AGIR Project Proposal

2023-2024

Title (titre):

Learning to Decide or Learning to Obey?
An Experimental Comparison of Prescriptive and Formative AI Assistance in a Simulated Game Environment.

Partner/Client (partenaire/client):

No external partner (academic experimental project).
The project is conducted within the AGIR framework, with a potential interest for educational technology designers and developers of AI-assisted learning tools.

Dimensions (dimensions):

TECHNIQUE / SOCIETALE / SCIENTIFIQUE / METHODOLOGIQUE / ARTISTIQUE / AUTRE

- **TECHNICAL : Development of an AI-assisted system and a simulated game environment**
- **SCIENTIFIC : Experimental evaluation of learning and decision-making outcomes**
- **METHODOLOGICAL : Design and implementation of a controlled experimental protocol**
- **SOCIETAL : Analysis of the impact of AI usage on learning and human reasoning processes**

Summary including Objectives and Deliverables (résumé y compris les objectifs et les livrables):

project aims to study how different forms of AI assistance influence users' ability to reason, learn, and improve autonomously in decision-making tasks.

More specifically, the project compares two modes of AI assistance within a controlled game-based environment:

- **Prescriptive AI**, which provides explicit recommendations before a decision is made;
- **Formative AI**, which provides feedback, explanations, and alternative actions after the decision has been taken.

Using a simulated game as an experimental laboratory, participants are divided into two groups and trained with one of the two AI modalities. Their performance is then evaluated without AI assistance in order to measure learning transfer, autonomy, and improvement in reasoning quality.

The objective is not to evaluate the game itself, but to use it as a controlled environment to isolate and measure the effects of AI assistance on decision-making learning.

Main objectives:

- Compare short-term performance and long-term learning effects of prescriptive vs formative AI assistance.

- Measure the ability of users to improve their decision-making when AI assistance is removed.
- Analyze potential dependency effects induced by prescriptive AI systems.

Expected deliverables:

- A simulated decision-making game environment.
- Two AI assistance modules (prescriptive and formative).
- An experimental protocol with quantitative metrics.
- Data analysis and visualizations of user performance and learning curves.
- A final report discussing implications for the design of AI-assisted learning and decision-support tools.

References (références):

(If known) Provide references including articles, websites, software, etc. / Donnez la liste bibliographique y compris les articles, sites web, logiciels, etc.

Project Team (groupe-projet):

Team members:
To be defined (students from INSA Lyon – 4IF).

Affiliation:
INSA Lyon – Department of Computer Science (IF),

Experimental participants (users):
Volunteer participants, primarily students from INSA Lyon and potentially other higher-education institutions, acting as users in the experimental phase of the project.
These participants are involved exclusively as subjects in the experiment and do not take part in the project development.

Team coordinator:
Jason LAVAL 06 37 57 74 12

Team openness:
The team is open to additional members (up to X students), particularly with interests in data analysis, AI systems, or experimental design.