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THE PROCEEDINGS OF THE GEIA SEMINAR

11th GEIA Seminar, 2024

ACRONYMS AND ABREVIATIONS:

AE: Aeronautical English

AFA: Brazilian Air Force Academy

ATCO: Air Traffic Controller

DECEA: Brazilian Department of Airspace Control

EEAR: School of Aeronautics Specialists

EPLIS: Exame de Proficiência em Inglês Aeronáutico do SISCEAB

ESP: English for Specific Purposes

GEIA: Grupo de Estudos em Inglês Aeronáutico / Aeronautical English Research Group

ICAO: International Civil Aviation Organization

ICEA: Airspace Control Institute

LHUFT: Language as a Human Factor

LPRs: Language Proficiency Requirements

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THE PROCEEDINGS OF THE 11TH GEIA SEMINAR

Patrícia Tosqui Lucks (ed.)
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Preface

The outstanding quality of the speakers and the state-of-the-art presentations made the 11th Online GEIA Seminar a remarkable event for learning and sharing knowledge, experiences, and research findings.

The program covered a wide range of topics, including Aeronautical English (AE) as a lingua franca, AE course and material development, the use of artificial intelligence for teaching and testing purposes, and Aviation English documentation. The event featured two keynote lectures and seventeen oral presentations on Aeronautical English testing, language as a human factor, AE teaching, and documentation issues in aviation - highlighting the importance of the research conducted by GEIA members and participants. More information is available on the event website: geia.icea.decea.mil.br/seminar/11th.

A total of 204 participants from Brazil and 248 participants from abroad attended the Seminar. Speakers from 17 different countries - including Brazil, the United States, Australia, the Philippines, Hong Kong, the United Kingdom, China, Thailand, Venezuela, Peru, Israel, Argentina, and Spain - underscored the truly international reach and impact of this landmark event. Gathering distinguished speakers and participants, the Seminar fostered dialogue on innovation, training, testing, and documentation in Aviation English.

As a follow-up to the event, selected lectures and talks have been compiled in these proceedings. They include two summaries, four case studies, and two full papers covering a variety of themes and findings. In addition, three interviews provide an overview of Aeronautical English testing in South America. We deeply appreciate the authors' contributions, which have greatly enriched this publication. Our sincere thanks also go to the reviewers - Aline Pacheco, Amber Wang, Eric Friginal, Jean Soto, Meng Ye, and Michele Von Merveldt - for their careful and valuable work.

Finally, we would like to express our gratitude to Embry-Riddle Aeronautical University for hosting this online publication and for helping disseminate GEIA's contributions worldwide.

Enjoy your reading!

SUMMARIES

A Review of "Language as a Factor in Aviation Accidents and Serious Incidents: A Handbook for Accident Investigators, Edition 3": Exploring the Fundamentals of How to put LHUFT into Practice

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This summary is based on a presentation I delivered in the 11th GEIA Seminar, held online in 2024, titled as above, addressing Language as a Human Factor in Aviation (LHUFT) and possibilities for usage and implementation of this perspective as provided in the aforementioned resource. The third edition of the *Handbook for Accident Investigators: Language as a Human Factor in Aviation Accidents and Serious Incidents* (Mathews et al, 2023) represents a significant advancement in integrating linguistic considerations into aviation safety practices. Authored by a team of experts headed by Elizabeth Mathews including John Carson, Anthony Brighouse, and Enrique Valdez, the handbook offers a structured framework for identifying, analyzing, and reporting language-related factors in aviation accidents and serious incidents. Its objective is to guide investigators in recognizing the specific impact of language within the broader category of communication factors and to support a more nuanced understanding of how language functions within multilingual and operationally complex aviation environments.

The handbook is organized into three core parts and five appendices, with an emphasis on systematic methodologies for detecting language as a potential cause or contributing factor in incidents. Central to its approach is the argument that, although communication is widely acknowledged as a critical human factor in aviation safety, the distinct role of language within this domain has often been misunderstood or insufficiently explored. Traditional investigation

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models tend to conflate language problems with general communication issues, thereby overlooking the particularities and mechanisms through which language proficiency, usage, and comprehension impact safety.

A historical perspective is offered, tracing the evolution of language awareness in aviation safety, with specific reference to incidents such as the Tenerife disaster and the Avianca crash in Cali. These events exemplify how miscommunications, particularly in multilingual contexts, can have fatal consequences. The analysis underlines that despite the introduction of ICAO language proficiency requirements—which mandate oral language competence for pilots and air traffic controllers—many relevant linguistic contexts remain unregulated, such as intra-crew communication, reading and writing operational documents, and training-related interactions.

In order to offer assist researchers and investigators, the handbook proposes a taxonomy of communication factors aimed at supporting investigative clarity. Communication issues are classified into four categories: procedural, technical, cultural, and linguistic. Procedural factors include elements such as incorrect call signs and failures to relay information; technical factors cover equipment-related failures; cultural factors encompass aspects of national, organizational, and professional cultures; and language factors are divided into four key skill areas: speaking, listening, reading, and writing. This categorization provides a means for investigators to differentiate language-specific failures from other types of communication breakdowns.

Each of the four linguistic skills is discussed in detail. Speaking ability is assessed through features such as pronunciation, fluency, and the effectiveness of verbal expression, taking into account the mutual responsibilities of native and non-native speakers. Listening comprehension is examined based on the ability to interpret and respond appropriately to instructions, with attention to readback accuracy and potential issues arising from speech rate or

message complexity. Reading and writing are also treated as crucial competencies, especially given their centrality in training and technical documentation. Problems in these areas can stem from structural complexity, poor technical vocabulary, or unfamiliarity with standard formats.

Appendix 8 of the handbook is particularly notable for its practical utility. It presents a detailed checklist to aid investigators in collecting language-related data, such as the first language of personnel involved, their English proficiency levels, and the languages used in both oral and written communication contexts. This checklist contributes to a standardized and replicable approach to documenting language as a human factor, which can then inform both safety recommendations and preventative strategies.

Further elaboration is provided on the investigative process, detailing a sequence of five steps to integrate language analysis into accident and incident investigation. The process begins with developing foundational knowledge to distinguish between general communication problems and specific language issues. This is followed by a review of language use in operational and training contexts, many of which, as noted, fall outside the scope of existing regulatory frameworks. Investigators are then advised to systematically collect language-related information, identify whether language was a contributory or causal factor, and finally include these findings in a distinct section of a final accident report.

The handbook also emphasizes the need for collaboration with linguistic experts in complex cases where subtle language issues may go unnoticed by non-specialists. Expertise in applied linguistics and aviation communication is deemed essential to accurately identify and interpret language-related deficiencies that may contribute to safety lapses. Such integration of specialized knowledge supports more meaningful findings and ensures that resulting recommendations are actionable and grounded in a thorough understanding of language dynamics.

Beyond its function as an investigative tool, the handbook is presented as a foundational resource for education and training in aviation English. Its structured approach to analyzing linguistic factors lends itself to use in academic programs that prepare aviation professionals (Pacheco, 2025). By incorporating its frameworks into curricula, training institutions can promote linguistic awareness and communication competence, equipping personnel with skills that are critical to both operational effectiveness and safety. The taxonomy and checklists can also be adapted for pedagogical use, supporting exercises that simulate investigative analysis or reinforce the importance of clear communication in high-risk environments.

Additionally, the utility of the handbook extends into adjacent high-stakes industries, such as oil and gas (Pacheco, 2023), where complex operations are similarly dependent on multilingual communication. The taxonomy has proven applicable in research projects examining accidents in such settings, further underscoring its cross-disciplinary relevance. Insights drawn from the study of language in aviation are thus shown to have broader applicability in the study of human factors in technical and hazardous industries.

In conclusion, the *Handbook for Accident Investigators* offers a vital contribution to both the theory and practice of aviation safety. By establishing a framework that recognizes language as a distinct and analyzable component of human factors, it fills a longstanding gap in safety protocols and investigative methodologies. Its detailed taxonomy, checklists, and procedural guidelines enable more accurate identification of linguistic factors and foster a more comprehensive understanding of how communication functions in operational contexts. When adopted into investigative procedures, educational programs, and safety audits, the handbook has the potential to significantly enhance safety outcomes across the aviation sector and beyond.

References

Mathews, E., J. Carson, S. Singleton, E. Valdes, and E. David (2023), *Investigating Language as a Human Factor in Aviation*: A Handbook for Accident Investigators, 3rd edition. Embry-Riddle Scholarly Commons. Available at: https://commons.erau.edu/db-lhuft-book/3/

Pacheco, A. (2023). Communication in the Oil and Gas Industry: contributions from Applied Linguistics and Aviation English. *Letras De Hoje*, *58*(1), e44471. https://doi.org/10.15448/1984-7726.2023.1.44471

Pacheco, A. (2025). Teaching practices and challenges for language as a human factor in aviation. In E. Friginal, J. Roberts, & M. Prado (Eds.), *Teaching and Assessment in Global Aviation English.* London: Bloomsbury. 97-115.

A Practical Analysis of the Evolution of Aeronautical English Assessment over the Last 20 Years

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Abstract
This paper presents a reflective and structured overview of the evolution of aeronautical English assessment over the past two decades, grounded in real-world experience with the Test of English for Aviation (TOEFA). It traces key developments starting with the first International Aviation Language Symposium (IALS) in 2004, the issuance of ICAO documents such as 9835 and 10197, and the systemic challenges that persist in harmonizing training, testing, and regulatory practices. It discusses the operational risks linked to proficiency loss between certification cycles and highlights the ethical responsibility of raters and native speakers. Special attention is given to the emerging role of artificial intelligence (AI) in language proficiency assessment, exploring its potential to provide consistent scoring, real-time monitoring, and adaptive feedback. The paper proposes a hybrid assessment model that combines AI-driven tools with human raters to enhance reliability, mitigate bias, and maintain operational safety. Recommendations are offered to ensure the validity and robustness of testing systems within ICAO member states.

Keywords: aeronautical English, ICAO language proficiency requirements (LPR), artificial intelligence, testing best practices, TOEFA.

Introduction

The International Civil Aviation Organization (ICAO) introduced the language proficiency requirements (LPRs) to mitigate communication failures that had contributed to serious aviation incidents. The implementation of these requirements over the last two decades has significantly shaped the way language assessments are conducted globally. This paper presents a reflective account of this evolution through the lens of the Test of English for Aviation (TOEFA), originally presented in 2004 during the first International Aviation Language Symposium (IALS) in Montreal. It also addresses emerging technological innovations, particularly the integration of artificial intelligence (AI), in assessment practices. The aim is to

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identify strengths and challenges in the current system and provide recommendations for sustainable improvements aligned with ICAO's operational safety objectives.

Background and Regulatory Milestones

The ICAO LPRs trace their origins to the formation of the PRICE (Proficiency Requirements in Common English) Study Group in 2000. Following this initiative, amendments to ICAO Annexes 1, 6, 10, and 11 were adopted by the ICAO Council in March 2003, giving Member States until March 5, 2008, to comply. Significant guidance was provided through ICAO Document 9835 (2004, updated in 2010), and supplemental resources such as Circulars 318 and 323. These efforts were aimed at standardizing language testing and improving operational safety by enhancing communication skills among pilots and air traffic controllers.

Challenges in ICAO Language Proficiency Implementation

Despite regulatory advancements, the global implementation of LPRs has faced numerous challenges. Among them is the fragmentation of training, testing, and regulatory oversight. In many States, these elements function in silos, undermining system-wide coherence. Another concern is the loss of proficiency between certification intervals, typically every three years. Many certified personnel cease active language training after reaching ICAO Level 4, leading to potential declines in operational communication competence. Additionally, persistent biases in assessment—such as equating native-like pronunciation with Level 6—conflict with ICAO's holistic rating scale. This misinterpretation can result in unfair evaluations and the exclusion of proficient non-native English speakers.

The Potential of Artificial Intelligence in Assessment

The advent of AI tools, particularly since the release of generative language models like ChatGPT-4.0, offers transformative potential for aviation English assessment. AI systems can perform consistent, bias-free scoring, provide real-time feedback, and facilitate adaptive

learning. In contrast to human raters, AI systems are capable of processing large datasets, identifying subtle speech patterns, and maintaining uniform standards. AI could also be used to analyze real-time radiotelephony communications, thereby addressing the issue of skill attrition between certification cycles. This continuous, unobtrusive monitoring would help ensure that proficiency levels remain stable and compliant with operational safety standards.

Human-AI Collaboration in Testing

A hybrid assessment model, combining AI and human raters, is a promising approach. AI excels in objective tasks such as grammar checks, pronunciation pattern detection, and consistency in scoring. Meanwhile, human raters contribute essential judgment in interpreting context, cultural nuances, and stress communication during emergency scenarios. Such collaborative systems can enhance inter-rater and intra-rater reliability, as recommended in ICAO Document 9835. The deployment of these models must, however, include a robust validation process, ensuring both technological soundness and alignment with ICAO's criteria for operational relevance and authenticity.

Recommendations for Testing Systems

Based on two decades of deployment of TOEFA and contributions to ICAO testing initiatives, several best practices are proposed:

- Adopt hybrid models incorporating AI and experienced raters (one operational, one linguistic).
- Conduct regular re-assessment, especially for Level 4 certificate holders, ideally every 1–2 years.
- Ensure test content includes real-world radiotelephony scenarios and distinguishes among all six ICAO proficiency levels.
- Validate every new test instrument using data on actual communication performance.

- Avoid over-reliance on standardized phraseology; tests should assess broader communicative competence.
- Monitor for and eliminate cultural or linguistic bias in assessment scoring.

Conclusion

Aviation English assessment has matured significantly since the early 2000s, driven by safety imperatives and guided by ICAO policy. Nonetheless, key challenges remain, such as uneven implementation, proficiency decay, and testing bias. The strategic integration of AI presents an opportunity to enhance the reliability, efficiency, and fairness of assessments. Moving forward, ICAO Member States should adopt systemic approaches to language testing that are supported by validated technologies and aligned with global safety goals.

References

Aranda, W. (2011). *Identification of English language proficiency of air traffic controllers in the Latin American region* [Master's thesis, University of Piura]. Universidad de Piura.

Aranda Arrese, W. (2004). *Test of English for Aviation (TOEFA)*. http://www.toefa.com

International Civil Aviation Organization. (2004). *Manual on the implementation of ICAO language proficiency requirements* (Doc 9835 AN/453). Montreal, Canada.

International Civil Aviation Organization. (2006). *Manual of radiotelephony* (Doc 9432 AN/925). Montreal, Canada.

International Civil Aviation Organization. (2007). *Air traffic management: Chapter 12: Phraseologies* (Doc 4444 ATM/501). Montreal, Canada.

International Civil Aviation Organization. (2008). *Language testing criteria for global harmonization* (Circular 318-AN/180). Montreal, Canada.

International Civil Aviation Organization. (2009). *Guidelines for aviation English training programmes* (Circular 323). Montreal, Canada.

International Civil Aviation Organization. (2011). *Manual on the implementation of ICAO language proficiency requirements* (2nd ed., Doc 9835 AN/453). Montreal, Canada.

International Civil Aviation Organization. (2024). *Test design guidelines: Handbook on the design of tests for the ICAO language proficiency requirements* (Doc 10197). Montreal, Canada.

Ziakkas, D., Plioutsias, A., Pechlivanis, K., & Aranda, W. (2024). *Planificación de la fuerza laboral de la aviación: La era basada en las competencias y la inteligencia artificial* (Edición Kindle). Independently published. https://www.amazon.com/-/es/Dimitrios-Ziakkas-ebook/dp/B0DNTZXJQW/

Ziakkas, D., Plioutsias, A., & Pechlivanis, K. (2024). *Aviation workforce planning: The artificial intelligence and competency-based era*. Independently published. https://www.amazon.com/dp/B0D3YN1RN7

CASE STUDIES

Analysis of conceptual viewpoint markers in aviation radiotelephony – A case study of non-routine communication from a Brazilian YouTube channel

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Abstract
In Cognitive Linguistics, the notion of conceptual viewpoint refers to the way speakers construe objects or events from their unique perspectives, shaping the listener's cognitive interpretation. This theoretical framework, developed by scholars such as Ronald Langacker (1987, 1991) and Leonard Talmy (2000) encompasses several dimensions: the vantage point from which an observer mentally "views" a scene, the subjective or objective stance taken, figure/ground configuration, and deixis. Moreover, viewpoint is recognized as a fundamental aspect of human communication and is intrinsically linked to our linguistic choices. As Dancygier (2012) emphasizes, even basic acts of spoken communication involve navigating a network of viewpoint dimensions, where grammatical structure affects the mental alignment of events. In this work, we explore how viewpoint operates in two excerpts of a YouTube video depicting radiotelephony communication and how this phenomenon contributes to meaning construal in this specific context. By examining a radiotelephony exchange in a non-routine situation, we investigate how the participants' roles, intentions, and subjective viewpoints impact message interpretation and effectiveness. This analysis may deepen our understanding of cognitive mechanisms in discourse and provide valuable insights into improving communication strategies in aviation where precise and effective interaction is critical.

Keywords: Cognitive linguistics, construal, conceptual viewpoint, radiotelephony communication.

Introduction

Humans experience the world from their unique and social perspectives. Consequently, human communication reflects these subjective viewpoints (Dancygier & Sweetser, 2014). In cognitive linguistics, viewpoint, or perspectivization, is a cognitive process of describing an object from the point of view of the speaker. This phenomenon is considered by several cognitive scholars as essential in shaping communication and the way we interpret information.

As Dancygier (2012) emphasizes, even basic communicative exchanges involve navigating multiple dimensions of viewpoint constructed by grammatical and pragmatic choices.

[3] Edelvais Caldeira holds a degree in Languages, a Master's degree and a PhD in Linguistics from the Federal University of Minas Gerais (UFMG). She is currently a postdoctoral at UFMG, whose project was also developed at Münster Universität, in Germany, in the first semester of 2025. Her areas of research include cognitive linguistics, pragmatics, and aviation English. She has been a Professor at the Brazilian Air Force since 2009.

In that sense, Sweetser (2012) proposes a framework to account for the range of linguistic forms that she considers markers of viewpoint. Linguistic viewpoint, as she termed it, encompasses "different ways that content is linguistically presented and construed differently, depending on (at least) the following range of factors noted by linguists" (Sweetser, 2012, p. 4).

From that perspective, this case study investigated how viewpoint can emerge and be negotiated in a non-routine radiotelephony communication, a context in which clarity and precision are crucial. In contexts such as emergencies, communicative breakdowns, or unexpected events, the use of plain aviation English becomes more salient (Ishihara and Lee, 2021), as it allows for further negotiation of meaning and, consequently, the possibility of misunderstandings.

In light of this, we analyzed two excerpts from a YouTube video that presented a real interaction between pilots and an air traffic controller, which focused on linguistic markers, including deixis, verbal aspect, and evaluative lexical choices, as elements of viewpoint creation. Our aim was to demonstrate how these linguistic features possibly reflect each speaker's viewpoint and how these viewpoints may influence the dynamics of the interaction.

Regarding the increasing importance given to how misunderstandings in aeronautical communication can pose serious risks to aviation safety, we believe that this case study can shed some light onto how cognitive mechanisms, such as conceptual viewpoint, can influence meaning construction in the context of aviation communication.

Conceptual Viewpoint

In his book Women, Fire, and Dangerous Things, George Lakoff (1987) claims that "different people, looking upon a situation, will notice different things." What he suggests is that the way a scene is perceived by someone may depend on this individual's knowledge and

experiences in the world. Although Lakoff was not talking specifically about viewpoint or perspective, this can also apply to the understanding of this concept.

Within Cognitive Linguistics, the notion of conceptual viewpoint (or perspective) was first addressed by Ronald Langacker (1987, 1991) and Leonard Talmy (2000). Both scholars offered complementary views on viewpoint in language: Langacker defines viewpoint in terms of orientation – refers to the position from which something is depicted – and vantage point – describes how objects or events are perceived from a position (Van Krieken, 2014, p. 18); Talmy (2000), on the other hand, discusses viewpoint within his theory of schematic systems, describing it as cognitive structure that determines the conceptual perspective from which an entity is mentally evaluated (Talmy, 2000, p. 68). In addition, Talmy discusses how viewpoint emerges depending on the linguistic choices made to describe events. Consider the following examples:

a. The lunchroom door slowly opened and two men walked in.

b. Two men slowly opened the lunchroom door and walked in.

The two different viewpoints built in the sentences (a) and (b) emerge from the perspective from which the scenes are construed. In sentence (a), the lack of a specified agent indicates that the scene is construed from the interior of the room. As for sentence (b), there is the specification of the agent (by the expression "two men"), who is responsible for opening the door and moving from the outside to the inside of the room. In the case of sentence (b), the viewpoint is changed and positioned outside the room. This distinction in viewpoint, as a consequence of the change in grammatical structure, is explained by Talmy (2000) in terms of whether the initiator of an event is visible or not. Thus, as Evans (2006) points out, the first elements in a sentence, usually the subject, correspond to what the speakers perceptually or cognitively prioritize. Such ordering may provide important cues for the hearer (or reader) to reconstruct the intended viewpoint.

The pervasiveness of viewpoint in language is also pointed out by Dancygier and Sweetser (2014) who emphasize the fact that stances such as time, location and deictic elements within a sentence lead to specific viewpointed meanings. According to Dancygier (2012, p. 61), "even in a basic act of spoken communication one constantly operates in a network of viewpoint dimensions". She also claims that viewpoint is a mental alignment that can be expressed by the participants during an interaction through means of linguistic choices (DANCYGIER, 2012).

Drawing on this framework, we propose to ground our data analysis on a list of viewpoint markers proposed by Sweetser (2012). In the next section this list is detailed.

Methodology

YouTube has become an important tool for academic research, as scholars have recognized its value in studying both media practices and social interaction (Bou-Franch, Lorenzo-Dus & Blitvich, 2012). Although our focus is on the video interaction itself and not the public participation triggered by the posted video, YouTube remains a relevant source of date, due to its public accessibility, the persistence of its records, and the fact that it provides authentic instances of interaction (Bou-Franch & Blitvich, 2014).

The channel SBGR Live[4] was chosen for its focus on non-routine radiotelephony events and for being one of the pioneers of the live streaming format in Brazil. In addition, it has a high posting frequency, which results in a large and diverse corpus. Moreover, SBGR Live features interactions that involve communicative breakdowns and unexpected situations in radiotelephony, a relevant setting to verify how viewpoint is constructed in such contexts.

As for the chosen video[5], posted on December 20th, 2021, it was selected because its title, *Piloto da Gol fica pistola com piloto da Angola Airlines* (Gol pilot gets mad at Angola Airlines

[4] https://www.youtube.com/@SBGRLIVE
[5] https://www.youtube.com/watch?v=hoLX6tEcB2M

pilot[6]), characterizes the interaction as conflictual. This lexical choice (*fica pistola*/ gets mad) is associated with face-threatening and impolite behavior (Culpeper, 2010, 2011), which also signals confrontational exchanges and communicative tension. Such contexts are relevant for this study, as they highlight how each participant's viewpoint is expressed and negotiated in the situations of non-routine communication. Finally, for the present analysis, two excerpts were selected and transcribed: the first spans from 2:48 to 3:22 and the second from 4:02 to 4:34. These sections were chosen because they contain language that deviates from standardized phraseology.

Since our purpose is not to generalize across all instances of radiotelephony communication, but to provide an account of how viewpoint is constructed in a specific non-routine interaction, we believe that the two excerpts are sufficient and aligned with the case study orientation of this research. Previous work on viewpoint, such as Sweetser (2017), who examined a television commercial, could also demonstrate how viewpoint can be built through multimodal resources and cognitive phenomena, such as mental spaces.

With regards to the analysis, we rely on Dancygier and Sweetser's (2014) theoretical framework of viewpoint. The scholars state that the pervasiveness of viewpoint in language can be expressed in multiple ways. They suggest that within a sentence, for example, stances such as time, location and deictic elements lead to specific viewpointed meanings. Sweetser (2014) enumerates a list of linguistic viewpoint markers to examine how these structures express viewpoint in our data. These linguistic viewpoint markers include four main categories:

1. DEIXIS (Spatial)

Reference to where the Speaker and Addressee are assumed to be and what they are thought of as being able to see, be able to reach, and so on (e.g.: here, there, this, that, next door).

2. DEIXIS (Temporal):

[6] Minha tradução.

Reference to when the Speaker and Addressee are assumed to be (e.g.: now, then, tomorrow, last year).

3. EPISTEMIC VIEWPOINT (knowledge and assumptions)

Reference to what the Speaker and Addressee are assumed to know, think, presuppose, and be able to calculate mentally about whatever mental space is involved (e.g., determiners [a, the]; pronouns [formal x informal]; connectives [if x when] and evidential markers; presuppositional lexical items [stop], e.g.: *Chris stopped/ didn't stop smoking* indicates the speaker's that *Chris* smoked).

4. AFFECTIVE AND EVALUATIVE VIEWPOINT

Reference to what the Speaker and Addressee feel about the contents of the relevant spaces, that is, how they evaluate them affectively, culturally, and so on. (e.g., framing [thrifty x stingy]; affective markers [hopefully x maybe]).

Based on these linguistic viewpoint markers, in what follows, we present the findings of our analysis of two excepts from a YouTube video, in which a communication misunderstanding led to a deviation from standard phraseology, with potential implications for an incident.

Analysis and Discussion

In this section, two excerpts from a selected YouTube video are analyzed to determine the ways in which viewpoint shapes meaning construal in an episode of non-routine communication between pilots and air traffic controller. By drawing on the methodological framework, we examined the linguistic choices used in the interaction and how viewpoint emerges from them. The first excerpt runs from 2:48 to 3:22:

1	GOL 1250:	*GOL 1250: Oi, confirme o voo 1250. A sequência é o 737. O ANGOLA tá invadindo a frente aqui nossa, viu, com insegurança.*
		[Hey, confirm flight 1250. The next in sequence is the 737.

ANGOLA is cutting in front of us here, you see, unsafely.]

2	ATCO:	*ANGOLA 748*
3	ANGOLA AIRLINES:	*748. We are in sequence after GOL on our right, GOL on right, just we follow.*
4	ATCO:	*The third one, sir, the third one. You just make a mistake.*
5	ANGOLA AIRLINES:	*Before that we [inaudible] the tower, they advised us to follow this GOL that says line up now.*

Source: https://www.youtube.com/watch?v=hoLX6tEcB2M (author's transcription and translation)

This excerpt shows a communication conflict involving the Angola Airlines pilot and the pilot of a GOL aircraft. The misunderstanding starts when the Angola pilot apparently cuts in front of the Gol aircraft in the take-off line. Thus, the GOL pilot informs the air traffic controller that he was supposed to take off before the Angola aircraft, and claims that the Angola pilot is "invading his space." In response, the Angola pilot says that he is only following previous instructions.

When applying Sweetser's (2014) taxonomy of viewpoint markers, it was possible to identify the following linguistic elements in the first excerpt:

Category	Linguistic viewpoint markers	Participant
1 Spatial deixis	*in front of us*	GOL pilot
	here	GOL pilot
	on our right	Angola pilot
2 Temporal deixis	*next in sequence*	GOL pilot
	before	Angola pilot
	now	Angola pilot
	after GOL	Angola pilot

3	Epistemic viewpoint	*is cutting* *we are in sequence* *just we follow* *they advised us* *you just make a mistake*	GOL pilot Angola pilot Angola pilot Angola pilot ATCO
4	Affective / Evaluative viewpoint	*you see* *unsafely*	GOL pilot GOL pilot

Table 1 – Mapping of viewpoint markers (excerpt 1: 2:48 to 3:22)

Table 1 shows the mapping of linguistic viewpoint markers found in the first excerpt. All these linguistic forms, depending on how they're construed, lead to specific viewpoint creation (Sweetser, 2012, p. 4).

Mapped onto the first category, the terms *in front of us*, *here* and *on our right* are spatial deictic elements that are inherently context-dependent and contribute to how each speaker constructs their viewpoint within the interaction. In this excerpt, their role is to position the aircraft in relation to the speaker. By using such terms and expressions, the speakers project their own viewpoint to establish spatial relationship with the other aircraft around them. The term *here*, in particular, is not restricted to physical proximity but it also encodes subjective anchoring to the event (Langacker, 2008). Its use in the interaction suggests that the Angola aircraft does not belong in the *here* space and supports the Gol pilot's perception of a protocol violation.

As for the second category, temporal deictic elements were also identified, such as *next in sequence*, *before*, *now* and *after*. Like spatial deictics, the interpretation of temporal markers depends on the presumed moment of utterance (Sweetser, 2012, p. 4). The use of *next in sequence*, *before* and *after* establishes the chronological order of events and, consequently, reflects each participant's viewpoint on their actions. The term *now*, however, does not indicate the immediate moment of speaking, but rather functions as an echo of a prior instruction. In this

sense, it anchors the utterance to the ground[7] of the instruction received (Langacker, 2008), rather than to the ground of the current enunciation.

Within the third category, epistemic viewpoint, expressions such as *is cutting, we are in sequence, just we follow, they advised us,* and *you just make a mistake* were identified. In addition, these instances may be classified into the sub-category of evidential markers. As Sweetser (2012, p. 5), drawing on Chafe and Nichols (1986), states, a "*hearsay* evidential marker (or non-grammatical marking such as *I hear that*) indicates the speaker's lack of direct experience of the event referred to". From this perspective, utterances such as *they advised us, we are in sequence* and *just we follow* operate in a similar way, as they refer to an external source of authority to support their interpretation of the situation. Thus, the Angola pilot builds a viewpoint in which he believes his actions are correct and establishes his epistemic stance. At the same time, the ATCO builds a contrasting viewpoint by asserting the Angola pilot's error through the statement *you just make a mistake*. In doing so, these speakers illustrate how viewpoint is dynamically negotiated through evidential stance.

Alongside evidential markers, verbal aspect likewise contributes to shaping how events are construed within the category of epistemic viewpoint. The progressive aspect, as in *is cutting* (instead of *cut*), frames the event as ongoing and places the speaker within the action (Palmer, 1986; Langacker, 2008). This choice signals that the speaker is experiencing the event in real time, which help validate his claim and interpretation of the incident involving the Angola pilot.

For the affective or evaluative viewpoint category, speakers use lexical choices and discourse markers to express their subjective judgments. The GOL pilot's use of *unsafely* emphasizes his negative evaluation of the situation, while the discourse marker *you see* draws the ATCO's attention and invites her alignment with his stance (Auer, 1996). Together, these

[7] "The term **ground** is used for the speaker and hearer, the speech event in which they participate, and their immediate circumstances (e.g. the time and place of speaking)" (Langacker, 2008, p. 78).

elements illustrate how evaluative language and discourse markers build viewpoint by shaping how events are interpreted.

To further explore the several ways in which viewpoint can be expressed linguistically, consider the second excerpt from the video, which runs from 4:02 to 4:34:

1	ATCO:	Angola 748, line up and wait for runway zero nine left.
2	ANGOLA AIRLINES:	Line up and wait runway zero nine left, Angola 748.
3	ATCO:	GOL 1250, infelizmente, o ANGOLA entendeu errado o sequenciamento. [*GOL 1250, unfortunately, Angola has not understood the sequencing.*]
4	GOL 1250:	Yeah, he's irresponsible, very irresponsible.
5	ANGOLA AIRLINES:	Não foi isso não, porque, ah, nós fomos instruídos antes para o GOL que estava a nossa direita seguir, o que estava à direita, não estava vocês ainda. [*It wasn't that. We were instructed to proceed before to follow the GOL that was on our right, the one on the right, you were not [there] yet.*]
6	GOL 1250:	O segundo GOL, segundo GOL! [*The second GOL, the second GOL! (angrily)*]
7	ATCO:	É, por gentileza, frequência da torre. Mantenha a frequência livre. [*Uh, please, tower frequency. Keep the frequency clear.*]

Source: https://www.youtube.com/watch?v=hoLX6tEcB2M (author's transcription and translation)

In this exchange, the air traffic controller explains to the GOL airlines pilot that the Angola airlines pilot had misunderstood previous instructions. In response, the GOL pilot calls the Angola pilot "irresponsible", who, in turn, tries to justify his behavior and to reaffirm that he did what he was told to do. Finally, the air traffic controller uses her authority to end the argument and to redirect the conversation back to routine communication.

This second fragment of the video presents multiple layers for analysis in terms of viewpoint construction. Table 2 summarizes the elements identified in relation to Sweetser's (2012) taxonomy.

Category	Linguistic viewpoint markers	Participant
1 Spatial deixis	*on our right*	Angola pilot
	the second	GOL pilot
	there	Angola pilot
2 Temporal deixis	*before*	Angola pilot
	yet	Angola pilot
3 Epistemic viewpoint	*has not understood*	ATCO
	it wasn't that	Angola pilot
	we were instructed	Angola pilot
	you were not [there] [yet]	Angola pilot
	keep the frequency clear	ATCO
4 Affective / Evaluative viewpoint	*unfortunately*	ATCO
	irresponsible	GOL pilot
	please [por gentileza]	ATCO

Table 2 – Mapping of viewpoint markers (excerpt 2: 4:02 to 4:34)

As in the first excerpt, spatial deictics play a fundamental role in viewpoint building. The expression *on our right*, used by the Angola pilot, serves as a strategy to justify his position and his interpretation of the sequencing. In contrast, the GOL pilot's repeated use of *second* can be interpreted both as spatial deixis, since it describes a position in line, and as a marker of sequencing, in an attempt to align his viewpoint with that of the ATCO. Similarly, the use of *there* in *you were not there yet*, by the Angola pilot, positions the GOL aircraft outside the designated location and supports his claim that his actions were procedurally correct.

Within the temporal deictics category, the Angola pilot's use of *before* describes his actions in relation to instructions he had received previously. By doing that, he creates a viewpoint in which his sequencing followed what he understood to be the controller's orientation. As for the term *yet*, in *you were not there yet*, also operates as a temporal deictic to indicate that the GOL aircraft had not yet been in place when he joined the line for take-off. In this way, *yet* also reinforces the Angola pilot's epistemic stance by denying the GOL pilot's claim and, at the same time, justifies his own interpretation of the procedure.

With regard to the third category, epistemic viewpoint, the following expressions were observed: *has not understood*, *it wasn't that*, *we were instructed*, *you were not [there] [yet]*, and *keep the frequency clear*. The first three are negatives, which presupposes the assumption of an opposite claim. In particular, *has not understood* presupposes that a prior instruction had been given and that the problem was as a matter of comprehension rather than deliberate violation of an order. This expression, then, reinforces the ATCO's authority as a source of instruction. Similarly, *it wasn't that* rejects the accusation made by the GOL pilot, while *you were not there yet* denies the GOL aircraft's presence at the aircraft sequencing point. In each case, the negative form can be a way to invalidate one speaker's viewpoint and to establish the other's viewpoint as the correct one. The utterance *we were instructed* falls into the sub category of evidential markers (Sweetser, 2012), and appeal to an external source of authority (other ATCOs) to legitimize the Angola pilot's actions. Finally, the ATCO's command *keep the frequency clear* shows epistemic authority by ending the argument and reestablishing her control of the communication.

In relation to the fourth category, affective or evaluative viewpoint, three expressions are particularly relevant. The controller's use of *unfortunately* functions as an affective marker that signals empathy or even an apology. In that way, she aligns her viewpoint with the GOL pilot's perception of the situation. In turn, the GOL pilot's choice of the term *irresponsible*

characterizes the Angola pilot's behavior as intentional rather than accidental. Consequently, this evaluative marker establishes a disalignment between their viewpoints. Finally, the ATCO's use of *please (por gentileza)* mitigates the command to clear the frequency. However, while the term softens her tone, she still maintains her authority. In this way, politeness serves both to mitigate the conflict and to indicate that disruptive language should not be acceptable in radiotelephony communication.

In addition to the deictic and evaluative markers discussed, the shifts between Portuguese and English also emerge as important resources for viewpoint construction. When the GOL pilot switches to English to call the other pilot irresponsible, his choice not only conveys evaluation but also addresses the utterance toward a different participant to ensure that the Angola pilot understands the accusation. Conversely, when the Angola pilot switches into Portuguese to talk to the ATCO he was reinforcing his own justification. These language alternations illustrate that viewpoint is not expressed by single markers in isolation, but rather through a dynamic relationship of linguistic choices. As Dancygier and Vandelanotte (2016, p. 15) argue, "viewpoints expressed in a text form a network, rather than just a hierarchical list." In this case, spatial, temporal, epistemic, evaluative, and even code-switching markers work together as local viewpoints to form a broader "Discourse Viewpoint" that ensures coherence in the interaction.

Conclusion

In this study, we aimed at showing how viewpoint is constructed in aviation communication, using a case study of two excerpts from a YouTube video. The analysis demonstrated that viewpoint is not an isolated phenomenon but emerges through a range of linguistic choices. Spatial and temporal deixis, evaluative terms, negatives, evidential markers, and politeness formulae all contributed to viewpoint building and how participants interpreted one another's actions.

Expressions such as *on our right*, *second*, *you were not there yet*, or *irresponsible* revealed how speakers construed the sequencing of events, assigned responsibility, and marked alignment or disalignment with others. The data also showed that viewpoint is connected to authority and social roles, as in the controller's command *keep the frequency clear*. In addition, the changes between Portuguese and English by the speakers were used to reinforce either confrontation or alignment and, in this way, worked as viewpoint markers.

Overall, the present study highlights that viewpoint should be understood as a network rather than a simple list of markers. Local viewpoints expressed through deixis, aspect, evaluative language, and code-switching interact dynamically, while a broader network of viewpoint ensures coherence across the interaction (Dancygier & Vandelanotte, 2016). From that perspective, this work draws attention to the importance of examining how viewpoint is constructed and negotiated in non-routine aviation communication, where clear communication is essential.

References

Auer P. On the prosody and syntax of turn-continuations. (1996). In: Couper-Kuhlen E, Selting M, eds. *Prosody in Conversation*: Interactional Studies. Studies in Interactional Sociolinguistics. Cambridge University Press. 57-100.

Bou-Franch, P.; Lorenzo-Dus, N.; Blitvich, P. G.-C. (2012*) Social Interaction in YouTube Text-Based Polylogues*: A Study of Coherence, Journal of Computer-Mediated Communication. Vol. 17, Issue 4. 501–521.

Bou-Franch, P.; Blitvich, P. G.-C. (2014) *Conflict management in massive polylogues*: A case study from YouTube. Journal of Pragmatics. Vol. 73. 19-36.

Culpeper, J. (2010). *Conventionalised impoliteness formulae*. Journal of Pragmatics. 42 (12). 3232–3245.

Culpeper, J. *Impoliteness*: Using language to cause offence. Cambridge University Press. 2011.

Dancygier, B. (2012). Viewpoint in Language. In: Dancygier, B.; Sweetser, E. (Eds.), *Viewpoint in Language:* A Multimodal Perspective. Cambridge: Cambridge University Press.

Dancygier, B. (2012a) *The language of stories*: a cognitive approach. Cambridge University Press.

Dancygier, B.; Sweetser, E. (2014) *Cambridge Textbooks in Linguistics*. Figurative Language. New York, NY, US: Cambridge University Press.

Dancygier, B. (2017) Viewpoint Phenomena in Constructions and Discourse. *Glossa:* A Journal of General Linguistics 2(1), 37.1–22.

Dancygier, B. & Vandelanotte, L. (2016). Discourse viewpoint as network. In Barbara Dancygier, Lu Wei-Lun & Arie Verhagen (eds.). *Viewpoint and the fabric of meaning*: Form and use of viewpoint tools across languages and modalities. Berlin & Boston: De Gruyter Mouton. 55, 13–40.

Evans, V.; Green M. (2006) *Cognitive Linguistics*: An Introduction. Edinburgh University Press.

Langacker, R. W. (1987) *Foundations of Cognitive Grammar*. Vol. I. Stanford: Stanford University Press.

Langacker, R.W. (1991) *Foundations of Cognitive Grammar.* Vol. II: Descriptive Application. Stanford University Press, California.

Sweetser, E. (2012) Viewpoint from the ground down. In: Dancygier B, Sweetser E. ed., *Viewpoint: A multimodal perspective.* Cambridge: Cambridge University Press.

Sweetser, E. (2017). *Metaphor and metonymy in advertising:* Building viewpoint in multimodal multi-space blends. Journal of Pragmatics. Vol. 122. 65-76.

Talmy, L. (2000). *Toward a cognitive semantics.* Volumes 1 and 2. Cambridge, MA: Massachusetts Institute of Technology.

Van Krieken K. (2016). *Linguistic Viewpoint in Crime News Narratives.* PhD thesis, Tilburg University.

From clusters to clarity: designing corpus-informed pedagogical activities for aviation English classrooms

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Abstract
This paper explores the intersection of corpus linguistics with aviation English by revisiting key pedagogical considerations such as the role of pragmatic competence (fluency and interaction) in aviation contexts. Close examination of the use of clusters highlights their significance in the development of listening comprehension, fluency, and strategic competence in radio communications. Building on these insights, the paper turns to English as a Lingua Franca (ELF) in aviation, emphasizing the need for pragmatic strategies to manage intercultural interactions and minimize miscommunication in international aviation operations. The discussion is supported by practical examples taken from a corpus to provide educators, researchers, and practitioners with suggestions for improving aviation English communication and ensuring that professionals are equipped with the linguistic and pragmatic skills necessary for effective and safe interactions.

Keywords: ELF; pragmatic strategies; clusters; corpus linguistics; aviation English

Introduction

Authentic communication takes precedence in aviation English training. Though mandatory, phraseology alone cannot suffice to capture the nature of real interactions, particularly in non-routine or emergency situations. This paper discusses how corpus linguistics can be used to inform the construction of learning tasks with a view to improving listening ability and interactional competence. By drawing on real-world radiotelephony communications, we develop classroom activities that equip learners with clusters and pragmatic strategies necessary for safe communication in a global, English as a Lingua Franca (ELF) context.

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Theoretical Foundations

Clusters (or chunks, multi-word units, lexical bundles, among other terms) are recurrent combinations of words. They can be complete formulaic units such as *Thank you very much* or *On the other hand* but can also be reduced forms such as *I'd appreciate it if* or *Do you know if* (Field, 2009; Nattinger & DeCarrico, 2010). Research shows that spoken language relies heavily on these sequences and that controlling them enhances fluency because their automatic retrieval helps speakers sound natural (McCarthy, 2010; Nattinger & DeCarrico, 2010).

Additionally, Field (2009) notes that as learners benefit from recognizing familiar clusters instead of processing language word-by-word, reinforcing the value of chunk-based language teaching. While corpus-based approaches often prioritize native-speaker frequency patterns, this study acknowledges the potential tension with ELF principles, which focus on communicative success across different speaker backgrounds (see McNamara, 2023). In an attempt to reconcile this issue, this paper adopted a pedagogical stance that uses frequency only as a starting point, selecting clusters that also function pragmatically in multilingual, international contexts. For instance, clusters such as *say again*, *do you need*, or *we have a* emerged statistically, but were selected for their communicative transparency and strategic employment in ELF interactions. These clusters then serve as inputs for tasks that emphasize negotiation, repair, and clarification, which are ELF communication strategies found in aviation communications (Ishihara & Prado, 2021; Prado & Ishihara, 2024). Thus, in aviation English, clusters may serve relational and strategic functions that support comprehension and interaction (Mell, 1992; Prado, 2019, 2021). To illustrate, in Prado (2021), I listed some clusters grouped into functions and turn management categories such as *Offering* (Figure 1):

Offering	would you like (to)
	do you need
	if you need
	if you want

	if you´d like
	if you can
	we / I´ll give you
	do you want us to

Figure 1. List of clusters used for offers in pilot-controller communications (Prado, 2021)

However, critics of that study correctly pointed out that the corpus used at the time contained an excessive amount of native-speaker data as many of the transcripts of exchanges were taken from US aircraft flying over the US, in effect making such exchanges local. Ideally, the corpus should include more exchanges taken of international traffic (Tosqui-Lucks et al., 2024). Given that ELF researchers should "consider the negotiation strategies both native and non-native speakers may use to succeed in communicating in English as a global language" (Roberts & Canagarajah, 2009, p. 225), the corpus was updated, with the inclusion of 30 additional audio files, giving a new total of 160 texts.

By adopting the ELF framework, that is, "any use of English among speakers of different first languages for whom English is the communicative medium of choice, and often the only option" (Seidlhofer, 2013, p. 7), we draw attention to a more dynamic, hybrid use of language that adapts and changes with every encounter (Widdowson & Seidlhofer, 2023). In aviation, this means developing pragmatic awareness through repetition, clarification, and confirmation strategies, especially when standard phraseology is insufficient. The aeronautical community of practice, as discussed in Prado and Ishihara (2025), forms a semi-stable discourse community in which such strategies become shared practices.

Methodology

This study draws on data from the updated Radiotelephony Plain English Corpus (RTPEC; Prado & Tosqui-Lucks, 2019), now expanded from 130 to 160 texts. The 30 new additions were selected to ensure more variety of speaker backgrounds and reduce the

overrepresentation of US-based exchanges. The selection was based on the Taxonomy of Occurrences (see Prado & Tosqui-Lucks, 2019) and international exchanges (air carrier of a different nationality from airspace or territory).

To identify teaching points, cluster extraction was performed using frequency-based sorting (n-grams between 2–5 words), filtered for a minimum frequency of 3 and selected through concordance lines when used as ELF pragmatic strategies. Clusters were then grouped by function (e.g., clarification, confirmation) based on their discourse role and co-text.

The pedagogical framework draws on Task-Based Language Teaching (Ellis, 2018), combining input-based comprehension tasks (such as listening + chunk identification) with output-oriented performance tasks such as role-plays (Emery, 2025) and emergency briefings that emphasize strategic language use in high-stakes, ELF contexts.

To emphasize the importance of newly added files, if we focus solely on the list of frequent clusters in the updated ELF exchanges, the expression *say again* emerges prominently – a pattern that did not appear among the most frequent clusters in the original version of the corpus.

Pedagogical Applications

Incorporating clusters in our aeronautical English classes may contribute to multiple areas, including pronunciation, comprehension, fluency, and interaction. Drawing on Field's (2009, pp. 156-157) suggestions, we may use the following techniques:

- Isolated groups: Learners identify and reproduce high-frequency intonation patterns.
- Focus on chunks: Learners transcribe and analyze segments following initial comprehension.
- Locating chunks: Learners actively listen for recurring patterns in extended audio-recordings.

- Reduced forms: Learners practice syntactic and pragmatic chunks such as *Do you mind if… I* or *Why don't we…*

Through authentic transcripts, learners can explore functions such as asking for repetition (*Say again*), confirming information (*Confirm, please*), or correcting interlocutors (see Pacheco et al., 2023). Classroom activities may include role-playing real emergency scenarios. For example, in a simulated takeoff followed by engine failure, students may:

- Brief a co-pilot using charts.
- Respond to a pan-pan situation.
- Compare their responses to authentic corpus excerpts.

These activities aim to develop strategic competence by enhancing the learner's ability to handle unpredictable, high-stakes communication.

Case

The excerpt below illustrates the real-world complexity of pragmatic interaction.

Porto / Aircraft zero five three nine //

Zero five three nine / go ahead / sir //

Yes / please / ***confirm*** *the approach in Porto Airport? //*

Aircraft zero five three nine / ***say again?*** *//*

Yes / ***which is the approach*** */ ILS one seven /* ***confirm****?*

Affirm */ expect ILS CAT one / one seven //*

ILS CAT one / one seven / Aircraft zero five three nine //

This transcript was taken from an abnormal situation that started with the aircraft experiencing an engine fire shortly after takeoff, with exchanges involving confirmation, situational updates,

and coordination. In class, learners may listen to the audio first, then analyze the transcript, identify clusters and pragmatic strategies (highlighted in the above extract), then rehearse similar exchanges using structured role-plays (Emery, 2025). The pedagogical goal is to build clarity, language awareness, and strategic competence through corpus-informed reflection.

An example of a lesson is the following. The teacher may start by creating a scenario for the situation and, if possible, have the students work with the corresponding aeronautical charts:

- You are flying from LPPT to LEMD. You are now going to start the take-off. Here are the airport charts. Do the before take-off briefing with me, pretending I'm your first officer.
- We just lifted off. We have an engine failure.
    - What do you want me to do? Explain your request to me in details;
    - Describe your actions to me;
    - What are the contingency plans?
- Now listen to a communication that occurred in the same scenario. Do they follow the same procedure? Why (ow why not)?

After working on the listening task by, for example, focusing on the key information only, teachers may focus on some of Field's suggestions, such as: (1) Focus on chunks (Asking for repetition: *Say again; Say again the/your…; Say again please; Can you say again*), or (2) work on reduced forms in larger chunks (Inform the problem or request info on the problem: *Do you have…; We have a…; We´ve got…; We don´t have).*

As a follow-up practice, teachers can work on questions regarding situation awareness and contingency plans, such as: "You are coming to land at LPPT. Once you hear this communication, what do you need to do? (situational awareness); What are your plans? (contingency plans), and then propose a role-play activity considering fuel restrictions, aircraft type, number of passengers, etc.

The integration of corpus linguistics into aviation English pedagogy provides a more authentic approach to communicative training. By focusing on clusters and pragmatic strategies, instructors can help learners reflect on and hopefully employ ELF-oriented interactions. The corpus-driven methodology exemplified above informs classroom materials (Friginal & Prado, 2025) so that they can reflect authentic usage, thus bridging the gap between textbook English and operational needs.

Conclusion

Corpus-informed materials offer a promising avenue for improving both fluency and clarity in aviation English. I hope to have demonstrated that through the study of lexical clusters and ELF pragmatic strategies, learners will be in a position to deal with authentic, real-world communication scenarios. Future work in this area will focus on expanding corpus coverage and refining genre-based tasks to support a wider range of operational roles and communication genres.

References

Ellis, R. (2018). *Reflections on task-based language teaching*. Multilingual Matters.

Emery, H. (2025). Role play in aviation language training and assessment. In E. Friginal, M. Prado, & J. Roberts (Eds.), *Teaching and assessment in global aviation English* (pp. 55–76). Bloomsbury Academic.

Field, J. (2009). *Listening in the language classroom*. Cambridge University Press.

Friginal, E., & Prado, M. (2025). Corpus-informed materials in language teaching. In L. McCallum & D. Tafazoli (Eds.), *The Palgrave encyclopedia of computer-assisted language learning* (pp. 1–5). Springer Nature

Ishihara, N., & Prado, M. C. D. A. (2021). The Negotiation of Meaning in Aviation English as a Lingua Franca: A Corpus-Informed Discursive Approach. *The Modern Language Journal*, *105*(3), 639–654. https://doi.org/10.1111/modl.12718

McCarthy, M. (2010). Spoken fluency revisited. *English Profile Journal*, *1*, e 4. https://doi.org/10.1017/S2041536210000012

McNamara, T. (2023). A challenge for language testing. In K. Murata, *ELF and Applied Linguistics* (1st ed., pp. 191–206). Routledge. https://doi.org/10.4324/9781003391463-16

Mell, J. (1992). *Étude des communications verbales entre pilote et contrôleur en situation standard et non-standard.* Doctoral dissertation, Université de Toulouse II.

Nattinger, J. R., & DeCarrico, J. S. (2010). *Lexical phrases and language teaching*. Oxford University Press.

Pacheco, A., Garcia, A. C. D. M., Monteiro, A. L. T., Prado, M. C. D. A., & Tosqui-Lucks, P. (2023). Using corpus linguistics to create tasks for teaching and assessing Aeronautical English. *Applied Corpus Linguistics*, *3*(3), 100075. https://doi.org/10.1016/j.acorp.2023.100075

Prado, M. C. D. A. (2019). *A relevância da pragmática no ensino do inglês aeronáutico: Um estudo baseado em corpora* [Doctoral dissertation, Universidade de São Paulo]. https://doi.org/10.11606/T.8.2019.tde-16122019-181408

Prado, M. C. D. A. (2021). The pragmatics of Aeronautical English: An investigation through corpus linguistics. *Revista de Estudos da Linguagem*, *29*(2), 1381. https://doi.org/10.17851/2237-2083.29.2.1381-1414

Prado, M., & Ishihara, N. (2024). Pragmatic strategies in the aeronautical community of practice. In E. Friginal, M. Prado, & J. Roberts (Eds.), *Global aviation English research* (pp. 77–94). Bloomsbury.

Prado, M., & Tosqui-Lucks, P. (2019). Designing the Radiotelephony Plain English Corpus (RTPEC). *Research in Corpus Linguistics*, *7*, 113–128. https://doi.org/10.32714/ricl.07.06

Roberts, P., & Canagarajah, S. (2009). Broadening the ELF paradigm: Spoken English in an international encounter. In F. Sharifian (Ed.), *English as an international language: Perspectives and pedagogical issues*. Channel View Publications. https://doi.org/10.2307/jj.27195453

Seidlhofer, B. (2013). *Understanding English as a Lingua Franca*. Oxford University Press.

Tosqui-Lucks, P., Prado, M. C. D. A., Pacheco, A., Garcia, A. C. D. M., & Monteiro, A. L. T. (2024). Challenges and possibilities in compiling Aeronautical English corpora: The case of the Aerocorpus. *Research Methods in Applied Linguistics*, *3*(3), 100135. https://doi.org/10.1016/j.rmal.2024.100135

Widdowson, H., & Seidlhofer, B. (2023). Conceptualising ELF and applied linguistics. In K. Murata, *ELF and applied linguistics* (pp. 21–33). Routledge.

From course design to delivery: the new aeronautical English intensive course for Brazilian ATCOs

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Abstract
This paper covers some key aspects of the 2-week intensive aeronautical English course for Brazilian ATCOs. The in-person course has been completely redesigned in terms of contents, methodological principles, layout, and pedagogical tools. The course material was developed by language experts (LE) and subject matter experts (SME), under the coordination of the ICEA aeronautical English training sector. The course syllabus and the decisions taken were based on the analysis of the students' needs, ICAO documents and recent research findings on aeronautical English teaching and learning. Some major changes in the redesigned course include: teaching lexical-grammar and oral comprehension in different learning cycles alongside fluency, interaction, and pronunciation. Preparation tasks at the end of each unit and a new proposal for the final assessment have been implemented to align with the ICAO language proficiency test requirements. The trial course took place in Manaus, the capital city of the Amazon region, in August 2024. ICEA's instructors collected the student feedback through a survey designed to identify the strengths and weaknesses of each lesson taught. The results were mostly positive, and the setbacks are being worked on. Next steps include: preparing the final revised version, training instructors for the reformulated course, and establishing quality standards to ensure that the course be equally delivered throughout Brazil.

Keywords: Brazilian ATCOs, course syllabus, material development, trial course, quality standards.

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Introduction

This paper explores the planning and implementation process of the new aeronautical English course for Brazilian air traffic controllers (CTP010), from course design to delivery. In addition to sharing this process with those interested in the aviation field, we also want Brazilian Air Force aeronautical English instructors to better understand the new course and its guiding principles. After almost 2 years working on this project, under the coordination of ICEA's aeronautical English training sector (ELCI), in partnership with subject matter experts (SME), the outcome was the new CTP010, which has been completely redesigned, based on the theoretical framework of the Communicative Approach to Language Training (CLT). Some important changes have been implemented, such as: teaching lexical-grammar and oral comprehension in different learning cycles, together with fluency, interaction and pronunciation skills. Doc 9835, which provides general guidance on training pilots and controllers in compliance with ICAO language proficiency requirements, advocates for a communicative approach to language training "through a focus on the communicative language functions" and tasks that require their use (Doc 9835, 2010, p.7-4). Aligned with the ICAO language proficiency test requirements and the CLT, preparation tasks and a new proposal for the final assessment have also been added to the new course. Some key aspects of the 2-week in-person course will be thoroughly described, from the design of its syllabus to the trial course and current challenges. The discussion will be supported by practical examples taken from the planning and implementation process of the new CTP010.

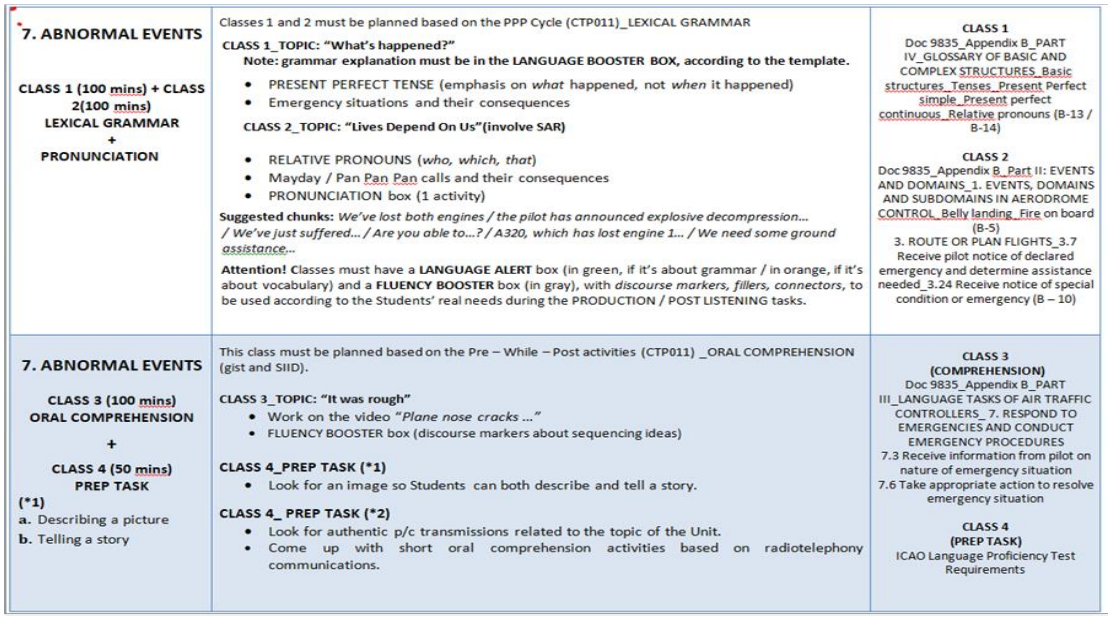
Course Planning

Embedded in the methodological principles of the CLT (Richards, 2004), we asked ourselves the following questions to start approaching the syllabus of the new CTP010:

- What are the **students' needs**?
- What **documents** ground the course?

- What are the course **objectives**?
- What are the **prerequisites** for the course?
- Why do the **parts of the course** come in the **order** they do?
- How about the **teaching resources**?
- How will students be **assessed**?

After addressing those questions, the ICEA's aeronautical English training team planned a guide for each unit of the course focusing on the topic of the classes, grammar and vocabulary contents aligned with the dominant language functions in pilot-controllers communications (ICAO,2010). It outlines the contents of the eleven units of the course, including the learning objectives and the reference documents that ground the development of the course material.



7. ABNORMAL EVENTS **CLASS 1 (100 mins) + CLASS 2(100 mins)** **LEXICAL GRAMMAR** **+** **PRONUNCIATION**	Classes 1 and 2 must be planned based on the PPP Cycle (CTP011)_LEXICAL GRAMMAR **CLASS 1_TOPIC: "What's happened?"** **Note: grammar explanation must be in the LANGUAGE BOOSTER BOX, according to the template.** • PRESENT PERFECT TENSE (emphasis on *what* happened, not *when* it happened) • Emergency situations and their consequences **CLASS 2_TOPIC: "Lives Depend On Us"(involve SAR)** • RELATIVE PRONOUNS (*who, which, that*) • Mayday / Pan Pan Pan calls and their consequences • PRONUNCIATION box (1 activity) **Suggested chunks:** *We've lost both engines / the pilot has announced explosive decompression… / We've just suffered… / Are you able to…? / A320, which has lost engine 1… / We need some ground assistance…* **Attention!** Classes must have a **LANGUAGE ALERT** box (in green, if it's about grammar / in orange, if it's about vocabulary) and a **FLUENCY BOOSTER** box (in gray), with *discourse markers, fillers, connectors*, to be used according to the Students' real needs during the PRODUCTION / POST LISTENING tasks.	**CLASS 1** Doc 9835_Appendix B_PART IV_GLOSSARY OF BASIC AND COMPLEX STRUCTURES_Basic structures_Tenses_Present Perfect simple_Present perfect continuous_Relative pronouns (B-13 / B-14) **CLASS 2** Doc 9835_Appendix B_Part II: EVENTS AND DOMAINS_1. EVENTS, DOMAINS AND SUBDOMAINS IN AERODROME CONTROL_Belly landing_Fire on board (B-5) 3. ROUTE OR PLAN FLIGHTS_3.7 Receive pilot notice of declared emergency and determine assistance needed_3.24 Receive notice of special condition or emergency (B – 10)
7. ABNORMAL EVENTS **CLASS 3 (100 mins)** **ORAL COMPREHENSION** **+** **CLASS 4 (50 mins)** **PREP TASK** **(*1)** **a.** Describing a picture **b.** Telling a story	This class must be planned based on the Pre – While – Post activities (CTP011) _ORAL COMPREHENSION (gist and SIID). **CLASS 3_TOPIC: "It was rough"** • Work on the video *"Plane nose cracks …"* • FLUENCY BOOSTER box (discourse markers about sequencing ideas) **CLASS 4_PREP TASK (*1)** • Look for an image so Students can both describe and tell a story. **CLASS 4_ PREP TASK (*2)** • Look for authentic p/c transmissions related to the topic of the Unit. • Come up with short oral comprehension activities based on radiotelephony communications.	**CLASS 3** **(COMPREHENSION)** Doc 9835_Appendix B_PART III_LANGUAGE TASKS OF AIR TRAFFIC CONTROLLERS_ 7. RESPOND TO EMERGENCIES AND CONDUCT EMERGENCY PROCEDURES 7.3 Receive information from pilot on nature of emergency situation 7.6 Take appropriate action to resolve emergency situation **CLASS 4** **(PREP TASK)** ICAO Language Proficiency Test Requirements

Figure 1. A guide for the material development (Santana & Ferreira de Souza, 2024).

As recommended by ICAO (doc 9835), the entire course was developed by Language Experts (LE) along with Subject Matter Experts (SME) from across the country, under the coordination of the ICEA training sector. The working groups could rely on this previous planning to design the course material, including the Student's Book, the Teacher's Guide, audiovisuals, PPT slides for the classes, flashcards, worksheets, etc.

In-person material development took place in two different working groups; each of them lasted 2 weeks. The first working group was lexical-grammar oriented and each lesson was

planned based on the current CLT and ESP principles that the participants had already learned while attending ICEA's aeronautical teaching training course, known as CTP011. Before going hands-on, all of them were provided with a model class, a template and different types of pronunciation activities to choose from. See below the template of the "Weather Impacts on Aviation" class, which served as a model for the lexical-grammar classes of the course.

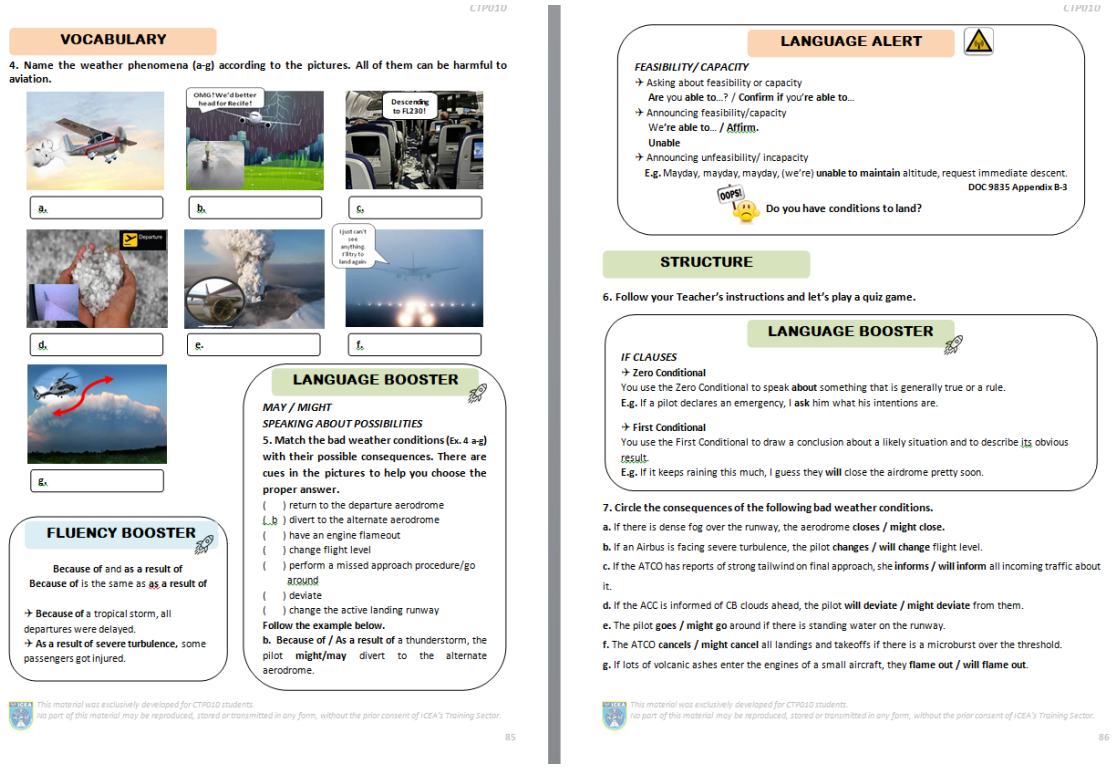
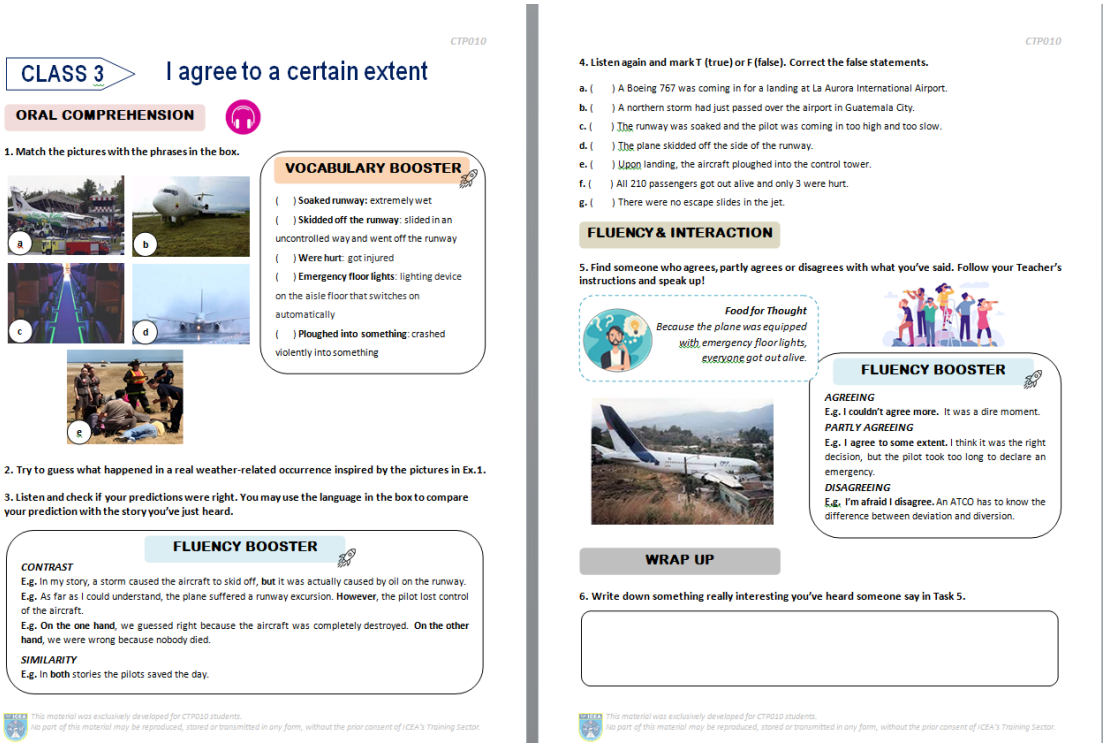


Figure 2. Lexical-grammar template (Ferreira de Souza, 2024).

The second working group was in charge of developing oral comprehension classes, according to the theoretical principles learned at CTP011. The participants received the necessary guidelines to get the new lessons developed, such as a model class, a template and different types of activities for developing listening skills (Listening for Gist / Listening for Specific Information and Important Details – SIID). The template which served as a model for the listening comprehension classes of the

course is presented below.



CTP010

CLASS 3 I agree to a certain extent

ORAL COMPREHENSION

1. Match the pictures with the phrases in the box.

VOCABULARY BOOSTER

( ) **Soaked runway:** extremely wet
( ) **Skidded off the runway**: slided in an uncontrolled way and went off the runway
( ) **Were hurt**: got injured
( ) **Emergency floor lights**: lighting device on the aisle floor that switches on automatically
( ) **Ploughed into something**: crashed violently into something

2. Try to guess what happened in a real weather-related occurrence inspired by the pictures in Ex.1.

3. Listen and check if your predictions were right. You may use the language in the box to compare your prediction with the story you've just heard.

FLUENCY BOOSTER

CONTRAST
E.g. In my story, a storm caused the aircraft to skid off, **but** it was actually caused by oil on the runway.
E.g. As far as I could understand, the plane suffered a runway excursion. **However**, the pilot lost control of the aircraft.
E.g. On the one hand, we guessed right because the aircraft was completely destroyed. **On the other hand**, we were wrong because nobody died.
SIMILARITY
E.g. In **both** stories the pilots saved the day.

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CTP010

4. Listen again and mark T (true) or F (false). Correct the false statements.

a. ( ) A Boeing 767 was coming in for a landing at La Aurora International Airport.
b. ( ) A northern storm had just passed over the airport in Guatemala City.
c. ( ) The runway was soaked and the pilot was coming in too high and too slow.
d. ( ) The plane skidded off the side of the runway.
e. ( ) Upon landing, the aircraft ploughed into the control tower.
f. ( ) All 210 passengers got out alive and only 3 were hurt.
g. ( ) There were no escape slides in the jet.

FLUENCY & INTERACTION

5. Find someone who agrees, partly agrees or disagrees with what you've said. Follow your Teacher's instructions and speak up!

Food for Thought
Because the plane was equipped with emergency floor lights, everyone got out alive.

FLUENCY BOOSTER

AGREEING
E.g. I couldn't agree more. It was a dire moment.
PARTLY AGREEING
E.g. I agree to some extent. I think it was the right decision, but the pilot took too long to declare an emergency.
DISAGREEING
E.g. I'm afraid I disagree. An ATCO has to know the difference between deviation and diversion.

WRAP UP

6. Write down something really interesting you've heard someone say in Task 5.

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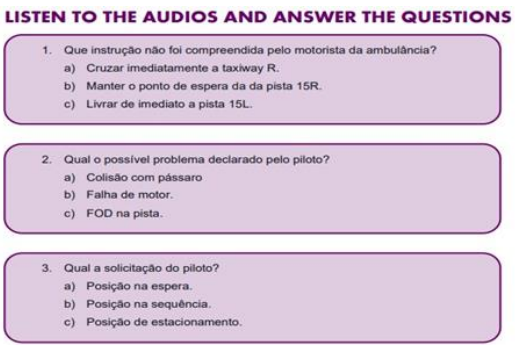
Figure 3. Oral comprehension template (Ferreira de Souza, 2024).

Different kinds of Preparation Tasks (Prep Tasks) were added to the Student's Book (SB) at the end of each unit. They were planned based on ICAO Language Proficiency Test Requirements (Doc 9835), aiming at better preparing students to take up EPLIS, the Brazilian proficiency test for air traffic controllers. The Prep Task section aims to make students practice their listening and speaking skills, as they get prepared for EPLIS Paper 1 and Paper 2.

Figure 4 below shows a Prep Task inspired by EPLIS Paper 1 that assesses the ATCOs' listening comprehension. After listening to short authentic pilot-controller communications (RT), the students have to choose the correct answer. In EPLIS paper 1, both questions and multiple-choice answers are written in Portuguese.



LISTEN TO THE AUDIOS AND ANSWER THE QUESTIONS

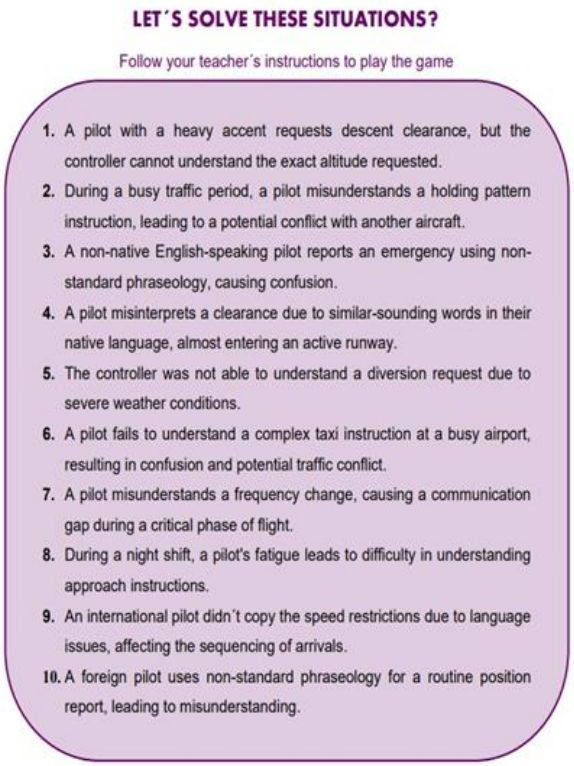
1. Que instrução não foi compreendida pelo motorista da ambulância?
   a) Cruzar imediatamente a taxiway R.
   b) Manter o ponto de espera da da pista 15R.
   c) Livrar de imediato a pista 15L.

2. Qual o possível problema declarado pelo piloto?
   a) Colisão com pássaro
   b) Falha de motor.
   c) FOD na pista.

3. Qual a solicitação do piloto?
   a) Posição na espera.
   b) Posição na sequência.
   c) Posição de estacionamento.

Figure 4. EPLIS Prep. Task – Paper 1

Another kind of task was based on EPLIS Paper 2, more specifically Part 2, in which the test takers are expected to identify a problem, report it back and make suitable operational suggestions to solve that problem. During CTP010 classes, this type of task can be applied as a game-like activity (quiz) to make it more fun and challenging:



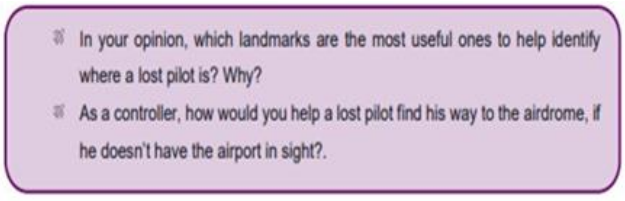
LET´S SOLVE THESE SITUATIONS?

Follow your teacher´s instructions to play the game

1. A pilot with a heavy accent requests descent clearance, but the controller cannot understand the exact altitude requested.
2. During a busy traffic period, a pilot misunderstands a holding pattern instruction, leading to a potential conflict with another aircraft.
3. A non-native English-speaking pilot reports an emergency using non-standard phraseology, causing confusion.
4. A pilot misinterprets a clearance due to similar-sounding words in their native language, almost entering an active runway.
5. The controller was not able to understand a diversion request due to severe weather conditions.
6. A pilot fails to understand a complex taxi instruction at a busy airport, resulting in confusion and potential traffic conflict.
7. A pilot misunderstands a frequency change, causing a communication gap during a critical phase of flight.
8. During a night shift, a pilot's fatigue leads to difficulty in understanding approach instructions.
9. An international pilot didn´t copy the speed restrictions due to language issues, affecting the sequencing of arrivals.
10. A foreign pilot uses non-standard phraseology for a routine position report, leading to misunderstanding.

Figure 5. EPLIS Prep. Task – Paper 2 – Part 2

The task which resembles Paper 2 - Part 3 is about answering aviation-related questions in an informative, immediate and appropriate way:



- In your opinion, which landmarks are the most useful ones to help identify where a lost pilot is? Why?
- As a controller, how would you help a lost pilot find his way to the airdrome, if he doesn't have the airport in sight?.

Figure 6. EPLIS Prep. Task – Paper 2 – Part 3

Finally, in part 4 of EPLIS paper 2 the controllers are supposed to describe a picture for 30 seconds and then tell a 90-second story related to the same picture. Some Prep Tasks were planned to address this last part of the test, as follows:

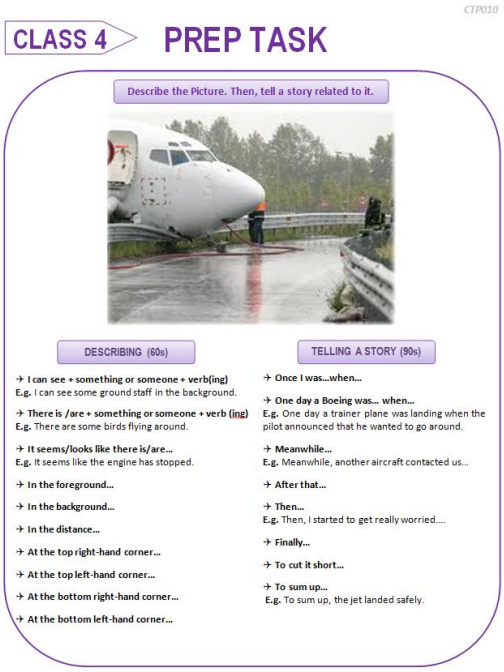


Figure 7. EPLIS Prep. Task – Paper 2 – Part 4

After all the planning and the development of the material, the course content was divided into Structure, Functional Language, Oral Comprehension Skills and Pronunciation Practices.

PAGE	UNIT	STRUCTURE	FUNCTIONAL LANGUAGE	ORAL COMPREHENSION / PRONUNCIATION
	1. My job as an ATCO	_Modal verbs: Must, Have to / Has to _Present Simple _To be responsible for + Verb (ing)	_Identifying duties in the ATC room; _Speaking about the ATCO's daily routine, responsibilities and obligations. _Planning a duty roster to mitigate fatigue	_Checking items that may affect the ATCO's ability to control safely
	2. Airport Installations	_Present Continuous _There to be + Noun + Verb (ing) _Used for + Verb (ing) _Used to + Verb (infinitive form)	_Describing movements on the ground; _Identifying types of ground equipment and airside vehicles and their applications	_Listening for general and specific information concerning ground operations _Stressed syllable
	3. Language as a Human Factor (LHUFT)	_Second Conditional _Should	_Understanding the differences between Phraseology and Plain English _Speaking about possible results of imagined situations in the present or future _Giving suggestions	_Listening for general and specific information concerning communication issues
	4. Landmarks	_Prepositions of place and movement _Verbs of the senses (hear, see, smell)	_Identifying types of landmarks _Describing places and positions when flying VFR	_Listening for general and specific information concerning visual flights _Tongue Twister: diphthongs

Figure 7. Table of Contents

Main changes

There have been some changes to the redesigned course and its underlying concepts. This new version of the Student's Book has eleven units, with the aim of providing Brazilian air traffic controllers with the language skills they need to handle non-routine situations.

The introductory unit ("*My job as an ATCO*") covers the main responsibilities and fatigue mitigation of Brazilian air traffic controllers. It was divided into two sections: a lexical-grammar cycle with 2 lessons, in which vocabulary and grammar are taught together through chunks. According to Selivan (2018, p.13), "A chunk is a frequently recurring, meaningful string of two or more words – either fixed or with variable slots – which can be learned as a single unit, without the need to analyse its elements". This first cycle of the unit lasts approximately 2 hours. There's also a one-hour oral comprehension cycle that covers listening skills.

The other units of the Student's Book are divided into three sections arranged in the following order: a lexical-grammar section, with classes that range from 2 to 4 hours per unit; an oral comprehension section, with classes that range from 1 to 2 hours depending on the unit, and a Prep Task section[13], with a one-hour class per unit.

The lexical-grammar section devotes a lot of attention to presenting grammar and vocabulary through aviation-related chunks, such as: "heavy rain", "climb to a cruising altitude", "lift off the ground", "aborted takeoff", "had trouble breathing", and so on. At the end of the lexical-grammar cycle, there is always a different kind of pronunciation activity focusing on stress, rhythm and intonation with the aim of making understanding easier and more intelligible. Some of the activities consist of finding the stressed syllable, recognizing distinctive sounds, saying longer chunks, applying contrastive stress to work-related utterances.

The lessons follow the P-P-P **+ F** format: Presentation, Practice, and Production. The "F" has been added by the ICEA aeronautical English training team to highlight the importance and impact of tailored and action-oriented feedback as a key factor affecting learning outcomes (William, 2011).

The presentation stage sets the scene for work-related situations covered in the course. At this stage, some teaching strategies are quite helpful: eliciting ideas from students, getting them

[13] Further information on the Prep tasks can be found in the previous section of this paper.

to talk to each other about the topic of the class or activating their background knowledge. We usually make use of short videos and texts related to the theme of the lesson. By presenting students with some patterns and forms of language through meaningful chunks and situations, we aim at leading them into an inductive learning of the rules underlying the use and organization of the target language.

The practical stage consists of two activities focusing on accuracy. The first one is a written individual controlled work such as: sentence matching, gap filling; gap-and-cue; completing the sentence with the correct verb form, etc. Students can rely on a "Language Alert" box in their SB, which provides them with further grammar explanations and examples. Even though CLT often prioritizes fluency and the ability to communicate effectively, accuracy is still important to help students build a strong vocabulary-structural foundation along with their communication skills. Having students try to use the language individually while doing the first controlled practice is very helpful in getting them thinking about the correct use and pattern of the English language. Effective and immediate error correction is crucial at this stage. The second activity of the practical stage is more free and usually carried out in small groups. There are plenty of game-like activities, such as: tic-tac-toe, guessing games, jigsaw puzzles, rotating cards, and Chinese whisper.

During the production phase of the class, to promote fluency and interaction, students work in pairs or small groups to perform different tasks related to the class content, such as: role-plays, problem-solving, sharing personal experiences, debate, storytelling, etc.

The listening comprehension section of the units is divided into 3 stages: pre-listening, while-listening and post-listening activities. During the pre-listening stage, group discussions about the topic of the audio can give students the opportunity not only to practice speaking, but also to practice listening to one another, as they also try to anticipate or predict the main ideas of the upcoming audio. Pre-teaching vocabulary activities, such as matching the words or phrases

with corresponding pictures, can help students learn some key-words that will enable their understanding. During the while-listening stage, the first activity focuses on the main idea of the audio (Listening for Gist), while the second one focuses on specific information and / or important details (SIID). Different kinds of activities were created for practicing listening skills, such as: completing a table, setting questions, gap-filling, finding the mistakes, true or false statements, giving a title, ticking the right pieces of information, etc.

Post-listening activities include debates, problem solving, recreating a dialogue, and coming up with a different ending to a story, with the aim of making students produce language and practice fluency and interaction.

Final assessment

At the end of the course, students take an oral test which assesses listening and speaking skills in an integrated manner. The aim of the final assessment is to provide feedback on the students' performance and identify the categories (comprehension, pronunciation, structure, vocabulary, fluency and interaction) that need improvement.

The assessment is made up of three face-to-face tasks. Tasks 1 and 2 are taken in pairs to enhance interaction. To apply the final assessment, at least 2 instructors are required: 1 instructor acting as an interlocutor (interacting with 2 students at a time) and another one acting as a rater, responsible for filling out the learner's feedback form.

To perform task 1, a pair of students sit back to back. The student facing the board will be able to see some images and language prompts projected on the slide. The situations and prompts are related to the content of the units covered during the course. After observing the slide for up to 10'', the student facing the slide reports the situation to the other one who cannot see it. At the interlocutor's command, the student who has just listened to the report is expected to say what the situation is and then offer a possible solution to solve it. Students switch roles to perform the

same task once again with a different situation. The idea is to check the student's listening comprehension and their ability to describe and come up with a solution to a non-routine situation. This task takes up to 5 minutes.

To perform the second task, the same students play different roles in a pilot-ATC dialogue, based on the pictures and speech bubbles displayed on the projected slide. Students can choose a situation among a set of pictures that depict the units of the course, as well as their roles (pilot or controller). They are assigned 3 minutes to create the conversation. Then, at the interlocutor's command, they present the dialogue. The objective of the activity is to have students produce and experience communicative language functions, while interacting with each another. This task takes up to 5 minutes per pair.

To perform task 3, each student individually prepares a short talk based on an open-ended question received the day before the test, such as "What are the obligations and duties in an ATC room?" (Unit 1: *My job as an ATCO*). The questions are related to the content of the units. While listening to the short talks on the day of the final test, the other students attending the oral presentations are supposed to create additional questions. At the end of each talk, the interlocutor randomly chooses a student to ask the presenter an additional question. By doing this, all students are engaged in the task, and there is also an element of surprise when formulating and attempting to answer the additional questions. Each presentation takes up to 5 minutes.

The student feedback form (Figure 8) was developed to provide individual feedback to students, so they know which skill areas they need to work on more. The form covers 3 items: task achievement, language use (according to ICAO rating scale) and final comments. One day after the final assessment, learners receive qualitative feedback on their performance not only during test, but also on their progress throughout the course. They receive some general comments on what they have successfully achieved in terms of accurate and appropriate language use, what they need to review, and some encouragement to keep on studying English.

CTP 010 Final Achievement Test – Student Feedback Form				
Student:				**Date:**
Instructor:				**Place (OM):**
Main criteria	**The learner...**	**Not yet**	**Partially or sometimes**	**Fully**
Task achievement	...achieves the **aim** of the tasks			
	... is able to **understand** work-related topics with ease (**Comprehension**)			
	... uses **communication strategies** if needed			
	... is able to **manage** the **interaction**			
Language use	... is accurate in terms of the **grammar** taught in the course			
	... uses a variety of **structures** taught in the course			
	... is accurate in terms of the **vocabulary** taught in the course			
	... uses a variety of **words and expressions** taught in the course			
	... is intelligible to the international aeronautical community in terms of **pronunciation**, **rhythm** and **intonation**			
	... speaks at an **appropriate speed** and segments their speech in a way that **favors communication** with the international aeronautical community (**Fluency**)			
	... is accurate when using the **discourse markers**, **linking words** and other cohesive devices taught in the course (**Fluency**)			
Final comments:				

Figure 8. Student Feedback Form

Trial course

The trail course took place in Manaus, the capital city of the Amazon State, in August 2024. Most of the classes were carried out by 2 Language Experts from the ICEA aeronautical English training sector. Two subject matter experts from military organizations in the Amazon Region taught three learning cycles each, always under the supervision of the ICEA's instructors.

The results were mostly positive, judging by the students' participation, progress and engagement throughout the course. A student's testimony at the closing ceremony ensures that the course is on the right track: (…) *it's clear the progress we have made from the very first day, both in terms of talking to one another as well as mentally… learning how to develop… it was a huge development… I've even talked to teacher Marcia that the course exceeded my expectations / And everybody here has benefited a lot from it.*

The different kinds of activities proposed throughout the course promoted accuracy, fluency and interaction: our main aim as material developers. At the end of each unit, the students received a survey in which they were asked to write down their impressions and to point out the strengths and weaknesses of the units taught. The questions answered were: 1. Do you feel you've learned the content of this unit? Explain. 2. Point out the strengths and weaknesses of this unit. Despite the setbacks and challenges we still need to face, we have some evidence that the reformulation of the new CTP010 was successful. The answers provided by the students were taken into account to review the material and make some improvements.

After putting the entire course material into practice and collecting the students' opinions, we came across some challenges we've been currently working on. We're still looking for the best digital platform for material storage and sharing. Some minor corrections related to operational content and language issues are still needed. We also realized that some activities of the course could've been more work-related, based on student feedback. When it comes to the Teacher's Guide, we've been working on the Lesson Plans too, in order to provide detailed and clearer instructions for those who will be in charge of teaching the new version of the course. Time planning review is still necessary, once we noticed, during the trial course, that some classes and activities took too long and had to be shortened. Finally, the material layout, as a whole, still needs adjustments.

Our special thanks go to CINDACTA IV for all the support provided during the course. We are also thankful for the trial course group of students for their willingness to learn, engagement, for helping create a friendly and cheerful classroom atmosphere and for their valuable and detailed feedback on the course content.

Next steps

We are currently working on the post-trial adjustments and improvements for the final version, so that the instructors and administrative staff can get prepared in plenty of time for

course delivery. We are also developing strategies to share the complete package of materials, including the Student's Book, Lesson Plans and extra resources with the Aeronautical English Sectors spread across all regions of Brazil. Further suggestions or corrections can always be sent to the ICEA training sector.

CTP010 is an intensive 2-week course, so every minute counts and all activities were planned and tested to provide maximum learning opportunities. It is of utmost importance that all instructors throughout Brazil follow the same procedures when teaching classes, to guarantee that the course be equally and entirely applied. Establishing quality standards is very important to measure the effects and results of the reformulated course and relate them to our EPLIS proficiency exam.

In order to achieve the standards, training is mandatory to all instructors. The team of instructors is composed of LE and SME, including experienced instructors, along with some new instructors coming straight from ICEA's teacher training course (CTP011). The first training was offered in the form of an oral presentation, delivered at the 11th GEIA Seminar, in order to reach all instructors and, at the same time, share our experience with the international aeronautical English community that is target of the Seminar. GEIA research group carries out important research that has a major impact on new training courses developed by ICEA's aeronautical English training sector (Tosqui-Lucks; Santana; Silva, 2024). To ensure high quality standards during the first offering of the course, ICEA's teachers will personally go to different locations all over Brazil to deliver the training to the instructors. After that, these instructors can train others in their respective regions.

Final remarks

The aeronautical English course for Brazilian ATCOs (CTP010) belongs to a suite of in-person and online courses provided by the ICEA training sector. There is a track comprised of different courses and training that must be followed by our ATCOs in different moments of their

careers, so that they reach proficiency level 04. CTP010 was the first course developed by the ICEA training team years ago and needs to be updated from time to time. It is also our longest in-person course and we are proud to say that it still receives the best overall evaluation in surveys.

We would like to thank all our instructors who understood the need to update the course and embraced this great project. We are all together in the mission of elevating the language proficiency level of Brazilian air traffic controllers and making the skies safer.

References

International Civil Aviation Organization (2010). Manual on the implementation of ICAO language proficiency requirements (*Doc 9835* AN/453) (2nd ed). Montreal, 2010.

Richards, J. (2004). *Communicative Language Teaching Today* (1st ed.). Cambridge: Cambridge University Press. pp. 1-45.

Selivan, L. (2018). *Lexical Grammar*: Activities for teaching chunks and exploring patterns. United Kingdom: Cambridge University Press.

Tosqui-Lucks, P; Santana, J. C.; Silva, A. L.B. C. (2025). Ten years of the Brazilian Aeronautical English Research Group and its contributions to the field. In: Friginal, E. Prado, M. Roberts, J. *Teaching and Assessment in Global Aviation English*. London: Bloomsbury Academic, p. 241-264.

Wiliam, D. (2011). What is assessment for learning? In: *Studies in Educational Evaluation*, vol. 37, issue 1, March 2011, pp. 3-14.

We don't only speak a language – Towards valid and appropriate listening tasks for learning and assessment in aviation English

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Overview

Cinderella's slipper, the black sheep of the family, or the elephant in the room? Why is teaching and learning listening seen in such a contentious light? Why is it problematic to theorise and even more difficult to contextualise? Why do we as teachers focus a lot on writing, reading and speaking, and a lot less on listening? Why do we 'speak' a language but never *listen*? If teaching and learning listening is problematic to this extent, then it follows that assessment of listening will be equally as challenging.

Of course, tangible learning of listening skills is not easy to observe, and therefore determining the skills themselves is equally difficult (Field, 2013). Having clear visual and auditory references for the other three language skills makes learning objectives and assessment constructs much easier to define and discern (Hedge, 2000; Weir, 2005). We can thus explore and dissect language competencies to identify sub-skills in speaking, reading and writing, such as: grammar, lexis, cohesion, referencing, fluency, and speech rate.

However, in the domain of aviation radio communication, understanding the complexities of what listening skills are required is incontestable (Bullock, 2015). Enhancing trainers' and operators' knowledge of how to identify, learn, manage, and evaluate listening skills is therefore a key process in helping to achieve and maintain safe and efficient communication.

This paper aims to discuss and develop conventional ideas about listening. It will investigate how we can learn to listen, and how we can help ensure that our students are being taught the

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required skills. We look at what the relationship is between listening and speaking for pilots and air traffic controllers (ATCOs), and discuss how improving an awareness of these skills can better define the listening construct and help ensure it is fit for assessment in its real-world communication purpose.

Current practice

Before we start, it is perhaps appropriate to look at our own experience of listening. This may have been in learning a second language or it could have been through exposure to listening practice with your own students. Take a moment to answer the following questions for your own experience and then think how easy it was to answer them clearly.

- How do you teach listening with your own learners?
- What specific skills of listening do you focus on for learning and how do you do this?
- How do you try to ensure it is relevant for your learners own operational roles?
- Do you teach listening in isolation, or integrate with other language competencies?
- What notable issues have your learners had with listening tasks?
- How do you think collaborative listening differs from non-collaborative listening?

Keeping your reflections in mind, there is clear value in looking at how certain authors have tackled the subject of listening in recent years, particularly in relation to Specific Purpose Language (LSP) fields. One thing that few dispute is that all learning and/or assessment must show a clear congruency with the tasks and features of the real-life communication that learners and test takers experience (Douglas, 2000; Doye, 1991; Messick, 1996). As Feak (2013) suggests, this typically relates to learners' professional language use. Field (2013) goes further by positing that language knowledge alone is insufficient and that the real-life language "performance" must be evaluated to provide learners with appropriate settings, tasks and

material. Some authors have reported that assessment performance is intrinsically linked to learning content (Bullock, 2015; Dusenbury & Burke, 2013) and therefore learning must be the driver of assessment rather than the contrary (Bailey, 1996; Bullock, 2017; Fulcher, 2010).

Exemplifying listening skills

To start looking at the skills needed for listening, Field (2019, p7) suggests "having extensive information on the phenomenon" being (learned and) tested. It naturally follows that this helps shape the material and the tasks for the classroom, and how we then measure them. It is not, therefore, imaginary to suggest that in a safety related environment, learning objectives must be as clear and as comprehensive as possible.

However, if we start with published ICAO material related to listening, the generalisability and ambiguity of the information does little to help. Doc 9835 refers to "the ability to recognize and understand speech" (ICAO, 2010, p. 2-9) but doesn't specify what skills are involved, nor how these may be achieved and observed. It also provides overriding and fairly obvious statements such as "Development of this skill will result in decreasing difficulty when dealing with complex discourse, unexpected or unfamiliar topics, unfamiliar accents" or that "Proficiency … can be characterized by the degree of detail and speed of understanding" (ICAO 2010, p. 2-9).

The descriptors for *assessment* of listening are equally ambiguous. Levels 3 to 5 in the ICAO rating scale focus a lot on intelligibility of *accents*. Again, the notion of accents here is extremely vague and thus problematic. Many authors agree that everyone has an accent of some sort in whatever language they speak, and that this can be dependent on so many factors and can fluctuate depending on social and professional interaction (Elliott, 2013; Field, 2013; Field, 2019; Holmes, 2013; Taylor, 2008; Wardhaugh & Fuller, 2015). Using accents as a benchmark for assessment and proficiency is seen simply as 'in vogue', even unfair and outdated (Kirkpatrick, 2018; Field, 2019). The variation of sociocultural, socio-professional, and

sociolinguistic influences on the production of language are such as to make it unfair to expect learners to hear a few examples of accented speech and suddenly become proficient listeners (Field, 2019). Deeming an accent as "sufficiently intelligible for an international community" (ICAO, 2010, p4-13) is highly subjective and therefore wholly inappropriate.

Perhaps the single most challenging issue in the LPRs is firstly to acknowledge listening as one of two specified overarching language skills to focus on, but then relegated to only one of the six descriptors in the ICAO rating scale (Farris, 2015; Kim, 2018; Knoch, 2014), albeit nebulously referred to as *Comprehension*. Additionally, having a criterion-based rating scale where the descriptors expect comprehension to be evaluated in varying levels of "accuracy" with little guidance on sub-skills or evaluation methods also demonstrates serious limitations.

So, if listening is so problematic to define, what steps can teachers take to help their learners? One relevant point to start with would be in analyzing authentic communication, which can help give learners visual references to what they hear (Bullock and Monteiro, 2020). The tendency in most classrooms is rather to learn pronunciation of decontextualised isolated words, and that may seem, on the surface, a perfectly valid thing to do. We want our speakers to articulate clearly, but this fails to take into account of how, when we listen, such pronunciation changes during connected speech in the real-world due to accented variation, contextual syllable stress, assimilation and more (Elliott, 2013). This is evident in many course books where audio files are recorded using voice-actors rather than actual professionals, resulting in sounds that differ from "how most people generally speak" and have little connection with real-world communication (Weir, 2005, p81). In terms of contextualizing the construct for what pilots and controllers hear, recordings for listening tasks should also at least include construct relevant elements such as engine noise, background 'chatter', and radio hiss.

Several misconceptions about listening are also evident, as suggested by Brown (2007). Firstly, that listening is a *passive* skill. Even in non-collaborative listening we still need to listen

actively, particularly for situational awareness. What is happening? What is going on? Who is where and when? What contextual clues am I looking for? Secondly, listening is seen as a *one-way process*. If you are involved in collaborative listening, you have to listen actively in order to prepare a response, and this is already being prepared while the speaker is still talking. A further misconception is that *listening equals comprehension*. You may repeat something or seemingly give an appropriate answer, but how much do we know someone has understood? One final observation mentioned is to wonder why we teach listening *separately*. Given the need for development of collaborative strategic skills in interactions such as clarification, repetition, and paraphrasing, this observation is perhaps one of the most important. Hedge (2000) further suggests that 45% of everyday communication is listening, a fact corroborated by ICAO's recently published Doc 10197, which states that "half the communicative load in radiotelephony communication is listening" (ICAO, 2024, p. 3-1), and begs the question as to why we focus so much more on spoken production.

In terms of cognitive processing how much of our listening comes from language knowledge (top-down processing) and how much from the bottom up processing of personal knowledge and experiences as described by Hedge (2000)? If we hear the phrase "people on the ground", is the speaker referring to a) a company's operational base, b) something as seen from an aircraft in flight, or c) perhaps the result of an aircraft emergency evacuation? Contextual knowledge is therefore critical to developing listening skills.

Field (2013 & 2018) proposed various models to demonstrate listening processes and construction as well as a scale related to the Common European Framework of Reference (CEFR) which put these skills into context and provide some degree of evaluating how listening takes place – defining single words, putting them in order, discerning meaning, and so on.

Weir (2005) produced his socio-cognitive framework for validating listening tests which included the setting, the acoustics and the knowledge (Taylor, 2013). Validity of a task then was based on inclusion of these to help measure the responses, and ultimately the skills.

Brown (2000) also provided a more focused list of 17 listening skills which may be considered along with those above. Certain are exemplified below where appropriate in teaching language for pilot/controller communication.

Retaining chunks of language in short-term memory	Developing an appreciation of collocations and context relevant vocabulary, and particularly how voiced sounds change in spoken language, will certainly help in this instance.
Stress and reduced stress patterns	As spoken English relies heavily on moving from stressed to unstressed sounds, it is prudent in helping learners deduce and identify these in speech. One example particular to English is the unvoiced *schwa* sound /**ə/** which is frequently evident in spoken English. eg. "final approach" becomes "fine l'**u**pp'roach" = "f/ai/n'l/**ə**/p/r/**ō**/**ch**"
Reduced forms of words	These are again used frequently in natural and spontaneous speech: "going to" = "Gunna" = "gənə" / "should have" = "Shudduh" = "ʃʊdə"
Interpreting words order patterns and their significance.	Analysing real-world speech to allow learners to absorb the context and deduce word order and significance is key to processing speech.
Identifying how speakers may demonstrate different grammatical forms.	Where a British speaker may use "I have landed" an American may say "I landed" with the exact same meaning. Being able to interpret such differences is key to successful listening.
Recognizing cohesive devices such as connectors and	This can help give more background information and can help formulate a clearer picture for the listener to deduce reason, consequence, signposting, sequencing, etc.

discourse markers	
Recognizing communicative functions of language	Standard phraseology is perhaps the most obvious example, where meaning is intended to be functionally obvious – request, climb, report, etc.
Assimilate main and supporting ideas and additional information	"We had a bird strike (main) / on rotation (supporting) " is a simple example and the listener can then prepare for new information "Request return to the field/ The issue is solved request continue climb"

Figure 1: Examples from Brown's list of listening skills suitable for aeronautical communication language training.

Seeing the relevance of such skills highlights the inconsistency of spoken language and is a critical tool for learners in helping to actively listen (Bachman and Plamer, 2000; Bullock, 2025; Douglas, 2000).

Activities and tasks for Listening

Having a clearer picture of what skills are needed is the first step, but teachers need activities that foreground a learning environment. Firstly, developing listening skills for pilots and ATCOs should focus on collaborative and non-collaborative tasks. Not only do pilots collaborate with ATC, but they must also listen to radio frequencies for situational awareness. Likewise, controllers need to listen perhaps to multiple frequencies or colleagues talking at the same time. Figure 1 includes examples from material used by myself to help develop activities and tasks for learners to aid in the development of their listening skills. They are based on real-life situations and where phraseology was incorrect, it has been corrected. Of course, listening to incorrect phraseology is good practice for students to know what *is* correct, so should be considered as well. As always, teachers should collaborate with operational experts where necessary to ascertain appropriate and correct language and contexts.

Recognise words, numbers in context	*ATC: "ABC123 Confirm persons on board and remaining fuel?"* *Pilot: "**POB 129** and **3:30** endurance ABC123"*	The context is asking for safety related information in an emergency situation. POB being the abbreviation and endurance is the time of remaining fuel
Understand meaning - short sentences	*ATC: "ABC123 Confirm the engine with the issue"* *Pilot: "**Number 1, port**, ABC123"*	ATCO asks for more **specific** information, and pilot give the engine with the problem. Engines are numbered 1-4 but the pilot may **specify** by *left* or *right*.
Recognise and respond to functional meaning	*ATC: "H-CA **report** your intentions"* *Pilot: "**Request** hold in present position for another 20 minutes, H-CA"*	The ATCO is **asking** for information and the pilot then **gives information** in making a **request**
Comprehend main ideas	*Pilot: "The aircraft is **on the ground in a field** and looks like it **hit some trees** … it's **difficult to see** but there **looks like some damage**."*	The pilot is giving information to ATC on another **aircraft who made an off-field landing** and is relaying the current situation.
Recognise specific contextual information	*Pilot: "We're still **20 miles from the coast** so we'll probably prepare for **ditching"***	***ditching*** is specific to landing on **water**, so the ATCO knows the position is over water and that he **most likely has an engine problem.**
Extract specific meaning in exchanges	*ATC: "We have **no radar contact**, report **approximate position?"***	ATC **cannot see the aircraft on radar** and so require further information.
Respond appropriately	*ATC:" C-CO Are you able to squawk?".* *Pilot: "**Affirm** C-CO"*	A simple **request** from ATC for the pilot to input a squawk code on the transponder to

	*ATC: "C-CO **squawk 5403**"* *Pilot: "**5403** C-CO"*	identify them.
Recognise and handle miscommunication	*ATC: "Runway in use 25 QNH 1015"* *Pilot: "Runway in use 15 and QNH 1025, ABC123"* *ATC: "ABC123 **negative, I say again** runway in use is 25, QNH 1015"* *Pilot: Roger runway in use is 25, QNH 1015, ABC123* *ATC: "ABC123 **correct**"*	ATC gives information which is then readback **incorrectly** by the pilot. The ATCO repeats and confirms by **hearback** from the pilot. **Clues** are *negative* and *I say again* followed by *correct.*

Figure 2: Activity examples to help develop specific skills for listening.

It is also worth adding some words of caution for listening activities in lessons and assessment tasks. Below are some guidance tips on what should perhaps be avoided:

- Tasks and activities should always focus on relevant contexts or situations learners listen to in the real world and be localized to the working environment of the student. This increases intrinsic motivation for the learner (Brown, 2002).
- Activities should include plain language, phraseology, and operational knowledge, as these are an integral part of the listening construct. However, and particularly in assessment, tasks should not aim to *assess* or rely solely on operational knowledge that do not tap into the language skills required, such as an ATIS transmission.
- Playing recordings where learners hear the recording only once also do not match real-world communication where there is always an option to ask back or clarify. There could be a multitude of reasons why even a proficient speaker has difficulty processing a message the first time they hear it. Single play also reduces the possibility for learners to develop their strategic skills, such as clarifying, asking back, confirming and negotiating meaning (Field, 2019). Listeners at lower levels of proficiency may need several attempts

to fully comprehend a spoken communication so, in the classroom, teachers should consider playing a recording several times.

- Interviews where the speaker focusses on general issues in aviation maybe be interesting from a socio-cultural point of view but are out of context in terms of operational radio communication, where *chatting* should be avoided.
- Collaborative listening skills are best developed in real-world role play activities using radio communication contexts. They can also be developed where the learners discuss an incident, or hypothesize about potential incidents, safety issues etc. There must, however, be some link to the required communication of real-world operational tasks. Caution is also advised when using well-known or widely accessible material where learners may rely on memory or operational knowledge rather than tapping into actual listening skills.
- Gap fill tasks where answers could be guessed by operational knowledge or the language in the written prompts are best avoided, so the skills focus is not on listening, but reading or operational knowledge.
- Avoid *True, false or not given* as these are unlikely to test listening comprehension.
- Multiple choice questions are often used, and are not necessarily a bad idea, but are very difficult to write and should only be developed by experienced materials writers.
- Prompts *and* responses for listening tasks should reduce to a minimum any reliance on other language skills, such as writing and/or reading and IT skills if using technology, so need careful development.

Of course, each situation and group of learners is different, so ideally prompts and response types should be varied. A short typewritten answer, and some multiple-choice questions, or possibly oral replies to the examiner, or a mixture of all three, are feasible. The more variation included, the less reliance there is on one particular input and response, and thus the wider range of skills that can be employed. Depending on learners' levels, the language focus will of course

be different – word level, phrase level, meaning. As difficulty increases, language and deduced meaning could be more and more specific, eg: *rain > heavy rain*, *> the heaviest rain ever encountered*.

Focusing on listening can be challenging, but with a thorough needs analysis and careful planning the course and assessment tasks should be operationally appropriate, localized and relevant for your learners. In terms of operational communication, always work with Controllers and Pilots in preparing your tasks, as working together helps teachers learn more about operational matters while SMEs can learn more about their own language and communication.

When preparing recordings, ensure they are natural and of an appropriate length. Too long, and there is the danger of cognitive overload. Think about the phonology of the speakers. Aim to use pilots and controllers for authentic speech rate, fluency, intonation, pausing, etc. to authenticate your recording. Many radio sounds are available on the internet and editing software like *Audacity* is free and easy to use. Do also remember that for learners, particularly at lower levels, speech should still be clear and reasonably well articulated and that the use of phraseology is correct. Ensure also that relevant information in recordings is clear and easy to distinguish.

With careful thought and a focused approach to defining your learners' objectives, listening can be fun, rewarding, and empowering. Motivation will increase and the will to learn will go a long way to ensure safe and efficient communication in real-life.

References

Bachman, L.F., & Palmer, A.S. (1996). *Language testing in practice*. Oxford University Press.

Bailey, K (1996). *Working for washback*: a review of the washback concept in language testing. Language Testing, 13(3), 257-279.

Brown, H.D. (2000). *Teaching by Principles*: *An Interactive Approach to Language Pedagogy*. New York: Longman. https://octovany.files.wordpress.com/2013/12/ok-teaching-by-principles-h-douglas-brown.pdf (accessed 16th August 2014)

Brown, H. D. (2002). English language teaching in the post method era – Towards better diagnosis, treatment and assessment, in Richards, J., & Renandya, W., (eds.), *Methodology in Language Teaching*. (pp9–18). Cambridge University Press.

Brown, H. D. (2007). *Principles of language learning and teaching*. Prentice Hall.

Bullock, N. (2015). Wider considerations in teaching speaking of English in the context of aeronautical communications, *IATEFL ESPSIG Journal*, 45, 4-11.

Bullock, N. (2017). *A re-evaluation of washback for learning and testing language in aeronautical communication.* ICAEA, Conference proceedings, Dubrovnik 2017, http://commons.erau.edu/icaea-workshop/2017/monday/19 (accessed 1st August 2018).

Bullock, N. (2025). Starting out – Towards Certified Professional Development for the Aviation English Teacher, in Friginal, E., Prado, M., and Roberts., J, (eds), *Teaching and Assessment in Global Aviation English* (pp117-136), Bloomsbury.

Douglas, D. (2000). *Assessing language for specific purposes*. Cambridge University Press.

Brown, H. D., & Lee, H. (2015).*Teaching principles* (pp. 42-50). P. Ed Australia.

Doye, P. (1991) Authenticity in foreign language testing. In Anivan, S., (Ed), *Current developments in language testing. Anthology Series 25*. Regional Language Centre, 103-10.

Dusenbury, M. & Bjerke, E. (2013). Predictive power of English testing: Training international flight students. *The Journal of Aviation/Aerospace Education & Research*, 23(1), 12–22.

Elliott, M., & Wilson, J. (2013). Context validity. *Examining listening: Research and practice in assessing second language listening*, *35*, 152-241.

Farris, C. (2016). Aviation language testing. In Estival, D., Farris, C., & Molesworth, B. (Eds), *Aviation English:* A Lingua Franca for Pilots and Air Traffic Controllers (pp.79-91). Routledge.

Feak, C (2013). ESP and Language Skills, in Paltridge, B and Starfield, S (Eds) *The Handbook of English for Specific Purposes*, (pp35-54). John Wiley & Sons.

Field, J. (2013). Cognitive Validity in Geranpayeh, A. and Taylor, L. (ed.) *Examining Listening* – Studies in Language Testing, (pp77-151). Cambridge University Press.

Field, J. (2018). *Understanding the Issues* - A cognitive approach to the testing of L2 Listening, IATEFL TEASIG PCE presentation, IATEFL conference, Brighton, 9th April 2018 https://tea.iatefl.org/wp-content/uploads/2015/10/Field-John_Understanding-the-beast-IATEFL-TEA-SIG-18.pdf

Field, J. (2019). *Rethinking the second language listening test.* Equinox.

Fulcher, G. (2010). *Practical Language Testing.* London: Hodder Education.

Holmes, J. (2013). Doing discourse analysis in sociolinguistics. *Research methods in sociolinguistics: A practical guide*, 177-193.

International Civil Aviation Organisation. (2010). *Doc 9835, Manual on the implementation of ICAO language proficiency requirements* 2nd Edition. Montreal: ICAO.

International Civil Aviation Organisation. (2024). *Doc 10197, Test Design Guidelines Handbook on the Design of Tests for the ICAO Language Proficiency Requirements* Montreal: ICAO.

Hedge, T. (2000). *Teaching and Learning in the Language Classroom*. OUP.

Kim, H., (2018). What constitutes professional communication in aviation: Is language proficiency enough for testing purposes? *Language Testing*, 35(3), 403–426.

Knoch, U. (2014). Using subject specialists to validate an ESP rating scale: The case of the International Civil Aviation Organization (ICAO) rating scale. *English for Specific Purposes*, 33, 77-86.

Kirkpatrick, A. (2018). 14 Concluding Chapter, *in* Sifakis, N. C., & Tsantila, N. (Eds.). *English as a lingua franca for EFL contexts* (Vol. 62). Multilingual Matters.

Messick, S. (1996). Validity and washback in language testing. *Language Testing*, 13(3), 241-256.

Monteiro, A. L., Bullock, N., (2020). A broader view of communicative competence for aeronautical communications: Implications for teaching and high-stakes testing, *ESPecialist*, 41(3), 2-29.

Taylor, L. (2008). Setting language standards for teaching and assessment: a matter of principle, politics, or prejudice? *Language Testing Matters*, 139.Wardhaugh and Fuller.

Taylor, L. (2013). Introduction, in Geranpayeh, A. and Taylor, L. (ed.) *Examining Listening* – Studies in Language Testing, (pp1-35). Cambridge University Press.

Weir, C J (2005). *Language Testing and Validation* – An Evidence Based Approach. Palgrave Macmillan.

Aviation communication - it's not just English!

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Abstract
Based on practical aviation experience combined with linguistic analysis, this paper argues that, although English is the *de facto* international language for aviation communication, a comparison with other languages used in aeronautical operations reveals similarities due to constraints imposed by the radio medium, i.e. single-channel transmission and degraded audio signal. Such a comparison, here conducted with French for general aviation communications in controlled and uncontrolled airspace, leads to the notion of the 'relexification of phraseologies'. The similarities between different aeronautical registers have implications for the training of non-native English speakers with previous aeronautical experience.

Keywords: aviation language; cross-language registers; on-native English speakers

Introduction

There are very good reasons to use a common standardized language for international aviation communication and English was the obvious choice when the International Civil Aviation Organisation decided to specify that it should be available on request from any aircraft station (ICAO, Annex 10 of the Chicago Convention, 1949). In 2003, mandated minimum levels of English Language Proficiency for commercial operations aimed to minimize misunderstandings that have led to terrible outcomes. However, contrary to widespread public opinion, English is not the only language used in aeronautical radiotelephony, nor should it be expected to be. Many types of local flying, such as flight training, medical evacuations or survey operations, as well as military flying, are typically conducted in the local languages. A shared common language in which they are proficient ensures better comprehension between local pilots and air traffic control and between pilots, and better situation awareness for other pilots on the same frequency. Nevertheless, the constraints imposed by the radio medium, i.e. single-channel transmission and degraded audio signal, dictate that aeronautical communications adhere

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to the same principles and follow the same structures regardless of the language in which they are conducted. In particular, the rules for turn-taking and self-identification are identical across the various aeronautical languages, and so are the requirements for brevity, clarity and precision. Other aspects of what might be better termed the *aeronautical register* are also shared, such as the international alphabet and specialised phraseology.

As a pilot who is a native French speaker and as a flight instructor in Australia who is also a language assessor for the Australian Civil Aviation Safety Authority, I have first-hand experience of both learning to communicate over the radio in 'Aviation English' and of teaching good radio etiquette to native as well as non-native English speakers. My research as a linguist investigates the impact of pilot training and language background on pilots' ability to follow the International Civil Aviation Organisation (ICAO) regulations for radio communication. This paper was first presented in the symposium on Aviation English organised by Markus Bieswanger, professor of English Linguistics at Universität Bayreuth, during the 21st International Association of Applied Linguistics Congress (AILA 2024) in Kuala Lumpur. The main points I wanted to make in that forum were that English is not the only language used in aviation and that the field of Applied Linguistics as well as the aviation community and the aviation industry could benefit from looking at the other aeronautical languages.

We often hear about English being the 'international language of aviation', 'the language of the skies' (ICAEA), 'the language of aviation' (Friginal, Mathews, & Roberts, 2019; Illman, 1998), or even 'the universal language of aviation' (Crocker, 1999), but in fact there are other languages used in aviation, developed in parallel to Aviation English and obeying the same constraints. As the tongue-in-cheek subtitle for the talk indicated, the argument moves from observing the reaction of many native English speakers on first hearing aviation English (*It's just not English!*) to the conclusion that Aviation English is not the only aeronautical register (*It's not just English!*).

History

Contrary to what is sometimes believed, English was not established as the international language of aviation by the 1944 Chicago Convention (ICAO, 1944). In fact, the only mention of English in documents produced by the International Civil Aviation Organization (ICAO) until 1951 is among the other languages that were considered 'official' for ICAO documents (English, French, and Spanish) and there is no mention of English as an international language until 2001. In 1951, Annex 10 (Vol I, 5.2.1.1.2) recommended, but did not mandate, that English be used for international aeronautical radiotelephony communications. Local languages can be used for local flying, but pilots can request to use English whenever the flight crew do not share another language with other aircraft or with the ground stations (ICAO, 2007).

The original Chicago Convention (ICAO, 1944, p.15) only required that participant states 'Adopt and put into operation the appropriate standard systems of communications procedure, codes, markings, signals, lighting and other operational practices and rules which may be recommended or established from time to time, pursuant to this Convention'.

No subsequent edition of the Chicago Convention mentions 'English as the international language of aviation'. Although Annex 10 (1996) lists amendment 36:
'Substituted "Radiotelephony Speech for International Aviation" for "International Language for Aviation". (8 April 1960, 1 August 1960, 1 January 1961)', it does not mention English.The earliest mention of English in Annex 10 occurs in 2001 (Annex 10, vol. II) which lists amendment 67 (emphasis added):

> Changes and editorial rearrangement of AFTN procedures resulting from the new ICAO three-letter designator; changes related to predetermined distribution system for the AFTN; introduction of new procedures concerning transmission of whole hundreds in radiotelephony; introduction of new procedures for use on VHF air-to-air communications channel**; editorial rearrangement to present English language radiotelephony phraseology in all language versions of Annex 10, Volume II.**

Also in 2001, Annex 10, Vol.II, Chapter 5 provided the following directives:

> 5.2.1.2.1 The air-ground radiotelephony communications shall be conducted in the language normally used by the station on the ground or in the English language.
>
> 5.2.1.2.2 The English language shall be available, on request from any aircraft station, at all stations on the ground serving designated airports and routes used by international air services.

Thus, Annex 10 recommended that English be made available whenever an aircraft station was unable to communicate in the language used by the station on the ground. Until March 2003, provisions relating to the use of language were addressed through two Recommended Practices in Annex 10 given above and a Standard in Annex 1. Finally, Amendment 78 (27/11/2003) discusses the Language Proficiency Requirements [5 March 2003; 14 July 2003; 27 November 2003].

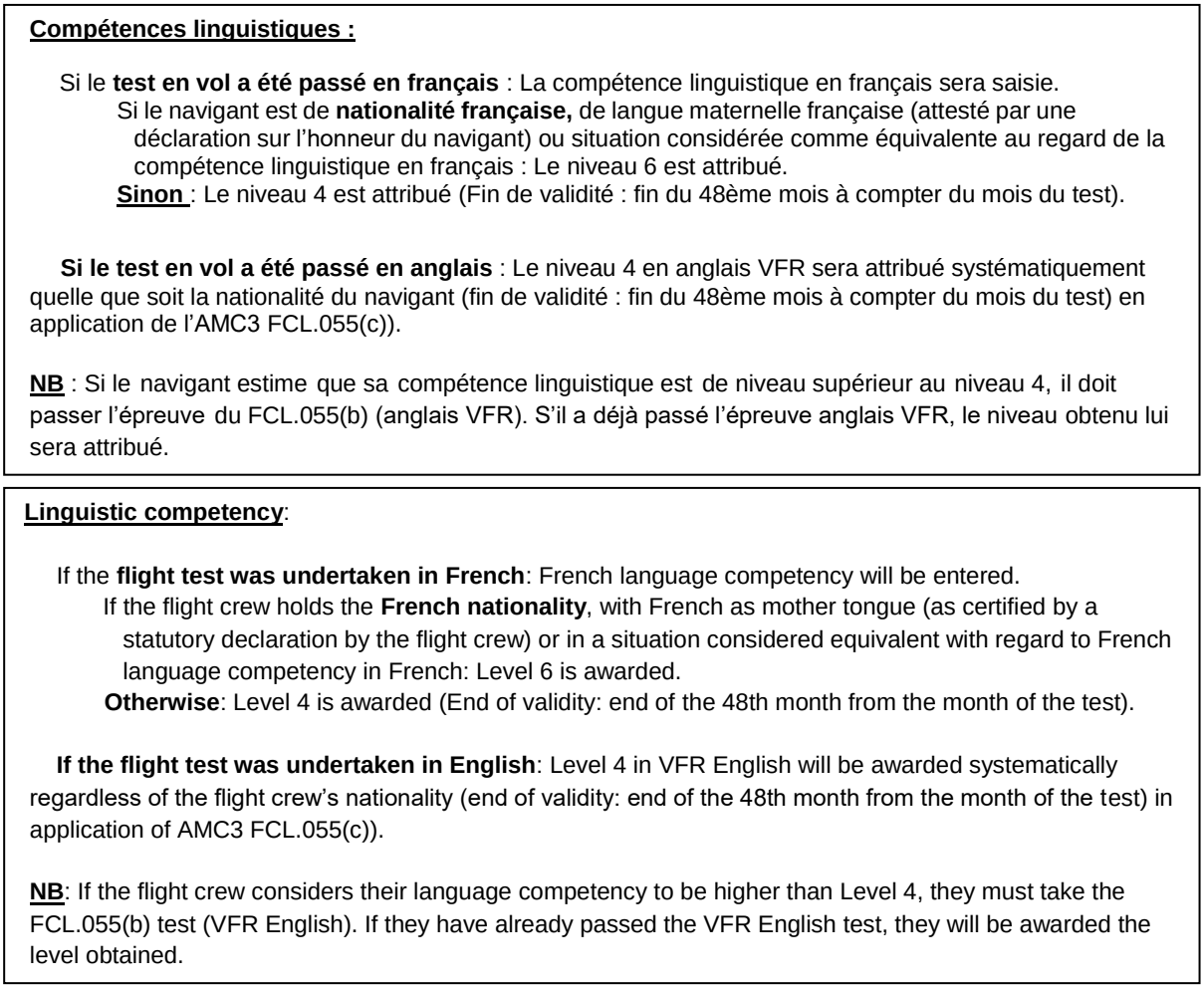
Language Proficiency Requirements

From the beginning, the ICAO Language Proficiency Requirements (LPRs) were intended for all languages used in aviation communication. In fact, (Shawcross, 2009, p. 6) made clear in an article for the ICAO Journal that there would be LPRs for other languages (emphasis added).

> **The ICAO LPRs apply to achieving and maintaining proficiency in all languages employed in radiotelephony communications.** As English is by far the language most widely used in common by the global aviation community, however, and the only one which there is a specific requirement to provide, **the aviation community's main focus for the time being is to improve levels of spoken English**. But where ICAO's goal was to define an end-point that would achieve its safety related objectives, **the worldwide English language education community saw this new development from their own perspective** and were immediately interested in the particular challenges that aviation English training posed to its existing network of trainers and courses.

Indeed, the aviation community mainly focussed on English, as evidenced by the English LPRs, which were developed and mandated by ICAO in 2003. Aviation English became the main focus for language research and language training in aviation, and teaching Aviation English became a booming industry for the 'worldwide English language education community'.

However, it is important to point out that, where local languages are used for radio communication, language proficiency requirements also apply for those languages. For instance, when I did my pilot training in France I never had to use English but there was a radiotelephony component in the Private Pilot Licence (PPL) programme, which tested appropriate use of the radio in French. As illustrated in Figure 1, the French PPL test form allows for an automatic Level 6 in French if the successful flight test is conducted in French and an automatic Level 4 in English if the flight is conducted in English.



Compétences linguistiques :

Si le **test en vol a été passé en français** : La compétence linguistique en français sera saisie.
Si le navigant est de **nationalité française,** de langue maternelle française (attesté par une déclaration sur l'honneur du navigant) ou situation considérée comme équivalente au regard de la compétence linguistique en français : Le niveau 6 est attribué.
Sinon : Le niveau 4 est attribué (Fin de validité : fin du 48ème mois à compter du mois du test).

Si le test en vol a été passé en anglais : Le niveau 4 en anglais VFR sera attribué systématiquement quelle que soit la nationalité du navigant (fin de validité : fin du 48ème mois à compter du mois du test) en application de l'AMC3 FCL.055(c)).

NB : Si le navigant estime que sa compétence linguistique est de niveau supérieur au niveau 4, il doit passer l'épreuve du FCL.055(b) (anglais VFR). S'il a déjà passé l'épreuve anglais VFR, le niveau obtenu lui sera attribué.

Linguistic competency:

If the **flight test was undertaken in French**: French language competency will be entered.
If the flight crew holds the **French nationality**, with French as mother tongue (as certified by a statutory declaration by the flight crew) or in a situation considered equivalent with regard to French language competency in French: Level 6 is awarded.
Otherwise: Level 4 is awarded (End of validity: end of the 48th month from the month of the test).

If the flight test was undertaken in English: Level 4 in VFR English will be awarded systematically regardless of the flight crew's nationality (end of validity: end of the 48th month from the month of the test) in application of AMC3 FCL.055(c)).

NB: If the flight crew considers their language competency to be higher than Level 4, they must take the FCL.055(b) test (VFR English). If they have already passed the VFR English test, they will be awarded the level obtained.

Figure 1. DGAC Formulaire de demande de délivrance d'une licence de pilote privé d'avion – PPL(A) Part FCL. [Application for French PPL licence, English translation, D. Estival]

Similarly, Canada is a bilingual country and has French LPRs as well as English LPRs. Eileen Carter (p.c., 2024) is a flight instructor in Ottawa, which borders Québec. She confirmed that she and her students use French when flying in the French-speaking part of their flying area and that, at uncontrolled aerodromes, both languages are used. Regarding language testing, she explained that before their first solo, student pilots undergo an informal language assessment, either in French or in English. To obtain a PPL, which requires English Language Proficiency Level 6, it is 'sufficient to have completed high school in English'.

Other aviation languages

Doty, Shila, and Ducar (2021) looked at the use of their native language by bilingual Spanish-speaking pilots. They state their research question as follows: 'With what frequency are pilots exposed to their native language while performing aviation duties and what effect does this have on their ability to perform their duties?' What they found was that (emphasis added):

> **Of the pilots surveyed, 96% reported always, often, or sometimes hearing their native language over the radio**. According to the participants, checklists and placards are mostly provided in English, but 48% still preferred to use Spanish in the cockpit. Operational wise, **42% of the participants indicated hearing Spanish over the radio the most in high traffic zones**; also, 88% of the participants indicated hearing Spanish over the radio in the regions of South America, Central America, and Spain. This indicates the extent to which a locally used language plays in aviation operations. Only **39% of pilots surveyed responded that their flight lessons were conducted completely in English**, and 56% had flight lessons conducted, at least partially, in Spanish. Most of the participants also indicated speaking Spanish for most of their livelihood; on the other hand, the participants indicated speaking English for significantly less time during their lifetime. This is also supported by other findings in the study in which 60% of them indicated speaking the English language with their family sometimes or not at all; similarly, 47% of the participants responded that they used the English language at their workplace only sometimes or not at all.

It is interesting to note that 48% of the participants in that study 'had aviation experience in the airlines' but that the pilots 'ranged from types of aviation such as the military, general aviation,

flight instructors, cargo transport, passenger charters, or others'.[16] This would indicate that these pilots are very comfortable using Spanish in aeronautical communications.

In addition to Spanish and French, other aeronautical languages include Russian and Chinese. For instance, one of my students who is from Russia did his initial pilot training with me in Australia and is now an airline pilot in Russia. On one of his visits back to Sydney, he explained to me the multilingual environment at the smaller airline where he obtained his first job flying across Europe. More specifically, he recounted the advice of his captain regarding switching from English to Russian on the flights back to Russia. He and the other junior pilots were trained to guard against errors in that situation, including the use of different units (e.g. metre/second rather than knots for wind speed).

Regarding Chinese, Zhao, Guo, and Gao (2017) report on the experience of Chinese airline pilots required to undergo English language training at later stages in their career. Some senior pilots felt that they were 'more familiar with English for aviation than junior pilots', who joined the airline after learning English in aviation universities or colleges: 'We were not able to speak aviation English, but we understand it better than anybody. Those kids who speak English fluently know nothing about the contextual meaning of these terminologies, not even close!' (p.8).

My own experience with Aviation French led me to the conclusions that not only aviation communication is conducted in a distinct register, as argued by Bieswanger (2016), but also that this is a cross-linguistic register (Estival, 2016; Estival & Pennycook, 2024).

Similarities across aviation languages - Relexification of phraseologies

Radiotelephony language is unintelligible to speakers with no aviation training or knowledge. In my experience as a flight instructor and as a pilot taking passengers for scenic

[16] Doty et al. (2021) further state that: "While a larger number of participants were skewed to a lower end of flight hours and years of experience, there were several with over 10,000 flight hours, and 50+ years of experience, with many in the middle of these two extremes as well. The average age of the participants was 40 years."

flights, most people, on first hearing aviation radio communications spontaneously say that 'It's not English!'. At a Symposium on Aviation English organised by Tim McNamara (then professor of Applied Linguistics at Melbourne University) during AILA 2012 in Boston, Barbara Seidlhofer (professor of Applied Linguistics at Vienna University) who pioneered research in the field of English as a Lingua Franca (ELF), suggested that it could be argued that there are no native speakers of Aviation English. Although this may seem an extreme position to take, Piller (2001) similarly argued that there are no native speakers of Standard English, because this is a language variety which has to be taught in school.[17] As argued by Estival and Pennycook (2024), Aviation English is not English as a Lingua Franca (ELF) either, but a specific professional register constrained by the physical medium of radio communications, which has to be taught and practiced.

The same arguments apply to Aviation French as to Aviation English: it is not comprehensible to native speakers if they do not have previous aviation experience. During a local scenic flight in France, my first-time French passengers had exactly the same reactions of incomprehension to the French radiotelephony chatter as my first-time English speaking passengers have to the English radiotelephony chatter in Australia. They could not follow the interaction with other pilots or air traffic controllers, or understand what was said. On the other hand, during that same flight I had another passenger, an English native speaker who is also fluent in French. Although not a pilot, he had enough experience flying with me to understand radio calls in English and he had no problem understanding the French radio calls he was hearing for the first time. His previous exposure to Aviation English allowed him to understand Aviation French.

The parallel *aeronautical registers* of Aviation French, Aviation Russian, Aviation Spanish, etc. exhibit very similar structures and phraseologies through what can be thought of as

[17] The situation can be compared to diglossic environments, in which the acrolect (for instance Modern Standard Arabic or Greek Katharevoussa) are not spoken at home but are taught in school.

relexifications of phraseologies. To show the similarities across aviation languages, the two tables below give examples of parallel transmissions in French and in English for General Aviation in both controlled airspace (Table 1) and uncontrolled airspace (Table 2). The examples in English follow the official Australian AIP (Airservices Australia, 2024), while the examples in French are adapted from a commercial French-English phraseology manual (Coulombe, 2011). What is noticeable is that both Aviation French and Aviation English not only use the same International Phonetic Alphabet, as expected, to spell out the call signs (*Papa Echo Golf Lima* and *Lima X-Ray Papa)* but that both also exhibit the same turn-taking protocol.

Clearly marking turns is one of the most important characteristic of aviation communication, because communication between aircraft (flight crew) and ground stations (ATC) is conducted over two-way radio with single-channel transmission. Single-channel means that only one party can be heard at a time on a radio frequency, so when one speaker is broadcasting, everyone tuned to that frequency receives the transmission. On the other hand, if two parties speak at the same time, not only is the signal unintelligible but the radio frequency is blocked and no other party can transmit on that frequency. This physical constraint dictates that aeronautical communications must adhere to clear rules for turn-taking and self-identification, with the resultant pragmatic structure arguably even more baffling to untrained listeners than the quirks of pronunciation or the limited technical vocabulary.

Thus, the first characteristic to note is that every transmission should start and end with call signs to mark turns and establish conversational participants. In controlled airspace, as shown in Table 1, calls are directed to the relevant air traffic control (here *Tour/Tower).*

CONTROLLED AIRSPACE	
Perpignan, France	**Bankstown, Australia**
Perpignan tour, *Papa Echo Golf Lima,* *DR 200,* *passons November,* *3500 pieds,* *avons reçu information Hotel.*	*Bankstown Tower,* *Lima X-Ray Papa, Cherokee,* *inbound 2RN,* *1500 feet,* *with information Hotel.*

Table 1. Controlled airspace

In uncontrolled airspace, as seen in Table 2, calls are broadcast to other traffic (*auto-info* or *traffic*) on the frequency. Unlike in controlled airspace, each transmission must identify the location at the end of the call (*Égletons* or *Cessnock*).

UNCONTROLLED AIRSPACE	
Égletons, France	**Cessnock, Australia**
Égletons auto-info, *Papa Echo Golf Lima,* *DR 200,* *à destination d'Égletons,* *4500 pieds,* *estimons verticale terrain à 35,* *Égletons.*	*Cessnock traffic,* *Lima X-Ray Papa, Cherokee,* *inbound from the south,* *3000 feet,* *estimating over airfield at 35,* *Cessnock.*

Table 2. Uncontrolled airspace

A second point to note is the parallel internal structure of the calls between the French and English transmissions. Call structure is often taught to student pilots with the list of information elements as in Table 3.

Who I am talking to	call sign
What I am	aircraft type
Who I am	call sign
Location	position/altitude
Intentions	e.g. overflying or inbound
(Requests)	(in controlled airspace)

Table 3. Call structure

Finally, the vocabulary in each information element is similar across the languages, with minor variations (*vertical terrain* / *over airfield*), such as in (1.a) and (1.b).

(1) a. *estimons verticale terrain à 35*
b. *estimating over airfield at 35.*

In particular, the expression of time is the same: spelling out the minutes past the hour (*35*) rather than giving hour and minutes (e.g., *11:35*).

Implications for global aviation and aviation language training

The theme of the AILA 2024 Symposium was 'Diversity and Aviation Communication' and I want to draw some conclusions from the preceding remarks for the implications of language diversity in aviation. The first point is that, as its name indicates, ICAO (the International Civil Aviation Organization) only regulates civil aviation. But there is of course an enormous amount of air military operations, around the world, from many diverse countries with their own languages. It is not to be expected that, for instance, the Russian air force would be operating in English, nor the Chinese or the Brazilian (Tosqui-Lucks & Silva, 2020). The military environment is separate from, but also often shares airspace and sometimes Air Traffic Control with, civil operations.

The second point is that most research in the field of Aviation English has rightly focussed on international travel airlines and the training for airlines that conduct international flights (e.g., Friginal et al., 2019). But there are many other types of civil operations, usually local and using the local language. Apart from private flying, commercial operations include, but are not limited to, agricultural operations, aerial photography, scenic flights at touristic locations, medical evacuations in country areas, search and rescue operations, fire-spotting, fire-fighting, and flight training.

The third point is that aviation communication is not limited to communications between pilots and air traffic controllers. In uncontrolled airspace, as shown in Table 2, pilot transmissions are directed to other pilots on the frequency. Following a broadcast such as (2),

another aircraft might respond asking for further information or clarifying their own position and intentions,

(2) *Cessnock traffic, Lima X-Ray Papa, Cherokee, inbound from the south, 3000 feet, estimating over airfield at 35. Cessnock*

The legal rules of radiotelephony prohibit certain types of transmissions, such as 'profane or obscene language, false and deceptive information, improper use of another aircraft's call sign, or communications of a private nature'. Nevertheless, pilots are human beings and interactions between pilots who know each other can contain some personal information. For instance, a pilot responding to (2) might add some greetings or details about their own flight. In the case of glider pilots on cross-country flights or during competitions, there is a dedicated 'chat' frequency where more specific information can be exchanged, still following loosely the turn-taking structure shown in Table 3.

Moreover, aeronautical communication also involves ground personnel who are not part of any Air Traffic Service. Estival (in press) gives the example of ground personnel at country airfields, They need to be able to communicate with aircraft operating on the airfield, to make transmissions that are informative to incoming aircraft, and to understand what the pilots say (see also Cutting, 2012).

In summary, in all of these settings, regardless of the type of operation or language environment, participants are subject to similar requirements. To ensure safety, aviation participants must adhere to the same communication protocols, which should not be considered independent of each other even though they might be regulated by different bodies. Although ICAO only regulates civil aviation, military flying occurs in the same airspace; while research in aviation communication, especially in Aviation English, focuses on international airlines, civil aviation also includes many types of general and recreational aviation taking place in that same airspace; and finally, besides pilot-ATC interactions, aeronautical communications also include

pilot-pilot and ground-pilot interactions in uncontrolled airspace. We should also consider the increasing importance of drone operations in both civilian and military contexts, which need new regulations and assessments to co-exist with traditional forms of flying.

This brief overview of the diversity of contexts does not cover the complex issue of written documentation such as flight and maintenance manuals, which may not always be translated from the original manufacturer (from English for Boeing or Airbus for example, but also from Spanish, Polish, Russian or Chinese for other types of aircraft and equipment).[18] I will only mention the Simplified English for aircraft maintenance manuals, which was first designed from the 1990s by Boeing (Hoard, Wojcik, & Holzhauser, 1992) and further developed by a consortium of aviation industry partners under the name AECMA (European Association of Aerospace Industries) and later ASD (Aerospace, Security and Defence Industries) (ASD, 2021; Unwalla, 2004). Unfortunately, although ASD is still cited on the Boeing website (Boeing, 2024), a Boeing representative reported that they had 'walked away from that' as it was not 'economically feasible' (Walker, 2018). Nevertheless, although linguistic diversity in the aeronautical environment can be seen as problematic from the point of view of standardisation, it could also become a source of strength if we distil experience and combine the lessons learned from diverse contexts.

Conclusions

The remarks above present implications for the study of Aviation English, but also for the training of non-native English student pilots. Not only do these students already know about cross-cultural communication since they are studying in a language that is not their native language, but they may already know more about aviation and aviation communication than their instructors assume. Too often, flying schools assume that so-called ab initio students know

[18] For instance, the aircraft manual for my glider is in Polish, which had to be translated when imported into Australia.

nothing when they start their training. Some monolingual native English instructors and Aviation English trainers can come across as insulting and patronizing, if not racist. Because students are already in a position of lower power and because students who are not native English speakers often come from cultures that respect authority, they might not show how they feel about it or even be able to express it. The instructors may not be aware of the effect they produce but such attitudes not only do not foster the best educational outcomes, they may also engender deep-seated resentment.

The aviation industry still too often displays 'unconscious biases' towards non-native English speakers (Zunic & Stevens, 2024, p. 11). One such bias is to consider them as 'learners of English' who are in need of remedial training. A pilot or air traffic controller who reaches ICAO Level 4 may not sound fluent to a native English speaker who is not familiar with aviation, but they have nevertheless acquired a language proficiency level deemed adequate for operational purposes. While they might be working towards improving their English, they also have a number of other professional skills to maintain and practice to retain their current qualifications. As Cook (2005, p. 48) remarked, 'we are no more justified in saying that an L2 user is a perpetual L2 learner than we are in saying an adult native speaker is still learning their first language. […] A person of fifty who has used a language all their lives is not called an L1 learner; why should their use of a second language for, say, thirty years still be deemed learning?'.

We can also consider the implications of globalization for aviation, with its increasing number of non-native English speakers. Borowska (2016) reported that only 25% of the people who use aviation English are NES, meaning that 75% of the aviation English users are NNES. The growing importance of Asia in global aviation has been obvious for a long time. Already in 2019, Michael Kay, the President of the International Civil Aviation English Association, stated that '35% of world's new 637,000 pilots would be needed in Asia-Pacific' by 2037 (Kay, 2019).

In 2020, Boeing predicted a pilot growth of 763,000 total in the world, with 248,000 for the Asia-Pacific area (Boeing, 2020, p. 8).

What we call *English* is not necessarily the best fit for what global aviation is becoming. Yin, Yu, and Huang (2024, p. 16) argue for

> the need to have local purposes accommodated to meet communicative demands that are specific not only to the [Target Language User] but also to the local context. This is not just because of the complexity of aviation English, but much more because of the fact that global aviation safety and efficiency largely rely on the communicative language proficiency of aviation professionals who use English as a lingua franca.

As argued by Estival (in press), maybe it is not 'English' which should be considered the lingua franca, but the 'aviation language' and a better term than 'Aviation English' would be 'aviation communication'.

In conclusion, we must design new LPRs for 21st century global aviation, which would lower the emphasis on conversational competency for non-native English speakers and, for native English speakers, emphasize the need to be intelligible by non-native English speakers and to understand non-native English speakers.

References

Airservices Australia. (2024). *Aeronautical Information Publication (AIP)*. Canberra, Australia: Airservices Australia Retrieved from https://www.airservicesaustralia.com/aip/aip.asp.

ASD. (2021). *Simplified technical English*. (ASD-STE 100). Brussels, Belgium: European Community Retrieved from https://www.asd-ste100.org/.

Bieswanger, M. (2016). Aviation English: Two distinct specialised registers? In C. Schubert & C. Sanchez-Stockhammer (Eds.), *Variational text linguistics: Revisiting register in English* (pp. 67-85). Berlin, Germany: DeGruyter.

Boeing. (2020). *Pilot And Technician Outlook 2020-2039*. Retrieved from https://www.boeing.com/content/dam/boeing/boeingdotcom/market/assets/downloads/2020_PTO_PDF_Download.pdf

Boeing. (2024). Boeing Simplified English Checker. Retrieved from https://www.boeing.com/company/key-orgs/licensing/simplified-english-checker

Borowska, A. (2016). Do Expert Speakers Need to Practice a Language? In Anna Borowska & Adrian Enright (Eds.), *Changing Perspectives on Aviation English Training* (pp. 61-72). Warsaw, Poland: Uniwersytet Warszawski.

Cook, V. (2005). Basing teaching on the L2 user. In Enric Llurda (Ed.), *Non-native Language Teachers* (pp. 47-62). New York, USA: Springer.

Coulombe, C. (2011). *Guide de Phraséologie du Pilote VFR*. Toulouse, France: Cépaduès.

Crocker, D. (1999). *Dictionary of aeronautical English*. Teddington, UK: Peter Collins Publishing.

Cutting, J. (2012). English for airport ground staff. *English for Specific Purposes, 31*(1), 3-13. doi:https://doi.org/10.1016/j.esp.2011.06.002

Doty, S.; Shila, J. & Ducar, C. (2021). Aviation English in a bilingual context. *Collegiate Aviation Review International (Proceedings of the 2021 UAA Annual Conference), 39*(2), 318-328.

Estival, D. (2016). Aviation English: A linguistic description. In *Aviation English: A Lingua Franca for Pilots and Air Traffic Controllers* (pp. 22-53). London, UK: Routledge.

Estival, D. (in press). *Native English Speakers and Aviation Communication*: Routledge.

Estival, D. & Pennycook, A. (2024). Why aviation English is not ELF. In Kumiko Murata (Ed.), *ELF and Applied Linguistics* (pp. 172-188). London and New-York: Routledge.

Friginal, E.; Mathews, E. & Roberts, J. (2019). *English in Global Aviation. Context, Research, and Pedagogy*. London, UK: Bloomsbury.

Hoard, James E., Wojcik, R. & Holzhauser, K. (1992). An Automated Grammar and Style Checker for Writers of Simplified English. In Patrik O'Brian Holt & Noel William (Eds.), *Computers and Writing: State of the Art* (pp. 278-296). Dordrecht, The Netherlands: Springer.

ICAO. (1944). *Convention on International Civil Aviation*. Chicago, USA: International Civil Aviation Organization.

ICAO. (2007). *Doc 9432. Manual of Radiotelephony*. Montreal, Canada: International Civil Aviation Organization.

Illman, Paul. (1998). *The Pilot's Radio Communications Handbook*. New York, NY, USA: McGraw Hill Professional.

Kay, M. (2019). *Changing Traffic, Changing Communication Dynamics: Training for The Next Generation of Pilots and Controllers in Asia*. Paper presented at the ICAEA, Tokyo, Japan. https://commons.erau.edu/icaea-workshop/2019/day-1/2

Piller, I. (2001). Who, if anyone, is a native speaker? *Anglistik, 12*(2), 109-121.

Shawcross, P. (2009). Achieving Level 4: New Guidelines for aviation English training programmes. *The ICAO Journal, 64*(3), 4-9.

Tosqui-Lucks, P. & Silva, A L. (2020). Aeronautical English: Investigating the nature of this specific language in search of new heights. *The ESPecialist, 41*(3).

Unwalla, M. (2004). AECMA Simplified English. *Communicator, Winter 2004*.

Walker, M. (2018). *English in the Aviation Maintenance Industry: The Impact on Safety and an Exploration of the Need for Standards*. Paper presented at the International Civil Aviation English Association, Daytona Beach, FL. USA. https://commons.erau.edu/icaea-workshop/2018/friday/5

Yin, Y.; Yu, G. & Huang, D. (2024). Implementing the ICAO Language Proficiency Requirements: The Localization of Aviation English Testing. *Applied Linguistics, 45*, 699-717. doi:10.1093/applin/amad057

Zhao, K.; Guo, X. & Gao, X. (2017). Learning English to fly: A study of Chinese cargo airline pilots' learning engagement: Understanding Chinese pilots' English learning and use informs efforts to improve their command of English and ensure aviation safety. *English Today, 33*(4), 5-11. doi:10.1017/S0266078417000219

Zunic, V. & Stevens, P. (2024). *The Role of Native English Speakers in Safe, Efficient Radiotelephony*. https://aviation-english.com/skytalk-paper/#xl_xr_page_index.

Development of documentation on Unmanned Aircraft Systems in Brazil: challenges and opportunities

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Abstract
The development of documentation on Unmanned Aircraft Systems is an ongoing challenge worldwide as it must foresee possible situations in different environments where unmanned aircraft is used. Advances in the field are discussed in the Air Navigation Conferences held by the International Civil Aviation Organization (ICAO) every year, and the government bodies of all Member States make efforts to meet the demands discussed in the meetings. Under this panorama, based on the perspective of institutional translation by Koskinen (2008, 2009 and 2011), this work aimed to analyze the development of Brazilian regulation on air traffic management of unmanned aircraft systems in terms of international compliance and national needs, also considering possible issues with the English language. For that, seven interviews were conducted in 2025 with military personnel from the Subdepartment of Operations (SDOP) at the Department of Airspace Control (DECEA), and analysis also took into consideration knowledge of the Author from her working as a translator and researcher at DECEA for almost two decades. As a result, analysis pointed to the fact that institutional efforts for regulation in the field take into consideration the audience as well as political, economic, and cultural elements.

Keywords: unmanned aircraft systems, regulation, institutional translation, official documents.

Introduction

The development of unmanned aviation has been increasing worldwide. The use of this air modal is certainly groundbreaking, hence it will motivate a change in perspective of how the community sees aviation. (ICAO, 2017). As a so-called brand-new field, legislation on unmanned aviation has some specificities that will have to be addressed by all the parties involved in developing regulations and projects dealing with this theme (Nilsson, 2024), also regarding the English language, and translation specifically (Peixoto, 2024a).

Under this panorama, based on the perspective of institutional translation by Koskinen (2008, 2009 and 2011), this work aimed to analyze the development of Brazilian regulation on air traffic management of unmanned aircraft systems in terms of international compliance and

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national needs, also considering possible issues with the English language. For that, seven interviews were conducted in 2025 with military personnel from the Subdepartment of Operations (SDOP) at the Department of Airspace Control (DECEA), and analysis also took into consideration knowledge of the Author from her working as a translator and researcher at DECEA for almost two decades.

Having said that, this paper is organized as follows: (1) Advanced Air Mobility, (2) Development of International Standards and Institutional Translation, (3) Methodology, (4) Challenges and Opportunities, and (5) Conclusion.

Advanced Air Mobility (AAM)

Advanced Air Mobility (AAM) is a field that deals with so-called "aviation of the future", specifically addressing Unmanned Traffic Management (UTM) and Urban Air Mobility (UAM). The nomenclature AAM started to be more broadly used as of 2020, replacing the former urban air mobility (UAM) and regional air mobility (RAM) nomenclatures, which were found to be more limited to some extent or overlapping in terms of scope. Then AAM now comprises UAM and UTM.

While aviation has always considered the elements 'aircraft', 'controller' and 'pilot' on board as being obligatory to enable a flight, unmanned aviation is groundbreaking, as mentioned before, because the element 'pilot' will now be located outside the aircraft. The figure below (ICAO, 2019) illustrates a general picture of this concept for Remotely Piloted Aircraft (RPA) in Beyond Radio Line of Sight (BRLOS):

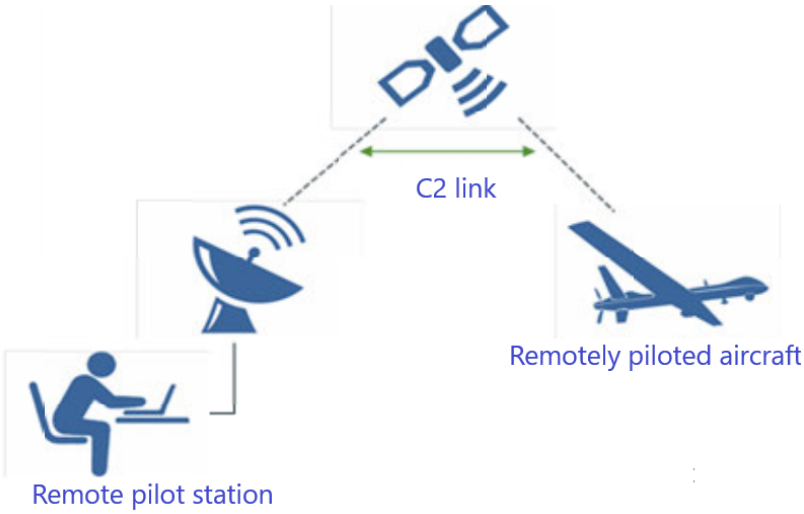

Figure 1. Example of BRLOS – RPS and RPA vis satellite access (ICAO, 2019, p. 113)

The implementation of this "aviation of the future" will have to focus not only on reliable technology to support this new type of traffic but also on widespread educated information to make sure the unmanned aviation is equally trusted in comparison to traditional aviation.

In her work, Nilsson (2024) provides a comprehensive overview of the anticipated transformation in aviation through Advanced Air Mobility (AAM), concerning economic, social and regulatory aspects. In terms of legislation and government framework, the briefing document outlines major policies and initiatives (2018–2024) by the US and many countries, including technology readiness to deal with cybersecurity and AI integration. Besides this, Nilsson emphasizes the importance of workforce training, enhancing public perception and providing education campaigns to ensure community acceptance of AAM.

Within the AAM framework, the author mentions electric aircraft as not only electric vertical takeoff and landing (eVTOL) but also electric conventional takeoff and landing (eCTOL) aircraft to carry passengers or cargo.

Some other works deal with how human-machine interface could impact or enhance air traffic management of unmanned aircraft, drones specifically, as in Rakotonarivo's doctoral dissertation (2022). The author shows how better tools can increase safety and reduce effort for

drone operators, and how human-centered design is essential to balance safety, usability, and operational feasibility of unmanned air traffic system management.

Regarding AAM, while UTM is a subfield that is being already tackled, with the management of remotely piloted aircraft (RPA), UAM is still under study, focusing on improving some technologies, especially for eVTOL.

At the Department of Airspace Control (DECEA), both fields dealing with unmanned aviation, i.e. UTM and UAM, are being addressed, with UTM being part of a larger project at the moment, named BR-UTM, where unmanned aircraft systems are being discussed by regulators along with parties in the Industry and Academia in regular meetings taking place a couple of times during the year.

In trying to expand information on unmanned aviation and exchanging advancements on the development and application of RPA, every year DECEA takes part in the "DroneShow Robotics", an event traditionally held in the city of Sao Paulo, Brazil, as an opportunity to exchange information that might envision other rooms for improvement.

The Subdepartment of Operations (SDOP) is the specific unit of DECEA that is most involved in the carrying out of BR-UTM project, with Divisions of Planning, Standards, and Coordination and Control leading actions at DECEA towards the common goal of regulating unmanned aircraft systems. Those actions follow guidelines provided by international standards on aviation, as prescribed by the International Civil Aviation Organization (ICAO), to ensure smooth evolution of the field in all Member States, as it will be explained in the next topic.

Development of International Standards and Institutional Translation

It is important to highlight that international aviation standards provided by the International Civil Aviation Organization (ICAO) are guidelines fully discussed by Member States in meetings held every year, i.e. the opinions of Member States are heard to find common

grounds to set the so-called rules of the air. Having said that, ICAO (2017) published an RPAS Concept of Operations (CONOPS) for international Instrument Flight Rules (IFR) operations, outlining a comprehensive framework for safely integrating Remotely Piloted Aircraft Systems (RPAS) into controlled international airspace.

This operational concept has to do with how the ecosystem is going to be operated, who will be certified to operate, who the participants will be, who will be affected, and which services will be associated, provided or possible. Therefore, CONOPS (2017) serves as a foundational ICAO document guiding future regulatory, technical, and operational developments necessary to safely integrate RPAS into international airspace alongside manned aircraft. It is in compliance with the prescribed in the ICAO's Aviation System Block Upgrade (ASBU) guidelines. As stated in the CONOPS (2017, p. 3),

> [ASBUs] provide a global systems engineering approach to facilitate the advancement of air navigation and enable global harmonization, increased capacities and improved environmental efficiency. The ASBU framework is presented in the ICAO Global Air Navigation Plan (GANP) and provides broadly-defined objectives. The framework has four Blocks (0, 1, 2, and 3), each defining associated modules, objectives and timelines. Three RPAS modules are defined in Blocks 1 (2019), Block 2 (2025) and Block 3 (2031 onwards).

As also explained in the CONOPS, Block 3 will be the moment when RPAS certification processes will be complete, comprising due policies, regulations and guidelines for States to observe, regarding avionics and ground systems.

This document dealt with the challenge of trying to align current traditional aviation operations and unmanned aircraft systems operations, facing the fact that the lack of onboard pilots would require a new infrastructure, procedures and standards, such as detect-and-avoid systems, and command and control links (C2 links).

From the perspective that standards must reflect best global practices, it must be considered that standards are part of a complex international negotiation, so they need to evolve from a mature, practical perspective, as it is the case with Sandbox experiments and the

development of conceptual operational guidelines before the publication of a technical regulation itself. Then to contribute to better understanding and coordination among the Member States, the ICAO reunites in its website links to national regulations on Unmanned Aircraft Systems, listing States' websites on the theme. (ICAO, 2025).

Discussions at the international level focus on standardization efforts, only observing sovereignty matters of each country, which are entitled to set reservations when appropriate. From an institutional perspective, the understanding of legislation and the scope of translation take into account a hybrid set of texts, ranging in thematic diversity but also derived from different political, economic and cultural backgrounds.

Particularly regarding institutional translation, Koskinen (2008 and 2009) brings some concept of institutional translation as related to how intrinsic social values, as a system, modulate how humans interact in society: not only how they produce language "originally" but also how they convey ideas produced in other languages. In other words, translation would always be a social construct. In line with this, she proposed a scope of institutional translation genres as a varied range of texts used for the same purpose of institutional communication (Koskinen 2008), which tends to reconvey, to some extent, conceptual ideas of the original text. As she explains,

> [W]e are dealing with *institutional translation* in those cases when an official body (government agency, multinational organization or a private company, etc.; also an individual person acting in an official status) uses translation as a means of "speaking" to a particular audience. Thus, in institutional translation, the voice that is to be heard is that of the translating institution. As a result, in a constructivist sense, the institution itself gets translated. (Koskinen 2008: 22, emphasis in the original)

Given this context, Koskinen (2011) stresses how translation policies and language policies in general are paramount at institutions, to provide clear guidelines on the matter. On this issue, Peixoto (2024b) discussed some political boundaries in language policies, specifically addressing the context of institutional settings, to show how an extensive diversity background in

a complex globalized world would actually demand more attention to “standardized” language being used by non-native speakers without a terminology-sensitive approach.

Methodology

For the development of this paper, seven interviews were conducted in 2025 with military personnel dealing with thematic issues of unmanned aircraft and eVTOL, within the works conducted in the field of air traffic management regulations in the Subdepartment of Operations (SDOP) of the Department of Airspace Control (DECEA).

As foreseen in Brazilian legislation Law nr. 13.709/2018, data collected[20] in the research was anonymized regarding personal data but it was clarified that some institutional functions could be referred to when found relevant, to provide proper situationality of generated data. Procedures followed dispositions of the Resolutions Nr. 466, dated 12 December 2012, and Nr. 510, dated 7 April 2016, regarding ethical procedures in research in Brazil and in the field of Human Sciences, respectively.

As SDOP is the most prominent unit carrying works related to Advanced Air Mobility (AAM) at DECEA, the interviewees were chosen from three Divisions in this Subdepartment, each one dealing with specific parts of the AAM project. From this group, six deal with UTM and only one of them deals with UAM – eVTOL specifically.

Having said that, the profile of interviewees comprises the head of the Subdepartment of Operations, and two military personnel from dedicated Subdivisions in each Division: (1) Planning, (2) Standards, and (3) Coordination and Control.

As the group is very specific, participants here will not be identified per Division but only by the names attributed to in this interview: Alexander, Bryan, Beatrice, Colin, David,

[20] All participants signed a Term of Informed Consent, with complete information on their rights and how data would be processed, besides confirming their consent at the beginning of their interviews.

Edgar and Felix. In general, participants had different approaches to the subject, enabling this project to have a more comprehensive perspective on how the theme is being developed at DECEA and in the aviation community.

Each interview lasted for some thirty minutes and was based on a semi-structured questionnaire with eight questions[21], from which only one was specifically dealing with English proficiency and the other ones were concerned with a more prospective overview of the field, as a way to understand how the use of the English language would be situated in the short, medium and long run.

The methodology of this paper could be summarized as follows:

Figure 2. Research Methodology Flowchart.

Challenges and Opportunities

All participants talked about current technological challenges to fully implement unmanned aircraft systems; necessary improvements from institutional management and integration in controlled airspace; and integration in the triple helix "government, industry and academia".

David, a participant that assumes an approach of more technical diplomacy when trying to bring together responsibilities of government, industry and academia, pointed out some governance actions and emphasized that service provider companies are the ones, in the end, that will foster investment in the sector. From his perspective, companies create protocols and sell

[21] The research questions deal with the following topics: 1) Unmanned Aircraft at DECEA, 2) BR-UTM, 3) Interinstitutional partnerships and English proficiency, 4) Operational, tactical and strategic pillars, 5) Scenario in the next decades, 6) Role of great powers, 7) Research, and 8) Additional comments.

them to enable more harmonization in the field, and this harmonization will ultimately promote interoperability.

He stresses that partnerships are necessary, but he holds a very skeptical perspective concerning institutional constraints. When approaching the challenges in a resilient way, he sees how unmanned aircraft will be implemented according to economic needs, even though some international institutions are approaching this topic cautiously, and they may sometimes tend to postpone recommended efforts to tackle important issues.

It was conveyed in the interviews that research is paramount to envision different perspectives, besides what is being operationally executed in institutions, i.e. workflows that have been more consolidated along the years. Participants were confident that a solution is going to be provided by the sectors academia and industry, as Alexander, David, Edgar and Felix pointed out. However, institutional approach is key to change how problems are being tackled, also in the sense that they become more open to how those themes are being addressed by Academia.

Another concern, pointed out by Edgar, is the scalability of operations, as it has to be foreseen in terms of planning for the evolution of the UAS being implemented. This participant stressed that the State, as a regulator, has to understand what the industry needs, as the government is ultimately demanded by society and the industry is the main party to implement what is required by the community.

Therefore, for the intent of scalability, airspace digitalization will be central, to enable the shift from conventional airspace management to a digitally integrated system designed to enhance not only scalability but also safety and efficiency for all users, including unmanned aircraft and advanced air mobility platforms. (ICAO, 2017 and 2025). And this transformation will rely on technologies such as real-time data sharing, artificial intelligence (AI), and automation to handle the growing complexity of air traffic demands. Taking all this into

consideration, the full implementation of airspace digitalization is expected to take approximately 10 to 15 years, according to David.

Brazil has been following an intermediary path, with strong dependency from academia and public-private collaboration, since Brazilian legislation limits more direct financing of solutions that are not proved totally effective yet. Work carried out prioritizes regulatory security and operational scalability.

At the moment, the working group is engaged in updating the publications on unmanned aircraft, especially an Air Force Command Instruction (ICA 100-40), in a collaborative way, along with some DECEA subordinate units. Then this first draft will be made available for public consultation, when adjustments may be proposed. During the period of two years, both versions (older and updated ones) will be in force. The ICA 100-40 is likely to incorporate contents of two Air Force Command Manuals: MCA 56-2 and 56-5.

Use of English as a Lingua Franca and Translation

Professionals in the management, regulation and planning have to master English language, as also reinforced by David, while technical personnel would have to show more operational English in daily use of RPA, as pointed out by Alexander, although the need for spoken proficiency tends to be reduced with the automation of UTM systems.

During the carrying out of the official translation of Doc 10019, on Remotely Piloted Aircraft Systems (RPAS), in my translation research at DECEA, some terms were addressed as requiring more attention when translated to Portuguese since they showed some nuance in meaning when compared to the traditional aviation background. In that sense, stronger English proficiency by operational personnel could translate in better understanding of those contexts when applied to practical use in the unmanned aviation field. (Peixoto, 2019).

At this point, it could be said that translation is more likely to be critical to unmanned aviation since there will be more dependency on automation, without much interaction with air traffic personnel, as highlighted by Alexander, Bryan and Beatrice. Therefore, problems derived from possible careless translations could pose major impact on information being disseminated. (Koskinen, 2008, Peixoto, 2024b). In this sense, participation in national and international forums and meetings tend to be more required, as there would be some need for alignment for procedures to be adopted.

The major difficulty will not be in proficiency in the sense of direct interaction between pilot and controller but in how to process information in the most adequate manner and be compliant with international standards. (Koskinen, 2009). In terms of innovative procedures, being currently discussed, access to this knowledge is always in English or in Spanish, depending on the most prevalent context.

Concerning the higher dependency on technology, Colin highlighted that there seems to be much resistance by the general [traditional] public regarding the use of this technology, as some lack of initial trust on this topic, an assumption that is convergent with the discussed by Nilsson (2024). Colin also emphasized difficulties of access by the public and possible language barriers for the audience and professionals in the field. However, the participant shared that it has been more common to have informal support groups as cellphone applications that are used to share information, and that it would be highly appreciated to have more studies carried out at the university and that it would be necessary to have it disseminated in the community, as a way to use this information to improve professional programs to train new professionals.

When considering the fact that aircraft will be automated without pilots on board, interoperability with existing systems will certainly be key but it is important to highlight that human performance will also have to be ensured, to avoid possible redirections due to untimely action. In that sense, guidelines tend to point to communication being mostly relied on written

information, rather than voice communication, and this could point to translation being more required for smooth interpreting of regulations.

In terms of language issues, data showed that English reading proficiency is still considered limited for full interpreting of international guidelines, and translated material could contribute to disseminate information for operational personnel.

The lack of English proficiency to some extent could cause regulatory vulnerabilities for operation, and possible legal limitations, then it would be beneficial to promote a more comprehensive institutional effort for language coordination in terms of translation and proficiency, such as language policies for translation (Koskinen, 2011), including official translations and partnerships with Academia.

In short, the relevance of English could be pointed out in the three tiers Government, Industry and Academia, known as triple helix, concerning pertinence and lines of actions, as follows:

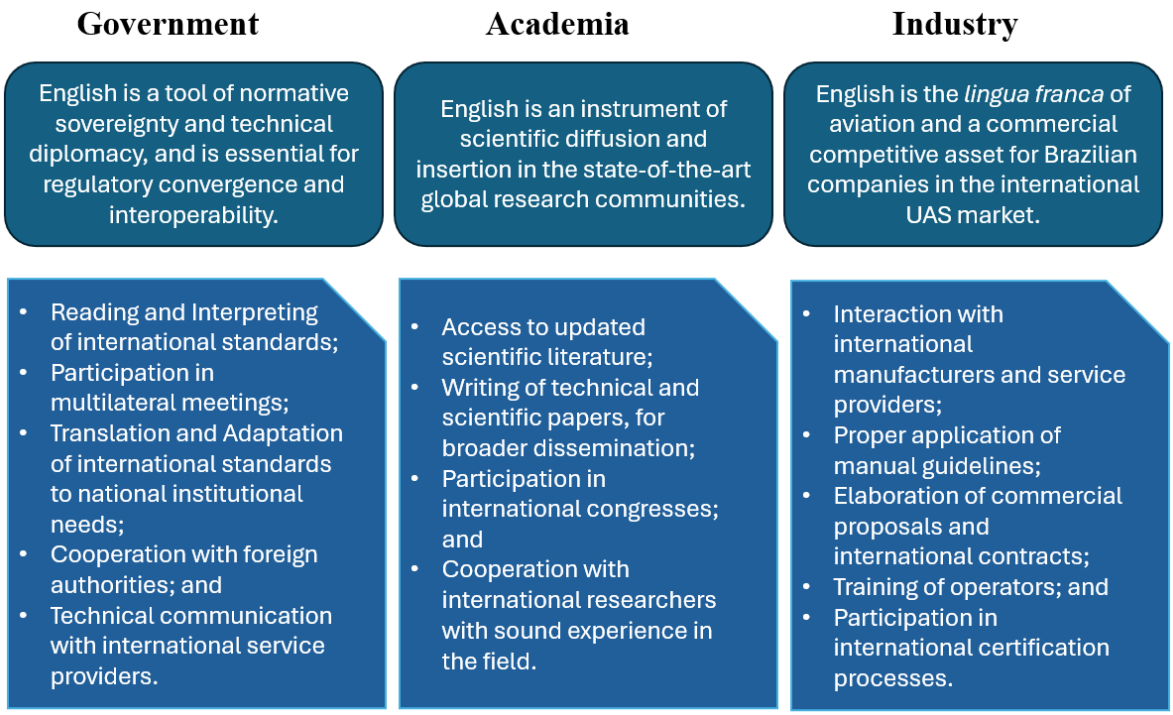

Figure 3. Relevance of English in the triple helix.

Conclusion

As explained in this paper, UAS must adhere to the same standards as manned aircraft whenever possible. For that, a careful process was designed and established in the ICAO CONOPS, to enable integration to be gradual, starting with accommodation until 2025, followed by comprehensive integration from 2025 onwards.

It is important to pay careful attention to English being used in the context of unmanned aircraft, since this innovative field is more distinct than the traditional field of air traffic management. As discussed in the paper, general written English proficiency is highly needed for regulation and standardization but spoken proficiency tends to have more moderate relevance in operations of unmanned aviation.

In other words, English, in the field of unmanned aircraft, will be potentially more dependent on translation, participation in panels and analyses of massive content of publications that are considered crucial for the regulating work being conducted, especially the creation of protocols. In addition, it has to be acknowledged that the project will have to be developed abiding by international legislation, in terms of air traffic management and legal constraints, as a way to prevent possible legal conflicts and make best use of legal dispositions, also observing ethical concerns and preventing risks of misuse.

While more autonomous aircraft will certainly bring great value to the aviation industry, it is probably going to take a long time before such aircraft, relying on digital air traffic control, have approval to fly over human beings. The process of improving regulation on this matter is certainly groundbreaking and requires dedicated efforts to implement necessary changes – and this also has to do with how reliable communication will be established alongside the use of advanced technologies, including artificial intelligence and neural networks.

References

International Civil Aviation Organization. (2017). *Remotely Piloted Aircraft System (RPAS) Concept of Operations (CONOPS) for International IFR Operations*. Montreal: ICAO, 1st edition.

International Civil Aviation Organization. (2019). *Document 10019 – Remotely Piloted Aircraft Systems.* Montreal: ICAO, 1st edition.

International Civil Aviation Organization. (2025). Countries' regulations. Available at: <https://www.icao.int/safety/UA/UASToolkit/Pages/State-Regulations.aspx>. Accessed on: 14 January 2025.

Koskinen, K. (2008). Translating Institutions. *An Ethnographic Study of EU Translation.* Manchester: St. Jerome.

Koskinen, K. (2009). Going Localised – Getting Recognised. Th Interplay of the Institutional and the Experienced Status of Translators in the European Commission. *Hermes – Journal of Language and Communication Studies,* 42, 93-110.

Koskinen, K. (2011). Institutional translation. In: Gambier, Y. & Doorslaer, L. van (Eds.). *Handbook of Translation Studies*. v. 2. Amsterdam; Philadelphia: John Benjamins Publishing Company, 54-60.

Nilsson, S. (2024). *Advanced Air Mobility (AAM) is Coming to a Town Near You...Are You Ready?* Prescott, Arizona: Embry-Riddle Aeronautical University.

Peixoto, R. A. J. R. (2024a). Terminological Patterns and Choice in Institutional Documents on Unmanned Aircraft Systems. In: Friginal, E., Prado, M. & Roberts, J. *Global Aviation English Research*. London: Bloomsbury.

Peixoto, R. A. J. R. (2024b). Political Boundaries in Language Policies: A Discussion on Institutional Settings. *Linguagem em (Dis)curso*, Tubarão, SC, 24, 1-12.

Rakotonarivo, B. H. (2022). Safety-maximizing human-machine interactions in drone mission preparation: the case of the specific category. *Computer Science* [cs]. ISAE.

INTERVIEWS

The Santos Dumont English Assessment: an interview with test developers

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Introduction

Ana Monteiro and Angela Garcia have been working with the implementation of the language proficiency requirements in Brazil for civilian pilots and are both responsible for test design and test revisions, item writing, test trialing, interlocutor and rater training, and for the continuous surveillance and monitoring of accredited institutions and examiners. The Brazilian test is called the *Santos Dumont English Assessment* (SDEA). It was developed by the National Civil Aviation Agency (ANAC), the Brazilian Civil Aviation Authority, and is the focus of this interview.

Question 1 - Who is the target test population?

The SDEA is the language proficiency assessment developed by ANAC with the objective of measuring the English proficiency level of pilots, holders of Brazilian licenses, in

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accordance with the requirements established in Annex 1 to the Convention on International Civil Aviation and in our Brazilian regulation, the RBAC 61. It is a test for specific purposes which assesses if the abilities of Brazilian pilot license holders to effectively use the English language in an operational context are sufficient for effective and safe radiotelephony communications. Its target test population comprises only pilots. In Brazil, the air traffic controllers are tested by another government institution, the Institute of Airspace Control (ICEA). ANAC has developed SDEA internally, acting as the test service provider and the regulator. The number of professionals who sit for the test every year is 3,700 on average, and its results are used for licensing purposes.

Question 2 - Are there separate tests for pilots and air traffic controllers?

Yes. In Brazil, pilots and air traffic controllers take different tests. As mentioned before, air traffic controllers take a different test, the EPLIS, developed and administered by ICEA. ANAC developed the SDEA for civilian pilots. There are different versions for airplane pilots and helicopter pilots, but there are no test versions for *ab initio* pilots.

Question 3 - How is the test administered?

Test-takers take the SDEA in person in one of the 11 accredited institutions we have in Brazil. Currently, there are around 35 trained examiners, including English Language Experts (ELEs) and Subject Matter Experts (SMEs). In each test administration, an ELE and an SME are present in the testing room. All exams are recorded in audio and video for reasons of oversight and continuous surveillance of the assessment procedures.

The SDEA comprises two phases. Phase 1 takes approximately 35 to 40 minutes, and Phase 2 takes approximately 45 minutes. Phase 1 tests up to level five and is divided into four parts. In the first part, *Aviation Topics*, the pilot needs to answer some questions related to aviation. In Part 2, *Interacting as a Pilot*, the pilot needs to interact with an air traffic controller in five

different situations. In Part 3, *Unexpected Situations*, the test-taker needs to listen to three different communications between pilots and air traffic controllers, report everything he or she could understand, and then answer some questions. At the end, he or she needs to compare the three different situations. Finally, in Part 4, *Picture Description and Discussion*, the test-taker describes the picture and answers some questions related to the picture. In this phase of the exam, test versions are generated by a computer system called *SySDEA*, which selects the test tasks from a testing bank based on a set of predetermined criteria and privileging the tasks and questions less used.

If the test-taker is considered eligible to take the level 6 test, he or she is invited to sit for Phase 2, which is optional. Phase 2 contains five parts. Part 1 consists of a listening input in which the test-taker has to identify misunderstandings. Part 2 contains a set of pictures and the test-taker has to interact as a pilot. In Part 3, there is listening input and the focus is on understanding idiomatic language. Part 4 consists of another listening input for the test-taker and he or she will have the opportunity to accommodate language while reporting/discussing the problem. And, finally, in Part 5, the test-taker listens to a final recording and then he or she continues the situation by interacting in a role play with the SME.

Question 4 - Does the test include tasks dedicated to assessing listening comprehension separate from speaking performance? Does the test also include the assessment of collaborative listening?

In the current format of the SDEA, there is not a paper designed only for the purpose of assessing listening skills in isolation. We used to have one in the past, but for a number of reasons, it was discontinued. We are fully aware of the importance of having tasks dedicated to assessing listening comprehension separate from speaking performance. The first step in that direction has already been taken. Angela has completed a PhD program that focused on the

assessment of listening in isolation, specifically on the definition of the construct, the listening construct. Although we would like a faster process, the development and implementation of our system, the SySDEA, was taken as a priority and could not be done at the same time as great changes to the test format and papers.

In both phases of the exam, there are tasks in which listening comprehension is assessed integrated with speaking performance. In Phase 1, integrated listening is assessed in Part 2, when the test-taker listens to radiotelephony recordings and has to interact with the air traffic controller as the pilot. There are five different situations in which the pilot has to read back information and confirm or clarify misunderstandings. In Part 3, the test-taker listens to three dialogues between pilots and air traffic controllers in non-routine or emergency situations and has to report what happened to the interlocutor. In Phase 2, the same happens in Parts 1, 3 and 4.

The assessment of collaborative listening is also included in both phases of the SDEA. In Phase 1, it happens by assessing the test-taker's interactions with the interlocutor in parts 1, 3 and 4, and, in Phase 2, during the role play in Part 4.

Also, in phases 1 and 2, test-takers are exposed to international accents, which include American, Welsh, Canadian, Australian, British, French, Belgian, Indian, German, Ukrainian, Argentinian, New Zealand, Venezuelan, Spanish, Korean, Turkish, Chinese, Bulgarian and Italian accents. Most of the scenarios developed for Phase 1 have been recorded by at least ten speakers with different accents, which allows greater flexibility in assembling test versions.

Question 5 - What are the task types the test comprises and the skills/abilities assessed?

In the first phase of SDEA, there are different types of tasks, skills and abilities that are measured. In Part 1, the type of task is open-ended questions related to aviation topics, and the skills and abilities are: to answer general questions related to aviation, to expand ideas through follow-up questions, etc.

In Part 2, the type of task is to interact as a pilot in five different scenarios with complications. Three complications are introduced by the interlocutor, and two are introduced by a picture, which gives the opportunity for the test-taker to use his/her own vocabulary, so that the interlocutor does not need to explain to the test-taker what is happening. He or she looks at the picture and needs to come up with the necessary vocabulary and the structure. In the five different situations in Part 2, test-takers are faced with a question from the controller, and they need to either clarify a misunderstanding or confirm some information. The skills and abilities measured in Part 2 are: to understand the air traffic controller's messages in radiotelephony communications, including phraseology and plain English; to interact as a pilot in predictable and unexpected situations; and to deal with apparent misunderstandings by checking, confirming, or clarifying.

In Part 3, there are three different scenarios of unexpected situations. It is a comprehension task in which test-takers need to interact with the examiner by answering questions. They need to: understand pilot and air traffic controller interactions during abnormal or emergency situations; report events, switching from standard phraseology to plain English; answer interlocutors' questions; and, at the end of Part 3, they need to compare the three situations they heard and express their opinions about which situation is more difficult to deal with. They may also compare them in terms of severity, possible solutions, or ways of prevention.

Finally, in Part 4, they need to describe a picture and discuss a topic related to the picture. The skills that are assessed in this part of the test are: to describe a picture in detail, to discuss a topic by making inferences, evaluating, hypothesizing, arguing and comparing to their own experiences; and to check the test-takers’ ability to engage in high level work-related dialogues using plain English.

In Phase 2 of the SDEA, there are also different types of tasks. In Part 1, there are two different situations which begin with a listening input. The first one is a pilot-controller communication, and the second one is either a communication between a pilot and Med link, a pilot and a dispatcher, or a pilot and a flight attendant, followed by some questions. The assessed skills are: to identify and explain misunderstandings, to infer, hypothesize, and give advice.

In Part 2, the input of the task is a set of three pictures of an abnormal or emergency situation in which the test-takers have to start by interacting with the air traffic controller. Then, they interact with the chief pilot. The skills and abilities assessed in this part of the test are: to announce the problem to the air traffic controller and inform intentions; to give a detailed report to a chief pilot; and also to speculate causes of the problem, to suggest ways of prevention, and to hypothesize worst outcomes.

In Part 3 of Phase 2, there is another listening input which consists of an informal conversation about an aviation topic, followed by questions. The second situation in the same part is an informal conversation, but this time specifically related to pilot/air traffic controller communications. The skills and abilities that are assessed are: to identify the main topic of the conversation; recognize and explain opposing opinions; take a position; provide arguments; infer meaning from idioms, phrasal verbs, and connotations; and also to rephrase and paraphrase.

Then moving to Part 4, there is a different listening input from a news broadcast reporting an aviation accident, which is also followed by a question and answer period, in which the test-taker has to report key aspects of the event and accommodate language while answering questions to a lay audience (people who are not familiar with aviation).

Finally, in Part 5, the task begins with a listening input of an abnormal or emergency situation. This recording might consist of a conversation between a pilot and an air traffic controller, a pilot and a flight attendant, or a captain and a first officer. This audio is followed by a role play

with the SME. The skills and abilities that we focus on this part are: the ability to perform the role of a pilot in radiotelephony communications; to understand unfamiliar topics; to rephrase, paraphrase, and clarify; and to manage miscommunications.

Question 6 - Does the test include tasks that engage the test-taker in a co-constructed dialogue with the interlocutor or with another test-taker?

In the SDEA, collaborative exchanges are possible with the interlocutor. In parts 1, 3, and 4 of Phase 1, follow-up questions allow test-takers to build on their ideas and expand them. Some of these questions are scripted, provided as suggestions for the interlocutor, but others, which are called extension follow-up questions, add an unexpected element to the interview while keeping with natural interaction moves, as these follow-up questions link back to previous test-takers' responses.

In Phase 2 of the exam, this is possible in parts 4 and 5 of the test. In part 4, the interlocutor asks follow-up questions to allow the test-taker to explain expressions he or she previously used or to further clarify concepts by providing examples and so on. In Part 5, the test-taker engages in a co-constructed dialogue with the SME during a voice-only role play, playing the role of the pilot in radiotelephony communications.

Question 7 - Is standardized phraseology included in the test? Is the use of phraseology assessed in the test?

SDEA contains several tasks in which phraseology is included as a prompt. For example, in Phase 1, this happens in Part 2, in the five different scenarios, and, in Part 3, it happens in the three scenarios. In Phase 2, which assesses level six, phraseology is included in the test prompts in parts one and five. The following example consists of a conversation between a pilot and the air traffic controller, which was taken from our online sample test, more specifically, Part 3, Situation 2 (ANAC, n. d.).

Pilot: *Dubai Control, Emirates 075, I had a tail strike during takeoff. We need to climb to the minimum safe altitude in order to check our systems before returning.*

ATC: *Emirates 075, roger, climb to 4000 feet, maintain radial 120, call back for vectors to return.*

In all parts of the exam, the questions and tasks are related to the civil aviation domain, with many of them appearing contextualized by recordings of radiotelephony communications, including the use of standardized phraseology. The comprehension of these recordings is taken into consideration for assessment purposes. However, test-takers' oral production is not judged according to technical or operational accuracy, as the exam seeks to verify their linguistic proficiency as a whole.

To conclude, although the objective of the test is not to assess phraseology, it is expected that the test-taker will interact with the air traffic controller as he or she would do in real life. This means that he or she should follow the procedures of radiotelephony communications, including the use of plain language and standard phraseology as appropriate.

Question 8 - Is the rating carried out by a minimum of two raters?

SDEA ratings are carried out by a minimum of two raters, an ELE and an SME. In Phase 1, ELEs act as interlocutors and raters, and SMEs only act as raters. But in Phase 2, ELEs act as interlocutors and raters and SMEs as raters again, but, in Part 5, SMEs also act as interlocutors, engaging in a role play with the test-taker. Both ELE and SME give analytic scores when they are assessing the test-taker. They give individual scores by carrying out what we call a blind rating procedure. Both examiners provide their individual ratings for each of the six criteria in the International Civil Aviation Organization (ICAO) rating scale. It is important to note that SDEA's SMEs can be either pilots or air traffic controllers. To work as an SME in Phase 1, the

pilot/air traffic controller needs to have at least level five endorsed on his/her license, whereas for Phase 2, they need to have been awarded level six.

In case of divergent scores between the SME and the ELE, the procedures are the following: The tests are recorded. After the test finishes, the examiners listen to the recording and fill in their individual rating forms with evidence for each criterion. At the end of this form, they have to write down the scores that they wish to award to the test-taker for each criterion based on the evidence they collected. As they need to follow the blind rating procedure, they need to get to that conclusion before talking to each other. Then, they will show each other the scores that they have given and check if the final level was the same. If all levels were the same, they will write the final reporting form together. If the final level was the same, but there were some different scores in between, for example, both ELE and SME gave the test-taker a final level four, but the ELE gave a level four for all criteria and the SME gave a level four for pronunciation, structure, and vocabulary, and five for fluency, comprehension, and interactions, they talk about these three categories, and show the evidence that they have collected. They should refer to the Rating Manual, discuss those topics more deeply in order to draw a conclusion together. In case the ELE, even after the discussion, still considers the pilot is a level four for any criteria, then they must keep the level four for those areas that the ELE believes should be level four. If the ELE agrees with the level five given by the SME in a particular area, then the ELE will point that out in his/her individual rating form. In the individual rating form, below the blind rating scores, there is a table where they have to fill in the scores after discussion. Then the ELE can change it from level 4 to level 5. If the ELE still thinks it is a level four, they must keep level four in the final reporting form. In case the final level is different, if the ELE gave a level four and the SME gave a final level five, for example, or if it is a difference between levels one and two or two and three (which happens much less frequently) or, in Phase 2, if it is a difference between levels five and six, the examiners can also discuss and try to draw a conclusion together. However, if the

final levels are different and one examiner gave level three and the other gave level four, then they are not allowed to debate and try to draw conclusions together. This recording must be sent to a third rater who will focus on the divergent skill areas. For example, the ELE gave level four in pronunciation, three in structure, three in vocabulary, and four in other areas, and the SME gave four in all criteria. If that is the case, a third rater will listen to the recording and will assess only the divergent scores which, in this case, are structure and vocabulary. *Figure 1* shows a summary of the rating procedures explained in this paragraph.

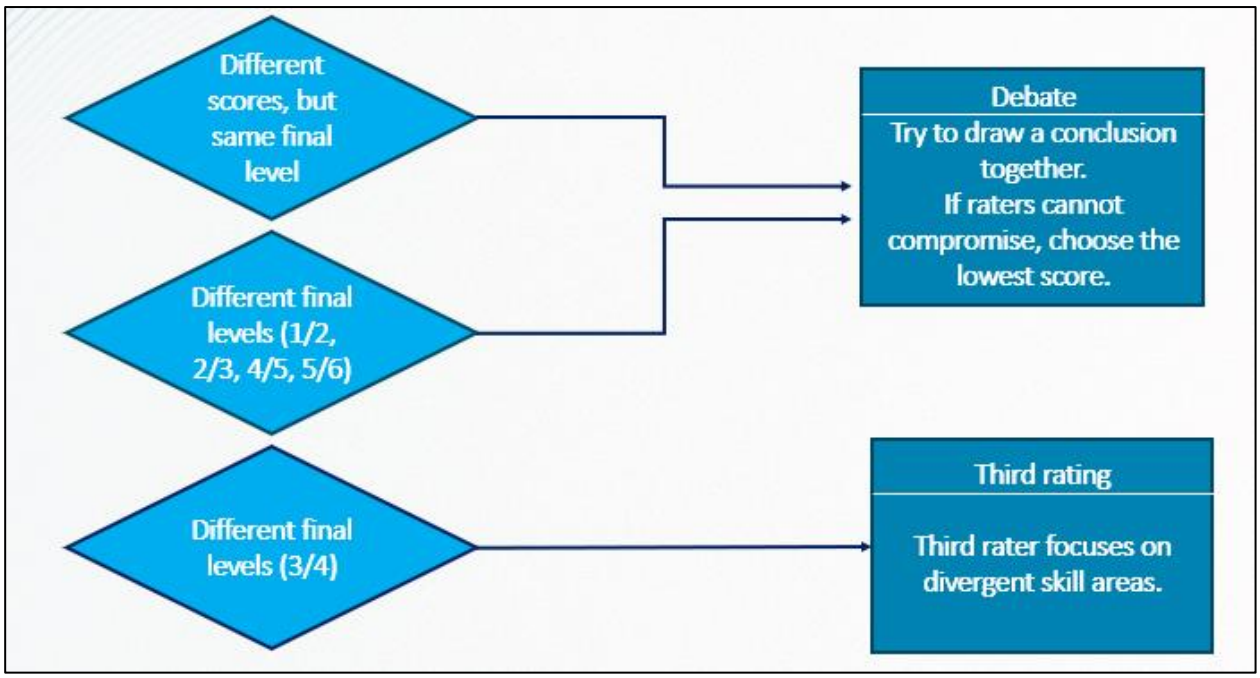

*Figure 1***.** SDEA Rating procedures

Question 9 - Does the test assess the six ICAO levels?

As mentioned before, Phase 1 of the SDEA assesses up to level five, and Phase 2 was specifically designed for the assessment of level six. SDEA phase one does not allow us to fully assess all level six descriptors, especially in relation to vocabulary, comprehension, and interactions. If, in the first phase, the test-taker is considered eligible to take the level 6 test, then he or she is invited to do so in Phase 2, which must take place within 60 days and at the same

accredited institution where the pilot sat for Phase 1. If the test-taker fails Phase 2, he/she keeps the level 5 endorsement that was obtained in Phase 1. If the test-taker fails Phase 1 of the exam, he or she can take it again after 60 days at any accredited institution of his or her choice.

Final comments and remarks

We'd like to share with you some additional information about the SDEA. An appeals process is in place and test-takers can initiate an appeal up to 10 days after receiving their test results, either for Phase 1 or Phase 2 of the SDEA. Only ANAC examiners address these appeals. It is important to note that for a level to be changed through an appeals process, the test needs to be assessed by two ANAC examiners, and they both need to agree with the new final level.

In addition, test-takers take the SDEA at accredited institutions. ANAC does not regulate pricing nor receives any percentage of the money paid by pilots. Also, all accredited institutions apply the same versions of the test and use the same system, SySDEA. This system stores a bank of questions to generate different versions of the test for each test-taker.

Another point to consider is that ANAC provides initial and recurrent training for examiners: interlocutors and raters. Table 1 shows the duration of the last courses ANAC has offered.

Table 1

Duration of ANAC interlocutor and raters' courses in 2023

SDEA	Initial Training	Recurrent Training
SDEA Phase 1	50h	26h
SDEA Phase 2	36h	18h

For SDEA Phase 1, the initial training took 50 hours, whereas the recurrent training took 26 hours. For the SDEA Phase 2, which assesses level 6, the initial training took 32 hours and the last recurrent training took 18 hours.

Moreover, in relation to rater monitoring, it is important to point out that, apart from conducting continuous surveillance of approximately 5% of all exams, ANAC also carries out 10 inter-rater reliability exercises annually in which all examiners listen and rate the same test sample, and two intra-rater reliability exercises in which each rater listens to a recording of a test that they have previously rated, so that we can compare their results. ANAC also requests Phase 2 examiners to conduct inter-rater reliability exercises twice a year. Statistical analysis of these rater exercises are conducted, including the "Many Facets Rash Measurement", which gives us a more robust analysis of rater performance. Apart from that, ANAC carries out inspections at accredited institutions, both in person and remotely.

In relation to test results, Table 2 shows the results of the SDEA in the year 2023.

Table 2

SDEA 2023 Test Statistics

SDEA- 2023	Phase 1	Phase 2
Level 1	17	-
Level 2	35	-
Level 3	838	-
Level 4	2196	-
Level 5	641	18
Level 6	-	37
	3.727	55

In 2023 there was a total of 3,727 tests. The total number is the number of tests and not the number of pilots who took the test, since there were some pilots who took the test more than once in that year because they failed the test and took it again. There were 17 levels one, 35 levels two, and 838 levels three. Most pilots were awarded level 4 (2,196 levels 4), and 641 levels 5. There were 55 Phase 2 tests. Of these 55 pilots who took this test, 37 received a level 6, and 18 remained at level 5.

On another note, in 2017, ANAC carried out an online survey to gather test-takers' perceptions of the SDEA and of the impact of the implementation of the ICAO language proficiency requirements in Brazil. A questionnaire was sent to SDEA test-takers, and the results of this survey suggested a very positive reaction of Brazilian pilots towards the SDEA and the implementation of the ICAO language proficiency requirements in Brazil. Test-takers believed that the impact on flight safety and radiotelephony communications was positive. 1,700 pilots participated in that survey.

Before we conclude, we would like to share one final consideration.

Since 2004, we have faced numerous challenges. Brazil is a vast country with a large number of pilots from highly diverse backgrounds. ANAC currently lacks sufficient qualified personnel to fully meet the country's demands - particularly in maintaining the SDEA by regularly releasing new test tasks for Phases 1 and 2. As a public institution, we also face limitations in addressing all needs and setbacks in a timely manner. Still, we remain committed to improving the SDEA and the language proficiency requirements testing system established by ANAC. We recognize the importance of global harmonization in test design. Therefore, we will soon begin updating the SDEA format to align with ICAO DOC 10197 (ICAO 2024) - the *Test Design Guidelines Handbook on the Design of Tests for the ICAO Language Proficiency Requirements*.

Thank you very much for reading this interview. If you have any questions, please send us an e-mail. We will be happy to answer them.

References

ANAC (n.d.). *Santos Dumont English Assessment – Versão Modelo*. Retrieved May 24, 2025, from chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.gov.br/anac/pt-br/assuntos/regulados/profissionais-da-aviacao-civil/arquivos/sdeamodelo.pdf

ICAO (2024). *Test Design Guidelines Handbook on the Design of Tests for the ICAO Language Proficiency Requirements* (ICAO DOC 10197). International Civil Aviation Organization.

South America Interview: Venezuela

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Greetings for everyone. My name is Jean [‘dʒɑn] Soto, I am from Venezuela, I'm an education professional, and I'm in charge of the language proficiency interview for the civil aviation of Venezuela.

Question 1 - Who is the target test population?

According to the Venezuelan civil aviation regulation number 60 which is related to licensing process to fulfill the annex one, the language proficiency requirement is intended for pilots, traffic controllers, flight engineers, and aeronautical station operators; in this case, this implementation was established in the year 2011. with the years passing by the number of test taker was decreasing, for example in the year 2017 we had 585 test takers and in the year 2019 we had a total of 411. Conversely since the year 2020 the number of test takers has been increasing from 113 in the year 2020 to 366 in the year 2023. This [uh] test is only valid for Venezuelan license holders in this case if an international pilot wants to validate the license to work for a Venezuelan Airline; he needs to take the assessment one more time

Question 2 - Are there separate tests for pilots and air traffic controllers?

Following the indication of the ICAO document 9(8)35, the circular 318 and the Venezuelan aviation regulation 60, there are different tests intended for pilots, air traffic controllers, flight engineers, and aeronautical station operators. In the case of [uh] the flight engineers, they have a

[24] English language teacher from UPEL 2008, Civil Aviation Law Specialist from UNEFANB 2022, and Airport Management Specialist from UMBV 2022. He is pursuing his studies of continuing doctorate in Civil Aviation Science at IUAC. He has been a language proficiency interlocutor/rater For INAC - Venezuelan CAA since 2014. He worked also as an English language and aviation English for ATC teacher at IUAC since 2010 until 2014, and English language teacher at EAMB since 2009 until 2010.

similar test of pilots, like pilots, but concentrating a little bit more in plain language. There is no test service provider so it means that the pilots, air traffic controllers, and flight Engineers, they need to come to the civil aviation authority to have the test

Question 3 - How is the test administered?

The Instituto Nacional de Aeronáutica Civil is the National Civil Aviation Authority, and it is the test provider. So, test takers register themselves for the appointment to have the test. We do not have computer-based test, or internet-based test. So, it means that the test is face to face. For this [uh] test, the civil aviation authority has two raters or interlocutors one acting as a language expert, and (the) another working as a subject matter expert. The test may take from 20 to 25 minutes.

Question 4 - Does the test include tasks dedicated to assessing listening comprehension separate from speaking performance? Does the test also include the assessment of collaborative listening?

The language proficiency test administered in Venezuela has an isolated listening section; in this case the pilot is going to listen (to) some ATC clearance with the purpose of reading back. In the case of air traffic controllers, they are going to listen (to) some pilot requests with the purpose of providing clearance. In the case of flight Engineers they are going to receive some kind of information similar to ATC clearance but they need to explain what the situation taking place is. In this case the test takers are going to answer one question for each audio. This section of the test has an instrument and the audios that we apply are of Latin American accent well.

Question 5 - What are the task types the test comprises and the skills/abilities assessed?

The assessment done in Venezuela comprises different sections. One of them is a social discussion in which we make questions to the test takers with the purpose of interacting but without disregarding pronunciation, grammar structure, comprehension, and the pronunciation.

We have a special section during this time for checking the vocabulary. It is appropriate to remember that we have different instruments to rate the takers performance in all of the section of the test

Question 6 - Does the test include tasks that engage the test-taker in a co-constructed dialogue with the interlocutor or with another test-taker?

We make follow-up questions based on the test taker's responses. This helps us to determine how much English ability this test taker has. It is opportune to mention that tests are individual so there is no possibility of collaborative listening when evaluating two test takers at the same time.

Question 7 - Is standardized phraseology included in the test? Is the use of phraseology assessed in the test?

We have a special section to check the phraseology of the ICAO which is published in the document 4444 but it is not determinant to assign the level that the test taker is going to have. Why? Because there are certain situations for example emergencies which are not covered by the phraseology in this case we rate the plain language that the test taker is saying.

Question 8 - Is the rating carried out by a minimum of two raters?

According to the document 9,835 and the circular 318 the test is carried out by two raters. In this case, Venezuelan raters are at the same time interlocutors, one of them acting as a language expert, and another one acting as a subject matter expert. The rating process is analytic, so it means that we discuss the test taker’s performance during the evaluation. So if divergent scores arise, we have additional items to agree what is going to be the final level to assign.

Question 9 - Does the test assess the six ICAO levels?

Since the language proficiency implementation in 2011, the Venezuelan civil aviation authority rates level six nevertheless with a new publication of the ICAO document 10197 we are studying

the possibility or rechecking all those level six holders with the purpose of adapting them to the new instrument requirements.

Final comments and remarks

I want to give thanks in the name of the civil aviation authority and myself for allowing us to participate in this virtual event. Additionally, I want to invite all of the language proficiency units, and coordination of Latin-America to integrate, to cooperate, and work all together for the sake of the language proficiency assessment, aiming to harmonize testing, to conduct [uh] researches, and to develop new strategies for the aviation English teaching. Thank you very much.

References

GEIA Grupo de Estudos em Inglês Aeronáutico (2024). INTERVIEW South America. Available at: https://www.youtube.com/watch?v=2TrcSNjKl3o

EPLIS: an interview with test developers

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Introduction

EPLIS is the Aeronautical English Proficiency Exam for the Brazilian Airspace Control System, designed by the Airspace Control Institute (ICEA) in 2007 to assess the proficiency of Brazilian air traffic controllers and aeronautical station operators, in compliance with the Language Proficiency Requirements established by ICAO. Paula Souza e Sandra Santos are members of EPLIS test developers' team, being responsible for developing and reviewing the test specifications, providing training for item writers, interlocutors and raters, creating item writing guidelines, and analyzing test trialing results.

Question 1 - Who is the target test population?

EPLIS is the Aeronautical English Proficiency Exam for the Brazilian Airspace Control System, designed by ICEA in 2007, to assess the Proficiency of Brazilian air traffic controllers and

[25] Sandra Santos holds a degree in Language Studies, a BA in Translation (Portuguese and English), both from Ibero-Americana College, and a Master's Degree in Applied Linguistics and Education from Braz Cubas University. She has been an English teacher for over 40 years in various contexts and since 2008 she has been working at the Airspace Control Institute (ICEA) as an examiner of EPLIS.

[26] Paula Ribeiro e Souza has a PhD in Applied Linguistics from the University of Campinas, Brazil. She has worked in Aeronautical English training and assessment since 2008 and is currently the supervisor of the Aeronautical English Assessment Section at the Airspace Control Institute. Her doctoral thesis on the washback of EPLIS has received a commendation from the Federal Foundation for Support and Evaluation of Graduate Education (CAPES).

aeronautical station operators, in compliance with the Language Proficiency Requirements established by ICAO and described in Doc 9835/ AN 453.

EPLIS is regularly administered to air traffic controllers and aeronautical station operators involved in international civil flight operations in Brazil. The exam is also extended to students in the last semester of Air Traffic Control initial training courses. Every year, around 3000 professionals take EPLIS in Brazil. They are spread across several air traffic service units: control towers, approach controls, area control centers, aeronautical stations, air defense centers, training schools, and other workplaces.

Question 2 - Are there separate tests for pilots and air traffic controllers?

Yes. EPLIS was designed to assess the language used only by air traffic controllers and aeronautical station operators. ANAC, which is the National Aviation Civil Authority in Brazil, is the agency responsible for developing the test for civilian pilots.

EPLIS has equivalent test versions per Air Traffic Service (ATS) unit: Flight Information Service (FIS), Control Towers (TWR), Approach Control (APP), Area Control Center (ACC), Air Defense Centers (AD) and a version for *Ab-initio* controllers. For example, TWR controllers take the version of the test designed exclusively for professionals who work at control towers and so on.

Question 3 - How is the test administered?

EPLIS consists of two papers. Paper 1 assesses oral comprehension of aeronautical communications through a computer-mediated multiple-choice test. Paper 2 is an in-person interview conducted with one test taker at a time. Paper 1 may last up to 70 minutes the maximum but it depends on the test taker's performance and Paper 2 lasts between 15 to 30 minutes.

There are dozens of testing locations spread out into four Air Defense and Air Traffic Control Regions and one Regional Airspace Control Center in Brazil. EPLIS is also administered at ICEA and at training schools.

Question 4 - Does the test include tasks dedicated to assessing listening comprehension separate from speaking performance? Does the test also include the assessment of collaborative listening?

EPLIS Paper 1 assesses oral comprehension of aeronautical communications in isolation through a computer-mediated multiple-choice test. There are 30 questions written in Portuguese with three options each. For each question, the test taker listens to a different genuine radiotelephony communication. The goal is to assess the test taker's ability to understand several work-related situations, with a variety of accents, speech rates and delivery styles. The test taker must get 70% of correct answers, that is, 21 correct answers or more, to proceed to Paper 2.

Paper 2 assesses test-takers' listening and speaking skills in an integrated way through an interview conducted by either a subject matter expert or a language expert. The goal is to assess the test taker's ability to understand (listening) and to be understood (speaking). As said before, there are test versions according to the test-taker's professional profile.

Question 5 - What are the task types the test comprises and the skills/abilities assessed?

As we have just explained the tasks involved in EPLIS Paper 1, we will focus now on Paper 2. This Paper assesses listening skills integrated with speaking skills on the needs of the operational unit at which test takers work, be it a tower or an aeronautical station, approach control, area control center or an air defense center.

It consists of 4 parts. In Part 1, the test taker answers to 4 questions about their professional routine or their career. In Part 2 of the test, there is no visual contact with the interlocutor. This

part mirrors the type of language used in RT communications. The interlocutor says 10 prompts (one at a time) which describe unexpected, unusual or emergency situations related to the facility the test taker is licensed to work at. For each prompt, the test taker must first report the problem and then offer a solution to it. In Part 3, the test taker answers to questions about aviation in general. And finally, in Part 4, there are two tasks based on a picture involving a situation at the test taker's ATS unit. First, they have up to 60 seconds to describe it, and then, up to 90 seconds to tell a story based on that same picture.

Question 6 - Does the test include tasks that engage the test-taker in a co-constructed dialogue with the interlocutor or with another test-taker?

In our test, test takers can ask for repetitions, clarify meanings, add details, and offer solutions in Paper 2. In Parts 1 and 3 of this paper, test takers are encouraged by the interlocutors to develop and explore their ideas on the topics mentioned, providing evidence of how well they use creative and complex language. Test takers may also ask for repetitions and clarify meanings in these parts of the test. In Part 4, creativity is not assessed but clarity, intelligibility, cohesion and lexical and grammar resources used by the test taker in order to accomplish the tasks are.

In the future, we expect to include a new task in our test involving a role play situation. A few years ago we trialed some role plays but more studies still need to be carried out on the degree of the operational knowledge that the interlocutors must have in order to interact with the test-taker and also on the assessment criteria employed to mark test-takers' responses.

Question 7 - Is standardized phraseology included in the test? Is the use of phraseology assessed in the test?

Standardized phraseology can be included in the test as part of an item prompt, but operational procedures or knowledge of phraseology are not assessed, nor are the test takers' opinions on the situations presented taken into consideration.

Question 8 - Is the rating carried out by a minimum of two raters?

In Paper 2, the test taker's performance is assessed by two EPLIS examiners, preferably a subject matter expert and an English language expert, as recommended by ICAO. The first assessment is carried out by the interlocutor who assigns a holistic score to the test taker's performance, corresponding to one of the six proficiency levels described in the ICAO Rating Scale. The second assessment is made by an EPLIS examiner who receives, through the EPLIS System, the recording of the interview. This professional assigns a score for each category of the ICAO Rating Scale: Pronunciation, Structure, Vocabulary, Fluency, Comprehension and Interaction. As established by ICAO, for security reasons, the test taker's final score is always the lowest level obtained in any of the six categories.

If the score given by the interlocutor and the final score given by the remote examiner are the same, the evaluation process ends and the test result is disclosed to the test taker. If the scores are divergent, a third EPLIS examiner is allocated to carry out a new assessment. It is important to highlight that examiners have no knowledge of the previously assigned score. Test takers who obtained proficiency Level 4 or higher in Paper 2 are considered to have sufficient performance.

Question 9 - Does the test assess the six ICAO levels?

EPLIS assesses the six ICAO levels. Test takers who have not passed Paper 1, as well as those who have obtained proficiency Level 3 or lower in Paper 2, must take EPLIS the following year,

unless they no longer belong to the target population of the exam. Professionals who have achieved Level 4 must be reassessed every three years, and professionals who have reached Level 5, every 6 years. Professionals who obtained Level 6 are exempt from taking the exam, unless expressly called upon by DECEA – the Department of the Airspace Control.

Final comments and remarks

We would like to share with you a bit of the rigorous process to become an EPLIS examiner. The initial rater training program consists of two courses – CTP019 and CTP023. The CTP019 course is a two-week introductory course in Aeronautical English Assessment, held in person at ICEA. CTP019 students take theoretical and practical lessons focused on understanding and applying ICAO Rating Scale. The students approved in CTP019 undertake CTP023, which consists of an on-the-job training program conducted during the administration of EPLIS Paper 2.

After successfully completed both courses, novice EPLIS examiners have to participate in the Annual EPLIS Examiner Accreditation Meeting before starting serving as independent interlocutors and raters. In this annual meeting, EPLIS examiners receive training aimed at calibrating and standardizing both assessment and interlocution procedures, which ensures consistency in the rating process. Only examiners who participate in this training and demonstrate good calibration levels are allowed to administer and mark EPLIS Paper 2 in that current year.

Improving continuously the quality of EPLIS and its related processes is a demanding task we are so proudly committed to in order to provide test results that are reliable and fair to all stakeholders.

At last, we would like to invite you to visit our website (https://eplis.icea.decea.mil.br/) on which you will find more information about our exam, including Paper 1 and Paper 2 specifications, quizzes for Paper 1, and demonstration videos of Paper 2.

Thank you very much for reading this interview article and feel free to contact us if you have any questions!

References

International Civil Aviation Organization. (2004). *Manual on the implementation of ICAO language proficiency requirements* (Doc 9835 AN/453). Montreal, Canada.

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