# Week 1

Based on the readings from the above website, what do you think would be the greatest challenge you would face in developing a research proposal, and how could you successfully overcome that challenge?

## Initial Post

My greatest challenge in developing a proposal is selecting a topic. Call it an unhealthy ability to “just live with it”, I find myself admiring those who can see the limitations in “what is”. The readings suggested browsing trade magazines and news articles – a strategy I intend to explore.

I often do see room for improvement. Simplifying the idea to something workable is my next obstacle in developing a proposal.

“Any intelligent fool can make things bigger, more complex, and more violent. It takes a touch of genius—and a lot of courage to move in the opposite direction.”

That quote is credited to Albert Einstein by some and E.F. Schumacher by others. Either way it clearly describes where I am and where I am trying to go. I am hoping this class can help.

I suspect the next hardest task will be the literature review. As an agonizingly slow reader with a touch of ADD I spend a ridiculous amount of time formulating search terms, sifting through results, and chasing squirrels up unrelated trees. I’ve struggled with that all my life. Any suggestions?

This little exercise in self-reflection has me grateful I made it this far!

# Week 2

## Initial Post

This exercise is going to help a lot. I wish I had started it a month ago.

I have many topics of interest, but I have no idea how to simplify them into something workable. Among my interests:

* Aviation in the context of complex systems
* Mindset and mental models while operating aircraft
* Tools IN aviation vs. the task OF aviation
* Training time required with improved automation and safety features
* Training away risk in addition to automating it away

### Aviation in the context of complex systems

Airplanes are COMPLICATED systems. They take inputs and produce predictable outputs through mechanics, physics, or electromagnetics. A complicated aircraft makes up part of a COMPLEX system called aviation. The complicated aircraft operates in its predictable way; the result of that operation is related to the environment in which it exists.

### Mindset and mental models while operating aircraft

Mental models direct attentional assets. Promoters of Recognition-Primed decision models say that one recognizes the pattern of their environment then directs attention to sources of information that are important in that situation. The additional information adjusts the operator’s model of the environment causing them to act. Attention is then directed to either the results of the action or to an additional input, or to a salient distraction, etc. If a pilot’s mental model of a HUD approach is to maintain vigilance on the FPM, they are not directing attention to other cues that may further define the environment. Boeing and others proved this with the rate of missed traffic conflicts using HUDs.

### Tools IN aviation vs. the task OF aviation

Related to Mindset and mental models while operating aircraft, this idea differentiates tools in aviation (like the HUD or the FPM) from the task OF aviation (Pitch and Power). This must be more carefully described.

#### Descriptions of tools and Tasks

|  |  |  |
| --- | --- | --- |
| Task | Tools | Tools that confuse the task |
| Engine Start – Make the engine start running and ensure it is running properly | Starter Switch  Start Lever  RPM gauge  EGT/CHT gauge  Oil Pressure gauge | One-button Engine Start |
| Takeoff – Accelerate the aircraft down the runway to an appropriate speed for liftoff while monitoring engine performance, pathway clearance, and critical systems. After liftoff establish an appropriate deck angle for the given weight and power setting to climb to a safe obstacle clearance altitude. | Engine Instruments  Airspeed Indicator  Rudder pedals  Lights and annunciators | HUD Takeoff   * focus on FPM not runway centerline * Focus on FPM not deck angle * Distracted by warning systems (Stick shaker, unrelated warnings) |

### Training time required with improved automation and safety features

### Training away risk in addition to automating it away

When there is an aircraft malfunction, we correctly try to automate away the risk of subsequent failures. In some cases, we train for the failure. More appropriate would be to train away the risk. For example…