ABSTRACT
              In the airline industry, English is now the accepted medium
of communication for all air traffic controllers and pilots. For
international flights it is of vital importance to hundreds of airline
passengers that English be spoken clearly and properly to execute proper
procedures and to act decisively and safely. Airspeak, aviation English, or
air traffic control English is the English of international civil aviation.
Airspeak is English in grammar, vocabulary, and pronunciation--but some of
the vocabulary is technical and specialized. International agreements
supposedly assure that all pilots are trained in this English, and cockpit
conversations are monitored to assure that the rules are followed.
Miscommunication in Air Traffic Control has serious consequences. To explore
what approach would work best while teaching Aviation English, a case study
was conducted based on interviews with 11 pilots at a Mandarin-speaking
airline and an attitudinal study of those same pilots aimed at pinpointing
their English language and communicative needs. Several foreign and domestic
captains were also interviewed, as well as two foreign flight instructors.
Findings suggest that there are four characteristics of the target language
(English) which are termed difficult: register, speed of communication,
written design, and nonnative English speaking comprehension. Also found was
that there are two possible impediments to successful language learning: the
learner's attitude, and the lack of opportunity to practice the target
language. (Contains 15 notes and 17 references.) (NKA)

English Education and Communication Studies: Ambiguity in the International Airway

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In the airline industry, English is now the accepted medium of communication for all air traffic controllers and pilots. For international flights it is of vital importance to hundreds of airline passengers that English be spoken clearly and properly to execute proper procedures and in order to act decisively and safely. Terri Schultz, of FOX news, reports that the airline accident that killed American missionaries over Peru was due to *incomprehension* between American and Peruvian pilots (8:35 a.m. CDT, August 3, 2001). English miscommunication in the air continues to cause tragedy and mishap; which means that aviation communication is really a life and death issue.

Airspeak, aviation English or air traffic control English is the English of international civil aviation. This language was not adopted until the 1970s and is a restricted language that was established after World War II by the *International Civil Aviation Organization (ICAO)*. Airspeak is English in grammar, vocabulary, and pronunciation; but some of the vocabulary is technical and specialized. International agreements supposedly assure that all pilots are trained in this English, and cockpit conversations are monitored to assure that the rules are followed. Airspeak is concise and unambiguous using only accepted conventions for procedures and message types, is not too dense, and has check backs so that speakers can be sure that what was said is what was heard (McArthur. 1992). Yet, there are problems.

In spite of flight safety in pilot training, many accidents are reportedly still due to pilot error. However, Nance (1986) and Roscoe (1980) claim that the term "pilot error" covers a variety of ergonomic shortcomings. Uplinger (1997, p. 2) explains that miscommunication in ATC (Air Traffic Control) has serious consequences, "Dealing with ambiguity in ATC communications is even more complex when flight crews, controllers, or both are communicating in English that has been acquired as a second language." Uplinger says that English as an international language in airports is without standards in training and testing. "In fact some experts are predicting that the number of airliner crashes will actually increase in the near future, unless human error related causes are brought under control" (International Civil Aviation Organization, 1990).

Aviation English problems are not new. On March 27, 1977, a KLM Royal Dutch Airlines Boeing 747 collided with a Pan American World Airways B-747 and caused the death of 538 passengers. The pilot of the KLM aircraft reported that he was "at takeoff," which indicated to the controller that the pilot was waiting for further instruction. The pilot was actually taking off and about to collide with the Pan American aircraft, which was taxiing on the runway directly, headed for the KLM aircraft. The pilot's ability in

grammar (Dutch) interfered with his ability to construct the English statement 'I am taking off,' which would have been interpreted differently by the controller" (Cushing, 1995). Similar accidents were reported in *Fatal Words* (1994). More recently (September, 1997), the *China Post* (an English newspaper published in Taipei) reported that the pilot and the air traffic controller confused the words "left" and "right" in the few seconds before the crash of a Garuda Airbus, killing 234 passengers at Mead Polonia Airport in Medan, Indonesia.

Cushing (1994) and Byron (1997) also state concern over the confusion of numbers.[1] Byron continues that sometimes the whole context of a clearance can be misunderstood. A combination of expectation and incorrect terminology can cause a dangerous situation for a great number of people. A well-trained pilot with good English ability can still have problems due to another person's inability in language, listening, or understanding.

An account related by one pilot in this study was in San Francisco where a pilot did not hear one of the words. The one word "join" proved to be very important and it was a good thing that the other pilots realized that the word had been missed. Even if pilots are good pilots and work very hard at spoken English, there are still problems if they "can't read worth a damn and then (can't) understand what they've read" on top of that.

Another reported problem was the lack of being able to understand other English speakers. A pilot reported, "You know we fly to different countries. Many of the countries are not English speaking and the controller really. . . a lot of times I cannot understand their English."

These instances and many others indicated a need for a case study on what should be included in an English course for pilots, what specific areas would be problems for learners of English as a Second Language and what approach would work best while teaching Aviation English. The method used in this case study is explained, the results are revealed and a conclusion to the matter is given in the following paragraphs.

Method

This case study is based on interviews with pilots at a Mandarin speaking airline and an attitudinal study of those same pilots aimed at pinpointing their English language and communicative needs. Foreign pilots, Mandarin speaking pilots, ab-initio pilots, and "old birds" (as expressed respectfully by one pilot) were interviewed for their input on what to teach in an English program and how to best teach English effectively for piloting purposes. The results of these interviews provided the basis for the discussion portion of this paper.

The pilot interviews were tape-recorded. Discussion questions were prepared to guide the discussion, but other topics were open and interviewees led the discussion on several

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[1] In Chinese Mandarin the character for 10,000 is one symbol; therefore, one million is read as 100 ten thousands which has caused problems when translating from the Chinese numeral system to the Arabic numbers. Numbers up to 9,000 are not as troublesome.

occasions. The pilots on the job were asked what they thought concerning English education. Other professionals in the aviation field were asked what some of the English needs were for pilots and were also asked for their ideas concerning English training.

Eleven pilots were interviewed formally. Of these eleven, one was a foreign (English speaking) captain, three were domestic (Mandarin speaking) captains, one female domestic first officer, and six were domestic male first officers.

Secondly, several foreign and domestic captains were interviewed, plus several other domestic first officers. Formal and informal contact with many military pilots and other professional aviation instructors and personnel added to this study.

Thirdly, two foreign flight instructors were interviewed. However, this work includes and is limited to material gathered during the interviews collected from the working pilots. Gender and names remain anonymous in this study for protective purposes.

Formal interviews were one on one with the interviewee and were audio taped. After taping, the tapes were transcribed by the interviewer. As the interview progressed, the interviewer took notes on the general surroundings and inferences. Formal interviews were held without prior knowledge or acquaintance with the interviewee. The interviewee had not encountered the interviewer on any previous occasion. The interviewee was given full knowledge of the interviewer's purpose and the interviewer always asked for permission in taping the discussion.

Informal interviews were held spontaneously when the interviewer encountered the opportunity to gather knowledge on the research material. Notes on these occasions were written after the encounter had occurred. Informal interviews were never taped and the interviewee was not informed of the interviewer's purpose.

Results

The target language in this study is English and the first language of the interviewees is Mandarin Chinese. Findings in this research are divided into (I.) difficult characteristics and (II.) impediments. These hamper success in the target language learning.

(I.) Difficult Characteristics

One finding is that there are four characteristics of the target language, which are termed difficult. These four areas are in no specific order and the findings are inconclusive as to their value of difficulty. They are (A.) register, (B.) speed of communication, (C.) written design, and (D.) non-native English speaking comprehension.

(A.) Register

The first area of difficulty is register. Register in this study relates to technological terms, phrases, and words used specifically in aviation nomenclature. The second pilot

interviewed said that "technology is very difficult for me to speak." The third pilot had confidence in his aviation nomenclature, but said, "Emergency condition. . . I don't know." The fourth pilot admitted that when he talked to air traffic controllers that many times he would be forced to say, "Say again, please."

(B.) Speed of Communication

The second area of difficulty mentioned is the speed of communication. Excessive speed in the spoken target language tended to raise problems in overall understanding. It may be noted here that language spoken over the airwaves deprives the listener of facial and body indicators. The second pilot explained that foreign pilots speak, "Much fast."

(C.) Written Design

The third area of difficulty is the writing of the target language in which English training manuals are designed differently than the written Mandarin charts. Pilots are accustomed to charts, but not to the variety of designs in English charts. In asking about these difficulties, the pilots reported a variety of stories and reported problems that had been encountered due to lack of English ability and lack of consistent understanding of the information in English manuals. The pilots interviewed expressed the desire and need to study English further and all knew the importance of the spoken language.[3]

One instructor explained of the pilots, "They have to read as well (as speak) and understand what they read, because it's very important for them because all the books are in English. All the manuals are in English. All the Jeppesen charts are in English." The manuals are translated into Chinese, which is helpful, but translations can be poor (especially if the English in the original is confusing). The tenth pilot says this is a problem and he chooses to read the English version if the choice of languages is offered.

The fifth pilot explained that the military trained their pilots to fight and that the military and domestic pilots will read the same rule in a manual, but there would be different understandings of the material. He says, "They think it's a procedure for that, but there is another procedure. So we have a difference. . . everybody. . . of FAR (Federal Aviation Regulations) for same rule. . . reading the same English, but different." The pilot says of those trained outside of the country versus those trained in the military using Mandarin, "More than one way. . . different understanding. . . different. . . from the military."

(D.) Non-native English Speaking Comprehension

The fourth area of difficulty is listening comprehension, especially when the target language (English) is spoken by another non-native English speaker. Some problems are due to language proficiency and some problems are due to listening comprehension skills. The third pilot interviewed says that he thinks it would be a good idea if the pilots

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[3] The pilots were obviously aware that I was an English speaker, researcher and teacher. They may have answered positively to the need for more English, as I would be a person who might provide it.

could listen to more Air Traffic Controllers. He said that when he flies to different Asian countries, he finds problems, "Especially, listen Thailand or Manila. Big difference."

(II.) Impediments

Another finding in the study is that there are two possible impediments to successful language learning. They are the (A.) learner's attitude and (B.) the lack of opportunity to practice the target language.

(A.) Learner's Attitude

The first impediment is the learner's attitude. Within the attitude of the learner are (1.) the learner's assumption about language learning and (2.) the learner's sociocultural considerations.

(1.) Learner's Assumptions About Language Learning

The first impediment includes the learner's assumptions about language learning. A PIC (Pilot In Command) emphasized the need for encouragement for the pilots. This pilot explained that pilots were short of motivation and encouragement in studying English and suggested setting up scenarios in English. Pilots, themselves, expressed their individual problems with time in studying English. Another pilot interviewed also suggested casual gatherings for pilots where all could relax and enjoy each other.

Pilots demand a skilled teacher. Pilots related that their colleagues who were sent to another country far from home were not prepared well in English and ended up "wasting time" ten thousand miles from home. Another comment was that a student should not be expected to study for too long during one day or it would be a waste of time. The tenth pilot said that a full day is too much and too tiresome for effective learning in English.

Most of the experienced pilots believed that their English was okay, but all seemed to believe that overall English communication in aviation could be improved. Several explained that there was a need for aviation English in the English program. It was reported that procedures could be followed in English, but that when abnormalities happened, pilots were not certain that their English ability would be able to meet the demands of the situation.

These pilots have strong piloting ability and have flown many hours to many countries, but still have some problems. The tenth pilot told me that most of the problems occur at the beginning of a pilot's career. Soon, flying becomes routine. Even so, pilots continue to report some English difficulty.

One effective way of learning English that was suggested was to narrow the content of the English classes to mostly aviation English. [The eighth pilot said, "English team should know a little bit to fly and to understand how to teach pilots to learn aviation language or like air traffic communication."] One pilot said that it was not necessary to

study grammar or daily English terms, but to limit the study to aviation nomenclature. He also suggested more time for listening and pronunciation. The fourth pilot suggested there be recordings for complications and that the pilots could listen to these recordings again and again. These recordings could be followed with procedural explanations.

At the same time that pilots need pressure and are always pressed for time, they expect their teachers to be patient and inspirational and want the teacher to help change them. Pilots do not want to be bored. They also demand good materials and want to be able to talk freely.

(2.) Learner's Sociocultural and Intercultural Considerations

One impediment to language learning is the sociocultural considerations of the learner. When East meets West there are cultural differences and these differences meet in the cockpit. A fundamental difference, which emerges in this East/West communication, lies in the different styles of thinking. We found through the study that the Eastern model of thinking has its origins in early Buddhism in which knowledge is equated with perception. In other words, the ability to perceive things as they truly are in the world is the emphasis of the thinking process. The Eastern mind thinks holistically. It does not analyze the world compartmentally. It perceives everything as related to each other. In this system, the distinction between perceiving and thinking is minimized. This stands in stark contrast to the Western model of thinking, which has its origins in ancient Greek philosophy and views thinking as primarily an analytical process. In this Western system, more emphasis is placed on judgments and decisions.

These different models of thinking have their cultural ramifications that effect intercultural communications. For instance, we found through the study that Eastern cultures tend to place more value on external social roles, whereas Western cultures emphasize the individual person more. The Eastern cultures tend to work by consensus rather than individual action. Any premature individual action can be perceived by the group as dissent. In addition, where Eastern cultures are more concerned with non-verbal language (such as body language and hand gestures), Western cultures are interested in verbal and written messages.

Another one of the differences apparent in the airline industry studied was the adherence to rank. In the Mandarin world, rank in age is of utmost importance. Along with age hierarchy, is the rank of superior officers or more experienced personnel. The rank is unquestioned. The third pilot suggested that novice pilots talk to pilots already in the fleet, "They (experienced pilots) have a lot of experience, yeah, so they (novices) should ask them how to prepare and what . . . this aircraft. . . something like that. . . maybe taxi routes."

The tenth pilot related that superior officers were observed breaking rules. "Nobody would dare tell him it's against the rules." The pilot continues to say that it's at the upper level that rules are broken and that if those at the top would obey the rules, "Nobody would dare to break the rule."

It seems to be general knowledge that military captains find those not trained in the military to be disrespectful. On the other hand, those trained outside of the country find that their honest questions of captains at this airline are not welcomed and are "taken as insults" or that a captain would think that his authority were being "questioned."

(B.) Lack of Opportunity to Practice the Target Language

The second impediment is in the lack of opportunity to practice the target language, because the environment for the learner does not always allow for practical usage of the target language. The pilots indicated that rigorous practice of the English language would be a good strategy. Pilots explained that their environment didn't lend itself to rigorous practice of the English language. The seventh pilot said, "We don't have the good environment to speak English. Most of pilots are still Chinese so most of the time we speak Chinese so sometimes we met (sic) foreign pilot, foreign captain, we have to use English, but suddenly those words won't come up. If we have more chance to speak English, I think it would be better." The tenth pilot admittedly needed pressure to study, yet felt that a relaxed atmosphere would be best for encouraging English speech. "First I think to be able to talk freely. . .to be brave enough to talk even if they think they are not speaking it in the perfect way, they still have the nerve to speak it out. That's very important."

All pilots reported that English use in the cockpit is reduced greatly if manned by Chinese. If a foreign captain is aboard, English is used more often. English is reportedly used for procedures and when speaking to air traffic controllers. For many pilots, English use is narrowed to the cockpit where English is used for aviation purposes only. Overall, English use is extremely limited due to the Mandarin speaking environment at this airline—as citizens the pilots speak their native tongue at their homes and social places. "To make it flow, you know. . . that . . .would mean a lot of practice. Someone to practice with in class. Once they feel they can express themselves then they come to the question of picking which word to choose, but they gotta learn to say it." The pilots have "to do their part," The tenth pilot explains and there should be "lots of time for practice."

These are four characteristics of difficulty in the target language and two impediments to language learning expressed by the pilots at this airline industry. Like the third pilot says, "Everybody trying to find the best way."

Discussion

"There can be no doubt that operating modern aircraft is a high-stakes profession with lives invested in every flight," (Kanki and Palmer, p. 99). For this reason, aviation communication is of the utmost importance. With clearer communication, pilots should be better prepared for a variety of emergencies. "Effective communication among crew members has always been an essential component of the concept of crew coordination," (Kanki and Palmer, p. 101).

Austin (1962) relates that speech not only accompanies action, but also is action itself. He discusses the ability of language not only to "say" things, but to "do" things as well. Kanki and Palmer (1993) agree with Austin. At the airline studied, even poor Air Traffic Control pronunciation was said to have caused communication difficulty.

At times, it may be the register that can cause problems. According to the pilots interviewed, register can be a problem for some pilots at some times; but, not always. It seems that most oral communication trouble arose because of the speed of communication or because English was spoken with a pronunciation that was foreign to the speaker's ears—these are problems during pressure situations. Many pilots could not understand English due to the way English was used -- not due to the English language itself. In other words non-native English speaking comprehension is a problem, but communication in general must be emphasized for safe flying.

"Modern aircraft pilots must also possess the ability to utilize and manage a large variety of informational inputs," (Kanki and Palmer, p. 106). These verbal inputs and outputs on an international dimension will be in English. The informational inputs will be in the form of aviation manuals to be clarified and simplified where and when possible. The information will come in the form of technological terms and aviation nomenclature, which must be discussed in the target language (English) in international arenas. Regulations and standards in the airline industry will be developed in English and retraining will be developed in the English language. Misconceptions and false information must be prevented from leaking into pilot classes through poor English knowledge or understanding; and although some pilots claim that airspeak is no problem; other pilots admit that technical language is difficult.

Caroline Graham from the University of Limerick in Ireland has investigated linguistic issues in aviation and maintains that a "learner-centered approach is critical to the success of any English for Specific Purposes (ESP) course" (p. 278). Graham argues that ESP courses must have cyclical designs (different from English written designs) rather than linear ones. The pilot learners in this study do want English aid and they want courses that are meaningful to them and they request courses that give them the opportunity to "speak out." This "speaking out" is a cry for self-expression, as well as the opportunity to practice the spoken target language.

It is safe to say that Western or English speaking countries have a greater opportunity for incorporating many thoughts which have led to democracy and independent thinking. Eastern thought differs in this sense and doesn't offer much of an opportunity to break away from hierarchical tendencies inherent in the social structure. These cultural traditions also creep into the classroom for pilots and cause conflicts that baffle a non-native English speaker.[4] Sociocultural and intercultural considerations are often

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[4] As an instructor, I observed military rank among the members of my class. An older student always had authority and many superiors intimidated their inferiors. It was not uncommon to observe salutes as a greeting between pilots. "Once a superior, always a superior," was the information given.

complicated and complex and cause a variety of problems in the airline business.[5] Cultures within cultures do exist even when from an external point of view the culture may appear relatively homogenous (Hayward, p. 280).[6]

Graham (1996) claims that aviation English should be more than ATC (Air Traffic Control) for trainees, which contradicts some of the pilots' suggestions above. Aviation English should give pilots the skill to function socially in English speaking countries and prepare experienced pilots for retraining and upgrading with the medium of English. Graham (p. 279) also states that the knowledge of structures and functions in a target language (English) may have more value than simply acquiring specialist terms. In an airline with pilots from various countries, the socio-linguistic competence and an ability to cope with a variety of registers are (many times) of greater importance than aviation terms. One pilot in this study explained that ATCs from different countries had different pronunciations of English. Technical vocabulary may be unclear to native speakers.[7] Therefore, even when conditions are normal, airspeak can be a problem.

Graham (1996) explains that lexical terms for native speakers are a part of aviation English (e.g., take-off, land, runway, airborne). Then there is the sub-technical vocabulary with lexical items that are not necessarily aviation English, but part of the technical vocabulary found in English (e.g., valve, illuminate, rudder). These technical terms are especially important for understanding manuals and aviation-related technical documents. Graham says, "It is not uncommon that course participants in a course in aviation English already have a good command of the specialist terminology of their profession but have a low level of, for example, sub-technical vocabulary" (p. 279). An apparent need is a class in pre-aviation English, which would be a common ground course or hybrid course of English vocabulary and airspeak. English derivatives for air control vocabulary could be collected and explained to pilots only after these pilots have a firm grasp of Basic English. Thus, Basic English knowledge is essential for pilots.

There is a definite overlap "between the various forms of aviation English, between aviation English and other varieties of technical English and between aviation English and general English" (Graham, p.281). This study suggests that airline English teachers remember the great need for a learner-centered approach to the various levels and interests of the student. The instructor must find what each student needs to know and then offer the opportunity for the student to get to know what s/he needs to know.

Pilots have an interest in the computer and possess keen computer skills,[8] a definite benefit and gives aviation English teachers a head start when using computer assistance

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[5] It became uncomfortable for pilots to leave military regulations behind. It seemed that retraining was actually more difficult than primary training. Military pilots used airplanes as weapons and wanted to continue to experience the thrills of being a fighter pilot. Domestic flying is actually boring in comparison.
[6] Military culture versus nonmilitary culture was a definite divide at this airline.
[7] I had the opportunity to observe checklists read between two non-native English speakers from two different countries. I could not follow them. Yet, I could understand the English. There are times in situations like this where the pilot and co-pilot do not understand each other.
[8] This was a personal observation of the pilots trained outside of the military climate. Pilots have advanced eye-hand coordination.

in the classroom. Computers also have a wealth of English information in any number of subjects that can be geared to ESL students.[9]

The computer may break educational barriers that have been set up from past experiences. Hopefully, a computer will give a learner a fresh and positive approach to aviation English learning.

Graham mentions that past experience can produce positive or negative attitudes in ESP teaching and learning. Biographical information on learners is valuable for classroom dynamics and helps teachers get to know their students. All classes must be taught with optimal student involvement where instructors serve as facilitators rather than lecturers. Choice and design of teaching materials can be determined according to the interests of course participants.

Pedagogical Implications

"Flight crew coordination and **English language proficiency of foreign crews**"[11] is a listed item (of four) of safety issues enumerated by National Transportation Service Board (1991, p. v.). Kanki and Palmer also say ". . . accident reports, incident reports, and human factors research provide ample evidence that communication practices are closely linked to flight safety," (p. 108).

"Communication can determine the success or failure in achieving goals, and when goals are attached to high stakes, communication effectiveness is essential, " (Kanki and Palmer, p.99). In the airline industry the stakes are high.

There is a need for information in English aviation manuals to be clarified and simplified where and when possible. The technological terms and aviation nomenclature must be discussed in the target language in arenas that lend openness for questions and discussion in order to follow the standards and regulations of the airline industry. Clear explanations must be available. Even foreign pilots with English as their mother tongue have professed that some aviation manuals can be difficult to follow.[12]

The education should be performance based: Learning by doing and practicing, practicing, and more practicing must be encouraged. Listening must be practiced in the classroom. Students must learn to listen carefully to each other.[13]

The written target language must be used in the classroom constantly. Students should be encouraged to provide problems for classroom discussion. If a document or text is

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[9] Generally speaking, the Internet/newspaper is at a 6th grade reading level.

[11] Bold type is mine.

[12] A North American admitted this to me.

[13] I found that Chinese students are impatient with each other in the classroom. It may be that they are interested in bettering themselves and become confused when trying to listen to classmates. Their desire is to use their native language to get a point across. I found that students would help each other with word definition and would ask each other questions about English, but this would be done in Chinese.

confusing, the student must express the need for clarity. Through classroom interaction and discussion, instructors must accentuate the positive rather than the negative aspects of the student's work. Instructors must point to the success of the student even if student progress is slow. Language learning is a slow process and cannot be rushed. Even in an intensive language course, time is needed for quality comprehension. Yet, pilots need pressure-based simulations to foster rapid comprehension when in the air.

In the classroom where the target language is the second (or third, or fourth, etc.) language for the learners, there must be opportune time for questions to be answered honestly. Whether students question other students, whether the instructor questions the students, or whether the students question the instructor, the class should work together in discovering answers. Each student should be given multiple opportunities to perform. Asking is essential in learning and is great practice in listening comprehension. If a learner does not hear or understand, that student must be encouraged to ask for further information. Instructors must be allowed to say that they don't know, rather than give false pretentious answers. Here again, teachers and learners must continually research the aviation material for clear and constructive understanding.

It is highly unlikely that pilots can act differently from their cultural roots. So, it is important to build on their culture and let them construct new meanings that would comply with the standard procedures in flight operations and communications. In short, training should not merely be knowledge or skill "transmission" activity. It should be a constructive experience in which pilots "repackage" the intended training within their cultural contexts.

In following the constructivist philosophy, learners need no berating. Language learning is difficult and many learners are reluctant and resistant to the pain of learning a target language.[14] Learners must be allowed constructive use of lead time for their answers. Thinking in a second language takes time and effort. Teachers and learners must be patient in the struggle and allow silence periodically in order to give students the chance to think and reflect before forming an answer in the target language.[15]

Sociocultural consideration must be a focus in the classroom. Learning the culture of the target language is essential in making the language meaningful for the performance in the air. English changes rapidly due to ever growing change in English societies and the pools of people who and languages that contribute to the language. Science, medicine, advertising, and youth are also contributors to the changes in the English language bank. Therefore, simulations in the classroom of potential air experiences, including pressure, conflict, and paradox would be a beneficial contribution to learning.

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[14] English learning was mandatory at this airline and many newly recruited pilots had little English proficiency.

[15] It was reported by Professor Manfred Malzahn at the Department of Foreign Languages and Literature at National Chung Cheng University that there is a widespread misconception that teaching someone about a language is the same as teaching someone a language. The result is students are able to pass exams, but unable to use English as a means of communication (*China Post,* July 2, 1998, p.4). I found this to be true of students' prior experience in English learning.

Summary and Conclusion

There is an apparent need in the airline industry to offer English programs that enhance the standards and regulations set forth in the airline industry. English for Occupational Purposes (English for Special Purposes or English as a Second Language) is a growing field and English taught on an international level in the airline industry serves a definite purpose. That purpose is to give pilots worldwide common knowledge in aviation nomenclature through classroom performances. Register (cultural codes or business lingo), speed of communication, written English in training manuals, and listening comprehension when hearing a non-native English speaker were termed difficult characteristics in this study. Two impediments to successful language learning were determined. These impediments were learner's attitudes and the lack of opportunity to practice English as a Second Language. Learners' assumptions about language learning and sociocultural considerations exist and must be considered within the context of learner attitudes in learning English.

Again, language learning requires continual practice. It was found in this study that lack of practice in English as a target language impedes progress in that target language. Students identified the need to practice and indicated the desire to have that opportunity.

Further research is needed in other airline settings. Evaluation of pilots on what the pilot's know and their performance versus time spent within a company should be studied. Research must be done on how to evaluate pilot English proficiency and listening comprehension. Research on international standards and regulations (or lack of standards and regulations) of English and other skills necessary for pilots could be incorporated for worldwide standardization. A problem exists, and therefore need is great to place the issues on the research agenda.

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