

## NEEDS ANALYSIS OF AVIATION ENGLISH FOR AIR TRAFFIC CONTROLLERS

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### ABSTRACT

The aim of the study was to point out the current and target needs of the air traffic controllers as one of the two main communicators of aviation industry. Participants of the study were 46 Iranian air traffic controllers who work at Iranian Airports and Air Navigation Company and 7 content teachers of the field who teach different courses at work and Civil Aviation Technology College, also 3 aviation English instructors were interviewed during the early stages to design the questionnaire. The results revealed the degree of importance of the skills which are necessary for the job, the improvement of the skills as a result of in-service courses, their needs of English language improvement, participants' opinion about different aspects of AE instructors and at last and degree of satisfaction in attended in-service classes. For instance, fluency, listening comprehension, etc are important for the job. Most of the skills of the second item of the questionnaire are not improved throughout the classes which have been held so far. They feel that they need to improve for instance fluency, interaction and much improvement in listening comprehension and technical words. Most of the participants believe that AE instructors were good, rather good or very good, but in case of satisfaction in held classes, majority of the respondents were not satisfied with most aspects of classes. The results of the study will be essential for the managers of aviation industry, policy makers, aviation English instructors and material developers in order to improve the quality of the courses and concentrate more on the needs of the learners who are air traffic controllers. This will affect the safety of air passengers and may save their lives.

**KEYWORDS:** *needs, language skills, aviation English, air traffic controllers, safe*

### INTRODUCTION

#### *Aviation English*

Aviation like many other industries deals with the life of people and wealth of companies. Language which is used in aviation is one factor that may influence the safety of flights and passengers. Aviation English (AE) is a kind of English language which follows specific objectives for its trainees. Trainees are either students of the field or communicators in working environment.

Three major accidents, in which more than 800 people lost their lives, proved insufficient English proficiency is crucial causative factor for accidents. There are three ways in which language use might lead to accidents (ICAO, Doc 9835 1.2.2):

1. Incorrect use of standardized phraseologies
2. Lack of plain language proficiency

3. Use of more than one language in the same airspace

International civil aviation organization (ICAO, *cir323*, 2009) defined the objectives of Aviation English training programs as the following four main areas:

1. Use of operationally relevant, work-related language
2. Development of communicative language skills
3. Coverage of all six ICAO Rating Scale and Holistic Descriptors skill areas
4. Achievement of ICAO Operational Level 4 in all six skill areas

Plain language is by ICAO (2009) defined as the language required to deal effectively with all the non-standard, abnormal or emergency situations which pilots and controllers encounter and for which standardized phraseology is insufficient (Day, 2004; Fox, 2007).

While the ICAO Language Proficiency Requirements (LPR) refer to the “ability to speak and understand the language used in radiotelephony communication”, Appendix 1 of Annex 1, Section 2, specifies that “Proficient speakers shall communicate effectively in voice-only (telephone/radiotelephone) and in face-to-face situations”. In voice situations means communication between pilots and air traffic controllers and face-to-face interaction is the conversational situation that both pilots and air traffic controllers may encounter.

*English as Specific Purposes (ESP)*

A distinction is usually made in applied linguistics between English for general purposes (EGP) and English for specific purposes (ESP) (Basturkmen, 2010). EGP is very general in nature, aiming at making language learners able to communicate ideas accurately and fluently; ESP, however, generally refers to “the teaching and learning of English as a second or foreign language where the goal of the learners is to use English in a particular domain” (Paltridge & Starfield, 2013).

Needs analysis (NA) refers to the process during which researchers collect, analyze, and assess various sources of information to cater for the special needs of ESP learners (Gea-Valor, Rey-Rocha, & Moreno, 2014; Huhta, Vogt, Johnson, & Tulkki, 2013). Central to the development of ESP courses (Serafini, Lake, & Long, 2015), NA is the first stage in ESP course development which is conducted to determine the content and methodology of a course (Flowerdew, 2013).

ESP due to its especial interest in needs assessment, materials development, and planning suitable teaching methodologies is an absolutely practical area (Dudley Evans, Foreword in Benesch, 2001). ESP prioritizes learners’ prospective academic or professional future by developing relevant materials. As a result, ESP courses have proved to be more economic, in terms of time and money, than General English (GE) courses (Long, 2005).

Benesch (2001) also believes that students should be encouraged and let shape their academic goals and the path they reach them. Long (2005) mentions the importance of specific second language programs as follows:

The combination of target language varieties, skills, lexicons, genres, registers, etc., that each of these and other groups needs varies greatly, however, meaning that language teaching using generic programs and materials, not designed with particular groups in mind, will be inefficient, at the very least, and in all probability, grossly inadequate. Just as no medical intervention would be prescribed before a thorough diagnosis of what ails the patient, so no language teaching program should be designed without a thorough needs analysis. (p. 1)

So he believes that every language course should be a course for specific purposes (Long, 2005). According to Hutchinson and Waters (1987) different learners have different interests and needs, that have an important influence on their motivation to learn and therefore on the effectiveness of their learning. These needs support the development of the courses in which relevance to learners' needs and interests were of great importance.

#### *Statement of Problem*

Nowadays, aviation is a growing industry in a manner that if aviators cannot meet the necessary demands of this fast growing nature, they will be fully left behind the other countries. Communication is one of the areas that is vital and crucial in the lives of people travelling by airplanes all around the world. International Civil Aviation Organization (ICAO) in 2008 regulated Standard English and required operational level of proficiency for both air traffic controllers and pilots. Graduates of ATC are practically encountered to a plenty of complications related to their English Language deficiency.

The main purpose of conducting this study was to discover the present and target professional and academic English Language needs, wants and desires of students of air traffic control enrolling in Civil Aviation Technology College (CATC) in Tehran, Iran, moreover in this study, the present needs of ATCs who are working in Iran are discovered and further to probe that by the present ESP curriculum, to what extent their specified language needs, academic or professional, are fulfilled.

#### *Significance of Study*

According to Brown (1995), more specific and attainable goals can be determined when the needs of learners are specified. The obtained information from needs analyses can be used to identify pedagogic purposes and design materials, teaching activities, and tests. In order to establish a fruitful educational setting, identifying learners' needs through needs analyses and designing the curricula accordingly is highly essential.

The purpose of this study is to investigate firstly the immediate needs of the air traffic controllers and the college students of the field, secondly the target needs of the undergraduate students of ATS owing to no scientific work has been conducted to regulate and define the needs of these ESP practitioners in Iran. Accordingly the outcome of this study will be adopted to design a comprehensive curriculum that meets the needs of these students and ATCs and develop a fit material to the needs and wants of these practitioners not only while they are employed and work as an ATC but also undergraduate students of ATS.

## LITERATURE REVIEW

### *ICAO and Aviation English*

The International Civil Aviation Organization (ICAO) is the most important aeronautical agency, which was founded in December 7, 1944, after the signing of the *Convention of International Civil Aviation* (also known as the *Chicago Convention*) by its 52 member states including Iran. The original purpose for establishing the organization was to promote and maintain safety, efficiency and cooperation in civil aviation (ICAO, “About ICAO”; “History”).

The recommendations of ICAO state that “the air-ground radiotelephony communications shall be conducted in the language normally used by the station on the ground or in the English language” (ICAO, *Annex 10 2: 5.2.1.2.1*) and that “the English language shall be available, on request from any aircraft station, at all stations on the ground serving designated airports and routes by international air services” (ICAO, *Annex 10 2: 5.2.1.2.2*). The *Annex 1* claims ATCs should be capable of speaking the language or languages nationally defined for air-ground communications without any barrier that may impact the communication. However, the recommendations did not apply to flight crews nor did not specify the required level of language proficiency (ICAO, *Doc 9835 1.3.1*).

After three catastrophic accidents in aviation which caused the death of 800 people, ICAO decided to establish a group to review the existing provisions for air-ground and ground-ground voice communication in international civil aviation, to create standardized English language testing requirements and procedures, and to develop minimum skill level requirements for the usage of the English language (ICAO, *Doc 9835 1.4.3*).

After three years of work, Amendment 164 was created and added to *Annex 1 – Personnel Licensing*. This document stated that all flight crews and ATCs must (as of March 5, 2008) prove their language proficiency by reaching the Operational Level 4 of the ICAO Language Proficiency Rating (LPR) Scale.

The field of aviation language is wide – it includes everything from the language use of engineers, flight crew and technicians to the specialized language of pilots, air traffic controllers or aircraft constructors. The ICAO language proficiency requirements deal, however, just with aeronautical radiotelephony communications, which apply to only two groups of people – ATCs and flight crews. The requirements themselves consider the application of standardized phraseology, which has been developed and accepted by ICAO, and the use of plain language (ICAO, *Doc 9835 3.2.6*).

### *ESP*

Language and communication skills are among the main concerns of higher education students. Meeting students’ specific needs, using underlying methodologies and activities of the discipline and general English, and focusing on the language relevant to these practices are all of the main concerns of ESP studies. (Aliakbari & Boghayeri, 2014).

*Needs Analysis (NA)*

Formal investigation of NA as a methodological means in ESP, however, backs to the 1970s when for the first time ESP researchers used it to investigate future needs of ESP learners (Johns, 2013).

Researchers have defined NA in various paths. About three decades ago, Richterich (1983) emphasized that “the very concept of language needs has never been clearly defined and remains at best ambiguous” (p. 2).

Generally, a needs analysis study investigates those significant facets of the course to which much needs is felt by the learners. In literature, NA is referred to as “the cornerstone of ESP” and its proper application might result into a “focused course” (Dudley-Evans & St John, 1998, p.121). It is also considered as the initiation of adopting a framework for ESP course design with the end of highlighting all stakeholders’ perspectives in the process of curriculum development, course and syllabus design, and evaluation of the effectiveness and efficiency of the implementation of the needs-based course (Chostelidou, 2010).

As early as 1980s, Chambers (1980) stated that “needs analysis should be concerned primarily with the establishment of communicative needs and their realizations, resulting from an analysis of the communication in the target situation” (p. 2).

Basturkmen (2010) defined needs analysis as “a course development process [in which] the language and skills . . . . are identified and considered in relation to the present state of knowledge of the learners, their perceptions of their needs . . . . and constraints of the teaching context” (p.19).

One of the early studies on needs was that of Chia, Johnson, Chia, and Olive (1998) who investigated the perception of 394 medical college students and 20 faculty members toward English language needs of medical students in Taiwan. The study elicited the respondents’ opinions on (1) the importance of English language use in students’ studies and their future careers, (2) basic English skills needed in a freshman English course, and (3) suggestions for the development of an English language curriculum. Results revealed that English was perceived as an important need for academic life and future career of medical students. Students wanted a basic English language course which regarded listening as an important skill.

In a large-scale study, Shahini and Riazi (2001) conducted a study on the needs of students to compare the present and target situations in English for Academic Purposes (EAP) courses at Shiraz University. The participants included 2,030 students and 150 professors from all fields except for English language programs and data were collected through a questionnaire. The findings revealed that the needs of undergraduate students were significantly different from those of graduate students. For undergraduate students, reading and having a good command of technical vocabulary were the most significant needs while graduates believed that writing and conversation skills were important. In addition, participants complained about the general

English textbooks which were inadequate and irrelevant, and too much attention was paid to grammar and form.

Mazdayasna and Tahririan (2008) analyzed the foreign language learning needs of undergraduate medical sciences students pursuing in faculties of nursing and midwifery in Iran through interviews and questionnaires. They considered that ESP courses were not as effective as it was supposed to be and did not meet the learners' needs. They, therefore, concluded that most of the ESP courses in Iran were conducted without asking the specialists and also without assessing the learners' needs. The same was also the case with ESP courses in Taiwan, where Liu (2011) indicated that there are dissimilarities between the students' perceptions of needs in the ESP courses and the actual content offered to them in Taiwan. In Greece, through a different study, with the aim of providing deep insight into the learners' needs, Chostelidou (2010) asserted the need for developing a language course with a clear emphasis on ESP and on the target field. The findings also revealed that the learners had different expectations to use the target language for study or professional purposes, which could be a salient concern in recognition of the learners' needs.

Like Chia, et al., Kaewpet (2009) analyzed the communication needs of Thai students majoring in Civil engineering. Data were collected through semi-structured interviews from 25 stakeholders including employers, ESP teachers, civil engineers, civil engineering lecturers, and ex-civil engineering students of technical English courses. The results indicated that four communicative tasks should be included in the technical English course for civil engineering students. In addition, the researcher proposed more ESP courses for engineering students and conducting more NA studies. Liu, Chang, Yang, and Sun (2011) also explored English as a foreign language (EFL) college students' needs in English for General Purposes (EGP) and English for Specific/Academic Purposes (ESP/EAP) courses in terms of their perceptions of three subcategories of needs—necessities, wants, and lacks. The data were collected through a questionnaire administered to 972 EFL college students in six universities in Taiwan. The findings showed that the students had different perceptions of necessities, wants, and lacks in EGP and ESP/EAP courses. Also, there were discrepancies between the students' perceptions of needs and the actual courses they took, which highlight the importance of understanding needs as a complex, multiple, and conflicting concept.

Aliakbari and Boghayeri (2014) investigated the needs and views of architecture students and graduates, and the effectiveness of their ESP courses. In this study 120 architecture students and graduates took part. The results indicated that the dissatisfaction of students with the textbooks, topics, length of the lessons and totally ESP courses that they passed did not answered to their needs.

Esfandiari (2015) investigated the needs of Iranian undergraduate students of law. The researcher applied triangulation of location, method and participants in order to increase the validity of the study. The results showed that more general English courses needed to enable the students of the field to read and comprehend English legal textbooks.

## RESEARCH QUESTIONS

The study will be framed to answer the following question:

1. What are the needs of the air traffic controllers in aviation English?
2. What are the needs of the air traffic controllers in aviation English in the opinion of content teachers?
3. What are the opinions of ATCOs and content teachers about the conditions of in-service classes and the level of their satisfaction about taken classes?
4. What are the opinions of ATCOs and content teachers about different aspects of AE instructors?

## METHODOLOGY

### *Participants*

Participants of this study include practitioners who are working in aviation and using English language in the heart of their job. The first group of participants is 46 Iranian air traffic controllers (ATCO) in Iran Airports and Air Navigation Company as communicators of AE. These participants were in the age range between 28 to 48 years old and both genders were included. They are working in different working places as to meet the partial requirements of triangulation. The second group will include 7 content teachers from Tehran Area Control Center (ACC) who teach air traffic services courses both in college and at working places.

### *Instrumentation*

To investigate and spot the present and target needs of participants of the study, the researcher applied content analysis, observation and interviews to design the questionnaire. The researcher content analyzed the two main resources of air traffic services textbooks. The first was the core book of ATS around the world which is entitled "ICAO Doc 4444 – PANS-ATM, Procedure for Navigation Services – Air Traffic Management" and the next two ones were ICAO annexes which were named "ICAO Annex 2 & 11", then two AE in-service classes at Kerman Airport and Tehran ACC were observed and notes were taken. Moreover, the interviews were conducted with content teachers and AE instructors. All the information collected from these techniques was utilized to design the questionnaires. Before having given the questionnaires to participants, its reliability and validity were computed. Part one of the questionnaire is the demographic information inquiry, part two is dedicated to question items about their opinions about the importance of the skills for the safe job. The second question was to point out their ideas about the degree of skills improvement during the classes they have attended. The third question of the questionnaire was to extract their needs in English that they had at the time of the study. The fourth one was their opinions about AE instructors and the final question was to ask them their satisfaction in different aspects of the classes they have taken so far.

### *Procedure*

The data was collected by the researcher who is an air traffic controller in Tehran Area Control Center (ACC). The data is counted quantitatively according to the responses of participants and the absolute frequency and the percentage of the items is presented in tables for the descriptive statistics.

### Design of the Study

In this study, a triangulated design is applied to the communicators of AE. Three types of triangulation include method triangulation, location triangulation, and participant triangulation (Brown, 2014; Long, 2005). Content analysis, observation, and interviews were used to develop the questionnaires, hence method triangulation; data were collected at two different sites, hence if we can say, location triangulation; and three types of participants were used, hence participant triangulation.

## RESULTS AND DISCUSSION

In order to obtain the reliability of the designed questionnaire, the researcher computed Cronbach's Alpha to find the reliability coefficient. The questionnaire was given to two AE instructor and also three content teachers in order to check the content, format and relevance of the items. As a result, some ambiguities and irrelevances were modified or deleted. In the table below, the results of SPSS Alpha coefficient are presented.

Table 1: Cronbach's Alpha Coefficient

	Number of items	Alpha coefficient
Questionnaire	53	.803

As it is revealed from the table 1, the Alpha coefficient is 0.8 which is rather high and the reliability of the questionnaire is confirmed. Table 2 below provides the absolute and relative frequency (percentage) of the responses in brief.

Table 2: The Frequency and Percentage of ATCs and Content Teachers' responses to question number 1

	Group	Too important	Important	Not Important	Not Important at all
<b>Fluency</b>	Content Teachers	1(14%)	5(72%)	1(14%)	0
	ATCOs	18(39%)	26(56%)	2(5%)	0
<b>Listening Comprehension</b>	Content Teachers	7(100%)	0	0	0
	ATCOs	34(74%)	12(26%)	0	0
<b>Pronunciation</b>	Content Teachers	0	6(86%)	1(14%)	0
	ATCOs	12(26%)	31(67%)	3(7%)	0
<b>General English Vocabulary</b>	Content Teachers	1(14%)	5(72%)	1(14%)	0
	ATCOs	9(20%)	28(60%)	9(20%)	0
<b>Technical Vocabulary</b>	Content Teachers	5(72%)	2(28%)	0	0
	ATCOs	28(61%)	15(32%)	3(7%)	0
<b>Speaking (interaction)</b>	Content Teachers	3(43%)	4(57%)	0	0
	ATCOs	22(48%)	21(45%)	3(7%)	0
<b>Grammar (structure)</b>	Content Teachers	0	2(28%)	5(72%)	0
	ATCOs	2(4%)	29(64%)	14(30%)	1(2%)
<b>Writing</b>	Content Teachers	0	2(28%)	5(72%)	0
	ATCOs	2(4%)	17(38%)	21(45%)	6(13%)
<b>Reading</b>	Content Teachers	0	3(43%)	4(57%)	0
	ATCOs	3(6%)	23(50%)	15(33%)	5(11%)

As shown in the table 2, both content teachers (72%) and ATCOs (56%) believed that fluency is important for their job. Also both groups of participants (content teachers 100% and ATCOs 74%) selected listening comprehension as too important. Moreover again both groups of content teachers (68%) and ATCOs (67%) chose pronunciation as an important skill for the job. In the case of general English vocabulary, ATCOs (60%) and content teachers (72%) selected as an important skill for the job and for technical vocabulary also both groups (content teachers 72% and ATCOs 61%) elected the same level of importance. The level of importance of speaking or interaction, most of ATCOs (48%) believed that it is too important, but content teachers (57%) answered the important choice. Interestingly, content teachers (72%) in the case of grammar or structure said that it is not important, but ATCOs (64%) said that it is important. Both groups (content teachers 72% and ATCOs 45%) believed that writing skill is not important for the air traffic control services. ATCOs in the questionnaire selected reading as too important, but most of content teachers (57%) responded that it is important.

In response to the second question of the questionnaire which was about the degree of improvement in different skills as a result of in-service course that they have taken so far, the participants of the study answered as in the following table:

Table 3: The Frequency and Percentage of ATCs & Content Teachers' Responses to Question Number 2

Group		No improvement	Improved a little	a improved	Much improved
<b>Listening Comprehension</b>	Content Teachers	3(44%)	2(28%)	1(14%)	1(14%)
	ATCOs	7(15%)	20(43%)	14(31%)	5(11%)
<b>Fluency</b>	Content Teachers	3(43%)	1(14%)	3(43%)	0
	ATCOs	15(33%)	19(41%)	10(22%)	2(4%)
<b>Pronunciation</b>	Content Teachers	3(44%)	2(28%)	2(28%)	0
	ATCOs	8(18%)	25(54%)	11(24%)	2(4%)
<b>General English words</b>	Content Teachers	2(28%)	2(28%)	2(28%)	1(16%)
	ATCOs	6(13%)	23(50%)	17(37%)	0
<b>Technical words</b>	Content Teachers	0	2(28%)	3(44%)	2(28%)
	ATCOs	2(4%)	11(24%)	26(57%)	7(15%)
<b>Interaction (speaking)</b>	Content Teachers	1(14%)	4(58%)	1(14%)	1(14%)
	ATCOs	12(26%)	10(22%)	18(39%)	6(13%)
<b>Grammar (structure)</b>	Content Teachers	4(58%)	2(28%)	1(14%)	0
	ATCOs	16(35%)	20(44%)	9(19%)	1(2%)
<b>Writing</b>	Content Teachers	5(72%)	1(14%)	1(14%)	0
	ATCOs	25(55%)	13(28%)	6(13%)	2(4%)
<b>Reading</b>	Content Teachers	3(43%)	3(43%)	1(14%)	0
	ATCOs	22(48%)	15(33%)	9(19%)	0

As the table above indicates, most of ATCOs (43%) believed that listening comprehension has not been improved, but majority of content teachers (44%) believed that it has no improvement. In the case of fluency, forty one percent of ATCOs responded that it has been improved a little throughout all in-service classes that they has, but forty three per cent of content teachers said that it has no improvement and another forty one percent of them said that it has been improved. Moreover, most of content teachers (44%) selected the no improvement for pronunciation and majority of ATCOs (54%) said it has a minor improvement as a result of in-service classes. In case of general English vocabulary, content teachers selected three answers of the alternative

with the same value of 28%. Those three were no improvement, a little improvement, and improvement, but fifty per cent of ATCOs selected a little improvement in general English words. Furthermore in technical vocabulary, majority of content teachers (44%) selected improvement choice the same as ATCOs (57%). The most frequency of selection is for a little improvement in case of interaction that content teachers (58%) selected and ATCOs mostly (39%) chose improvement in this skill. For grammar, content teachers mostly (58%) said that it has no improvement and most of ATCOs (44%) said that it has been improved a little. Both groups of participants (content teachers (72%) & ATCOs (55%)) agreed on no improvement in writing skill during all in-service classes in which they have been attended. In reading, ATCOs mostly (48%) selected no improvement, but with same frequency (43%), content teachers chose two alternatives of no improvement and minor improvement.

The next table presents the statistics of the responses to question number 3 of the questionnaire which was about the needs of English language that they believe they have to improve.

Table 4: The Frequency and Percentage of ATCs & Content Teachers' Responses to Question Number 3

	Group	No improvement	Improvement a little	Improvement	Much improvement
<b>Listening Comprehension</b>	Content Teachers	2(28%)	1(16%)	2(28%)	2(28%)
	ATCOs	1(2%)	7(15%)	21(46%)	17(37%)
<b>Fluency</b>	Content Teachers	2(29%)	0	4(57%)	1(14%)
	ATCOs	0	7(15%)	19(41%)	20(44%)
<b>Pronunciation</b>	Content Teachers	2(28%)	2(28%)	3(44%)	0
	ATCOs	2(4%)	11(24%)	21(46%)	12(26%)
<b>General English words</b>	Content Teachers	0	2(28%)	4(58%)	1(14%)
	ATCOs	0	11(24%)	23(50%)	12(26%)
<b>Technical words</b>	Content Teachers	1(14%)	2(28%)	1(14%)	3(44%)
	ATCOs	2(4%)	12(26%)	13(28%)	19(42%)
<b>Interaction (speaking)</b>	Content Teachers	0	1(14%)	2(28%)	3(44%)
	ATCOs	1(2%)	4(9%)	22(48%)	19(41%)
<b>Grammar (structure)</b>	Content Teachers	0	5(72%)	2(28%)	0
	ATCOs	3(6%)	12(26%)	26(57%)	5(11%)
<b>Writing</b>	Content Teachers	2(28%)	4(58%)	1(14%)	0
	ATCOs	16(35%)	19(41%)	9(19%)	2(5%)
<b>Reading</b>	Content Teachers	2(28%)	2(28%)	3(44%)	0
	ATCOs	13(28%)	22(48%)	12(30%)	0

Majority of ATCOs (46%) selected preference to improve their listening comprehension ability in future courses, but content teachers selected three alternatives of no improvement, much improvement, and improvement with the same frequency (28%). In case of fluency, most of content teachers (57%) said that they prefer to improvement their ability and majority of ATCOs (44%) said much preference to improve it. Most of respondent of both groups (content teachers (44%) & ATCOs (46%)) preferred to improve their pronunciation ability. Also both groups (content teachers (58%) & ATCOs (50%)) answered, in the same way, preference to improve a lot general English words. Moreover in technical words, both groups behave similar to each other, forty four per cent of content teachers and forty two of ATCOs selected much interest in improving this skill of their English proficiency. Majority of content teachers (44%) believed that they want to improve their interaction skill, but in the other group (ATCOs (48%)) the highest

frequency is for improving this skill, not too much. High portion of content teachers (72%) preferred to make their structural knowledge a little bit better and fifty seven per cent of ATCOs said that they need to improve grammatical knowledge. Furthermore on writing skill, most of content teachers (58%) preferred to improve it a little, also majority of ATCOs (41%) behaved the same. Unlike their same ideas on writing, for reading forty four per cent of content teachers felt the need to improve it and forty eight per cent of ATCOs felt minor improvement in reading.

Table 5 below shows participants' responses to the question about the different aspects of AE instructors.

Table 5: The Frequency and Percentage of ATCs & Content Teachers' Responses to Question Number 4

	Group	Not good	Good	Rather good	Very good
<b>Teaching Techniques</b>	Content Teachers	1(14%)	3(44%)	2(28%)	1(14%)
	ATCOs	5(11%)	23(50%)	14(30%)	4(9%)
<b>Time Management</b>	Content Teachers	1(14%)	2(28%)	3(44%)	1(14%)
	ATCOs	9(20%)	18(40%)	15(33%)	4(7%)
<b>Using Teaching Aids</b>	Content Teachers	2(28%)	1(14%)	2(28%)	2(28%)
	ATCOs	14(30%)	12(26%)	14(30%)	6(14%)
<b>Knowledge of General English</b>	Content Teachers	0	2(28%)	2(28%)	3(44%)
	ATCOs	2(4%)	15(33%)	24(52%)	5(11%)
<b>Knowledge of ATC Topics</b>	Content Teachers	0	1(14%)	4(58%)	2(28%)
	ATCOs	2(4%)	15(33%)	22(48%)	7(12%)
<b>Knowledge of Std. Phraseology</b>	Content Teachers	0	2(28%)	2(28%)	3(44%)
	ATCOs	1(2%)	11(24%)	25(54%)	9(20%)

As revealed from the above table, majority of content teachers (44%) and ATCOs (50%) believed that teaching techniques of AE instructors that they have been applied in their classes were good enough to satisfy the needs of the learners. Time management of the AE teachers in classroom in the most of content teachers' minds was rather good, but ATCOs (40%) selected good with the highest frequency. In answering to the item about using teaching aids in the fifth question, none of the groups could answer with a clear frequency. Forty four per cent of the responses of content teachers was very good in case of AE instructors' knowledge of general English and most of ATCOs (52%) selected that AE instructors' knowledge of general English was rather good. Both groups of participants of the study behaved alike in answering to the item of AE instructors' knowledge of ATC topics (content teachers (58%) & ATCOs (48%)). Very good was the response of majority of content teachers (44%) and ATCOs mostly (54%) selected rather good in responding to AE instructors' knowledge of standard phraseology.

In the table 6, the statistics of the frequency and percentages of participants' responses to the fifth question of the questionnaire, which was to illustrate satisfaction of participants in in-service classes they have attended, are presented.

Table 6: The Frequency and Percentage of ATCs & Content Teachers' Responses to Question Number 5

	Group	Not satisfied	Satisfied	Rather Satisfied	Much Satisfied
<b>Duration of courses</b>	Content Teachers	3(43%)	3(43%)	1(14%)	0
	ATCOs	28(61%)	15(33%)	3(6%)	0
<b>Time interval between courses</b>	Content Teachers	6(86%)	1(14%)	0	0
	ATCOs	33(72%)	10(22%)	3(6%)	0
<b>Location of held courses</b>	Content Teachers	4(58%)	2(28%)	1(14%)	0
	ATCOs	21(46%)	19(41%)	6(13%)	0
<b>Homogeneity of students in terms of English language proficiency</b>	Content Teachers	6(86%)	1(14%)	0	0
	ATCOs	21(46%)	19(41%)	6(13%)	0
<b>Teaching Materials (books) which are taught in the courses</b>	Content Teachers	0	5(72%)	2(28%)	0
	ATCOs	15(33%)	18(39%)	10(22%)	3(6%)
<b>Classroom Facilities</b>	Content Teachers	0	5(72%)	2(28%)	0
	ATCOs	21(46%)	15(33%)	10(21%)	0

The thing that most of researchers encounter while they are dealing with needs analysis is learners' dissatisfaction in courses they have attended (Moslemi, 2011; Karimi & Sanavi, 2014; Mahdavi Zafarghandi, Khalili, & Lomar, 2014; Esfandiari, 2015). Participants were not satisfied with duration of courses. Time interval between courses, location of classes, homogeneity of learners in term of language proficiency and they were satisfied with the coursebooks and classroom facilities. Therefore policy makers and managers of these classes must increase the duration of courses, reduce the gap between classes and homogenize the proficiency level of the learners sitting in a class. Changing the place of class also was required by the learners.

Table 6 indicates that content teacher responded to the first item of this question as satisfied and not satisfied with the same frequency (43%). Majority of ATCOs (61%) believed that duration of course were not satisfactory. High percentages of both groups of participants (content teachers (86%) & ATCOs (72%)) were not satisfied with the time interval of held classes. Alike with the next item, most of them were not satisfied with the place of held classes (content teachers (58%) & ATCOs (46%)). Moreover, in the case of homogeneity of the students in terms of their proficiency level in English, high proportion of content teachers (86%) and ATCOs (46%) were agreed on dissatisfaction. Furthermore, both groups (content teachers (72%) & ATCOs (39%)) were similar in their opinions on books which were taught in the classes. They were satisfied with them, but not much. About the classroom facilities, most of air traffic controllers (46%) believed that they are not satisfactory and seventy two per cent of content teachers were just satisfied with those facilities.

## CONCLUSION

ICAO defines six language skills of structure, fluency, interaction, vocabulary, listening comprehension and pronunciation. In conclusion, answering to the question about level of importance of the skills for the job, approximately all participants responded in line with ICAO's language requirement in a way that those skills are important or too important for the job. Also they think that writing and reading are not important. ATCOs need to communicate effectively in order to conduct their job well. This also needs extensive and intensive English language learning. Therefore they answered to the second question and they believed the classes that they have attended failed to improve the following skills of fluency, reading and writing. Classes can improve some skills a little, but there is no skill in the table that is being improved a lot during all held in-service classes.

They believe that they need to improve listening comprehension, fluency, pronunciation and general English vocabulary and they like to improve interaction, technical English vocabulary very much. This is again consistent with the defined ICAO language proficiency requirement skills. All participants believe that they must improve their ability in writing and reading too, but not too much.

Teaching techniques that AE instructors applied during classes were seen as good by the participants. Respondents said that AE instructors' time management, knowledge of ATC topics and standard phraseology were rather good, hence AE instructors were evaluated good or very good by ATCOs and content teachers. AE instructors perform the duties well in the eyes of their learners.

The results of this study are useful for course managers, material developers, policy makers and management of aviation industry to improve the level of the English language proficiency of air traffic controllers. These professionals in aviation industry play a very vital role and they burden the heavy duty of safety and efficiency of flight and air passengers and they perform their responsibilities by English language.

The researcher attempted to find the best way of triangulation in place, methodology and participants, but not fully accomplished because doing that was too difficult. Also there was no chance to access and investigate all practitioners of AE like flight attendants, aircraft maintenance personnel, airline operators and pilots. Since the communication between ATCOs and pilots, its comprehension and interpretation are the most salient applications of AE, therefore the study sought the needs of ATCOs and the study did not have any limitations in age and gender of the participants due the fact that both genders are working at the time being as ATCOs and ATCOs are in a range of 23 to 53 years old.

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