3. Researchers in the automated task planning community have proposed AI-enabled systems for decision support that can assist human experts in their decision-making process.

2. Automated Planning Technologies can aid various stages of the decision-making process. As to their decision-making process.

1. To understand this, we

1.1 Design a full-stack AI-enabled software for a synthetic decision making scenario where domain experts can be easily found.

2. Incorporate organizational constraints, time stress and consider dynamic initial states to impart flavors of Naturalistic Decision Making to the synthetic scenario.

3. Perform ablation studies to figure out which (and to what extent) the various AI components aid the decision making process of human in the loop w.r.t. both objective and subjective measures.

**Challenges for Evaluation**

- Lack of human experts who are willing to participate in human studies. We would need fire-marshals and would need NASA human planners to spend time on designed software. Asking naive users to gain expertise in such domains would be (1) expensive in regards to both time and money, and (2) an inaccurate model of domain experts.

- An accurate evaluation of these systems demand settings that have complex organization constraints, time stress etc.

**Objectives**

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**Experiment Setup**

- 56 students participated in the study- 14 for each condition. Each participant was randomly allocated a particular testing condition and were asked to complete two different iPOs. They were given 20 minutes to finish each iPOS followed by 10 minutes to complete subjective and objective feedback form.

**Hypothesis**

- $T(C_0) > T(C_1), T(C_2) > T(C_3)$ where $T(C_i)$ is completion time for condition $i$.

- $S(C_0) < S(C_1), S(C_2) < S(C_3)$ where $S(C_i)$ is satisfaction rating for iPOS.

- $S(C_2) < S(C_1), S(C_2) < S(C_3)$ where $S(C_2)$ is satisfaction for feedback.

- Time to complete the plan will reduce in second attempt.

- Less expert users benefit more from decision support components.

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**Results**

- Figure 2 shows significant improvement from $C_0$ to $C_3$ ($p < 0.05$ for the first and $p < 0.01$ for the second).

- Figure 6, shows a positive shift from control to experimental conditions.

- Figure 7, shows that number of participants are more satisfied with the feedback and it follows the order.

- Figure 3 shows lowest reduction for $C_0$ and highest for $C_3$ and reduction in $C_1$ was comparable to $C_3$.

- Figure 4, shows there was no significant change in the time taken by experienced vs. less experienced user.

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