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Abstract

Unstable approaches account for a high number of accidents during approach and landing. A large number could have been avoided with a decision to go-around. Studies have shown that operators of machines and even pilots are susceptible to what is called the Cognitive lockup. They deal with one task at a time even if the subsequent task involves more significant risk. The pressure of task completion is proven to trigger cognitive lockup. On an approach to land, the pilot is under the pressure of task completion, time pressure and landing effect. In this situation, if an approach is destabilized, the pilot should ideally carry out a go-around and reattempt a landing. This involves

Methods

Experiments on cognitive lockup
Research on fault management in process control (Moray, M., & Roberts, I. 1996), reveals the onset of "Cognitive lockup" when multiple faults are triggered, the sequence of preferred fault management by operators of several hydraulic systems is sequential. The result of the research was that operators need to focus and complete one fault or if it can be replaced by stating one task at a time.

Study
In the scenario, the aircraft is in cruise phase and a thunderstorm is presented very close to the destination. This attracts the attention of the pilot, as it is not clear if there is a need to divert to the alternate air. The pilot keeps monitoring the movement and intensity of the thunderstorm. During this monitoring phase, a failure is introduced in one of the aircraft engines. The pilot recognizes the failure but does not react and continues to monitor the thunderstorms. After a while, the urgency to handle the engine malfunction is realized and the pilot begins to solve the engine malfunction task.

Results
The cognitive lockup prevents the pilot from immediately switching task, from that of monitoring the thunderstorms to handling the engine malfunction. Figure below shows the goal priorities of each goal over time during

Conclusion

Pilots approaching the destination have invested a lot of time in their task and it is nearing completion. Carrying out a go-around can be inferred as task switching. Cognitive lockup prevents pilots from switching task from approach to go-around, especially when nearing task completion and completion of primary objective are framed in the policies, that of flying to the intended airport of landing. Training has an effect of reducing cognitive lockup.

1. Increasing practice for task switching that of approach/flare followed by switching to the task of a go-around and reattempting a second time or divert.
2. The policy, if framed to depict a go-around and a diversion in a positive light will reduce the pressure of task completion from the pilots and they would be more prone to switching the task to go-around with ease.

References

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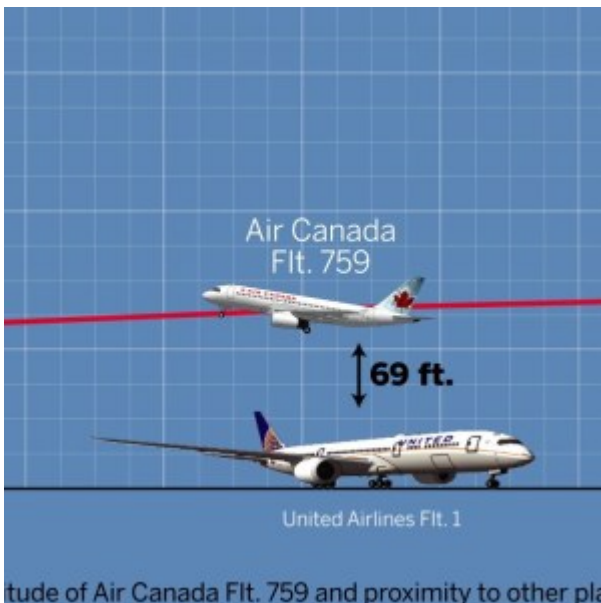
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