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Nobody seems to speak English here today: Enhancing assessment and training in aviation English

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ABSTRACT

In 2003 the International Civil Aviation Organization (ICAO) strengthened the provisions that English be made available for international radiotelephony communication. ICAO also developed standards for English proficiency for international pilots and air traffic controllers. However, these standards are applied variably from country to country and in no country are native speakers of English tested for their ability to employ what has been termed "interactional competence" when using English for intercultural communication. Problems with this situation are reviewed and suggestions made for improving English assessment and training.

Keywords: aviation English; specific purpose language assessment; specific purpose language teaching; International Civil Aviation Organization; intercultural communication

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Introduction

In a document detailing the new provisions, *Manual on the Implementation of ICAO Proficiency Requirements* (ICAO 2010), ICAO stipulates that "…radiotelephony communications shall be conducted in the language normally used by the station on the ground or in the English language" and "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" (p. A-4). These stipulations mean that when a pilot and an air traffic control officer share a first language, they may use that language to communicate by radio; however, when the two do not share a native language, English must be used. ICAO also set standards for English language proficiency for international pilots and air traffic control officers. The organization noted that the ICAO language proficiency requirements apply to native and non-native English speakers alike, and that the burden of improving radiotelephony communications should be shared by native and non-native speakers. However, ICAO also suggested that the approach to be taken for language training and testing be one based on language for specific purposes (LSP):

> Language for specific purposes (LSP) is an approach to language training that focuses programme content on subjects, topics and issues of direct interest to learners. LSP training is driven by what learners need to do in the language and focuses principally on those features of the language which are required to undertake a particular task. (ICAO 2010, p. 7-3)

Basing language training and assessment on a language for specific purposes foundation, which has historically been directed at non-native speakers of the language in question, places the ball firmly in the non-native English speakers' court, and in fact, only non-native English speakers are required to be tested in the ICAO context. This is in spite of ICAO's recognition that native speakers of a language are no longer viewed as above consideration in discussions of the use of English internationally:

> ...native speakers may be perceived as the "owners" of a language through whom ultimate standards for proficiency are set. In the modern world of global communication, and particularly in the case of the English language, this point of view is becoming difficult to defend... (ICAO 2010, p. 2-5)

Indeed, in the implementation document, ICAO notes that English is a first or national language in 60 member nations and is an important second language in many more, and that there are more speakers of English as a second or foreign language worldwide than there are native speakers of the language. Therefore, they invoke the concept of English as a lingua franca and conclude, "Most users of English will not be communicating with a native speaker of English but with another English-as-a-second-language speaker ..."(p. 2-6). In light of this state of affairs, the authors of the Manual go on to suggest that "...native and other expert users of English can acquire strategies to improve cross-cultural communications..." (p. 5-4). They note that native English speaking pilots and air traffic controllers have an important role to play in increasing international aviation communication safety, suggesting that native speakers in particular have "an ethical obligation to increase their linguistic awareness" and "...focus on strategies that aid comprehension and clarity" (p. 5-4). Nevertheless, native speakers of English are not assessed for their linguistic awareness or abilities to accommodate their use of English in the context of intercultural communication. Although ICAO developed a rating scale for the evaluation of pilots and air traffic control officers (ICAO 2010, Appendix A), as well as guidelines for instruction, it leaves the actual testing and training in the hands of each member nation, and thus there is a great variety in the nature and quality of the tests and curricula used around the world. What they all share, however, is that native-speakers of English are not tested for communication ability anywhere. The purpose of this article is to develop an argument that, as an issue of aviation safety, native English speaking pilots and air traffic control officers should be tested alongside second language speakers in the use of

English and instructed in interactional competence of English as a lingua franca in aviation radiotelephony.

Review of literature

There has been a growing realization that traditional conceptualizations of the construct underlying language assessment may be too limited to deal with the realities of current language use internationally, particularly with regard to English. In a study of the phonology of English as an international language, Jenkins (2000) has argued that "…it is for L1 speakers to move their own receptive goal posts and adjust their own expectations as far as international…uses of English are concerned. . . ." (p. 160). Merritt and Maurino (2004) conclude from a study of cross-cultural factors in aviation safety that

> Cross-cultural issues in aviation can only be resolved with joint effort. This is not something that 'they' (the other cultures) have to fix – there is a role for people on both sides of the interface, for members of the dominant model as well as people outside the dominant model (p. 172).

Applied linguists have been studying the nature of aviation communication and its reliability and resilience. In a study of pilots' radio communication, Estival and Molesworth (2009) conclude that "…communication problems within General Aviation cannot be solely attributed to language proficiency levels of EL2 pilots...the results suggest that all pilots experience, and contribute to, communication problems… "(pp. 13-14). Cookson (2009) agrees, arguing that

> Although it is vital to ensure that non-native speakers have a suitable level of English proficiency, there would undoubtedly also be value in language awareness training for native speakers that taught, for instance, strategies for dealing with non-native speakers whose pronunciation is heavily influenced by their L1 (pp. 12-13).

Kim and Elder (2009) explore the notion that English as a lingua franca might be a more productive way of conceptualizing aviation English than is that of English as a second language: Kim and Elder recommend that "Since English…is generally the language used and…since the participants in the exchange are by no means all native speakers…it is more helpful to think of aviation English as a ***lingua franca*** than as a restricted specific purpose code (Kim and Elder, 2009, p. 14).

Recall that in the ICAO language proficiency implementation document (ICAO, 2010), English as a lingua franca is discussed as one possible way of approaching the problem of miscommunication in the aviation context, but this was not followed up on in the actual implementation. Kim and Elder (2009) argue that "the ICAO language testing policy…focuses only on language proficiency, with the implication that the onus rests only on the non-native English speaking pilots and controllers to 'lift their game'"(p. 15).

Kim (2012) studied the construct of aviation English by means of interview, questionnaire, and focus group data collected from Korean international airline pilots and air traffic controllers. She asked them about their perceptions of the ICAO language proficiency requirements, the English test administered in Korea, and their opinions regarding the important qualities of aviation communication. She also asked them, in focus groups, to comment on the radiotelephony discourse of pilots and air traffic controllers recorded during non-routine situations at an international airport in Korea. Her findings suggested that the Korean pilots and air traffic control officers perceived a native English speaker bias in the current ICAO policy and believed that the

policy ignores issues of aviation experience and expertise. In this regard, they felt that a lack of professional knowledge by either pilot or air traffic controller was responsible for unnecessarily extended and potentially ambiguous communication. They also expressed a concern that a lack of adherence to standard conventions, particularly by native English speaking pilots, also impeded communication. Kim emphasized the ICAO view that responsibility for misunderstanding is shared: the appropriate use of accommodation strategies by both native and non-native English speaking interlocutors is critical to achieve precise and efficient communication. She concluded that the ICAO policy with regard to assessment is biased and hence the basis for decisions regarding the communicative readiness of aviation personnel is inappropriate. She calls for a reconceptualization of the construct of radiotelephony communication in the interests of improved policy formation, test development and training.

The ICAO language proficiency rating scale specifically states that the descriptors are applicable to both native and non-native speakers. For example, the introduction to the scale descriptors says that "All participants in aeronautical radiotelephony communications must conform to the ICAO proficiency requirements, and there is no presupposition that first-language speakers necessarily conform" (ICAO, 2010, p. 4-8). The ICAO document also recognizes that pilots and air traffic controllers require skill in using strategic competence to resolve misunderstandings: "Proficient speakers shall use appropriate communicative strategies to exchange messages and to recognize and resolve misunderstandings (e.g. to check, confirm, or clarify information) in a general or work-related context" (p. 4-6). The ICAO rating scale in fact includes this aspect of communication under the heading of Interactions. The descriptor at the Operational Level (Level 4 on the Scale) describes strategic competence as follows:

> Deals adequately with apparent misunderstandings by checking, confirming or clarifying... A pilot or air traffic controller who does not understand an unexpected communication must be able to communicate that fact. It is much safer to query a communication, to clarify, or even to simply acknowledge that one does not understand rather than to allow silence to mistakenly represent comprehension... speakers need to be skilled at checking, seeking confirmation, or clarifying a situation or communication. (ICAO 2010, p. 4-14)

In spite of this official recognition that both native and non-native English speakers require strategic competence and that training in such competency is needed, it has been the practice worldwide that only non-native English speaking pilots and air traffic controllers are tested. This fact makes it difficult to act upon the ICAO policy that native and non-native speaking pilots share responsibility for aviation communication.

The aviation industry is beginning to recognize the potential problem with the way the language proficiency requirements are being implemented, and some practitioners have focused on culture as a way of conceptualizing the issue: "The industry wants reliable communications but also wants the operators (Pilots/ATC) to be resilient and recover from a communication error when it occurs. Culture impacts on both reliability and resilience" (Lloyd Evans, 2013).

Lloyd Evans, a human factors specialist at Emirates Airlines, points out that the goal of in-flight communication is, of course, safety, and that as pilot professional culture tends to dominate in communication, pilots need training in resilience in cases of miscommunication. Lloyd Evans recommends training in second language communication strategies, including literal translation, language switch, restructuring, paraphrasing, appealing for / offering help, and repeating.

Kim and Elder (2009) agree, suggesting that all pilots, whether native- or non-native English speakers, should be trained in communication strategies relevant to English as a lingua franca, primarily those of simplification of speech and avoidance of redundant information, paraphrasing of utterances when these are found to cause problems of comprehension, and more judicious

deployment of available language resources, including the existing aviation phraseology. They call for conceptualizing aviation English as a *lingua franca*. More than 25 years ago, Samarin (1987) defined a lingua franca as "any lingual medium of communication between people of different mother tongues, for whom it is a second language" (p. 371). More recently, it has come to be realized that English has become a truly global language, used as a medium of communication between not only second language speakers, but between native speakers and second language speakers and between these groups and speakers of nativized varieties such as Indian, Pakistani, Filipino, or Kenyan English (Seidlhofer, 2004).

McNamara (2012) has joined the call for a reconsideration of aviation English as a lingua franca. He points out that the wording of the ICAO language proficiency requirements in fact assumes an English as a Lingua Franca (ELF) context. For example, he notes the following: 1) the pronunciation descriptor at Level 4 states that "Occasionally, a proficient listener may have to pay close attention to understand or may have to clarify something from time to time…" 2) the Vocabulary descriptor says that "When faced with a communication breakdown, an Operational Level 4 speaker can paraphrase and negotiate meaning so that the message is understood." 3) the comprehension descriptor stipulates that "...pilots or air traffic controllers will need to have strategies available which allow them to ultimately comprehend the unexpected or unusual communication." 4) the Interaction descriptor says that the Level 4 speaker "Deals adequately with apparent misunderstandings by checking, confirming or clarifying. "These are all features of lingua franca communication, and McNamara concludes that it is "more helpful to think of aviation English as a lingua franca than as a restricted specific purpose code" (p. 14).

Research thus suggests that training and assessment in aviation English should emphasize the existing, though latent, view of English as a lingua franca in the ICAO language proficiency implementation document (ICAO 2010) as an approach to resolving problems of miscommunication in aviation. This would mean revising the language proficiency requirements to include features of ELF and the testing of all international pilots and air traffic controllers. But what is this thing called aviation English?

Examples of Aviation English

In international civil aviation, ICAO distinguishes between "standardized phraseology" and "plain language". The first refers to a restricted set of vocabulary and phrases that all pilots and air traffic controllers must use when engaging in routine situations. An example of standardized phraseology is shown below:

> *ATC: …Seven Tango Romeo traffic short final, cleared to land, wind three three zero at one one.*
> *Pilot: Clear to land, Seven Tango Romeo.*

In this example, the ATC identifies the aircraft being communicated with, 7TR, by using the international radiotelephony spelling alphabet, with conventionalized words representing each letter (Alfa, Bravo, Charlie, etc.). "Tango" stands for "T" and "Romeo" for "R." Next, the ATC informs the pilot that there are other aircraft in the area, "traffic short final," tells the pilot that he has permission to land, "cleared to land," and that there is wind blowing from compass direction 330 degrees (north-northwest) at 11 miles per hour, "wind three three zero at one one." The pilot responds by repeating the key permission, "clear to land," and ends with his aircraft identification, "seven tango romeo." Such phraseology is mandated by ICAO and is to be used in all routine communications.

What ICAO terms "plain language" is to be used only when standardized phraseology will not suffice; in other words, in unusual or emergency situations. An example of the use of plain language in an emergency situation, where two aircraft are about to collide is below:

> *ATC: What is your present level?*
> *Pilot: 327*
> *ATC: [stuttering]…eh…maintain now that level and report passing Zagreb*
> *Pilot: What level?*
> *ATC: At which you are now climbing, because…eh…you have an aircraft in front of you at…335 from left to right.*

The controller is clearly worried and departs from standardized phraseology, perhaps out of alarm at the impending collision, although he could have said, "State present level." He does use phraseology in his next utterance, though he is clearly distressed and stutters in his hurry to get the message across that the pilot should stop climbing and level out his aircraft. The pilot is confused and asks in plain language, "What level?" The ATC's response is in plain language, explaining the reason for the instruction to stop climbing.

Now consider an example of aviation English in what should have been a routine situation, in this case an exchange between an air traffic controller (ATC) and the pilots of two aircraft (981 and 406) at John F. Kennedy airport in New York. The names of the airlines involved have been deleted. The ATC wants to know whether the pilot of flight 981 has been given permission to park at a gate.

Figure 1: ATC/Pilot Communication Transcript

ATC: 981 – have they cleared you into the ramp?
Pilot: Roger – ramp…to the ramp, 981
ATC: OK, they have cleared you into the ramp?
[silence]
ATC: 981 – Ground
[silence]
ATC: 981 – Kennedy Ground
Pilot: 981 – go ahead
ATC: [deliberately] Have you been cleared into the ramp?
Pilot: OK, cleared to the ramp
ATC:[louder] No! That was a question – have the ramp people cleared you into the gate?
Pilot: Roger, to the gate, 981
ATC: I'll try it again – it's a question – hold your position –this is a question – interrogative [deliberately] have you been cleared into your gate?
Pilot: OK, we'll hold here
ATC: OK, how about the question? – have they cleared you into the gate?
Pilot: Roger
Pilot 2: Ground, good afternoon […]
ATC: […] 406 – what's your gate assignment?
Pilot 2: Gate number 2
ATC: OK, hold short 2 to right, call the ramp, ask them in very simple English if you can get to your gate now or not – that's all I want to know
Pilot 2: Roger, wilco
ATC: Ask them if anybody at that terminal can get to their ramp besides Air France, please, because they don't seem to be – nobody seems to speak English here today…

http://www.youtube.com/watch?v=1NDqZy4deDI

Notice first that the ATC does not use much standardized phraseology, but rather plain English. For example, the ATC says the call number of the aircraft "nine-eighty-one" rather than the correct "niner eight one." Moreover, the question "have they cleared you into the ramp?" should have been phrased as a directive "Confirm cleared to ramp," not phrased as a question at all. Second, the ATC uses rising intonation rather than syntax to ask his follow-up question: "OK, they have cleared you into the ramp?" rather than "Please confirm that they have cleared you into the ramp." Third, the ATC talks louder in the face of non-comprehension, indicating impatience. Indeed, the exchange takes on a note of desperation in the middle: "I'll try it again – it's a question – hold your position – this is a question – interrogative..." Though it is less clear in the written text than in the original oral version, the ATC is almost panicking in his effort to get his message across. Fourth, at one point he used less frequent vocabulary in order to clarify: "this is a question – *interrogative*..." Finally, one thing the ATC did which might actually have been helpful, though it may also have signaled disrespect and frustration, was to speak more deliberately to make himself understood: "Have – you – been – cleared – in – to – the – ramp?" The ATC finally abandons the communication and asks another pilot to get the desired information. The end result was a long, drawn out exchange in a situation that would have been much more efficient and effective had the ATC employed some interactional strategies that are well-known to users of English as a lingua franca. Kim and Elder (2009) refer to such strategies as *interactional competence.*

Interactional Competence

Kim and Elder (2009) argue that interactional competence is the ability by which users' responsibilities for communication are shared across participants, who

> need to be able to adapt to the situation at hand and enlist a range of communicative resources to participate in and make sense of messages delivered by speakers with differing levels of English competence in situations which may range from routine to highly unpredictable (pp. 14-15).

The communicative resources that make up interactional competence include simplification of speech and avoidance of redundant information, paraphrasing of utterances when these are found to cause problems of comprehension, and more judicious deployment of available language resources, including the existing aviation phraseology repertoire.

The ICAO Manual (2010) in fact offers some guidance on such strategies in a section on cross-cultural communication:

> Native and highly proficient speakers can, for example, focus on keeping their intonation neutral and calm…take particular care to be explicit, rather than indirect, in their communications…train themselves away from the use of jargon, slang, and idiomatic expressions…ask for readbacks and confirmation that their messages have been understood…attend more carefully to readbacks in cross-cultural communication situations, taking greater care to avoid the pitfalls of "expectancy"...Additionally, a slower rate of delivery seems to make speech more comprehensible. Sec. 5.3.3.2

The document emphasizes a concern for safety in this regard:

> A number of accidents and incidents have been attributed to either a controller or pilot using less direct forms to communicate some concern, which was in part either misunderstood or ignored. Therefore, it is important that air traffic controllers and pilots be familiar with the concepts of function, form and register (Sec. 5.3.3.4).

In spite of this emphasis on communication strategies in cross-cultural communication and the recognition of the importance of these strategies for safety, as noted above, testing and certification of native English speakers in communication strategies has never been a part of ICAO practice.

McNamara (2012) has argued strongly that tests at Level 4 are clearly invalid. He reasons that the construct is too narrow (referring as it does only to non-native English speaker characteristics in relation to native speaker standards), the standard of proficiency is thus set too high, sole responsibility for communication is seen to lie with non-native English speakers, and other factors, such as ELF communicative features are ignored. McNamara suggests that what is needed is a "strong performance assessment" (McNamara, 1996) which would include 1) judging performance against real-world criteria, along the lines of the research carried out by Kim (2012) and Knoch (2014); 2) incorporating 'ability for use' as proposed by long ago by Hymes (1972), knowledge of *how* to communicate in specific contexts (see also Davies 1989; and 3) the testing of all participants, native English speakers and non-native speakers alike. McNamara's reference to "real-world criteria" refers to what he and Jacoby (Jacoby & McNamara, 1999) have called indigenous assessment criteria, criteria used by experienced professional and vocational practitioners when judging the communicative performances of other practitioners in their fields. There is an increasing interest in indigenous assessment criteria to inform test development in professional and vocational contexts (e.g., Pill, 2013; Knoch, 2014; Douglas & Myers, 2000).

Harding (2012) has suggested what a test of English as a lingua franca might include:

- Ability to tolerate and comprehend different varieties of English (e.g., accents, syntax, discourse styles, etc)
- Ability to negotiate meaning when meaning is ambiguous
- Ability to use (or adjust) phonological features crucial for intelligibility between speakers of different first language backgrounds
- Awareness of appropriate pragmatics (understanding meaning in relation to context)
- Ability to accommodate your interlocutor (making yourself understood whomever you are speaking with)
- Ability to notice and repair breakdowns in communication

Note that in the third bullet point above, "features crucial to intelligibility," Harding is referring to the Lingua Franca Core (LFC), proposed by Jenkins (2000). In her study, Jenkins was attempting to ascertain what pronunciation features speakers would need to employ if they were trying to be intelligible to other users of English as a lingua franca, not trying to sound like native English speakers. The crucial features Jenkins proposed were the following:

1. Most consonant sounds plus one vowel (/ɜ:/)
2. Preservation of most consonant clusters
3. Vowel length (especially before voiced/unvoiced consonants)
4. Appropriate word grouping and placement of nuclear stress

While scholars accept that Jenkins' list may need to be modified as further research is carried out on ELF phonology (e.g., Seidelhofer 2004), it provides an excellent starting point for assessing the phonological features of aviation English. ICAO, once again, has recognized this in the implementation Manual (ICAO 2010), "...all speakers must move towards pronunciation patterns

acceptable to the larger international aeronautical community" (Sec. 5.3.3.6). Again, in practice, however, the ICAO Language Proficiency Rating Scale defines Pronunciation at the Operational Level 4, as "Pronunciation, stress, rhythm, and intonation are influenced by the first language or regional variation but only sometimes interfere with ease of understanding" (ICAO, 2010, Appendix A), thus placing the onus on non-native English speakers.

I would add *background knowledge* to Harding's formulation. Clearly the speakers must have something to talk *about* and knowhow to use that knowledge in specific situations. Background knowledge is thus about content but also about situations, and pilots and air traffic controllers must rely on past experience to be able to communicate efficiently and effectively, to make sense of current input and make predictions about what is to come (Douglas, 2000). The interaction between language knowledge and background knowledge is illustrated in recent research by Knoch (2014) in a study of Korean pilots evaluating recorded speech samples from a semi-direct test of aviation English and recorded live interviews. When pilots were asked what made a particular speech sample most effective, Knoch reports that "…a speaker's level of technical knowledge, experience, and training level was most often mentioned…" (p. 12). She therefore deduced that these factors played an important role in their evaluation of the communications. Knoch's findings also show how difficult the pilots found it to separate language ability from aviation knowledge, thus reinforcing the view that language knowledge and background knowledge interact in communication.

An ELF-enhanced Test of Aviation English

In the interest of enhanced air traffic safety, the construct to be measured in tests of aviation English should, in my view, be expanded beyond language knowledge to include Interactional Competence as described by Kim and Elder (2009), Harding (2012), and McNamara (2012). Recall that the current ICAO language proficiency rating scale includes a category of "Interaction," described at Level 4 as "Responses are usually immediate, appropriate, and informative, initiates and maintains exchanges even when dealing with an unexpected turn of events, and deals adequately with apparent misunderstandings by checking, confirming, or clarifying. (ICAO, 2010, Appendix A)

This is a good starting point for a revised rating scale, I believe, but the category should be given more prominence in the scale and enriched by including the features of English as a lingua franca that I have discussed. What would an ELF-enhanced test of aviation English be like? Perhaps the modest suggestions in Figure 1 below will spark test developers to think about these interactional aspects and how to assess them. The figure lists the components of ELF communication strategies and suggests a possible test task for each.

Figure 2: Possible tasks in an ELF-enhanced test of aviation English

Ability	**Task**
Ability to tolerate and comprehend different varieties of English	Demonstrate comprehension of a variety of English accents, discourse styles
Ability to negotiate meaning	In face-to-face interview, interlocutor produces an intentionally ambiguous utterance which must be negotiated by candidate
Ability to use (or adjust) phonological features crucial for intelligibility	Interlocutor indicates a failure to comprehend Candidate's utterance, requesting a recast
Awareness of appropriate pragmatics	Discourse completion in aviation context
Ability to accommodate	Candidate uses simpler vocabulary or syntax in response to interlocutor's non-comprehension
Ability to notice and repair breakdowns in communication	"Say again" in response to imprecise read-backs
Background Knowledge	Score given for technical knowledge, communicative efficiency

Clearly, if aviation English assessment standards are revised to accommodate a focus on interactional competence, instructional curricula and materials will need to be similarly enhanced to provide this same focus for English native speaking pilots and air traffic controllers.

In the end, I believe we have a professional/ethical responsibility to continue to study the phenomenon of aviation radiotelephony and the role of both native and non-native speakers of English in maintaining communication. We need to know more about both the nature of aviation English in various contexts and regions of the world, and about the indigenous assessment criteria that can inform our efforts to assess the communicative effectiveness of both native- and non-native English speakers. Applied linguists should collect and analyze samples of radiotelephony communication in various regions of the world and begin to incorporate their findings into the training and assessment of pilots and air traffic controllers. Test developers need to learn more about the indigenous criteria experienced pilots and ATCs use when evaluating the performance of their colleagues, so that these criteria can inform aviation English performance assessment. Aviation English materials developers and instructors also need to produce materials and instructional techniques to train both native- and non-native English speaking pilots and air traffic controllers in intercultural communication strategies. We should also work through our professional organizations to encourage ICAO to revise the guidelines for aviation English assessment to adequately reflect the realities of using English as a lingua franca. Indeed, the International Language Testing Association (ILTA) has been working with representatives of ICAO to 1) revise the Language Proficiency Requirements to enhance the safety of air travel, and 2) to provide a list of experts in aviation English assessment to consult with and advise national civil aviation authorities and test developers in best assessment practices. It is my belief that a new focus on interactional competence in the framework of English as a lingua franca, which ICAO espouses but has not put into practice, will go a long way toward achieving the desired goals of safety and efficient, effective communication in international air travel.

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