

Influence of shared information on predictability in human-agent teams

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References

- [1] Johnson, M., Bradshaw, J. (2021). The Role of Interdependence in Trust.
 [2] Verhagen, R. (2021) A Two-Dimensional Explanation Framework to Classify AI as Incomprehensible, Interpretable or Understandable.

1. Introduction

Understanding trust in human-agent teams is of utmost importance if we want to ensure an efficient and effective collaboration. It is well known that predictability is a core component of trust [1], and that explainability, leading to understandable agents, contributes to higher predictability [2]. However it is still unclear what kind of information an agent should share in order to be perceived as predictable.

2. Objective

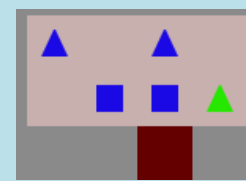
The purpose of this research is to **investigate the influence of information sharing on predictability in human-agent teams.**

3. Methodology

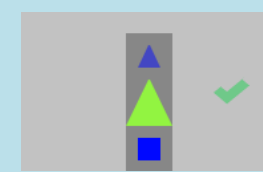
A **controlled experiment** was conducted.
Independent variable: information shared by agents
Dependent variable: perceived predictability

4. Agent configurations

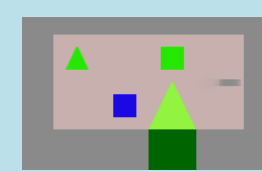
World knowledge



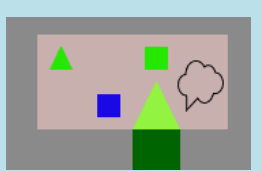
Actions



World knowledge Actions

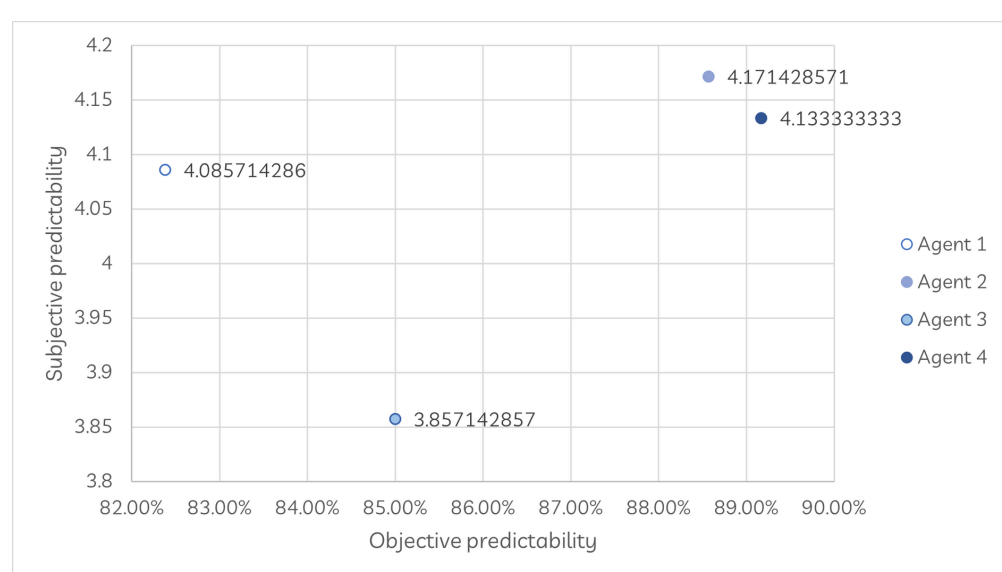


World knowledge Actions Explanations

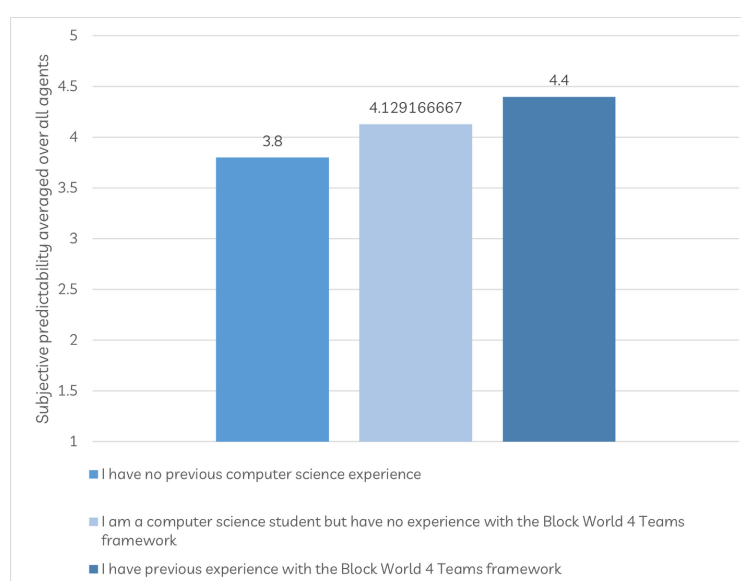


5. Results

OBJECTIVE VS SUBJECTIVE PREDICTABILITY



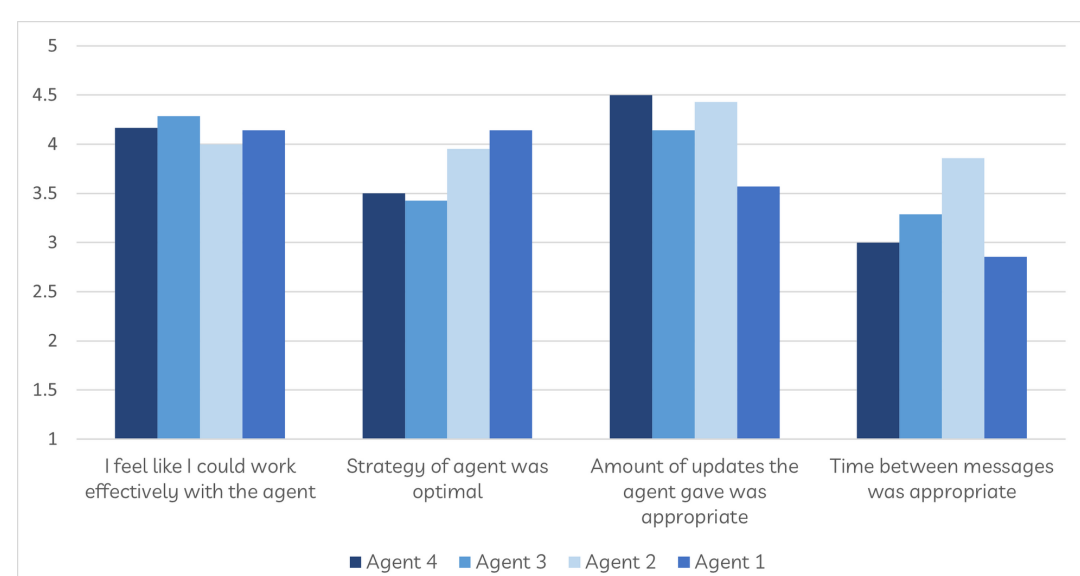
SUBJECTIVE PREDICTABILITY BASED ON EXPERIENCE LEVELS



EXPLANATION SATISFACTION SCALE



USER SATISFACTION WITH AGENT



6. Conclusion

- Strong **positive correlation** between previous **experience** and perceived **predictability**
- Sharing **more information** has led to a **longer time** to complete the task
- The **longer it took** to complete the task, the **lower the rating of the agent's strategy**
- In simple world setup sharing only **world knowledge** is the **most optimal**
- In simple world setup it is **more important** to focus on **user experience and satisfaction**
- Larger focus on developing **agents optimal for inexperienced users**