

## **SPECIFIC PURPOSE LANGUAGE TEACHING AND AVIATION LANGUAGE COMPETENCIES**

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Given the vast range of items and abilities that can be accounted for in general language proficiency, given also the safety critical nature of plain language requirements in aviation radiotelephony communications and, finally, given the high costs involved in training and testing large numbers of aviation professionals, there is a strong need to identify and target only specific competencies to meet plain language requirements.

Amendments to ICAO Annexes 1 and 10 concerning language proficiency requirements for civil aviation flight crew and air traffic controllers, adopted by the ICAO Council in March 2003, simultaneously establish a requirement for job-specific language training and provide indications on how to ensure such specificity. These indications have recently been expanded and explained by the publication in 2004 of a Manual on the Implementation of ICAO Language Proficiency Requirements.

The French DGAC (Direction Générale de l'Aviation Civile), through its ab initio training school ENAC (Ecole Nationale de l'Aviation Civile) in Toulouse and through its recurrent training programme, has, since 1990, been providing English language training courses and assessment procedures based on explicit language proficiency requirements as specified at level 4 on a national level chart for the state's 4000 air traffic controllers. More recently, these training and testing procedures have been brought in line with the requirements to pass the EUROCONTROL PELA (Proficiency in English Language for Air Traffic Controllers) Test, and to comply with both Eurocontrol ESARR5 and ICAO language proficiency requirements. Similar modifications are being implemented in the field of pilot training and testing.

Language training objectives comply closely with ICAO specifications for standard phraseology (PANS-ATM document 4444 and Annex 10 volume II, Communication Procedures) and plain language (Annex 1, Personnel Licensing), described in terms of overall (holistic) linguistic abilities as well as specific abilities in the sub-skill areas of pronunciation, structure, vocabulary, fluency, comprehension and interaction. Particular emphasis is laid on features that are specific to radiotelephony communications - the constraints and imperfections of the voice-only channel, the immediacy and appropriateness of responses, dealing with unexpected turns of events, and the communicative strategies associated with resolving misunderstandings and getting around one's own, and others', linguistic limitations.

Training content, in turn relates to the objectives and is derived from detailed syllabus checklists which are now published in Appendix B of the Manual on the Implementation of ICAO Language Proficiency Requirements. These checklists help to define what language content - words and phrases, structures and phonological features - and which language skills need to be acquired.

The ICAO rating scale states that the job specific lexical content (words and phrases) of the syllabus is defined by identifying the « *common, concrete and work-related topics* » to which radiotelephony communications may refer to. In addition to the immediately identifiable topic domains and sub-domains that are aviation-specific (easily taken from published glossaries and dictionaries), it has been necessary to add a list of commonly occurring non-aviation topics. These topics correspond to intrusions of the non-aviation phenomena into the smooth routine of a nominal flight or traffic situation, such as problems of health or human behaviour, geographical features, malfunctioning equipment etc. Knowledge of these topics is passed on to learners to inform their vocabulary learning strategies. It also provides the basis for selecting relevant language learning input based in the form of texts for reading and authentic (off-air) listening materials.

With regard to structural content, the ICAO rating scale further states that “*relevant grammatical structures and sentence patterns are determined by language functions appropriate to the task.*”

The language function of an utterance corresponds to the speaker's intention in producing a given message. For example his/her intention may be to *request information*, to *thank*, to *deny approval* and so on. Since intentions are inherently linked to the activities that are being undertaken by the speakers, it is evident that those tasks which are peculiar to the jobs of pilot and controller will give rise to a limited and predictable range of communicative functions occurring with a high degree of frequency.

An utterance's function is interpreted by referring to its exponents, that is to say the cues contained in the form of the message – essentially the grammatical structures (*verb tense, affirmative or negative form*, etc.) and the prosodic patterns used by the speaker, associated with the immediate context of the utterance and the shared knowledge of the participants. A list of functions (or speech acts) can therefore provide access to the grammatical components of a professionally oriented language syllabus for pilots and controllers.

It is true to say that there is no one-to-one relationship between these exponents and the functions they express. On the one hand, a single function can be expressed by a several different grammatical forms, for example, for giving an order:

*Close the window.*

*I want you to close the window.*

*Will you close the window?*

On the other hand, the same grammatical form can be employed to express a variety of functions, for example:

*Can you speak Japanese?* (asking for information)

*Can you lend me a couple of euros?* (requesting assistance)

*Can you believe that!* (expressing surprise)

Nonetheless, in selecting and presenting grammatical structures by way of the communicative functions which dominate in a given human activity, it is possible to focus on the most pertinent structures for a given target use of language, thus saving the learners' time and enabling language trainers to suit their pedagogical activities to the real needs of the learners.

The dominant functions in pilot-controller dialogue (and their associated grammatical structures) can be grouped into four groups corresponding to their role in carrying out ATC and piloting tasks. These groups are:

- 1) triggering actions :(orders, requests and offers to act, advice, permission/approval, undertakings);
- 2) sharing information: (present states/actions/events; future states/actions/events; immediate or recent past states/actions/events; past states/actions/events; necessity; feasibility/capacity);
- 3) managing the pilot-controller relationship: (greetings, thanks, satisfaction/complaint, reprimand, concern/reassurance, apologies);
- 4) managing the dialogue: (opening/closing, (self-) correction, readback, acknowledgement, checking, repetition, (dis-) confirmation, clarification, relaying).

The "triggering actions" group is the core function of pilot-controller communications. Supporting this core is the "sharing information" group in the sense that appropriate actions can only be triggered when the pilot and controller are in possession of sufficient shared information about the current situation. Both of these groups come under the overall heading of “air traffic or flight management.” The two last categories come under the heading of “communications management”. Whilst they play a subordinate or mediating role with regard to the essential task of managing aircraft movements, applied linguistic research carried out at ENAC has demonstrated that they account for over 75% of all actual speech acts in aviation radiotelephony! (MELL, 1992)

Many of the language functions in these 4 groups can be expressed by phrases in standard phraseology. Others however can only be expressed by resorting to proficiency in plain language. For example within the functional category of “orders”, belonging to the “triggering actions” group, the giving of a simple order such as “TURN LEFT” is part of the repertoire of standard phraseology procedures. A more complex order however, such as that which might be given to an inexperienced pilot in difficulty with a view to reassuring him/her, would call on plain language proficiency (for example: NOW, I WANT YOU TO TURN LEFT ABEAM THE SHOPPING MALL AT YOUR 1 O’CLOCK. DO YOU HAVE IT IN SIGHT?).

This example illustrates the way in which contextual factors may result in certain functions expressed in plain language being more or less "marked" for different attitudes such as *politeness, directness, subjectivity, probability, certainty, formality, insistence, assertiveness, reassurance* and so on. These markers, which may be lexical ("please") or grammatical ("Could you possibly give me...?"), need to be learned and practised as well as the language structures for the basic functions.

Due to the different roles of the pilot and controller within the overall context of their activity, some functions are typically uttered exclusively by the one or the other. In the training context this distinction will determine whether given functions need to be learned for the purpose of comprehension, for production or for both comprehension and production, thereby operating significant economies of effort and resources. Meanwhile, the individual functions in each broad category can be labelled without making reference to specific ATC/piloting topics such as *clearances to take off, flight plan changes or radar identification*. All of these functions and their associated language forms can be usefully learned and practised by referring to general topics in the context of everyday communication, thus providing training programmes with a combination of professional relevance and topical diversity which can help to sustain learner motivation.

The phonological content of the syllabus receives strong focus, since the requirement is for all speech to be “intelligible to the aeronautical community”. The specificity of the phonological syllabus is related, not so much to aviation as such, as to the international context in which aeronautical radiotelephony communications are carried out, coupled with the untypical conditions of communication associated with a voice-only channel and reduced acoustic quality.

Current knowledge of what exactly constitutes intelligibility of English in an international context is sparse. Most recently, Jenkins (2000) has pointed the way in 2 directions. Firstly she has begun research into identifying a «Lingua Franca Core» comprising phonological features that must be maintained in English speech to ensure intelligibility. These include features of both British (RP) and American (GA) English, most notably vowel length distinctions, correct placing of nuclear stress, marking of tone boundaries and avoidance of some consonant cluster simplifications. Training for non-native speakers (NNS) should focus on these features at the expense of others, even if the latter are noticeable phonological features of one of the native- (NS) accents, for example the ‘th’ sound, weak vowel forms or pitch movements. This strategy makes all the more sense in training environments where speaker-models are diversified, e.g.. where teachers come from different regions.

In addition to renouncing a pure NS target, Jenkins also advocates fostering the principle of «accommodation» in the speech of all participants, whether native- or non-native, whereby speakers spontaneously replace «high-risk» features in their own production so as to increase communicative efficiency. This tendency towards productive and receptive “convergence” is a natural product of settings in which intelligibility is the most salient aspect of interaction. It is developed in training by providing listening exposure a range of NNS accents and interactions, speaking practice through peer-group (especially pair-work) activities involving information transfer, and discussion of accent differences, accent fossilisation, etc. In the context of peer-group activities, it is important, when possible, to favour interactions between speakers with different first-language backgrounds.

Language skills that require attention in the syllabus influence the choice and design of appropriate learning materials and tasks. Language skills fall into 4 categories:

Reception (listening) skills include low acoustic quality of input, regional accents, unexpectedness, and « hear-back », sensitivity to register;  
Production (speaking) skills include reconciling concision with non-ambiguity, alternate use of phraseology and plain language, and alternate use of English and another language, sensitivity to register;  
Cognition skills include short-term memorisation, rapid response and multi-tasking;  
Relational skills include co-operation (pooling information, collaborative problem solving) and conflict (negotiation, authority)

Finally, phonology and skills are also the subject of an indirect approach. A recent innovation of the ab initio curriculum for ATC training ENAC has been to introduce a course in human factors training as part of compliance with specifications the European *Guidelines for Common Core Content and Training Objectives for air Traffic Controllers Training* (Eurocontrol, 2001). The development phase for this course has involved interdisciplinary contributions by psychologists, ergonomists, ATC instructors, medical experts and... language specialists. The inclusion of the latter in a human factors project has not been common practice in the past, but is clearly indicated by the key role that language and language proficiency play in the overall paradigm of air-ground communications.

As a consequence, the ATC human factors course to be implemented as of 2004 contains the following topics to be taught by language specialists:

- the role of language in radiotelephony communications
- communication problems: prevention, detection, resolution
- interaction strategies
- cultural effects on verbal communication (politeness, authority, information-sharing...)

The objectives with regard to these topics are familiarisation with the related concepts and terminology, associated with increased awareness of their impact on safety. For example, the ability for all language users to attribute functional labels to spoken messages (see sections above on language functions) is of more than academic importance. As part of a process of raising language awareness, the development of this skill is of particular value in facilitating the processes of preventing and/or resolving misunderstandings and the reporting of prior communications. The expectation is that, by tackling language issues in the wider context of human factors, trainees will develop a more professional, safety-oriented approach to their tasks, as non-native speakers, of English language development and maintenance, and to their daily work-related uses of language. As long as levels of English language proficiency remain unequal worldwide, it will be necessary to cultivate linguistic protection based on constant awareness of the constraints of radiotelephony and consideration of the possible limitations of another speaker's proficiency.

## References

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