

Learning English to fly: A study of Chinese cargo airline pilots' learning engagement

KE ZHAO, XIAOHANG GUO AND XUESONG GAO

Understanding Chinese pilots' English learning and use informs efforts to improve their command of English and ensure aviation safety

Introduction

Due to a growing concern with the English language competence of international airline pilots, a growing body of research has been conducted on issues related to the International Aviation English Test, which pilots need to pass in order to fly on international routes (e.g. Jones, 2003; Ragan, 1997; Seiler, 2009). This paper contributes to this research by reporting on a mixed method inquiry into Chinese pilots' engagement with learning English for aviation. The study involved a survey of 165 pilots working for a major Chinese cargo airline, and follow-up interviews with two of the surveyed participants (one senior and one junior) to explore their International Civil Aviation Organization (ICAO) test preparation and learning engagement. The findings of the study indicate that policy-makers and relevant English language education specialists need to develop tailor made courses that will better help these pilots to improve their command of English and thus ensure aviation safety.

Background

English plays a crucial role in the maintenance of flight security and the management of air traffic (Jones, 2003; Ragan, 1997). Due to the rising numbers of non-English pilots flying on international routes, there has been a growing concern with flight accidents attributed to tower communication (pilot-air traffic controller communication) breakdowns in English (Seiler, 2009). Flight miscommunication between pilots and air traffic controllers caused by inaccurate and improper use



KE ZHAO (COCO) is a professor at School of Foreign Studies, Shanghai University of Finance and Economics. Her research interests mainly focus on English for Specific Purposes, Intercultural Learning and technology-enhanced learning in English for International Business. She has published in Teaching in Higher Education, International Journal of Computer-Supported Collaborative Learning and The Asia-Pacific Education Researcher. Email: zhao.ke@mail.shufe.edu.cn.



XIAOHANG (JOY) GUO graduated from Shanghai University of Finance and Economics in 2014 with a Bachelor Degree in Business English. She is working as a marketing specialist in China Eastern Airlines. Email: 806100664@qq.com.



XUESONG (ANDY) GAO is associate professor at the School of Education, University of New South Wales. He is also an Oriental Scholar (visiting professor) at Shanghai International Studies University. He published extensively on topics including language learning strategy, language teacher education and language education policy. Email: andygohteacher@hotmail.com.

of international aviation English is considered to be one of the most likely causes of aviation accidents (Alderson, 2009; Ragan, 1997; Tajima, 2004). Consequently, aviation professionals' command of English for aviation has received increasing attention in research over the last two decades (Alderson, 2009; Cutting, 2012; Knoch, 2014; Ragan, 1997; Sullivan & Girginer, 2002; Tajima, 2004). Particular research attention has been paid to the communication skills of English as a Second or Foreign language users in international aviation situations (Farris et al., 2008; Kim & Elder, 2009). Another focus of research has been on the development and validation of aviation English language proficiency tests (Alderson, 2009; Knoch, 2014). On the basis of such work, the International Civil Aviation Organization has developed a set of language proficiency requirements and a rating scale of six levels to define proficiency in aviation language use. Pilots and air traffic controllers are required to pass the ICAO Test Level 4 at minimum in order to fly aircraft or work as air-traffic controllers. Recent studies on test validation and implementation have indicated an urgent need for research to explore these aviation professionals' perspectives on test-taking and preparation (Knoch, 2014).

Despite the concerted efforts to ensure that pilots reach acceptable levels of aviation English competence, observed discrepancies between pilots' English language proficiency and the competence required for real life communication still remains a major concern, especially in countries where the aeronautical industry has been rapidly expanding in recent years, such as China (Ragan, 1997; Wang, 2007). While ICAO requirements have been recognized as effective guidelines for aviation English education, it has become important to examine pilots' actual engagement in learning English both as preparation for the ICAO tests and for real-time aviation communication. To address this significant gap, this paper reported a mixed method investigation into Chinese pilots' engagement with learning English for aviation in a major Chinese cargo airline.

The inquiry

Recent studies have identified a number of key challenges in the teaching and learning of English for aviation in China, including the dominance of grammar-translation methods and a lack of consistency between curriculum and language use in practice (Wang, 2007). It has now become necessary to learn from pilots themselves in order to unravel the

difficulties and challenges that may affect their engagement with the tasks of language learning and preparing for the ICAO tests. For this reason, the study addresses the following research question:

How did Chinese pilots engage with the tasks of learning English and preparing for the ICAO tests?

Survey

In this inquiry, 165 pilots who fly international flights for a major Chinese cargo airline volunteered to participate in a survey about their learning of English for aviation. The questionnaire was developed through preliminary interviews with Chinese pilots about their experiences of learning English and preparing for the ICAO tests. The questionnaire consists of three sections concerning participants' general background information, ICAO test preparation and learning activities. The questionnaire underwent two rounds of trial use and modification before being administered. Since the introduction of ICAO tests was recent, we suspected that pilots of different ages might have different ways of engagement with the task of learning English to fly. Therefore, the participants were categorized into two groups in the descriptive statistical analysis: Group A consisting of senior pilots aged above 38, most of whom were retired officers from the Chinese Air Force ($N=63$), and Group B, junior pilots aged below 38, all of whom are graduates from tertiary institutions ($N=102$).

In-depth interviews

Drawing upon the survey results, two pilots (one senior and one junior) were invited for a one-hour interview (see Table 1). The two participants were selected because they shared similar language learning experiences with other senior and junior pilots in the study. Interviews were conducted to elicit details about the participants' experiences of learning English and taking the ICAO tests. At the interviewees' request, neither interview was not tape-recorded, but detailed field notes were taken down by one of the authors for analysis. The three authors went through the notes in detail, focusing on the question of how these notes might explain why participants preferred particular types of learning engagement as identified in the survey.

Results

Survey Results

The survey recorded that none of the pilots in Group A (senior pilots) had learnt English before

Table 1: In-depth Interview participants

Pseudonym	Zack	Kevin
Age	51	26
Educational background	Associate Degree	Bachelor
Years of learning English	3 years (since the implementation of ICAO language requirements)	17 years
Work history at the company	13 years after retirement in the military service	4 years
Aviation professional expertise	Extensive professional knowledge	Limited professional knowledge

joining the company. In contrast, the pilots in Group B had all passed the College English Test (CET)¹ at Band 4, and nearly a quarter of them had achieved CET Band 6 before graduation. All 165 pilots had passed the ICAO Level 4 (Operational level) test because of the strict implementation of the ICAO English requirement policy in this airline. However, only 16 junior pilots in Group B had passed ICAO Level 5 (Extended level) and none of them had passed ICAO Level 6 (Expert level).

The data suggested that the participants had invested minimal amounts of time in learning English even though they had low passing rates at the higher levels of the ICAO tests. 111 (67%) pilots responded that they only seriously studied English shortly before taking their exams, while only 19 (11%) of them claimed that they studied English every day. It is important to note that 72 out of the 111 pilots who spent time learning English for the ICAO tests were senior pilots. Among the 19 pilots who studied English every day, 18 were senior pilots. It seems clear from this observation that senior pilots work harder to learn English than do their junior counterparts in general.

To take the ICAO tests, all the participants, except two pilots who passed the ICAO Level 5 test, attended training courses taught by professional Aviation English trainers. Those training courses aimed to help pilots pass the ICAO Level 4 test. The survey data revealed that teaching in these training courses was highly exam-oriented, since the main teaching activity was ‘explaining test items from the sample exam papers’. More than two thirds of the participants did not think that the training courses helped them improve their command of English for aviation. For this reason, it is probably not surprising to see that the participants undertook a variety of other learning

activities, as documented in Table 2. As can be seen, participants who passed the ICAO Level 4 test largely relied on private tutorial sessions and memorization. Those who passed the ICAO level 5 test used memorization, oral practice and listening exercises.

Further analysis also revealed that senior pilots preferred memorizing sentences, dialogues and phrases to reading and listening, as they had no prior experience of learning English and had only started learning it after joining the airline. In contrast, junior pilots, all of whom had passed the CET Band 4 test or higher before joining the airline, were more likely to memorize specific phraseology. They were also found to have been more willing to engage in listening to audio- and videotaped materials and oral practice activities to enhance their real-time communication skills.

In-depth Interviews

Two Chinese pilots, Zack and Kevin (see Table 1 above), were interviewed to gain insights into their engagement with learning English and preparation for the ICAO tests. Zack is a Five Star Captain (i.e. one of the company’s best pilots), who had been working at the airline for more than 13 years. At the time of interview, he was responsible for 10 international routes to North America and Europe. Before joining the airline, Zack was a bomber pilot in the Chinese Air Force.

Unlike Zack, Kevin, who was born in the 1980s, did not serve in the Air Force; instead, he attended the Civil Aviation Flight University of China before joining the airline in 2010. He took courses on aviation theory and general education in the first two years of his university studies, during which he passed the theory tests and CET Band 4. He was then able to enter into practical flight training for the next two years, and graduated with a pilot’s

Table 2: Preferred Learning Activities

Learning Activities	ICAO Level 4 Group (N = 149)		
	ICAO Level 5 Group (N = 16)	Group B (Junior) N = 86	Group A (Senior) N = 63
Memorization	16 (100%)	76 (51.0%)	63 (42.3%)
Simulation*	8 (50%)	11 (7.4%)	8 (5.4%)
Online study	10 (62.5%)	13 (8.9%)	3 (2.0%)
Listening practice	16 (100%)	15 (10.1%)	55 (34.6%)
Reading	2 (12.5%)	6 (4.0%)	3 (2.0%)
Oral practice	11 (68.8%)	24 (16.1%)	10 (6.7%)
Private tutorial	14 (87.5%)	98 (65.8%)	63 (42.3%)
Doing exercises	3 (18.8%)	22 (14.8%)	30 (20.1%)

*a learning activity specified by participants as 'others' in the questionnaire.

license. In 2010, Kevin also passed the ICAO Level 4 test and started his flying career as an assistant captain.

According to Zack, pilots flying international routes in the late 1990s and early 2000s did not need to speak English. They were then flying Russian planes with five seats in the cockpit for one captain, two assistant captains, one radio operator and one on-call pilot. It was the radio operator who was responsible for communicating with air traffic controllers during departures and landings. Even though captains did not need to speak English, they had to understand English terms in order to operate the plane. Therefore, Zack had learnt various English terms such as those for technical devices or functional units in a plane. For this reason, he felt that he was more familiar with English for aviation than junior pilots like Kevin, who joined the airline after learning English in aviation universities or colleges:

We were not able to speak aviation English, but we understand it better than anybody. Those kids who speak English fluently know nothing about the contextual meaning of these terminologies, not even close! (Interview notes)

The response also indicates that, although an experienced pilot, Zack felt threatened by the rising importance of English, a language that he had never formally studied before he started flying. The importance of English for aviation communication dawned upon him in early 2007, when he and

his colleagues were pressurized to pass the ICAO Level 4 test. Failure in this test would have meant an immediate suspension of his license to pilot international flights, and the new regulations stipulated that every pilot would henceforth have to take the test once every three years in order to maintain a valid license. Furthermore, new planes have just two seats in the cockpit; one for the captain, and one for the assistant captain. Consequently, the captain and assistant captain have to communicate with air-traffic controllers and other station attendants in English. To his own surprise, Zack passed his first English test, even though he reported guessing answers to most of the questions in the written component. In the oral test, he also had a narrow escape. His extensive previous experience meant that he had had ample opportunity to observe real time aviation communications, and had noticed in statements such as 'Descend and maintain two five zero feet', 'Approach ground' and 'Expedite 100 km/h', the omission of elements such as grammatical subjects and modal verbs, which are frequently used in everyday English. Such prior exposure helped him understand and communicate properly in the test.

Nevertheless, Zack still felt that listening remained his major weakness in the test, in which test takers listened to dialogues spoken at normal speed with grammatical constructions similar to those used in daily English, rather than the type of constructions that he was familiar with in the cockpit. For this reason, Zack was not always able to bluff his way through the ICAO tests. He failed his ICAO Level 4 test three years later, and failed it again in his second

attempt even after two months of intensive work. Since then, he has studied English on his own on an ad hoc basis. It is not easy for senior pilots like Zack to catch up with young pilots who have studied English for many years. Zack started with a basic knowledge of grammar, pronunciation and syntax. His reading materials mainly included *Elementary and Pre-Intermediate Course* and *Xu Guozhang English*. He predominantly relied on memorizing general English words and sentences. For example, he collected basic verbs, adjectives and nouns, such as ‘walk’, ‘wonderful’, ‘sound’, ‘get’ instead of the standard aviation English phraseology in his portable English learning notebook. When learning a new sentence, Zack memorized the meaning of each word in the sentence and put the meanings together to understand this sentence. However, he found it ‘hard to understand a grammatical point without reference to a vivid example’. For this reason, he was still confused about how to use pronouns such as ‘it’ although he learnt ‘grammar and syntax by memorizing sentences’. Nevertheless, Zack managed to pick up some fragments of grammatical knowledge by memorizing new words and sentences. In addition, he also focused on developing his listening competence. He practiced listening to English tapes, exam materials and practical dialogues especially before taking the ICAO tests.

Although he persisted in learning English, he still found the task of learning English quite challenging. As he put it in his interview,

To be honest, like everybody else, I don’t like learning at all. Study is hard especially for people at my age. I only study when I have to. Listening to a real tower conversation poses a huge challenge on me and extra efforts have to be made in listening comprehension (Interview notes)

In contrast to Zack’s struggle with English for aviation, one would expect Kevin to have a better experience of learning English and preparing for the ICAO tests. However, Kevin’s prior learning of English at the University does not seem to have helped much, at least in his own perception. As he commented in his interview: ‘I thought I was better at English than those experienced pilots, but the English (I picked up at university) seems to be useless here.’ In early 2013, Kevin failed the ICAO Level 4 test and he had to work hard for a month to pass the test and regain his license. At the time of interview, he was in charge of the radio communication with traffic controllers during all of his international flights. Reflecting on his previous failure, he said that he had found the

university English test to be very different from the ICAO tests:

CET-4 is much easier than ICAO level 4, because CET-4 focus on reading and writing while ICAO level 4 pays more attention to language communication, such as, listening and speaking. (Interview notes)

This experience had made him realize that a good command of general English would not help him pass the ICAO tests:

Most of my colleagues find listening and speaking general English very hard, let alone aviation English. We thought that we (with good English foundation) may have some advantages, but in practice it made very little difference. (Interview notes)

Unlike Zack’s efforts in acquiring fundamental English vocabulary and syntactic knowledge, Kevin focused his efforts on memorizing standard aviation phraseology and expressions. This was because he was aware of differences between general English and aviation English, and was concerned that his general English knowledge may confuse him during his communications with air traffic controllers, leading to potential communication failures. For example, ‘take-off’ and ‘departure’ mean the same thing in general English, but they are not synonyms in English for aviation. For this reason, Kevin translated aviation expressions into general English and memorized them. For instance, he learnt that ‘roger’ means ‘I have received all your message’, and that ‘wilco’ means ‘I understand your message and will comply with it’. He also reported trying to use aviation phraseology in his daily life in order to reinforce his aviation English knowledge:

When my friend asked me to come to KTV at 20:00 this Sunday, my brief reply was ‘wilco’ instead of ‘Okay, I will arrive on time.’ When I was sitting in his friend’s car, I would tell his friend to ‘expedite’ instead of ‘speed up’. Such repetition and consolidation exercises turn out to be very effective for me to be clear about the usage of confusing words or phrases. (Interview notes)

Apparently, he used this method to learn English for aviation because this was familiar to him from his high school learning experiences. As he explained, his ‘English teacher used to [ask] us to recite the text book and use the sentences from the book to answer some real questions or create a conversation’.

Discussion and conclusion

The research reported in this paper has explored Chinese pilots' engagement with the tasks of learning English and preparing for the ICAO tests as employees of a major Chinese cargo airline. The inquiry has identified popular ways for Chinese pilots to learn English for the purposes of passing the ICAO tests. In-depth interviews with two participants at different career stages revealed that the tasks of learning English and passing the ICAO tests present different challenges due to their prior language learning experiences. It is noteworthy that senior pilots, mostly retired from the air force, had not learnt any English before they became commercial airline pilots, but still managed to acquire some receptive command of English for aviation on the basis of having observed such communications in the cockpit. They also managed to familiarize themselves with English technical terms in aviation due to their extended exposure to them before the introduction of the ICAO tests. However, they usually do not have a sound lexical and grammatical foundation in the English language. In contrast, junior pilots, most of whom are aviation university graduates, do already have some command of general English, but find it frustrating that this prior knowledge does not help them with the ICAO tests. They consciously use English for aviation in daily life situations, where general English usage would be more appropriate, to strengthen their command of English for aviation.

By examining Chinese pilots' engagement with the tasks of learning English and test preparation, the study raises points for policy-makers and relevant English language education specialists to consider when investing efforts in improving Chinese pilots' English command to ensure aviation safety. Our first concern relates to the question of the extent to which current ICAO test-preparation training courses actually support pilots' meaningful and autonomous learning English for aviation and enhance their real-time tower communication skills. Our second concern is about the effectiveness of a uniform training course for all pilots, given the observed and marked differences in the language learning needs of senior and junior pilots described in detail above. Senior pilots without solid general English abilities need a systematic general English training and targeted functional grammar training (Cutting, 2012). They need more scaffolding to understand fundamental knowledge of general English as a useful and solid language basis for further, advanced learning. In contrast, junior pilots with a command of general English need an

English for Specific Purposes (ESP) approach to training informed by restricted register analysis (Regan, 1997), contrastive analysis (Wang, 2007), and/or discourse analysis (Sullivan & Girginer, 2002).

The current inquiry has extended research on the English language learning needs of aviation professionals by exploring their engagement with the tasks of learning English for aviation (Cowling, 2007 Kim & Elder, 2009; Wang, 2007). The study has generated useful insights for curriculum design and course development, and has addressed more general (and still increasing) concerns about the safety of aviation communication in the airspace above non-English-speaking countries. Since the study involved only a small number of participants in one Chinese cargo airline, however, further studies are still needed, perhaps involving larger numbers of participants in a variety of airlines (notably passenger airlines) in order to better understand pilots' actual engagement with the task of learning English for aviation. It is the closing contention of this paper that insightful understandings of pilots' actual use and learning of English at workplace are essential for the development of appropriate language enhancement courses for pilots if the goal is to achieve error free aviation communication.

Note

1 The College English test is a national English as a Foreign Language test in the People's Republic of China. It examines the English proficiency of undergraduate students and postgraduate students in China to ensure that they reach the required English levels specified in the National College English Teaching Syllabuses (NCETS) upon graduation.

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