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Aviation English Assessment for Military and Civil Pilots in Brazil: Similarities and Differences

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Abstract: Language proficiency assessment for pilots is a topic of potential interest for applied linguists and aviation professionals in general. Despite the growing number of investigations about this topic in the Brazilian civil aviation context (A.L. Monteiro/ N. Bullock, 2020, A. Garcia 2015, P. Tosqui-Lucks/ M. Prado 2020, A. Pacheco 2019), fewer similar studies are found in the Brazilian military scenario (A.L.B.C. Silva, 2016, 2022, M. Bruno 2018). With this difference in mind, this study presents an overview of the instruments being used to assess Aeronautical English proficiency for civil and Air Force pilots in Brazil.This study followed a qualitative approach by means of a bibliographic review and documental analyses. Results of this study show that the same instruments are used to assess English language proficiency for all Air Force pilots in Brazil, despite their varying needs, whereas a different instrument – the *Santos Dumont English Exam* (SDEA) – is used for civil pilots. Similarities and differences in both assessment scenarios have been highlighted to better understand the theoretical constructs assessed in each test. As a contribution to the fields of Applied Linguistics and English for Specific Purposes (ESP), this study allows different stakeholders to have a clearer and better understanding of Aeronautical English assessment for pilots in Brazil. This can help ensure that best practices are highlighted, and improvements implemented, which, as a result, could lead to more efficient and effective communications and safer skies for everyone.

Keywords: Aviation English, Aeronautical English, English for pilots, language assessment

Introduction

Around the world, pilots invariably have to share the same skies and language when flying internationally. This assumption reinforces the need for civil aviation authorities and airline companies to take key and sustainable decisions based on the results of English language proficiency exams. Such decisions will help select those professionals who will be certified to fly, navigate and communicate over the radio, using English as a means of communication. English language proficiency assessment for military pilots, however, can also be deemed crucial, bearing in mind their needs to be prepared for international joint-operations and missions at any given time.

For safety reasons, the International Civil Aviation Organization (ICAO), for over a decade, has taken measures to harmonize the way in which language proficiency is assessed for pilots and air traffic controllers (ATCOs) in all its member states. Despite ICAO's best efforts, it still seems to be problematic for the international aviation community to clearly understand what exactly is to be taught and assessed, when it comes to pilots/ATCOs' radiotelephony communications (cf. N. Bullock/ C. Westbrook 2021: 67–77).

The last few years have seen an increased interest in studies to better understand the very specific register used in radiotelephony communications between pilots and ATCOs (cf. A.P. Borowska 2017, O. Petrashchuk 2017), and how to teach such specific register to military pilots (cf. M. Santos/ V. Pacheco/ R. Reyes et al. 2018, V. Katsarska 2017, M. Er/ Y. Kirkgöz 2018, A. Bratslavska 2020). However, very few investigations have focused on language assessment for military pilots, such as Silva (2016, 2022). As for military ATCO language assessment, M. Park (2015, 2018, 2021) is a reference for most of the publications in the area. To address this concern, this study presents an overview of the instruments being used to assess Aeronautical English proficiency for civil and Air Force pilots in Brazil. The research questions that guide this investigation are as follows:

1) what are the similarities and differences encountered in pilots' English language proficiency assessment in Brazil?
2) what are the issues that need addressing in each assessment system?

This study followed a qualitative approach by means of a bibliographic review and documental analyses of publications produced by the International Civil Aviation organization (ICAO), The Brazilian National Aviation Agency (ANAC) and the Brazilian Air Force Command (COMAER).

1. Aviation English and Aeronautical English

It is important to highlight, at this point, a difference found in literature (cf. A.P. Borowska 2017: 90, P. Tosqui-Lucks/ A.L.B.C. Silva 2020: 6) between the umbrella term *Aviation English*, which encompasses all the language used by professionals in the aviation field, such as mechanics, engineers, flight attendants, and *Aeronautical English*[1], the specific language used by two categories of professionals, pilots and air traffic controllers (ATCOs), mostly during international flights.

According to these authors, there are two specific language registers that characterize Aeronautical English: the first one is a very specific, coded and regulated register called *Standard Phraseology*; the second is *Plain Aeronautical English*, which despite being called plain, also has its specificities. This is because both registers must be clear, precise and concise, in order to avoid risks in radiotelephony communications between pilots and ATCOs.

The question that seems to remain unanswered in language assessment for specific purposes theory is how much of each register, as well as how much of operational specialized content, should be included in test tasks, in order to make them represent, as closely as possible, real-life aeronautical communications used by pilots and controllers.

Previous works (C. Alderson 2008, H. Kim/ C. Elder 2015) have shown that the "theoretical construct" (cf. U. Knoch/ S. Macqueen 2018) of Aeronautical English tests have not always been clearly stated and operationalized. By either going off-limits and assessing more than a language test for pilots should assess, or by not assessing what is truly relevant in real-world communications, would pose threats to validity, since inferences and

[1] People still see the term Aviation English as that language used in pilot/ATCO communication, which is why I have chosen to emphasize the use of the term Aeronautical English instead.

interpretations, made upon these tests' results would not be arguably sustainable. Avoiding *construct irrelevant variance* and *underrepresentation of the construct*, as these threats to validity are named by S. Messick (1989), is a recommended practice in test design that should never be disregarded. This conundrum is yet to be truly resolved.

2. Aeronautical English language assessment: some historical aspects

For some time now, the Brazilian Air Force has prepared its pilots for radiotelephony communications following North American technical manuals combined with General English language teaching procedures. Language training and assessment used to go together in a rather symbiotic way, with traditional methods based on language knowledge, rather than language use.

In 2004, ICAO published the first version of a document called the *Manual for the Implementation of Language Proficiency Requirements* (LPRs), known as Doc 9835 (ICAO 2010). This followed research from various fatal aviation accidents worldwide where lack of English language proficiency and subsequent miscommunication was a contributing factor. The implementation of the LPRs globally impacted language teaching and assessment for pilots, as it was to be followed by all ICAO state members, Brazil included. The document presented holistic assessment criteria and a six-level analytical rating scale, with focus on pronunciation, structure, vocabulary, fluency, comprehension and interactions.

According to the same document, a pilot or ATCO would only be allowed to work and communicate in an international aviation environment when language proficiency had been achieved in an official examination. To achieve this, a minimum in Operational Level 4 on the ICAO rating scale was required in all six language areas, and the pilot/ATCO license endorsed as such. Assessment of language was only required in speaking ability and listening comprehension.

Despite these new certification requirements, ICAO did not prescribe any particular Aeronautical English exam to be administered to civil pilots and ATCOs around the world, leaving the responsibility for test design, development and administration to national or private agencies. In this scenario, a whole new industry of aeronautical language tests was created worldwide. Nevertheless, the quality of the tests that became available started being seriously questioned (J.C. Alderson 2008).

It is important to mention that until 2004, civil and military aviation in Brazil were both regulated by the same organization called *Departamento de Aviação Civil* (DAC), under the control of military personnel. With the recommendations published in the LPR's by ICAO, further measures needed to be taken by Brazilian authorities.

3. Aeronautical English language tests for pilots in Brazil

The Brazilian National Civil Aviation Agency (ANAC[2]), a federal autarchy created in 2005, subordinated to the Ministry of Infrastructure, designed and developed an exam, the *Santos Dumont English Assessment* (SDEA). This was the only official test used in the country to

[2] A few acronyms used in this paper will remain in the same sequence of letters they appear in Portuguese, since they are very frequently used as references in Portuguese. Changing the original order would not seem natural.

assess civil pilots' Aeronautical English language proficiency according to the recommendations established by ICAO on Doc 9835 (ICAO 2010).

For the military pilots from the Brazilian Air Force, on the other hand, who are subordinated to the Aeronautical Command (COMAER) and, ultimately, to the Ministry of Defense, a different assessment system of certification continued to be used, and has been done so up to this day. This system is a combination of an English for General Purposes test, called TDIE, *Teste Diagnóstico em Idiomas Estrangeiros* (Diagnostic Test in Foreign Languages), and a separate operational test, called TAI, targeting the assessment of content operational knowledge, i. e., international air traffic rules, and phraseology in English[3]. The different assessment instruments used in each context are illustrated in Figure 1 below:

Figure 1. English tests for civil and military pilots in Brazil.

In this paper, emphasis is being given to the different routes taken for the assessment of language proficiency for pilots in Brazil. Nevertheless, it is important to highlight that for ATCOs, things have been organized differently. All ATCOs who operate in Brazil, military and civil, have to sit the same Aeronautical English proficiency exam called EPLIS, *Exame de Proficiência em Inglês do SISCEAB*, developed and administered by the Institute of Airspace Control (ICEA), linked to the Department of Air Space Control (DCEA), the Aeronautical Command and the Ministry of Defence.

Results of studies in other countries, such as Ecuador (M. Santos/ V. Pacheco/ R. Reyes et al. 2018), Turkey (M. Er / Y. Kirkgöz 2018), Ukraine (A. Bratslavska 2020), Romania and Poland (V. Katsarska 2017), indicate that the same rating scale from Doc 9835 – ICAO

[3] It is important to bear in mind that Brazilian Air Force pilots receive their basic operational training, at the Air Force Academy, in Portuguese.

2010, used to measure levels of Aeronautical English proficiency of civil pilots, has also been used as a reference to assess military pilots. Conversely, recent studies have shown that Brazilian Air Force has taken a different stance, choosing not to use ICAO's rating scale to assess Aeronautical English proficiency of its pilots (cf. A.L.B.C. Silva 2016, 2022).

4. A parallel between civil and military pilots' Aeronautical English assessments in Brazil

In order to better understand Aeronautical English assessment for pilots in Brazil, a parallel between the two systems was drawn in Figure 2. Similarities and differences can be noted in relation to the target language use (TLU) domain,[4] background operational knowledge, requirements for certification, test type, content and language skills and subskills assessed.

As for the similarities, firstly, there is risk involved in the use, or misuse, of the language for radiotelephony communications for both, military and civil pilots. Aeronautical communication encompasses many aspects, other than the purely linguistic ones, such as cultural differences, noise interference on radio communication, which may lead to miscommunication and be threats to flight safety. In other words, all pilots must be able to communicate with ATCOs using Standard Phraseology in normal situations, and Plain English, in abnormal or emergency situations. That is the similarity encountered in the TLU domain in both contexts. They all use the English language to communicate over the radio with ATCOs during international flights.

The second similarity has to do with background content knowledge, which is a large part of the language needed by pilots, both for military and civil aviation pilots. They all must have some knowledge of international air navigation, air traffic rules, meteorology and Standard Phraseology, even though it is theoretically arguable whether phraseology should be considered language, content knowledge, operational knowledge, as ICAO considers it (ICAO 2010), or something in between the two.

[4] L. Bachman and A. Palmer (2010: 60) define target language use (TLU) domain as "a specific setting outside of the test itself that requires the test taker to perform language use tasks".

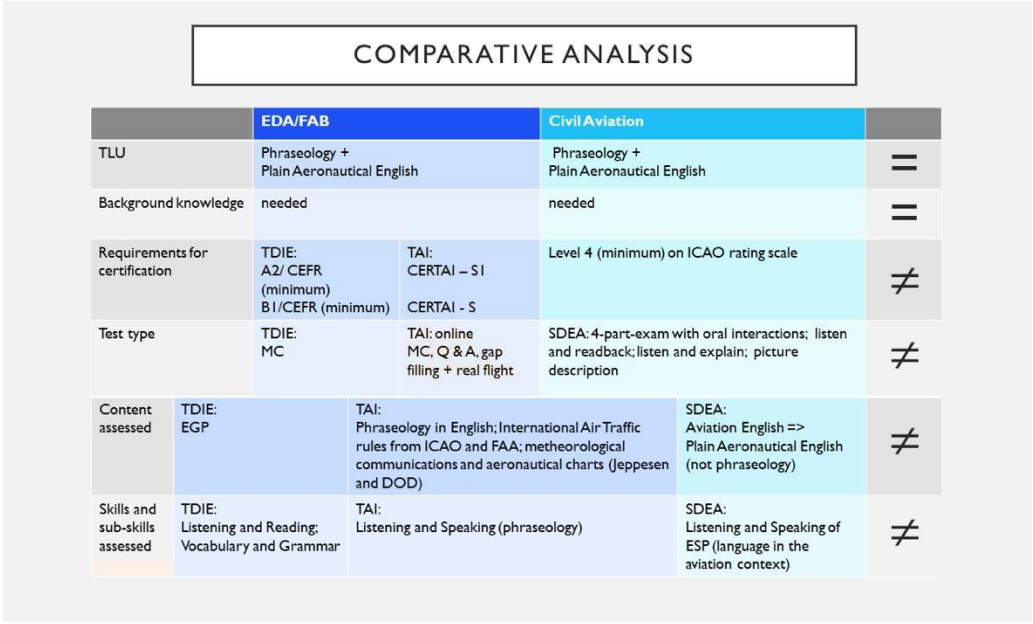

Figure 2. Similarities and differences in Brazilian language tests for pilots.

As for the differences, firstly, it can be observed that the requirements for pilots' language certifications, in both contexts, are not exactly the same. The international certification given to civil pilots by ANAC follows the ICAO 6-band rating-scale, with level 4 as the minimum operational level. On the other hand, in order for pilots from the Brazilian Air Force to get their certification to fly internationally, called CERTAI- S1, they have to go through a combination of tests of different types. At an initial stage of the assessment process, they have to achieve a minimum of A2 level, according to the Common European Framework of Reference (CEFR), on an English for General Purposes test, the TDIE, previously described. After that, pilots have to be approved in an online operational test, the TAI, in English. Finally, in a third phase, they are assessed during a real flight, in order to show their ability to use phraseology in English to communicate with ATCOs in normal situations. This certification has to be renewed every two years. In case Level B2 or beyond is achieved on the TDIE, the pilot gets a superior certification, called CERTAI – S, which is valid for a longer period of time, having to be renewed every three years. As can be seen, results of the study indicated that, overall, the General English test TDIE has a significant impact on the type of certification military pilots will get, as it seems to be the instrument that determines the period of renewal of flight certifications.

Secondly, another difference in the way civil and military pilots are assessed in Brazil relates to test type, the assessment instrument format and test purpose. The TDIE is a discrete-point, paper and pencil, multiple-choice test. It assesses reading, listening, vocabulary and grammar, but not speaking, which is, indeed, one of the skills in which a pilot has to demonstrate proficiency under the ICAO LPRs. Despite being referred to as a diagnostic test, as the "d" stands for in the acronym used in the name of the test in Portuguese, in fact it has been used to measure language proficiency.

The operational phraseology test TAI, all in English, is divided into several parts, with tasks in different formats. These can include multiple choice, questions and short answers

and gap fill, as part of an online test to assess listening comprehension in both aeronautical communications and specific content knowledge. The use of Standard Aeronautical Phraseology in English, for its turn, is assessed in a real flight by a more experienced pilot. Although such practice seems to add more authenticity to the test, there are issues of validity to be considered. It is important to note that in real-flights, only phraseology can be assessed in normal situations, as emergencies cannot be simulated for reasons of safety. Therefore, as test tasks cannot assess language use in emergency situations, the construct of the test is underrepresented, which constitutes a threat to validity (S. Messick 1989).

As for the format of SDEA, it is considered a performance test in which real situations are only simulated and test takers are asked to act as if they were in a real flight. The exam is divided into four parts including: oral interactions; listening and readbacks; listening and reporting an emergency situation; and, finally, a picture description.

The third aspect in which differences could be observed is the operational content being assessed. For the military pilots on the TDIE test, only general-purpose language knowledge is assessed. The TAI test, on the other hand, assesses the use of Standard Phraseology in English and the understanding of international air traffic rules, from ICAO and from the Federal Administration association (FAA), understanding of meteorological automated communications, and the use of commercially and nationally available maps and charts. For pilots from civil aviation, the SDEA was specifically designed to assess Aeronautical English, i. e., the necessary language to be used in pilot/ATCO communications. However, analyses of ANAC documents and of the SDEA exam itself indicate that Plain Aeronautical English is the content mainly assessed, and not the use of phraseology in English by non-native English speaker (NNES) pilots. Even though phraseology is part of the language scenario for SDEA, it is not directly assessed, due to the fact that it is considered, by ICAO, an operational skill and therefore, not language knowledge. With that in mind, P. Tosqui-Lucks/ A.L. Silva (2020: 22) argue that "there is still the need for further research on the nature of phraseology to decide how to address it in language courses" as well as to what and how it should be assessed, considering NNES pilots' needs.

The fourth difference was observed in terms of which language skills and subskills are assessed in both contexts. For military pilots, listening, reading, grammar and vocabulary are central to the TDIE test. The TAI test, on the other hand, mainly assesses listening and speaking in aeronautical communications. Pilots have to listen and readback, they also have to be able to listen and take notes regarding meteorological automated recorded messages. They also have to show ability to interpret and use flight manuals, maps and charts including air navigation, i.e., content knowledge. For civil pilots, who take the SDEA, on the other hand, listening and speaking for specific purposes in the aviation context is the focus of the assessment.

Conclusion

Despite the similarities encountered in the Aeronautical English assessment for both military and civil pilots in Brazil, many differences were also observed. The analyses indicate that test constructs in both contexts seem to be underrepresented. For the Brazilian Air Force pilots, Plain Aeronautical English – the ability to use English language in situations that extrapolate Standard Phraseology – seems to be overlooked. Even though the TAI test includes a few emergency situations, the ability to use language in any unexpected situation is not assessed.

In short, neither the TDIE nor the TAI test seems to entirely assess the language ability pilots need for aeronautical communications during unexpected situations. Additionally, the construct of SDEA, in civil aviation, also seems to be underrepresented. Even though it was developed to assess the specific language needed by pilots to interact with ATCOs in radiotelephony, it does not in fact assess the use of phraseology in English by NNES pilots.

These findings indicate that further validation studies are recommended in both military and civil contexts. By giving visibility to some complex issues on English proficiency assessment for pilots, this article hopes to open up new avenues of research by helping mitigate communication related risks in aviation. Such findings could then contribute to better language proficiency assessment practices and better aeronautical communications, not only in Brazil, but also worldwide.

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