

Whose English? A Narrative Review of the Dominant Norms in Aviation English Assessment

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Abstract: Employing a narrative review approach, this synthesis examines research on Aviation English, focusing on linguistic norms, assessment policies, and practices, and their implications for both native and non-native speakers, within the context of global aviation safety and fairness. It addresses the critical question of whose English norms dominate assessment frameworks. This review examines the ICAO Language Proficiency Requirements in relation to debates over the appropriateness of native-speaker benchmarks compared to the communicative demands of the aviation industry. It also evaluates recent advancements in testing technologies and AI-based natural language processing tools, with particular attention to their validity, ethical considerations, and inclusiveness. This review analyzes the impact of globalization and the competing demands of standardized practice, operational authenticity, and intercultural competence, which provide a critical understanding of the complexities of the Aviation English assessment.

Keywords: Aviation English; Language Assessment; ICAO Standards; Intercultural Communication; ELF (English as a Lingua Franca); AI in Language Testing.

INTRODUCTION

In international aviation, common language for communication between the pilots and the air traffic controller is English. Because aeronautical communication is so closely tied to safety, even small misunderstandings can quickly lead to near-misses or serious accidents (Moder, 2012; Hamzah, Krish, & Hamat, 2023). This makes it important to ask whose version of English is being used as the benchmark for evaluating aviation professionals, since the choice affects not only safety in the skies but also fairness within the industry. Although the International Civil Aviation Organization (ICAO) has developed standardized Language Proficiency Requirements, significant arguments rage as to whether these represent real world use or reinstate native-speaker norms that put multilingual workers at a disadvantage (Alderson, 2009; Shohamy, 2001).

This paper brings together current research into Aviation English, focusing on linguistic standards informing policy and practice in testing, as well as the strengths and limitations of available assessment forms and whether or not they are adequate for native speakers and non-native speakers of English. The latest studies also show a pronounced effect of technological innovations – such as AI grounded testing instruments and natural language processing software – that bring new opportunities but potentially threaten the credibility, ethics, and inclusiveness of testing (Demirdöken, 2024; Nanyonga *et al.*, 2025). Within this context, assessment autonomy, operational authenticity, and global competence are weighed against the opposing pressures of

Aviation English—as a circumscribed form of communication, a hybrid variety of English, a technology-led practice, and an area of applied linguistics.

METHODOLOGY

This paper uses a narrative review approach to explore the Aviation English assessment frameworks. Unlike a systematic review which focuses on a stricter approach of study selection and predefined rules for including research, extracting data, and evaluating its quality, a narrative review focuses on thematic synthesis. The aim here is an in-depth, contextual understanding of Aviation English assessment rather than measuring its volume of coverage. In detail, the analysis seeks to uncover the ways in which Aviation English assessment has been theorized, put into practice, and criticized.

To collect complete information from the related literature, we searched different sources including the official reports and study reports supported by the International Civil Aviation Organization (ICAO) and leading academic search engines, (such as) Google Scholar, Scopus, and Web of Science. These resources gave access to research, books, policy papers, empirical reports.

The review combines classic contributions in applied linguistics and language assessment (Douglas, 2000; Jenkins, 2000; Shohamy, 2001; Alderson, 2009) with more recent studies (2023–2025) that address emerging areas such as AI-supported assessment, natural language processing, and intercultural competence.

The documents selected were especially useful for this purpose in that they always presupposed or addressed ongoing and major themes in the discipline. Such recurring themes enfold discussions on language proficiency standards, challenges posed by native and non-native speaker norms as well as dimensions of intercultural communication, the use of corpus-based approaches and the investigation of communication failures.

Instead of aiming for an exhaustive synthesis of the literature available, this review strategically focuses on studies that represent key turning points in knowledge and open areas of debate. The aim is to highlight research which provides new insights, and which has uncovered some of the more subtle challenges in the field. By focusing on these seminal works, it was sought to clarify the emerging terrain and emphasize the dialogic nature of the ideas that have driven its developments. This focused look provides a more thorough investigation of key areas, as opposed to a wide but shallow pass.

Selection Process (PRISMA-inspired)

To keep the process clear and transparent, this study employed the PRISMA framework to show how sources were identified and screened. Initially, a total of 80 papers were retrieved across databases and organizational reports. A total of 20 works were included in the final synthesis. This collection strikes a similar balance, and includes both key works in the field (e.g., Douglas, 2000; Jenkins, 2000; Shohamy, 2001; Alderson, 2009) and more recent research on a range of new themes, including AI generated assessment, natural language processing, and intercultural safety. This review, modelled on the PRISMA process, is aimed at broadening the body of literature, as the synthesis encompasses not only yield the core theoretical views, but also complementary ideas derived from the latest approaches and studies. This review tries to balance intellectual importance, diversity of themes, and methodological relevance.

PRISMA-Inspired Flow of Literature Selection

- Records identified through database and organizational searches (n = 80)
- Records screened for relevance (n = 40)
- Excluded due to duplication, limited relevance, or insufficient focus on Aviation English assessment (n = 40)
- Full texts assessed for thematic relevance (n = 40)

- Studies included in final synthesis (n = 20)
- Seminal studies such as Ragan (1997), Douglas (2000), Jenkins (2000), Shohamy (2001), and Alderson (2009) (n = 5)
- Recent studies on AI-driven assessment, NLP, and intercultural competence (n = 15)

Thematic Organization

The examination is structured topically and charted to the ways in which Aviation English has been construed, challenged, and concretized. Emphasis will be placed on the development from native language models of competence to lingua franca orientation, and the increasing importance of intercultural communicative competence. Thematically the volume ranges from ICAO's Language Proficiency Requirements, methodological and proficiency testing, and intercultural safety issues to reveal the ways in which policy and practice in language testing and assessment connect with the business of keeping flight safe.

Aviation English has changed radically with time, driven by shifting priorities of safety, cultural assimilation, and language standardization. With this review, the discussion revolves around the complex history of this evolution, incorporating separate pieces of research into a coherent story. It exposes a long-standing conflict between the desire to employ uniform international language aimed at operation safety and the also essential need to respect diversity (of both language and culture) for effective crew resource management. Training and testing must recognize the international character of aviation and tolerate differences between candidate samples, as well as guaranteeing a certain level of understanding of some key radiotelephony phrases.

While communication standards in aviation have improved, contextualized assessments are essential to balance standardization with individual aviators' linguistic and cultural experiences, ensuring more accurate evaluations of English proficiency.

THEMATIC ANALYSIS OF AVIATION ENGLISH ASSESSMENT

The Nature of Aviation English and Its Global Context

As Aviation English became more widespread, it developed into a distinct professional language. This specialized form is marked by its use of technical terms, established phrases, and precise communication procedures designed for the aviation industry. It covers a wide range of

activities including high-skilled interactions to everyday activities such as ticket sales and clearance processes. Such diversity that exists must be accommodated by mixing standard phraseology with plain English for non-routine, non-recurrent conditions (Ragan, 1997). Although Aviation English is vital to global aviation, it remains a dynamic and diverse form of communication rather than a fixed or uniform language. Instead, it is a lingua franca that enables people from varying linguistic and cultural backgrounds to communicate effectively. The complexity of this language has been recognized by the International Civil Aviation Organization (ICAO), which has developed Language Proficiency Requirements (LPR), rating scales, and certification schemes to make communication skills uniform within the industry (Alderson, 2009). However, in spite of these efforts at standardization, concerns remain as to whether existing assessment techniques effectively capture pilots' and air traffic controllers' actual real-world communication challenges—particularly those pilots whose first language is not English.

ICAO Language Proficiency Requirements and Their Limitations

Beyond standardized phraseology, aviation communication often relies on strategies of negotiation and clarification, reflecting its nature as an English as a Lingua Franca (ELF) domain (Ishihara & Prado, 2021). Research further suggests that initial flight training programs must account for ELF realities, equipping pilots with pragmatic and adaptive communication skills rather than striving for native-speaker norms (Bayreuth & Prado, 2020).

The ICAO Language Proficiency Requirements (LPR), which were implemented in 2004, prescribed that air traffic controllers and pilots are required to exhibit Aviation English proficiency. The standards are intended to provide a guarantee that radio communications are maintained safely and effectively for both day-to-day operations as well as non-routine or emergency cases (Alderson, 2009; Prado & Tosqui-Lucks, 2019).

Although the assessment protocols and rating scales adhere largely to the required professional standards (Alderson, 2009), issues in policy implementation and quality control continue to be an area of shortfall. Inadequate supervision diminishes the power of the certification process. Critics argue that there is a misfit between the constructs in ICAO and the actual needs of the

professionals operating in this context, with an overemphasis on linguistic accuracy and an underemphasis on interactional and intercultural skills (Monteiro, 2019). Similar tensions can be related to Shohamy's critical view (2001) of language testing, which emphasizes that tests may actually perpetuate power asymmetries and marginalize diverse communicative competence types. This requires re-thinking test design to ensure examination represents what real-life ATCO-pilot interaction is like. Recent scholarship emphasizes that assessment should be inclusive of evolving practices and learner needs (Friginal, Prado, & Roberts, 2025).

Native vs. Non-Native Norms: The Lingua Franca Perspective

Aeronautical English prioritizes clarity and safety rather than adherence to native-speaker norms. Studies have shown that communication is often obstructed by intercultural or interactional discrepancies, not language deficiencies (Tosqui-Lucks & Silva, 2020; Hazrati, 2015). This perspective refutes native-speaker benchmark models making intercultural competence pivotal to proficiency. Jenkins (2000) argued in applied linguistics that what really matters in ELF interactions is whether speakers can understand one another, not whether they sound like native speakers. This idea fits especially well with the practical needs of aviation communication. The development of tools such as Honeywell's RASP shows how technology is being used to overcome accent-related barriers, highlighting a shift in aviation that values clarity of communication over native pronunciation (Lee, 2025). The development of accent-aware speech recognition systems shows the growing need to account for different linguistic backgrounds in order to support clear and effective communication in global aviation (Wee *et al.*, 2025).

Methodological Approaches and Corpora

Mixed-methods designs, corpus studies, and workplace-based validations have advanced assessment frameworks beyond narrow linguistic measures. The foundations of Aviation English assessment are closely tied to the broader field of language for specific purposes (LSP), where frameworks emphasize authenticity, validity, and workplace relevance (Douglas, 2000). Resources like the Radiotelephony Plain English Corpus (RTPEC) provide empirical evidence to improve test authenticity and validity (Prado & Tosqui-Lucks, 2019). These procedures, however, have not gained widespread use. Recent research

emphasizes how metaphor competence is an unexplored yet fundamental dimension of Aviation English, enhancing the comprehension of scientific and technical texts in ESP settings (Camacho-Díaz, 2025). Concurrently, however, academics have started to investigate AI-based devices for testing Aviation English, raising issues of scalability but also ethics and validity (Demirdöken, 2024). Extending beyond corpus-based approaches, recent NLP-focused reviews further illustrate how computational methods can support aviation safety research by systematically analyzing communication risks and communication breakdowns across operational datasets (Nanyonga, Joiner, Turhan, & Wild, 2025a).

Communication Failures, Safety, and Intercultural Competence

Available research has found that communication breaks down (e.g., an incomplete readback) potentially jeopardizes safety (Prinzo, 1996). It is essential that intercultural communicative competence be integrated into pedagogy and assessment. Models, such as Hofstede's cultural dimensions, show how divergent communicative norms affect organizational effectiveness (Hazrati, 2015). Frontline perceptions from pilots and controllers also stress the need for training in plain English and cultural responsiveness (Hamzah, Krish, & Hamat, 2023). At the same time, advances in Natural Language Processing (NLP) are starting to play a role in aviation safety by detecting potential risks and analyzing communication patterns across vast datasets, making it easier to uncover wider issues within the system (Nanyonga, Joiner, Turhan, & Wild, 2025a). Building on this broader perspective, deep learning models are now being used to classify communication patterns in specific phases of flight, providing predictive tools that can anticipate and reduce operational risks in real time (Nanyonga, Wasswa, & Wild, 2025b).

Gaps and Opportunities in Research and Practice

Even though ICAO had set out explicit standards, there are still policy shortfalls and quality assurance weaknesses (Alderson, 2009). In order to make the teaching and the testing more consistent and mutually reinforcing, new research highlights the importance to align teaching and assessment in Global Aviation English with ICAO's Language Proficiency Requirements (Teaching and assessment in global Aviation English, n.d.). At the same time, depending too

much on native-speaker norms might fail to take into account the adaptability and flexibility that are part of effective communication in aviation multilingual settings. Developing fairer and contextually appropriate frameworks will depend on enlarging the kinds of data available and investigating the sociocultural factors of communication (Monteiro, 2019; Prado & Tosqui-Lucks, 2019). Recent developments in pedagogy (Friginal *et al.*, 2025) and AI-driven tools (Demirdöken, 2024) are promising, but they require further validation and practical application.

THEMATIC HIGHLIGHTS

- **Role of English in Aviation:** A specialized, operational lingua franca requiring both standardized phraseology and adaptability.
- **ICAO Language Proficiency Requirements:** A global framework that set standards but faces challenges in monitoring and practical alignment.
- **Native vs. Non-Native Norms:** Recognition that intelligibility and safety outweigh native-speaker conformity.
- **Intercultural Communication:** Cultural differences shape communication and safety, underscoring the need for intercultural competence.
- **Methodological Approaches:** Corpus-based, mixed-method, and AI-enhanced studies enhance authenticity and validity but remain underutilized.
- **Persistent Gaps:** Limited quality assurance, insufficient intercultural integration, and focus on accuracy constrain effectiveness.

CONCLUSION

This article highlights the competing pressures that affect Aviation English testing, ranging from policy and norm pressures to operational needs. The Language Proficiency Requirements of ICAO offered a worldwide basis, but their implementation on the basis of globally valid scales has frequently clashed with the heterogeneous, intercultural and vibrant character of aviation communication. Throughout the literature this may be summarized as moving from “native speaker” as benchmark to “intelligibility, functional communication and intercultural competence” being more relevant measures of proficiency under a lingua franca paradigm.

The review also outlines methodological advances, such as those made by corpus-based studies, AI-driven assessment tools, and workplace-informed task design, which have helped provide new

perspectives on what constitutes real-world communication. Weaknesses in policy implementation, in quality assurance and in the integration of intercultural dimensions into tests continue to persist. Such limitations indicate that more flexible context-dependent models are warranted that tie evaluation to operational forms of communication and safety.

Collectively, recent investigations are leaning towards the view that aviation communication is to be treated as an ELF (Ishihara & Prado, 2021; Bayreuth & Prado, 2020) interaction phenomenon, complemented with domain-specific competences such as metaphorical competence (Camacho-Díaz, 2025) and supported by, AI-driven tools to manage linguistic diversity and improve safety (Lee, 2025). Emergent NLP applications span showing their capability to analyze communicative risks at scale (Nanyonga, Joiner, Turhan, & Wild, 2025a) to classifying flight phases and predicting possible failures in real-time with deep learning models (Nanyonga, Wasswa, & Wild, 2025b). Such progress reflects a shift toward Aviation English testing that is fairer, more technology-assisted, and grounded in practical realities.

Douglas (2000) and Jenkins (2000) emphasize that assessment should prioritize authenticity and intelligibility, while Shohamy (2001) urges a closer look at the power dynamics embedded in international proficiency standards. Recent literature, in turn, is proposing new directions, e.g., metaphorical competence (Camacho-Díaz, 2025), AI-driven assessment technologies (Demirdöken, 2024; Lee, 2025), NLP-integrated safety screening (Nanyonga *et al.*, 2025a, 2025b) that are expanding the knowledge and practice of Aviation English assessment. In other words, good communication across cultures means finding the right mix between respecting long-standing traditions and embracing new technologies. With both cultural heritage and technological innovation shaping communication, the pressing challenge is to harmonize them so that interactions remain meaningful, accurate, and effective across varied cultural environments.

In general, Aviation English testing has to find a balance between standardization and flexibility. A critical focus on whose English is being tested uncovers that effectiveness, inclusivity, and safety call for a departure from strict norms towards methods that accommodate the lived practices of multilingual aviation professionals.

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