In international aviation, sufficient English language proficiency on the part of the flight crew is crucial because English is used as the international language for communication between pilots and air traffic controllers (ATCs) irrespective of whatever their first languages may be. Pilots and ATCs understand that controller–pilot communication is as important as technical proficiency for safety (Alderson, 2009, 2010, 2011; Yan, 2009; Cutting, 2012). Research shows that human errors associated with English language communication problems between pilots and ATCs account for 70–80% of all airline accidents and incidents (Plant & Stanton, 2012; also see International Civil Aviation Organization, ICAO, 2011). Therefore, international operations present safety problems if pilots and ATCs whose native language is not English lack sufficient command of English. To date, however, there is a lack of research on the English language factor in the context of international aviation. This chapter investigates the importance of English language proficiency of pilots and ATCs for international aviation safety and critically discusses current English language testing used in international aviation. Because of the high stakes involved, it is essential to ensure the highest possible reliability and validity in English language proficiency testing for international pilots and ATCs. This study, therefore, also explores how to improve reliability and validity and the implications for English language testing and training in international aviation are also addressed.

Previous Views

The goal of the air traffic system is to achieve the safe, efficient conduct of aircraft flights and to maintain a safe, orderly and expeditious flow of air traffic (ICAO,
Researchers have studied the safety issue from various aspects, such as information transfer between pilots and ATCs (ICAO, 2008, 2009; Alderson, 2009, 2010, 2011), pilots’ knowledge, skills, and abilities (von Thaden, Wiegmann, & Shappell, 2006; Bristow & Irving, 2007), reliability and stability of equipment such as aircraft, communication systems, etc. (de Voogt & van Doorn, 2006; Cristancho, 2007), stress of pilots and ATCs in emergency situations (Li & Harris, 2006; Gates, Duffy, Moore, Howell, & McDonald, 2007), etc. The previous studies on aviation safety have emphasized the equipment factor but have neglected the factor of language communication between pilots and ATCs. According to the Boeing statistical summary of the worldwide aircraft accidents 1996 through 2005, equipment failures account for only 17% of the accidents, however, human errors related to pilots and ATCs’ miscommunications, stress, fatigue, etc. caused more than 55% of the accidents (Boeing, 2005). Isaac, Shorrock, and Kirwan (2002) also indicate that the majority of accidents in hazardous activities are caused by human error, and human error will inevitably occur (Kontogiannis, 2011). Boeing (2011) summarizes the worldwide fatal accidents 2001 through 2011 and shows that system or component failure or malfunction only caused 4 out of the total of 87 fatal accidents. Therefore, equipment is not the weakest link in the aviation system, although an aircraft is built of thousands of parts, components, and systems. Language communication between pilots and ATCs is essentially a major factor for aviation safety (Alderson, 2009, 2011; Yan, 2009).

**Current Views**

With the growth in the volume of international air travel and the cosmopolitan nature of the staff involved, recent research has begun to examine the factor of the language communication between pilots and ATCs in aviation, especially in international aviation (Alderson, 2009, 2010, 2011; Yan, 2009; Cutting, 2012). Barshi and Healy (2011) show that there is no way that a nonhuman interpreter could handle the requirements of communication in an emergency between pilots and ATCs. Therefore, information transmission between pilots and ATCs must have the human interface and pilots and ATCs have to have a common language to communicate with each other. Alderson (2010, 2011) indicates that language is essentially the final safety net in aviation operations (also in Shawcross, 2007). Without successful language communication between pilots in the air and ATCs on the ground, aviation would be an impossible industry because events in aviation, routine or emergent, rely heavily on verbal communications between pilots and ATCs (ICAO, 2008, 2009; Arminen, Auvinen, & Palukka, 2010). That is, language communication between pilots and ATCs is an essential and critical component. According to Day (2004), the most vulnerable link in the airspace system is information transfer between pilots and ATCs, and safe flights depend on successful pilots and ATCs’ language communications. Matthews (2004) indicates that between 1976 and 2000 more than 1,100 passengers and aviation crew died in accidents in which the language factor had played a contributory role. Based on a review of 28,000 aircraft incident and accident reports, over 70% of the problems
Assessing the English Language Proficiency of International Aviation Staff

were in information transfer, and this issue continues to be the largest category of problems ever reported (Shawcross, 2007). Also, the first six months of 2004 were among the safest ever for airlines, however, statistics still indicated that insufficient language proficiency in comprehension or expression of pilots or ATCs continues to feature in incident and accident reports of aviation (Shawcross, 2007). Clearly, the language factor is crucial, unambiguous and efficient communication between pilots and ATCs is vital for the safe and expeditious operation of aircraft (Cutting, 2012), and risks caused by language and linguistics in international aviation must be explored more deeply (Tiewtrakul, 2010).

Current Research

As mentioned, English has been used as the default language for communication between pilots and ATCs in international aviation, and pilots and ATCs’ sufficient command of English language is a safety imperative. However, there is a lack of research on the language factor for international aviation safety. Although English language testing procedures have been developed to ascertain the licensed pilots and ATCs have sufficient proficiency in English for safe and efficient communications, the assessment procedures are often invalid or, even worse, nonexistent (ICAO, 2008). This section, therefore, discusses the language factor for international aviation safety, current English language testing in international aviation, and how to enhance reliability and validity of language testing.

English Language Proficiency for International Aviation Safety

On an international flight, a pilot or ATC will be confronted with other flight crew speaking English with different accents and degrees of proficiency. That is, for pilots and ATCs whose native language is not English, crosscultural and multilingual exchanges are often required while transmitting information to each other. For example, while a Chinese pilot is flying from Beijing to Paris, he or she may cross 10 national boundaries and speak to more than two dozen air traffic controllers, each with a different first language background, speaking different regional varieties of English at varying levels of proficiency (Shawcross, 2007; Alderson, 2010, 2011; Cutting, 2012). According to international aviation regulations, although pilots may use the language of the country they are flying over, pilots and ATCs must be able to communicate in the default language of international aviation—English. For international pilots and ATCs who lack sufficient proficiency in English, international operations present serious problems (ICAO, 2008, 2009). For instance, more than 1,500 passengers and flight crew lost their lives in accidents in which inadequate English language proficiency of pilots or ATCs had been a contributing factor between 1970 and 1995 (Shawcross, 2007). The ICAO Accident/Incident Data Reporting System also shows that the “language barrier” on the part of pilots and ATCs is an important reason (ICAO, 2008). Language barriers exist in all language exchanges and can seriously compromise the communication process between pilots and ATCs in aviation. Different people may get different meaning from the same words, phrases, or sentences because
Assessing Learners

everybody filters language expressions through different perspectives, cultural and linguistic backgrounds, and life experiences. For example, the Tenerife disaster, on March 27, 1977, is one of the worst accidents in aviation history, killing 583 and injuring 61. The major cause was a miscommunication between the Dutch speaking pilot and the Spanish speaking ATC regarding the meaning of “We are now at takeoff.” The pilot meant “We are now taking off,” but the controller understood it as “We are waiting for permission to take off.” In November 1996, a Kazakhstan Airline plane collided midair with a Saudi Arabian Boeing 747 over Charkhi Dadri, New Delhi, India, killing 351 people. This accident was caused by language miscommunication between the ATC, who was an Indian, and the pilots, who were Saudi and Russian. Day (2004) pointed out that although the fatal airline accident rate has continuously decreased, pilots and ATCs’ miscommunication on account of poor English language skills is still frequent. Therefore, the language factor is critical for international aviation safety, and the importance of English language proficiency cannot and should not be underestimated (Alderson, 2009, 2010, 2011).

Formulaic Language Is Not Sufficient for Language Communication Between Pilots and ATCs

The ICAO language standards indicate that the language proficiency requirements in aviation include the use of both phraseologies and plain language (ICAO, 2009). The phraseology is formulaic language, which is standard, idiomatic, serial, and memorized speech or language in predictable form (Alderson, 2009, 2011). Examples of phraseology are “request start up,” “cleared for takeoff,” “hold at C1,” etc. According to the ICAO (2009), the purpose of formulaic language is to provide maximum clarity and brevity in communications while ensuring the messages are unambiguous. That is, standard phraseologies can help to decrease the problem of human factors associated with pilots and ATCs language communications and help to ensure safe operations. However, standardization is not a complete solution to miscommunications between pilots and ATCs since formulaic expressions can only be used to address routine events or situations which are foreseeable. In cases of nonroutine, unexpected, or emergency operational situations, standard phraseology is not sufficient for effective and unambiguous communication. That is, standard phraseology fails to address the full range of problems that can arise (ICAO, 2008, 2009). Accident investigation reports illustrated that the inability to communicate in common English can lead to serious operational errors and even deaths, especially in cases of nonroutine and emergency situations (ICAO, 2009). Also, studies indicate that pilots and ATCs tend to switch from standardized phraseology to a more conversational style in emergency situations (Campbell-Laird, 2004). In emergencies, pilots and ATCs must depend on what is called “plain” language to manage situations. Researchers also found that bilinguals or multilinguals tend to use their primary or dominant language, or their most familiar dialect, to handle unexpected situations or urgent needs (Yan, 2009).

Therefore, formulaic language, or a list of standardized phrases pertinent to aviation contexts, cannot deal with the full range of situations requiring
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Radiotelephony exchange between pilots and ATCs. That is, formulaic language is not sufficient for pilots and ATCs’ language communication. Actually, aviation English is not entirely distinct from general English. Mitsutomi and O’Brien (2001) proposed an aviation English model consisting of the following three components:

- air traffic control phraseology,
- English for specific purposes (ESP), and
- English for general purposes (EGP).

In this model, air traffic control phraseology works most of the time. When the phraseology fails to work on unexpected occasions, EGP is used, which, in aviation contexts, includes mostly aviation-specific tasks and vocabulary (ESP).

Pilot and ATC Awareness of the Importance of the Language Factor for International Aviation Safety

Because of the high risks involved, pilots and ATCs’ awareness of the importance of language communication in aviation safety is crucial. To date, however, research in this respect is very scant. Yan (2009) used a survey to elicit information about what pilots and ATCs actually think about the factors related to aviation safety based on their experience and perspectives. The questionnaire was composed of 30 items, with 23 Likert-scale items, and a multiple choice cloze test. The survey was completed by 98 pilots and ATCs in China. It was found that the participants did not have sufficient awareness of the importance of language communication in aviation safety. Therefore, they can benefit from training to improve their awareness of the significance of becoming proficient in English.

A multiple choice cloze test was included in the survey to get a brief measure of the participants’ general English language proficiency. Research indicates that cloze testing is an integrative method (as contrasted with discrete-point assessment) focusing on language use to assess test takers’ knowledge of phonology, morphology, syntax, semantics, and pragmatics (Yan, 2009; see also Chapter 13, Assessing Integrated Skills). That is, cloze testing is valuable to measure the examinee’s comprehension of the material and to assess general English language proficiency for both native English speakers and non-native English speakers (Oller & Jonz, 1994). Aviation English is a language for specific purposes (Douglas, 2004), and tests for the aviation industry should include tasks that are similar to and representative of those of the examinees’ target language use situation (Douglas, 2004). However, aviation English is essentially general English with additional elements inherent to aviation (aviation terms, new meanings of familiar words, grammar structures peculiar to the aviation industry, etc.). That is, general English is not opposed to aviation English or vice versa. Actually, aviation English rests on the knowledge of general English. Therefore, the participants’ general English language proficiency assessed by the cloze test in the survey should be able to reflect their aviation English level. The cloze text used in the survey is less difficult than advanced college material, and the results revealed that the English skills of the participants were weak.
In conclusion, English language proficiency is vital for international aviation safety. Yan (2009) demonstrates that the surveyed pilots and ATCs did not have sufficient awareness of the importance of language communication in aviation safety and their general English language proficiency was not sufficient. Therefore, it is critical to improve pilots and ATCs’ awareness of the importance of their English language proficiency and to ensure that international pilots and ATCs possess proficient English through reliable and valid aviation English testing and training programs.

Current English Language Testing in International Aviation

Aviation English testing is quite different from other types of language testing because of the life and death consequences. Professional and personal stakes involved in aviation require a high level of professional standards and personal commitment throughout the testing and training process (ICAO, 2008, 2009; Alderson, 2010, 2011). Since English language proficiency of pilots and ATCs is a safety imperative, and there are no short cuts regarding language learning and safety (ICAO, 2008, 2009; Arminen, Auvinen, & Palukka, 2010), the ICAO introduced new language proficiency requirements (LPRs) which established six levels of skill in six areas of English language usage: pronunciation, structure, vocabulary, fluency, comprehension, and interactions (ICAO, 2008, 2009; also see Macmillan Education, 2010). Air traffic personnel whose English language proficiency is at

- ICAO Level 6 (Expert) will be issued a valid English language proficiency endorsement for all time, that is, they will not be required to demonstrate English language proficiency in the future;
- ICAO Level 5 (Extended) must resit the test in six years;
- ICAO Level 4 (Operational) need to be retested every three years;
- ICAO Level 3 or below will need specific aviation English language training to reach the minimum ICAO operational level.

The new ICAO language proficiency requirements strengthen the requirement for English proficiency of pilots, ATCs, and other aviation personnel in international aviation, establish the minimum skill level (ICAO Level 4) requirements for language proficiency for flight crews and ATCs, and standardize the use of ICAO formulaic phraseologies. Very importantly, the new requirements not only affirm the important role of ICAO standardized phraseology, but also emphasize the necessity of pilots and ATCs’ demonstration of a minimum level of proficiency in plain language when phraseology is not applicable (Alderson, 2011). The new requirements indicate that the effective use of plain language is vital in aircraft operations, especially in unusual and emergency situations.

One example following the new ICAO requirements is New Zealand’s English language proficiency tests. Only after the candidates have passed all of the Private Pilot License (PPL) theory examinations to ensure they have enough aviation knowledge can they take the English language proficiency tests. Depending on a candidate’s level of English competence, the candidate may sit one of two tests.
One is Level 6 Proficiency Demonstration (L6PD), which is a 7- to 10-minute test of recorded human voice prompts carried over the telephone to imitate the real pilot–ATC communication environment. This test is for native English speakers or candidates whose English level is relatively high. The second test, Formal Language Evaluation, is for those for whom English is not their native or dominant language. This test determines whether the candidate meets the ICAO minimum operational Level 4 standard or higher, and is a 20- to 25-minute two-phase test including a live interview conducted over the telephone and a similar test to the L6PD. As of 2009, around 1,500 candidates have sat the L6PD and about 220 have sat the FLE (ICAO, 2009).

Because of the high stakes involved, the consequences of inadequate language tests being used in licensing pilots, ATCs, and other aviation personnel are potentially very serious. The ICAO (2008) has expressed concern that no license is required for language testers in the aviation industry. Also, the ICAO (2009) indicates that aviation English testing is still an unregulated industry. Alderson (2009, 2011) expressed shock and dismay that although some tests in the aviation industry did exist, there were no independent data available on the quality of current aviation English examinations. In Alderson (2010), a survey concerning the current aviation English tests was reported. Commissioned by the European Organization for the Safety of Air Navigation (Eurocontrol), the Lancaster Language Testing Research Group did a validation study of the development of a test called ELPAC (English Language Proficiency for Aeronautical Communication). As part of the study, a survey was conducted using a questionnaire based on the Guidelines for Good Practice of the European Association for Language Testing and Assessment (EALTA). The questionnaire was sent to numerous organizations whose tests were used for licensure of pilots and ATCs. Only 22 responses were received and they varied considerably in quantity and quality. Results from the survey reveal a considerable variation in the quality of the tests, a lack of available evidence or system to qualify the tests, and insufficient awareness of appropriate procedures for test development, maintenance, and validation. Researchers of the study concluded that they do not have sufficient confidence in the meaningfulness, reliability, and validity of several of the aviation language tests currently available for licensure. Therefore, they recommend that the quality of language tests used in aviation be monitored to ensure they follow the accepted professional standards for language tests and assessment procedures.

Since the ICAO Level 4 language proficiency requirements became applicable in November 2003, steps have been taken to help in implementing the new language proficiency requirements effectively and timeously. For instance, in cooperation with the ICAO, the International Civil Aviation English Association (ICAEA) developed a set of Guidelines for Aviation English Training Programs. Although the guidelines will be of invaluable assistance in the process of selecting aviation personnel and fine-tuning training programs and end user objectives and there has been a significant change to the environment in which aviation English is now carried out (ICAO, 2009), there is a lack of any system of accreditation, validation, or specific teacher qualifications. According to the ICAO (2009), the final goal of aviation English training is to ultimately enhance safety by enabling the effective implementation of the ICAO language proficiency requirements.
However, the current reality concerning English language teaching or training in international aviation is that, although there are various internationally recognized bodies qualified to provide accreditation for schools teaching English as a foreign language, there is currently no formal system of accreditation or qualification for schools or teachers developing and delivering aviation English training. That is, English training is still an unregulated industry, which is quite similar to aviation English testing.

Inadequate English language testing and training, poor quality, and insufficient research on the language factor in international aviation may lead to language testing or training that is unreliable, invalid, ineffective, or inappropriate, which will, accordingly, increase the possibility of miscommunications between pilots and ATCs leading to fatalities (Alderson, 2009, 2010, 2011). Therefore, it is crucial to improve the reliability and validity of English language testing and training in international aviation.

Improving Reliability and Validity in Assessing English Language Proficiency

Based on the preceding discussions in this chapter, it is evident that English language proficiency of international pilots and ATCs is directly connected to international aviation safety. Therefore, a critical issue in the industry is that English language testing should be as reliable and valid as possible to ensure that pilots and ATCs have sufficient English language proficiency to communicate and to successfully manage unexpected events and emergency situations.

Reliability and validity are two important traits of any assessment or testing. Generally, reliability is about the consistency of findings, and validity asks the question whether a measurement measures what is intended to be measured. Douglas (2004) indicated that in language-testing situations, reliability means whether a particular assessment of language ability is consistent, both across individuals taking the same test, and within an individual being assessed at various times. Validity is commonly viewed as the most important quality of a test (Yan, 2009). The conception of validity is connected to different questions from various perspectives (Borsboom, Mellenbergh, & van Heerden, 2004). The current study follows Borsboom et al. (2004; also Oller, 2012) and argues that a measure is valid when changes in the measure reflect changes in whatever is being measured. That is, validity in measurement refers to the truthfulness of findings. The other traits of tests and measurements that are commonly referred to, including reliability, authenticity, etc., are features of validity and of truth (Oller, 2012; see also Chapter 26, Assessing Test Takers With Communication Disorders).

According to the empirical study completed by Yan (2009), both reliability and validity of testing can be enhanced by improving communication between the teacher and examiner, the curriculum and test, and the test takers. Applied in the aviation contexts, if the testing or training goals, format, content, administration approaches, rating scales, etc. are communicated better to pilots and ATCs before any language testing or training occurs, it should follow that the reliability and validity of testing and training will be improved.
Also, as discussed above, validity is essentially truth in whatever is being measured, and validity necessarily implies reliability. Therefore, the validity (and of course reliability) of aviation English testing and training should be enhanced by improving the agreement between the testing and training content and approaches with what is really involved in aviation situations. That is, valid language testing and training in aviation should be as authentic as possible and reflect the real work domain. Accordingly, the characteristics of authentic language use of pilots and ATCs in real working situations should be incorporated into aviation language testing and training. Shawcross (2007) summarizes the unique features of pilots and ATCs’ language use as the following:

- Aviation communication is essentially oral. Most of the communications between pilots and ATCs are not visual.
- The language used in aviation includes very specific lexicon such as weather, mechanics, aerodynamics, geography, navigation, etc. Pilots and ATCs often use common words such as “clear,” “hold,” etc. in a way different from everyday usage. Also, aviation language often has operationally relevant language functions such as orders, requests, offers to act, feasibility, etc.
- Language communication in aviation is a blend of formulaic standard phraseology and natural speech to handle nonroutine or unexpected events.
- Communication is often conducted in a stressful environment, especially in cases of emergencies.
- The language skills required by the ICAO areas include pronunciation, structure, vocabulary, fluency, oral comprehension, and interactions. Reading and writing are not emphasized in aviation.
- Pilots and ATCs’ language competency generally are assessed in more real-life effective communication situations, such as in an operational environment, rather than in purely linguistic terms.
- In international aviation, the ultimate level of language proficiency (ICAO Expert Level 6) is a language understandable and intelligible to the international community, not native speaker-like English.

According to the ICAO, all different accents and varieties of English should be governed by the same proficiency requirements in the aviation industry. The ICAO language proficiency requirements clarify what level of English language proficiency of pilots and ATCs is appropriate for international aviation. That is, the purpose of the ICAO language proficiency requirements is to ensure, as far as possible, that the language proficiency of pilots and ATCs is sufficient to reduce miscommunication as much as possible and to allow pilots and ATCs to handle routine and in particular nonroutine situations. In short, English language should be problem-alleviating or problem-avoiding rather than an obstacle.

- Finally, in any language test in accordance with the ICAO Rating Scale, the various levels of proficiency are defined by the lowest score in all six skills.

In accordance with these features, valid English language testing and training in international aviation should have the following characteristics. First, the format and contents of language testing and training in aviation should reflect the real
language use of pilots and ATCs. For example, the format of valid English language testing and training in aviation should emphasize the verbal rather than the written aspect of language with visual cues being not accessible to the pilots or ATCs, because air–ground radiotelephony communication is generally oral without visual cues. Also, the contents of valid aviation English testing and training should include both formulaic phraseologies standardized by the new ICAO requirements and plain language, since the pilots and ATCs’ radiotelephony communication includes standard phraseology at the core and operational exchanges in plain English when phraseology is inadequate.

Second, aviation English testing and training should view language as dynamic, holistic, and integrative. In reality, language communication between pilots and ATCs in naturalistic aviation situations is meaning-based, and therefore holistic and integrative (see also Chapter 13, Assessing Integrated Skills). Accordingly, valid English language testing or training procedures should reflect this fact and stress operational efficiency rather than linguistic correctness. Actually, operational efficiency is the ultimate criterion by which English proficiency is assessed according to the new language proficiency requirements (ICAO, 2008, 2009).

Third, the delivery of language testing and training should be as authentic as the real-life situations in aviation. For instance, pilots and ATCs communicate via radiotelephony, therefore, aviation English testing and training should be carried out over the telephone to simulate the radiotelephony environment as closely as possible. The delivery of valid language testing and training should manage the noise issue systematically and very deliberately because the acoustic quality of radiotelephony in real working situations of aviation is often poor (Alderson, 2009, 2011). In addition, the delivery of language testing and training should reflect the fact that in real international aircraft operations, pilots and ATCs have to deal with different accents, dialects, and varieties of English. Also, language communication in aviation is very time sensitive, especially in unpredictable circumstances or emergencies in which speed and clarity of communication between pilots and ATCs are of the essence for aviation safety. Therefore, the issue of time constraints should be reflected in language testing and training in aviation. However, it is not always so in reality. For example, the Tests of English Language Proficiency for Aviation (TELPA), which have been used in Korea, are designed to be “almost 100% aviation-specific with authentic and work-related situations and materials in aviation” (General Tests of English Language Proficiency, G-TELP, 2005, p. 1). For every test item, test takers are provided with 30 seconds to think before they answer in TELPA. However, it may not be possible to have 30 seconds to think before pilots or ATCs make any decisions to deal with emergencies in real aircraft operations. Therefore, neglecting the element of appropriate time constraints in TELPA is violating the authentic aviation environment, which makes the validity of such testing questionable.

In conclusion, validity and truth are essentially the same attribute, and validity implies reliability. For the English language testing and training used in international aviation, the reliability and validity of testing and training can be improved if the format, contents, delivery, etc., of testing and training are compatible with real-life aviation demands and situations and are better communicated to pilots and ATCs.
Challenges

The major challenge of this chapter is that there is a lack of data and research on English language testing in international aviation, which makes it difficult to judge the sufficiency of the implementation of the new ICAO language policy to ensure the quality of the English language testing procedures. Without sufficient access to the testing and training contents, format, structure, administration and delivery methods, rating scales, etc., the reliability and validity of the language testing and training is unclear. For the same reason, there is a lack of clarity as to whether the testing processes currently used or proposed meet the ICAO language standards.

Future Directions

Developing the English language proficiency of pilots and ATCs helps to improve international aviation safety and enhance personal and professional fulfillment. However, preceding discussions indicate that there is a lack of analysis of the language communication between pilots and ATCs and research on language testing in international aviation is scant. Therefore, future research needs to be directed toward corpus analyses of the language used in international aviation to investigate the specific underlying problems associated with pilots and ATCs’ English language communication, such as comprehension, standard phraseology, intonation, word use, grammar (see also Chapter 6, Assessing Grammar), and the use or misuse of pauses, etc.

Also, special attention should be focused on assuring the quality of the English language testing and training currently used and proposed in international aviation. That is, future research should be directed toward evaluating whether the language testing or training is as authentic as possible, is able to provide reliable and valid measures of the language proficiency of pilots and ATCs, and is practical in terms of administration, time, money, personnel, etc. For the same purpose, future research should be directed toward developing a formal system of accreditation or qualification for schools, teachers, and others to develop and deliver reliable and valid English language testing and training in international aviation.

SEE ALSO: Chapter 6, Assessing Grammar; Chapter 13, Assessing Integrated Skills; Chapter 31, Assessing Test Takers With Communication Disorders

References


Suggested Readings


Online Resources


