



HOW **NATIVE ENGLISH SPEAKERS** CAN
MAKE RADIOTELEPHONY SAFER

COMMUNICATION IS A SHARED RESPONSIBILITY

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In aviation, English language problems are a significant risk to safety. An ICAO review of 28,000 incident / accident reports found that communication was a factor in over 70% of the problems.

In 2008, ICAO introduced the Language Proficiency Requirements to improve aviation safety. They aimed to ensure that all pilots and controllers working in an international environment would be able to communicate clearly in English.

These English language requirements apply to all personnel - including the Americans, Canadians, British and Australians.

In reality though, the burden of responsibility has fallen on English as a Second Language (ESL) speakers. They have had to invest considerable time, money and effort into improving and maintaining their level of English. They have been required to pass Aviation English exams in order to retain their right to work, with the majority having to be re-tested every 3-5 years.

Native-English speakers, by and large, have been unaffected.

But ICAO did not intend this to be the case. The *Manual on the Implementation of ICAO Language Proficiency Requirements* states:

"...native and other expert users of English can acquire strategies to improve cross-cultural communications..."

Native speakers in particular have "an ethical obligation to increase their linguistic awareness" and "...focus on strategies that aid comprehension and clarity".

And there are good reasons for ICAO to suggest that native-English speakers should take their share of the responsibility. The comfortable assumption made by many native-English speakers is: *"English is first my language, therefore I speak it perfectly; if you don't understand me, it's not my problem"*. But this is far from reality.

Today, **75% of the world's English speakers are non-native speakers.**



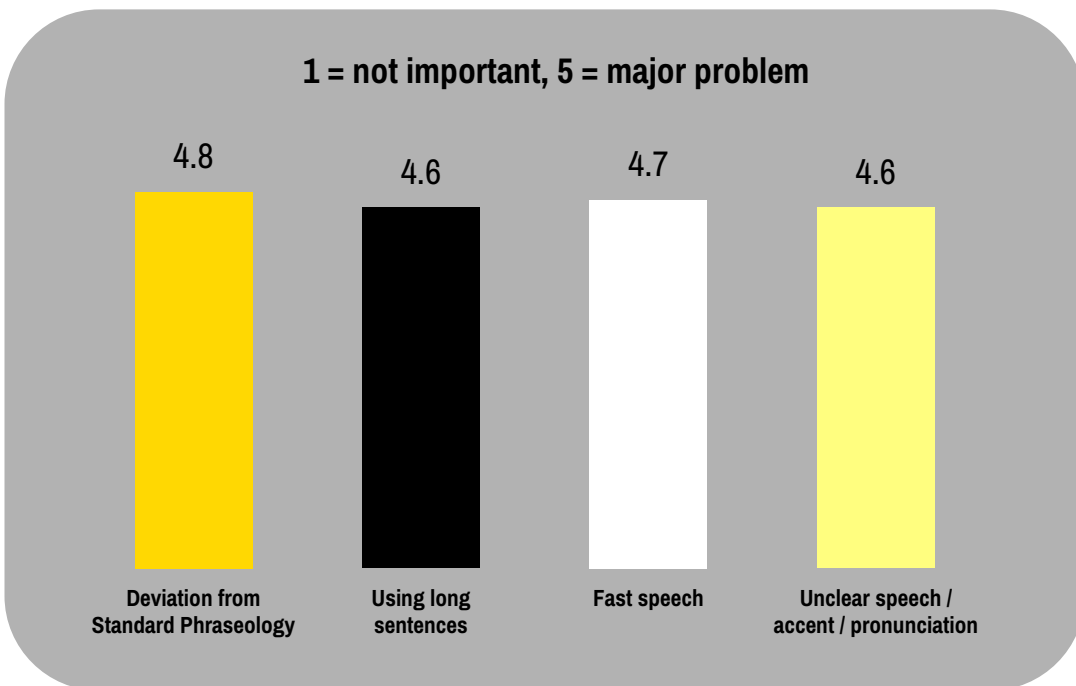
Native English speakers could do more to help

Research by Mayflower College, UK shows the scale of the problem.

- 88% of ESL speakers said they found it more difficult to communicate with native speakers than with other non-native speakers.
- 550 ESL-speaking pilots and controllers from 82 countries were questioned; 99% said it would be a good idea to provide linguistic training to native-English speaking aviation personnel.
- In answer to the question 'Do you think that aviation SAFETY is reduced because of the way native-speakers use English?', 79% of the aviation specialists replied 'Yes, sometimes'.

The ESL-speaking aviators were asked to rate specific problems caused by native-English speaking pilots and controllers on a scale of 1 to 5.

The results were:



I see these communication breakdowns at work every day.
MARIA, SPANISH CONTROLLER

I think every non-native English speakers have had difficulty communicating with native-English speakers.
VASIL, BULGARIAN CONTROLLER

I understand non-native speakers more than the native one because the non-native speak slowly and make short sentences.
ANDRES,

COLOMBIAN PILOT

PROBLEM: DEVIATION FROM STANDARD PHRASEOLOGY

Standard Phraseology is intended to simplify communication through the use of a controlled vocabulary and grammar which all aviators are trained to understand.

It is different to the sort of language native-English speakers use day-to-day.

In our everyday lives, when there is a misunderstanding between native speakers we tend to use idiomatic language, or jargon, to try to resolve that misunderstanding.

However, in aviation, the jargon used between native speakers is not the same jargon understood by non-native speakers (even though they are all members of the aviation community).

A US controller might ask a US pilot:

'How are you riding today, much chop?' 'Do you see the rabbit lights?'

('How is your flight, much turbulence?' 'Do you see the runway lights?')

“ Never assume the person you're talking to has the same level of comprehension as you. Stick to standard phraseology - it exists for a reason. TOMMASO, ITALIAN PILOT ”

This does not work when an ESL speaker is involved in the communication.

To achieve effective communication in international aviation, the Americans, British, Australians, etc. need to restrict themselves to formal rather than informal language. In radiotelephony exchanges this means standard phraseology.

When non-routine situations arise which are not covered by standard phraseology, *'plain English'* is required. Native speakers need to learn how to use plain English appropriately, using words and phrases which are likely to be understood by members of the international aviation community.

PROBLEM: USING LONG SENTENCES

“ Native- English speakers should speak slowly, clear with short sentences. They don't know how difficult sometimes is for us to understand them, especially in USA and UK. ”

NUNO, PORTUGUESE PILOT

Research has established that transmitting more than 4 pieces of information in a message significantly reduces communication effectiveness, even if the communication takes place between native speakers.

By using unnecessarily long sentences, native speakers are placing an extra burden on their international colleagues who are likely to need more time to process what is being said.

PROBLEM: FAST SPEECH

The Mayflower College results are corroborated by other studies. In one study, fast speech by air traffic controllers was shown to be the cause of communication breakdown in 28% of misunderstood call signs and 42% of misunderstood level changes.

So, how fast do native speakers speak?

ICAO explicitly recommends speaking at 100 words per minute, which is approximately equal to 4.1 syllables per second (sps).

However, studies show that American air traffic controllers speak on average at a rate of 6.1 syllables per second (sps).

Compare that to the speech rate in American movies where the average is 5.1 sps and to American news programs where the average is 4.7 sps.

Another study shows that when speech is delivered at the typical rate of an American air traffic controller (6.1 sps), non-native speakers cannot recognise 20% of the words.

IN OTHER WORDS, IT SEEMS THAT NATIVE ENGLISH SPEAKING AVIATORS MAY BE SPEAKING 50% FASTER THAN ICAO RECOMMENDS.



To make matters even worse, they are of course mainly speaking over the radio, where international pilots and controllers have no non-verbal cues to help the communicative process.



PROBLEM: UNCLEAR SPEECH

According to ICAO, aviation personnel - including native speakers - must use a form of pronunciation which is *'intelligible to the international aeronautical community'*. It is incorrect to assume that because English is your first language, your pronunciation is automatically intelligible to everyone.

There is evidence that even native-English speaking personnel cannot understand each other if they are from different countries, because their accents are unfamiliar and difficult to comprehend. This is even more of a burden for ESL speakers.

Effect of communicating under high cognitive load

All these communication problems are compounded by cognitive load - the amount of information the brain has to deal with at a particular time. The greater the cognitive load, the harder it is for the brain to process language effectively. This applies to native speakers as well as those who speak English as their second language. Language proficiency is not the main issue here – this is about the way that human brains work.

In radiotelephony, the most critical information is generally given during the most demanding phases of flight (take-off, level changes, final approach, landing). It is precisely at these stages that clear communication is most important - the brain has little “spare capacity” for language processing.

In conditions of high workload, the brain processes verbal information differently to the way it does during conditions of low workload. This makes mistakes more likely and is compounded if native speakers do not speak clearly and deviate from standard phraseology. For instance, consider how similar the words “five” and “nine” are. If these are not spoken according to ICAO rules (“fiFe” and “ninER”) it is highly likely that listeners will mishear them.



The well-known advice: “Aviate – Navigate – Communicate” breaks down when there is high workload. “Communicate” is supposed to be the final stage of a particular flight task but in reality has to be done at the same time as the other 2 parts of the maxim, increasing cognitive load.

Why are native English speakers not good enough at communicating?

- They haven’t been trained adequately – the assumption is that “*English is our language so we must be good enough*”.
- They may not be aware of the problem. “*I’ve been doing this work for 20 years and never had any complaints*”.
- Native-speakers have a poor record of learning foreign languages and as a result can lack empathy with their international colleagues.
- The native-speakers’ educational systems typically reward the use of “clever, sophisticated” language.
- Except after the most drastic of situations, there is no routine feedback loop for foreign aviators to explain that native-English speech is problematic.

Even if native speakers are aware of the problem and are motivated to help, how can they address it without training?

Think about a conversation you had with a friend recently:

- Do you know how fast you were speaking? How many words per minute were you delivering?
- If you were asked to repeat what you said at a rate of 100 words per minute, do you think you could automatically do that? And then if you were asked to rephrase everything you said in plain English, which words would you change?
- And would you know how to say it in an accent which is intelligible all over the world?

Now imagine you have to do all that at a time when you are busy and stressed. And the plane is rapidly losing altitude, you don't know why and there are passengers behind you whose lives depend on what you say and do. Do you know how to speak clearly now?

Probably not. And neither can most native speaking aviation personnel. They need training!

What can be done?

Experience shows us that native-English speakers will not **volunteer** for training to show them how to improve their English skills when communicating with non-native speakers. In fact many will resist the need for the training all together, believing the sole responsibility lies with ESL speakers to improve their English. This is to miss the point.

For change to happen ICAO, national regulators, airlines, ATS providers and manufacturers will need to make training mandatory. Native-English speakers have a vital role to play to ensure safe, effective communication takes place.

The only off-the-shelf training solution available at the moment is [SayAgain](#), a 2-3 hour online program to help native speakers improve communication with their international colleagues. The training aims to improve their empathy and explains why the use of standard phraseology, speaking at the required rate, pausing, 'chunking' of information and managing misunderstandings are so important to safe communication.

