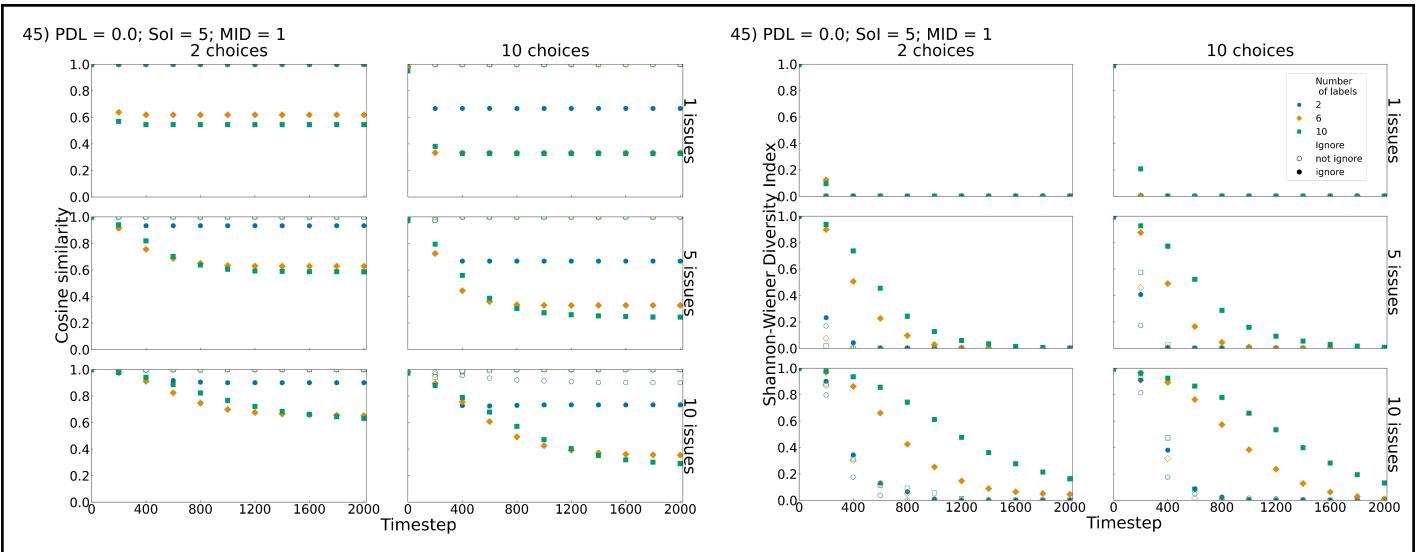












Results - rate of change of choice

In Fig. 46 we present how many agents on average changed their preferred choice during a single timestep.

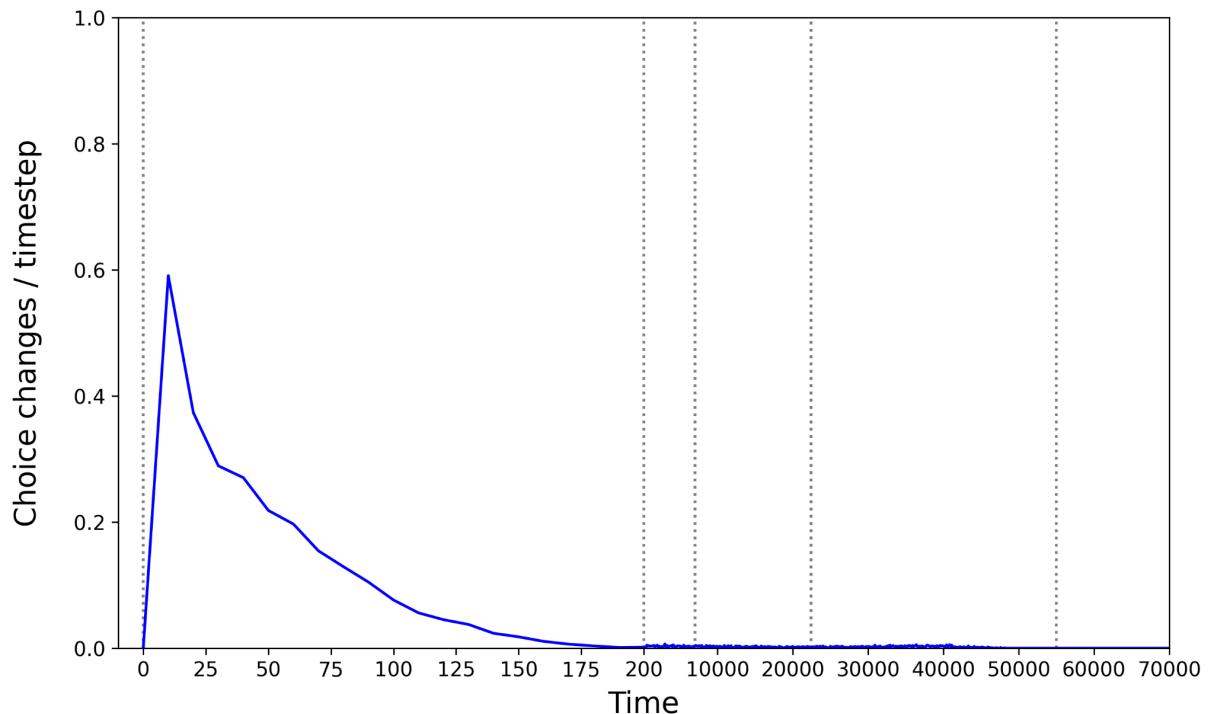


Fig 46. Agent choice change rate.

PDL = 0.0001; Strength of influence = 20; multi-issue discourse = 20; and ignore is ON; 8 labels; 1 issue; and 5 choices.