May 10th, 11:50 AM - 12:05 PM

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Aviation English Training for Native English Speakers: Challenges and Suggestions

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Abstract

While non-native English Speakers (NNES) are trained in aviation communication and they must attain a certain English proficiency level before being awarded an aeronautical licence, native English speakers (NES) are not in practice subject to the same requirements. This paper discusses some of the issues posed by NES not following the standard aviation phraseology and examines the English Language Proficiency and radiotelephony requirements for NES in English speaking countries. The recommendations of ICAO (2010) concerning the responsibilities of NES are rarely implemented. Practical suggestions for the training of NES were made by participants of the 2018 ICAEA workshop and are augmented with suggestions coming from flight training experience. The main recommendation is for mandatory training and testing of aviation phraseology and communication procedures for NES pilots and Air Traffic Controllers. Training should include language awareness and testing should include understanding of NNES transmissions and production of transmissions intelligible by NNES.

Introduction

This paper discusses an issue in aviation communication which arose from research combining linguistics and aeronautical experience. The starting point was the question of

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what makes Aviation English a code distinct from general English. Beyond the practical issue of identifying what makes it difficult for student pilots when they learn radio communication, is the question of how language background, pilot training and contextual factors affect the ability of pilots to follow the mandated phraseology. Communication difficulties or even communication breakdowns are known to occur whether the pilots or ATCs are native or non-native speakers of English but the onus is more often placed on the non-native English speakers (NNES) to attain English proficiency than on native English speakers (NES) to demonstrate adequate aviation communication competence. When we are presented with figures predicting growing numbers of NNES in aviation over the next 20 or 30 years,[2] the obvious conclusions are that more teaching of Aviation English for NNES is needed and that this teaching must include inter-cultural communication training. But what about the NES who will be making a smaller proportion of the aviation world? What training do they need? The reality is that NNES already speak more than one language and actually already know how to do inter-cultural communication, but that most NES are monolinguals. Is the request that NNES undergo inter-cultural communication training a way of suggesting they should learn to communicate with NES? Maybe NES should learn to communicate with NNES.

The workshop at the 2018 ICAEA conference where participants discussed the question "What should we teach Native English Speakers?" produced detailed answers and recommendations about the issue of inadequate communication from NES (Estival, 2018). This led to an examination of the English Language Proficiency and radiotelephony requirements for NES in English speaking countries, which confirmed the lack of rigorous testing for NES that had been suggested by anecdotal evidence.

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[2] https://www.boeing.com/commercial/market/pilot-technician-outlook/

The problem

Most studies of difficulties in aviation communication focus either on the supposed danger posed by NNES or on the interaction between communication and other human factors (fatigue, workload, noise, etc.). However, there is enough evidence that NES pilots and ATCs contribute to communication problems by not following the ICAO phraseology or, more worryingly, procedures. In addition to evidence from the literature (Kim & Elder, 2009; Kim, 2012; Bieswanger, 2013; Borowska, 2017; Clark, 2017), there is evidence from government or regulator reports (e.g., EUROCONTROL, 2006a; EUROCONTROL, 2006b), from the ICAO recommendations (ICAO, 2010) and more recently from the answers to the questionnaire from the ICAEA 2018 workshop (Estival, 2018).

In her study of air-ground communication in South Korea, Kim (2012) was able to show that communication breakdowns are often caused by NES not adhering to standard aeronautical communication conventions, rather than by NNES' lack of language proficiency. Bieswanger (2013, p. 22) stressed that "an increased language awareness of native speakers of English is a prerequisite for effective and efficient communications, as is the implementation of proficiency standards for non-native speakers" but that in "many countries of the inner circle of Englishes, the effective use of English in aviation contexts is taken for granted." Borowska (2017, p. 177) points out that "native speakers of English still tend to use the colloquial meaning of terms in their language production, thus causing problems for non-native English personnel". In CAP 1375, her report for the UK aviation regulator CAA, Clark (2017) identified as issues with NES pilots and ATC "Deviation from standard phraseology" and "Not adhering to ICAO number pronunciation". From these observations and her detailed investigation, Clark (2017, p. 32) made the following recommendations:

- Native English speakers should think of English in the flight deck or over the radio as not English as they know it, but instead as a different 'language'.

- On-going language awareness training should be implemented.

- Language awareness training should emphasise the elimination of local slang and non-standard phraseology.

- Language awareness training should incorporate awareness of non-native English listeners in training.

The recommendations in (Clark, 2017) augment and emphasize those made by ICAO in Doc 9835 (ICAO, 2010). Indeed, as pointed out by Estival (2018), "ICAO has long identified as a potential problem for aviation communication the fact that, given the use of English as the international language of aviation, Native English Speakers not only have a perceived advantage over speakers from other linguistic backgrounds but may also have a different approach to aeronautical communication, taking it as licence to use conversational English instead when it is not appropriate." Before going into the details of the ICAO recommendations and guidelines for NES (see also Bieswanger (2013) and Borowska (2017)) the next section provides a few examples of communication problems solely due to non-standard usage by NES.

Anecdotal evidence

The following three examples were observed during General Aviation (GA) operations in Australia.[3] In those instances, NES cause communication problems – and potentially delays or even incidents – by not using standard phraseology.

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[3] The pilots and ATCs in examples (1), (2) and (3) were all NES, except for the instructor on board ABC (the author) in (1). The aircraft call signs have been de-identified and the problematic transmissions are given in bold.

In example (1), observed by the author (the instructor in the right-hand seat) in January 2018, the aircraft ABC was on a Private Pilot Licence training navigation flight from Camden (NSW, Australia) to Canberra (ACT, Australia). The summer heat was causing rough thermals and turbulence and the student pilot found it difficult to maintain the assigned altitude. Canberra is Class C airspace, with procedures which student pilots find daunting and with ATC who can be intimidating. On that day however ATC sounded friendly. She only hinted at the altitude problem by asking whether the pilot had the correct altimeter setting. Nevertheless, that confused the student who was already overloaded trying to aviate and navigate, let alone communicate. ATC could not understand his answers when he used "*Yes*" and "*Affirmative*" instead of the expected "*Affirm*", so the instructor had to take over and make the required transmission.

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(1)   Aircraft ABC, on a navigation training flight to Canberra

ATC: *ABC, squawk 0435. Remain outside controlled airspace. Maintain 5500.*

Student: *Squawk 0435. Outside controlled airspace. Maintain 5500. ABC.*

ATC: *ABC. Identified. Direct to the field. Maintain 5500.*

     Do you have information Charlie? QNH 1013.

[Student to instructor: "*What was that?*"]

[Instructor to student: "*Tell her we do have the QNH. You need to maintain 5500.*"]

Student: *Yes, we have the QNH.*

ATC: *Say again, ABC.*

[Instructor to student: "*AFFIRM, you should say AFFIRM.*"]

Student: *Affirmative.*

ATC: (Pause) *ABC, say again. I didn't quite get that last transmission?*

Instructor: *Affirm, QNH 1013. ABC.*

(Observed, January 2018)

The flight could then proceed to Canberra, where the student was given a refresher about phraseology.[4]

Example (2) was provided by a student during a lecture at the School of Aviation at the University of New South Wales. Now an airline pilot, he had been on an IFR training flight from the Gold Coast (QLD, Australia) to Sydney (NSW, Australia) when he misunderstood the ATC instruction from Brisbane Approach "*Best rate to 80*" as "*Best rate 280*". This is a classic problem: the preposition "*to*" should not be used with numbers because it is confusable with "*two*" (Cushing, 1994). Acceptable phraseology from ATC would have been "*Best rate to Flight level 80*". Although the pilot was not completely certain (hence the pause), he did not question the clearance and Brisbane Approach did not correct his readback. Brisbane Centre then questioned his altitude and amended the clearance to a more practical level.

(2) Aircraft XYZ, on an IFR flight from the Gold Coast to Sydney
Pilot: *XYZ. Passing 1500. Climbing 6000.*
Brisbane Approach: *XYZ. Identified. Cancel speed. Best rate to 80.*
Pilot: (Pause) Flight level 280. Cancel speed. XYZ.
[… changed frequencies, now on Brisbane Centre]
Pilot: *XYZ. Climbing Flight level 280.*
Brisbane Centre: *XYZ. Confirm level.*
Pilot: *280.*
Brisbane Centre: *Climb amended 180.*
(p.c. March 2018, transcribed as given by the pilot of XYZ)

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[4] Although US pilots are often heard to use "*Affirmative*", its confusability with "*Negative*" makes it unsuitable and potentially (as here) unintelligible.

The flight continued uneventfully but the pilot received a "Please explain" phone call from Airservices on the ground.

Example (3) was observed by the author while waiting in the runup bay at Bankstown (NSW, Australia) with a NNES student in the left-hand seat. ATC repeatedly corrected the NES pilot of aircraft ABC, who sounded inexperienced and was not producing the expected readback "*Holding Point Alpha 8, 29R*". However, ATC did so using slang ("*Close but no cigar*") that was not understood by the author's student. When the NES pilot of another aircraft, who sounded more experienced and was apparently known to ATC, used nonstandard expressions ("*She seems to be right now*"), not only was there no rebuke from ATC, but ATC used an even more nonstandard expression ("*OK, so you're happy to roll the dice and have a go?*"). The last transmission from the second pilot, "*We'll roll the dice and have a go*", was actually treated by ATC as a request for taxi clearance and aircraft XYZ proceeded to taxi to the holding point.

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(3) Aircraft ABC and XYZ in the runup bay at Bankstown

[Pilot 1 in aircraft ABC requests taxi clearance from Bankstown Ground]

ATC: *Holding Point Alpha 8, 29R, ABC.*

Pilot 1: **Cleared 29, ABC.**

ATC: **Close but no cigar, ABC.**

Pilot 1: **Cleared 29R**

ATC: **No sir, it's 'Holding Point A8, 29R'. You must repeat all the instructions.**

Pilot 1: **Alpha 8, ABC.**

ATC: **Now this is how problems happen. Once again you must repeat all of the instructions. Holding Point Alpha 8, 29R.**

Pilot 1: *Holding Point Alpha 8, 29R, ABC.*

[A few seconds later, aircraft XYZ is in the runup bay, same ATC]

Pilot 2: *Bankstown Ground, We've solved the problem with the magnetos.*

Cancel previous request.

ATC: *XYZ, there is a car with maintenance on its way. You don't need it anymore?*

Pilot 2: No, she seems to be right now.

ATC: OK, so you're happy to roll the dice and have a go?

Pilot 2: We'll roll the dice and have a go.

(Observed, Dec. 2015)

Although there were no adverse consequences from these non-standard transmissions, not every pilot on the ground could be expected to anticipate the movements of aircraft XYZ in those circumstances.

ICAO recommendations

Doc 9835 (ICAO, 2010) discusses the potential contribution of NES to communication problems due to their knowledge of, and reliance on, general English. It provides specific guidelines for NES and recommends that they take particular care when communicating with NNES. As shown below,[5] ICAO (2010) recommends: (a) that NES production must be intelligible; (b) that NES must be aware of potential difficulties for NNES; and (c) that they acquire strategies to improve cross-cultural communications. In order to achieve (c), Doc 9835 specifically advises against the use of idioms;[6] it stresses that

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[5] The numbers in square brackets refer to the paragraph numbering of Doc 9835. Bold is added for emphasis.

[6] Although the scale for vocabulary to obtain ELP Level 6 requires that "Vocabulary is idiomatic". Thanks to Maria Treadaway (p.c.) for pointing out this clear contradiction between policy and operationalisation.

NES share the responsibility with NNES and gives detailed instructions about rate of speech in (d) and accent in (e).

(a) Production must be intelligible

"… users with high proficiency must ***accommodate their use of language*** so as to remain intelligible and ***supportive to less proficient*** users." [3.3.3]

"…Proficient speakers shall use a dialect or accent which is ***intelligible to the aeronautical community***." [4.5.3]

(b) Awareness of potential difficulties for NNES

"… native speech should not be privileged in a global context." [4.5.10]

"… the burden for improved communications should not be seen as falling solely on non-native speakers." [5.3.2.1]

"… Native speakers of English, in particular, have an **ethical obligation** to ***increase their linguistic awareness*** and to take special care in the delivery of messages." [5.3.1.3]

(c) Strategies to improve cross-cultural communications

"b) native and other expert users of English can acquire ***strategies to improve cross-cultural communications***;

c) native and other expert users of English can ***refrain from the use of idioms, colloquialisms and other jargon*** in radiotelephony communications and ***can modulate their rate of delivery***; and

d) **native speakers are under the same obligation as non-native speakers to ensure that their variety of English is comprehensible to the international aviation community**." [5.3.1.4]

(d) Intonation and rate of speech

"In this context, native speakers aware of the challenges faced by speakers of English as a foreign language (EFL) can take greater care in their speech. Native and highly proficient speakers can, for example, focus on **_keeping their intonation neutral and calm_**, admittedly difficult at busy control areas, but a good strategy to calm the language anxiety of an EFL speaker. They can take particular care to be explicit, rather than indirect, in their communications and train themselves away from the use of jargon, slang and idiomatic expressions. They can ask for readbacks and confirmation that their messages have been understood. They can also attend more carefully to readbacks in cross-cultural communication situations, **_taking greater care to avoid the pitfalls of expectancy_**, where a pilot or controller expecting a given result unconsciously affects the outcome. Additionally, a slower rate of delivery seems to make speech more comprehensible; therefore, taking care to **_moderate speech rate_** is a common-sense approach to improving communications." [5.3.3.2]

(e) Accent

"While accent can sometimes be difficult to control, speakers can control intelligibility by **_moderating the rate of speech_**, **_limiting the number of pieces of information per utterance_**, and **_providing clear breaks between words and phrases_**." [5.3.3.7]

In this respect, we also know that Aviation English is far from being identical to the language variety NES use spontaneously (Estival, Farris, & Molesworth, 2016; Borowska, 2017). Recent research presented at the 2018 ICAEA conference shows that on the prosodic level, i.e. intonation, Aviation English is closer to other languages than to the English used by US radio announcers (Trippe & Baese-Berk, 2019), making it even more imperative for NES to take care about their pronunciation and intonation during radio communications.

Finally, ICAO (2010 [5.3.2.2]) advises NES that "While communication errors will probably never completely go away, disciplined use of ICAO standardized phraseology, compliance with the ICAO language proficiency requirements, alert awareness of the potential pitfalls of language, and an **understanding of the difficulties faced by non-native English speakers** will enable pilots and controllers to more readily recognize communication errors and work around such errors."

The question then arises whether any notice is taken of these recommendation in the training of NES in English-speaking countries. Anecdotally, we can already say that in Australia, where NES are supposed to be tested for comprehension of other English accents, even senior flight instructors are rarely aware of these recommendations and that awareness of the speaker's own linguistics characteristics is not emphasized. In the USA, as confirmed by Certified Flight Instructors (p.c.), there is no training or testing of NES pilots for English Language Proficiency (ELP), in spite of the recent FAA circular which "clarifies the FAA English standard" (Federal Aviation Administration, 2017).

ICAEA 2018 Workshop

As reported in (Estival, 2018), the questionnaire asked workshop participants about their experience regarding communication between NES and NNES. The answers provided further examples of miscommunications caused by NES using nonstandard phraseology as in (4) or slang as in (5).[7]

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[7] The answers to the ICAEA 2018 Workshop questionnaire are summarized in Appendix 1, and available in full at: https://docs.google.com/document/d/1cTWn0Iyj0LJpMdeSzCBRUjOFOuBGyNfbEqrDaqLPCWM.

(4) Non-standard phraseology
"*follow the greens*"
"*twelve ninety five*"

(5) Use of slang
"*kill the rabbit*"

Interestingly, while these instances illustrate that colourful language is usually not helpful in aviation, an example of successful communication between NNES and NES – given in answer to Question 2 (see Appendix 1) – was due to the ability of the NNES to innovate. The NNES ATC was able to invent a phrase ("*the earth going up and down*") to refer to an earthquake when they did not know the English word. On the other hand, success for NES in communication with NNES was attributed to their following standard radiotelephony phraseology and procedures.

Meanwhile, the answers to the question whether NES are taught to deal with NNES (Question 3.a) confirmed that there is no, or only minimal, teaching to the ICAO guidelines for NES. It is worth mentioning that, since the 2018 ICAEA Workshop, no one from Australia, Canada, New Zealand, the UK or the USA reported that NES student pilots are taught to be understandable by NNES. The answers to the questions of how and where NES are taught how to deal with NNES (Question 3.b-d), demonstrate not only the lack of such training, but the perception of the need to provide explicit instruction to NES.

"How *ARE* native English speakers certified under the LPR requirements?"

That was the question sent in an email a few weeks before the ICAEA 2019 Conference by Rachelle Udell, who asked "Do they have to pass the same language tests as

multilingual, foreign-language speakers? Are they given de facto Level 6 proficiency?" and pointed out that the language in Doc. 9835 is "contradictory in that regard." Coincidentally in another email, Tyrone Bishop, a researcher from the UK who is also a private pilot, recounted that: "Last year, I was revalidating my licence and one of the CFIs told me "don't worry about the English thing, that's nothing!" […] He said that it was up to him if I have Level 6 or not and he made a summary judgement on the spot that I didn't need a test."[8]

This is more or less the situation in most English-speaking countries: most NES will receive an ELP Level 6 and, although some are tested as to whether they can understand speakers of other English varieties, they are never required to be intelligible by NNES.

Regulations in English-speaking countries

Australia

The Australian regulator (CASA) requires the General English Language Proficiency (GELP) for solo flight, and an Aeronautical Radio Operator Certificate (AROC) and Level 4 ELP for a Recreational Pilot Licence (RPL) and above.

CASA had produced an excellent set of guidelines (the 'Blue Book') aimed at pilots as to what is expected for ELP Level 6 Proficiency, including making themselves understandable and understanding other accents.[9] CASA recently produced a new version of the Safety Behaviours for Pilots which contains some advice on making oneself intelligible.[10] The Australian ELP Level 6 test (which is only available to approved language assessors) includes short clips of radio communications with both NES and NNES pilots and ATCs. It is up to the assessor how to use these and it seems that some assessors do not even use them.

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[8] Rachell Udell and Tyrone Bishop have both kindly agreed to be cited here.

[9] Unfortunately, the 'Blue Book' is no longer available in print but a revised electronic edition is being prepared.

[10] https://www.casa.gov.au/safety-management/publication/safety-behaviours-human-factors-pilots-2nd-edition

Canada

The Canadian regulator (TCCA) requires a Canadian Radiotelephone Operator Certificate (Aeronautical) for PPL, but there is no mention of training for phraseology.[11] TCAA also requires evidence of English or French proficiency for the delivery of a licence, and stresses that native speakers may not be able to be granted Level 6.[12]

> It is important to remember that not all native speakers will receive a level 6 on the pronunciation score, nor would all non-native speakers who speak with an accent be prohibited from receiving a level 6. That is, native English speakers may receive a score lower than level 6 if their regional dialect is not readily understood by those outside of that particular region. Conversely, speakers whose speech patterns clearly identify them as "non-native" speakers (having an accent) may demonstrate Expert Level 6 proficiency, as long as they are almost always easy to understand by proficient listeners.

> The applicant for a flight crew permit, licence or rating must be sufficiently competent in one of the official languages [English or French] to be able to read the examination questions and to write the answers without assistance.

New Zealand

The NZ regulator (CAA) requires a Flight Radio Telephone Operator (FRTO) rating for PPL, and evidence of English language Proficiency (Level 4) before solo flight. For the English Language Proficiency, the requirements for Level 6 provide that:

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[11] http://www.tc.gc.ca/en/services/aviation/reference-centre/advisory-circulars/ac-401-009.html

[12] https://laws-lois.justice.gc.ca/eng/regulations/SOR-96-433/FullText.html#s-401.01

Formal evaluation is not required for applicants who demonstrate expert language proficiency, e.g. native and very proficient non-native speakers with a dialect or accent intelligible to the international aeronautical community.[13]

The guidelines for Level 6 proficiency accessed in May 2019[14] were more specific about what NES or 'near-native' must demonstrate but did not require them to understand NNES. The new requirements seem to be similar to those of Australia and now contain questions which "may be from people in different parts of the world".

UK

In the UK, the regulator (UKCAA) requires all pilots and ATCs to obtain a Flight Radio Telephony Operator Licence (FRTOL) and an English Language Proficiency (ELP) endorsement. The guidelines for the ELP refer to the EU directive FCL.055 and give specific instructions that the applicants must demonstrate "proficiency both in the use of phraseologies and plain language" and the ability to "use a dialect or accent which is intelligible to the aeronautical community".[15] Assessors are not expected to assess all NES as Level 6:[16]

Examiners should treat speakers who use English as their first-language as 'probable expert users'. However, examiners should be aware that ' first-language English speaker' does not necessarily mean 'Expert Level 6' user.

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[13] https://www.caa.govt.nz/assets/legacy/ICAO/Annex-1.pdf

[14] https://www.caa.govt.nz/assets/legacy/Advisory_Circulars/AC065_1.pdf , accessed May 2019; now replaced by a link to ASPEQ, the ELP testing organisation.

[15] https://eur-lex.europa.eu/legal content/EN/TXT/PDF/?uri=CELEX:32011R1178&from=EN

[16] https://www.caa.co.uk/Commercial-industry/Pilot-licences/Applications/Language-Proficiency/

Speakers who use English as their first-language may lack the vocabulary to discuss certain themes or may speak with a regional accent that is an impediment to intelligibility for those from outside that region. They may fail to use appropriate language or may not interact effectively; consequently should not be assessed as Expert Level 6.

Speakers who use English as their first-language who fail to demonstrate proficiency in all aspects of the Level 6 descriptors in the ICAO Rating Scale should not be assessed as Expert Level 6.

Nevertheless, as shown by T. Bishop's email (see above), proficiency is not stringently tested, nor does it include understanding NNES or being understood by NNES.

USA

No radio operator licence is required to operate inside the US.[17] The US regulator (FAA) only requires demonstration of English proficiency for pilots whose native language is not English (Federal Aviation Administration, 2017).

As recounted by a Certified Flight Instructor (p.c.): "My experience […] was that only NNESs received training in AE. Their courses were voluntary (though recommended) and taught by volunteers who knew nothing about aviation."

Summary

A Radio Telephony licence is required in all countries, except the USA. ELP Level 4 is required for NNES pilots and ATCs in all countries, with some form of testing. ELP Level 6 is granted to NES with some form of testing in all countries, except the USA. The ELP Level 6 testing for NES in the other English-speaking countries can be very informal. The UK, Australia, and more recently New Zealand, make some attempt at testing the ability of

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[17] http://www.faa-aircraft-certification.com/radio-station-license.html

NES to understand NNEs but this is not strictly enforced. As shown in the summary of the requirements for language and radiotelephony proficiency given in *Table 1*, no English-speaking country tests the intelligibility of NES by NNES.

Country	Radiotelephony licence	ELP test for NNES	ELP test for NES	Understanding of NNES	Intelligibility by NNES
USA	NO	YES	NO	NO	NO
Australia	Yes, for RPL	YES	YES	To some extent	NO
Canada	Yes, for PPL	YES (English or French)	YES (English or French)	NO	NO
New Zealand	Yes, for PPL	YES	YES	To some extent	NO
UK	Yes, for PPL	YES	YES	To some extent	NO

Table 1. Radiotelephony and language proficiency requirements in

English-speaking countries

Solutions and way forward

The recommendations from the ICAEA 2018 Workshop confirm and reinforce those made by ICAO (2010) and Clark (2017) among others. The main one is that the recommendations in Doc 9835 should be made mandatory. NES should be taught Standard Phraseology and should be tested regularly for proper use of the phraseology and appropriate plain English. Radio communication training for NES as well as for NNES would benefit from case studies and role-playing and should include language awareness. Although there is consensus about these recommendations from the NNES countries and from participants to

the ICAEA 2018 Workshop, it is clear that not all NES agree and there is still a strong feeling of resistance to the idea of testing NES and of requiring NES to understand and be understandable by NNES.

From the literature cited (e.g. Kim and Elder (2009); Kim (2012); Bieswanger (2013); Clark (2017)), the answers to the ICAEA 2019 Workshop questionnaire, and personal experience, we can summarize the obstacles and issues regarding the training and testing of NES in being rooted in preconceptions about aviation communication and about the pre-eminence of English. This often leads to disregard or ignorance of the phraseology and a certain feeling of superiority of NES over NNES, which can sometimes even manifest as hostility towards foreigners (i.e., NNES). The problem can be very acute in GA, where pilots with the 'wrong attitude' (so-called 'cowboys') or pilots who only fly locally may not be aware of, or do not care about, the wider world. It is more disturbing when this attitude manifests itself in the professional aviation world, as evidenced by the many reported examples of incidents at JFK (Bieswanger, 2013).

Until the recommendations in Doc 9835 are made mandatory and all English-speaking countries require NES to undergo training and regular testing in phraseology, as well as proving they can understand, and be understandable by, NNES, the onus will fall on individual flight training organisations to ensure competency and proficiency from their NES students. In that respect, experience has shown that the best way to ensure good communication is to start very early in the training (i.e. ab initio for pilots) and try to instil a sense of professionalism (what pilots call "learn the lingo"). Instructors can point out examples where a wrong word or misuse of phraseology may cause a safety issue or a delay, as in examples (1) and (3) above. There will still remain the need to educate the old generation of local pilots, including instructors, and ATCs. Finally, language assessors and

training organisations must be made aware that the assessment of someone at ELP Level 6

does not guarantee the correct use of aviation phraseology and radio procedures.

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Appendix 1

Answers to the ICAEA 2018 Workshop Questionnaire (Estival, 2018).
A total of 15 questionnaires were returned, each filled out during the workshop by a group of 3 to 5 participants. The numbers in square brackets refer to the number of responses received for a particular question, or to the number of times a particular answer was given.

Q1. What do you think are the most important requirements for NES regarding communication between NES and NNES in the aviation context? [15]

Strategies for accommodation [8], e.g. simplification [14], speech rate [11], accent [6], paraphrase [3], cross-cultural strategies [3]	44
Awareness of the need to adapt in the international environment	10
Stick to the Standards, Procedures and to Standard Phraseology	7
Attitude: professionalism and patience	4
Training of instructors; Testing; Reviews	4

Q2. Examples of NES interacting with NNES: failures [14]

Lack of training in phraseology for NES, deviations from standard phraseology (e.g. "follow the greens"; "twelve ninety five")	6
Use of slang/jargon/colloquialisms/idioms (e.g. "kill the rabbit")	5
Attitude: lack of sympathy, lack of patience, culture of superiority towards EL2, non-supportive behaviour, arrogance	4
No exposure to different cultures, lack of awareness of cultural issues	2
Non-compliance with standards, non-compliance with rules	2
NES speech too fast	2
Too much information in the same message (more than 3 pieces); sometimes irrelevant information	1
Rote learning/checklists	1

Q2. Examples of NES interacting with NNES: successes [2]

Standard RT + Confirm, Clarify, Check	1
Innovative creation in unusual situation: "the earth going up and down" to express "earthquake"	1

Q3. Teaching NES to the ICAO guidelines [10]
a) Are they taught? [10]

No	9
Yes	0
Sometimes	1

b) Which ones? (e.g. being intelligible, being aware of difficulties for EL2) [2]

Given scripts of previous situation. Being aware of difficulties	1
not taught routinely	1

c) Where are they taught, and by whom? [5]

They should be taught by instructors that are prepared for that and aware of its importance (most likely NNS, experienced pilots or instructors)	1
in cockpit	1
App being developed Beta stage software for self-study (Ohio University) – PlaneEnglish	1
English Language Specialist (Case Study, Test, Role Play)	1
not happening yet	1

d) How are they taught? (e.g. explicitly, by example, by correction, by rule) [2]

Explicitly. Role Play	1
maybe… CAP-413 for British radiotelephony is an example to teach British pilots & ATCOs to stick to standards	1

Q4. How should the ICAO guidelines for NES be taught? [11]

1. Standard Phraseology classes for NES, which should include: teaching accommodation skills by analysing samples of real life R/T communications, with breakdowns, with NES and NNES.	1
2, NES could be exposed to a variety of accents and there could be some tasks in which they had to understand and role play interactions with NNES.	1
3. They should be taught how to be aware, communication strategies.	1
4. Case studies	1
5. Native English speakers could start to learn other languages so they better understand the challenges	1
6. Listen to themselves	1
7. Clean up speech (Hesitations)	1
8. Teach on the ground first (vocabulary), then intersperse with flight training	1
9. Phraseology should be re-tested: Level 4 every 3 years Level 6 every 6 years	1
10. Textbooks based on ICAO for Pilots and ATCs	1
11. For ATC: classroom theory; online qualification	1
12. Phraseology refresher course	1
13. Phraseology testing as part of ground school	1
14. Workshop to raise awareness on limiting NES use of idiomatic and figurative in plain language interaction.	1
15. Simulator: Competency checks should involve a language element	1

16. CRM/TRM should include language as an element of training	1
17. For written manuals: expose authors to learning situation of readers/ mechanics	1
18. When doing line checks pilots should be evaluated. ICAO requirements should be added to line check	1
19. Built into training - initial and recurrent	1
20. Video, on line learning	1
21. Role-playing and open-ended scenarios	1
22. NES should be held accountable	1
23. Regulation	1
24. Initial training + recurrent training	1
25. Part of checklist on which you are assessed.	1
26. Case studies of risky situations	1
27. Role-play: on a sim position Switch pilot-controller Pilot-controller synergy training	1
28. Impossible to enforce unless it is regulated → All aviation authorities must impose RT training (refresher) and testing	1
29. It should be a requirement	1
30. Something like a short course like Dangerous Goods or Aviation Safety. Once per 2 years.	1

Q5. Should there be other requirements for NES? [5]

1. NES shouldn't be automatically rated level 6 but they should undergo testing in Aviation English and Standard Phraseology, in which they would have to prove their ability to apply accommodation skills. If there are reports for communication problems, they should be re-tested.	1
2. It should be included in the testing policy (NES should be tested).	1
3. Training could also be a requirement (mandatory training)	1
4. Should be tested (S.P. for NES)	1
5. Incorporated as other task?	1
6. Level 6 never gets retesting. Recommend recurrent testing for level 6.	1
7. If the ones in 9835 now were adhered to, probably no need for more!	1

8. And these requirements should appear in the documents that pilots/controller read:
   - Manual of RTF (Doc 9432, 2007) (ICAO, 2007)
   - FAA Pilot/Controller Glossary AIM (FAA, 2018)
   - Doc 4444 (ICAO, 2016b)
   - Annex 10, vol II (ICAO, 2016a)
	1