

Crossed wires

What do pilots and controllers know about each other's jobs?

Immanuel Barshi & Rebecca Chute

IT IS OFTEN SAID that pilots and controllers talk at each other all day long, but rarely communicate.

It seems that part of the reason for this claim is that they know little about each other's worlds.

Our research at the NASA Ames Research Centre attempts to identify areas of misconception – and errors that occur as a result – and gaps in the knowledge pilots and air traffic controllers have about each other.

The results of our first survey, involving two major carriers and the controllers at the same airport, show there are major differences in the understanding of each other's workload and work structure.

The survey involved 163 pilots from two major US carriers and 36 controllers. The questionnaires included excerpts from incident reports involving interactions between pilots and ATC, chosen for their ambiguity.

Scenarios: Four scenarios were used, one of which follows: "During descent, a pilot believes he is given clearance from 14,000ft to 10,000ft. He reads back the clearance and levels off at 10,000ft. After landing he is told to call ATC on the phone.

"He is advised that he levelled off at 10,000ft and should have levelled off at 11,000ft, his clearance altitude.

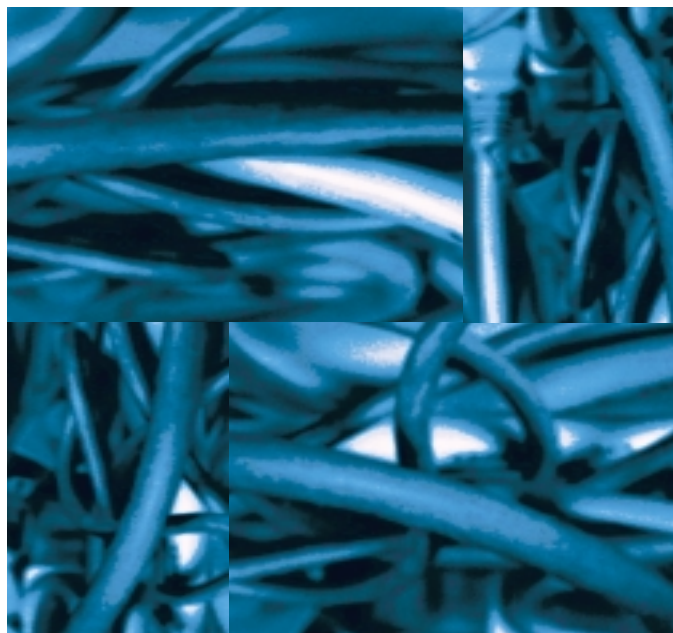
"However, this pilot never read back or acknowledged an 11,000ft clearance, nor did he receive any altitude corrections or advisories about altitude deviations until the phone call on the ground."

Each scenario was followed by three questions:

- What was the problem?
- What caused the problem?
- Who was primarily responsible?

The results showed that while pilots blame controllers more than they blame themselves, controllers blame themselves more than they blame pilots.

We asked both groups how



often they think that pilots read back their clearances completely, how often the readbacks contain errors, and how often ATC informs pilots regarding similar call signs on the same frequency.

The results indicate that pilots think they readback their clearances completely more often than controllers think they do. Controllers believe pilot readbacks contain errors more often than pilots think so. And controllers think they inform pilots regarding similar call signs more often than pilots perceive that they do.

The study also asked how much pilots would like their training to include more information on aspects of the controller's job.

Conversely, controllers were asked how well pilots understand those aspects of their jobs. It turned out there was a correspondence between areas where pilots would like more knowledge and controllers' perception that pilots don't understand these areas well.

We found that pilots and

Pilot 2: "Sometimes workload is high and checklists are read and being responded to. Sometimes we will miss radio calls. Don't get mad or think we are not listening."

Controller 2: "When a frequency is quiet, it doesn't necessarily mean the controller isn't busy co-ordinating, watching deviations from weather, or assisting busier sectors."

Work together: Both controllers and pilots made statements about their priorities:

Pilot: "Safety is paramount in my operations. Flow efficiency is secondary."

Controller: "I like to keep you moving. Efficiency is paramount."

The most common complaint from controllers was that pilots don't see the "big picture" and see themselves as the only aircraft in the sky. Controllers say that they would like more information on pilot procedures, requirements and aircraft performance capabilities.

The main themes of the pilot data centred around the need for more information on both sides and the desire to work together.

Pilots would like the controllers to come for cockpit observations, have frequent pilot-controller meetings, and eliminate "us vs them" attitudes.

Further studies are planned. Eventually data obtained will be used in the development of cross and joint training programs as well as the drafting of improved procedures.

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