READY FOR TAKE-OFF: AN AVIATION ENGLISH NEEDS ANALYSIS STUDY IN TURKEY

Gökhan DEMİRDÖKEN

AUGUST 2019

READY FOR TAKE-OFF: AN AVIATION ENGLISH NEEDS ANALYSIS STUDY IN TURKEY

A THESIS SUBMITTED TO THE
GRADUATE SCHOOL OF EDUCATIONAL SCIENCES
OF
BAHÇEŞEHİR UNIVERSITY

BY

Gökhan DEMİRDÖKEN

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF ARTS
IN THE DEPARTMENT OF ENGLISH LANGUAGE EDUCATION

AUGUST 2019

Approval of the Graduate School of Educational Sciences

Assoc. Prof. Enisa MEDE
Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Arts.

Assist. Prof. Hatime Çiftçi
Coordinator

This is to certify that we have read this thesis and in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Arts.

Assist. Prof. Hatime Çiftçi
Supervisor

Examining Committee Members

Assist. Prof. Hatime ÇİFTÇİ	(BAU, ELT)
Assoc. Prof. Kenan DİKİLİTAŞ	(BAU, ELT)
Assist. Prof. Zeynep KÖYLÜ	(IBU, SFL)

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name, Last Name : Gökhan Demirdöken

Signature :

ABSTRACT

READY FOR TAKE-OFF: AN AVIATION ENGLISH NEEDS ANALYSIS STUDY IN TURKEY

Demirdöken, Gökhan

Master's Thesis, Master's Program in English Language Education

Supervisor: Assist. Prof. Hatime Çiftçi

August 2019, 100 Pages

The current study was specially designed to assess the language needs of Aviation English learners in a state university in Turkey so that the professionals in the field of ESP, specifically Aviation English, could come up with effective course plans to help these learners meet language standards set by International Civil Aviation Organization (ICAO) and it could serve as a guide for other professionals in this field. The exploration of prior research in the literature related to Aviation English yielded no results and this gap concerning the analysis of Aviation English students' needs in the target situation was tried to be filled in with this research. For such purposes, mixed methods research design was preferred and the data pertaining to students' needs was collected in two phases. First, quantitative data was collected from 323 participants by instrumenting the 'Aviation English Needs Analysis Questionnaire' which was developed by the researcher as part of the same study. Second, qualitative data was collected to analyze students' perceptions towards Aviation English and expectations from Aviation English courses by conducting structured individual interviews with 10 voluntary interviewees from the same sample. The analysis of relevant data to gain insight into the needs of students suggested significant implementations for ESP practitioners and all other professionals of Aviation English. One of the key findings of this study was that listening comprehension showed up as a big concern of students

because of the difficulties resulting from radiotelephony in aviation. Also, it was found out that the time allocated for speaking activities in Aviation English classrooms should be kept at maximum because the necessity to be a more fluent speaker of English was defined by the participants as crucial. What's more the fact that Aviation English students perceived learning Aviation English not only as a requirement to meet ICAO language standards but also for safety issues in aviation and for the purposes of professional development was brought to light in this study. In the light of these findings, necessary suggestions were also put forward for future researches in the field of Aviation English.

Keywords: Aviation English, Needs Analysis, English for Specific Purposes, English Language Teaching

ÖZ

KALKIŞA HAZIR: TÜRKİYE'DE BİR HAVACILIK İNGİLİZCESİ İHTİYAÇ ANALİZİ ÇALIŞMASI

Demirdöken, Gökhan

Yüksek Lisans Tezi, İngiliz Dili Eğitimi Yüksek Lisans Programı

Tez Yöneticisi: Dr. Öğr. Üyesi Hatime Çiftçi

Ağustos 2019, 100 Sayfa

Bu çalışma, Türkiye'deki bir devlet üniversitesindeki Havacılık İngilizcesi öğrenicilerinin dil gereksinimlerini değerlendirmek için özel olarak tasarlanmıştır, Böylece Özel Amaçlı İngilizce, özellikle Havacılık İngilizcesi, alanındaki profesyonellerin, Uluslararası Sivil Havacılık Örgütü (ICAO) tarafından belirlenmiş dil standartlarının karşılanmasında öğrencilere yardımcı olacak etkili ders planları hazırlayabilmeleri ve bu alandaki diğer profesyonellere rehberlik edebilmek amaçlanmıştır. Literatürde, Havacılık İngilizcesi ile ilgili Türkiye'de benzer araştırma sonucuna rastlanmamış ve Havacılık İngilizcesi öğrencilerinin hedef durumdaki ihtiyaçlarının analizi ile ilgili boşluk bu araştırma ile doldurulmaya çalışılmıştır. Bu amaçla, karma yöntem araştırma tasarımı tercih edilmiş ve öğrencilerin ihtiyaçlarına ilişkin veriler iki aşamalı olarak elde edilmiştir. İlk olarak, araştırmacı tarafından aynı çalışmanın bir parçası olarak geliştirilen "Havacılık İngilizcesi İhtiyaç Analizi Anketi" kullanılarak 323 katılımcıdan nicel veriler toplanmıştır. Daha sonra ise aynı örnek grubundan 10 gönüllü ile yapılandırılmış bireysel görüşmeler yapılarak öğrencilerin Havacılık İngilizcesi ile ilgili algılarını ve Havacılık İngilizcesi derslerinden beklentilerini analiz etmek adına nitel veriler toplanmıştır. Öğrencilerin ihtiyaçları hakkında bilgi edinmek için ilgili verilerin analizi, Özel Amaçlı İngilizce uygulayıcıları ve diğer tüm Havacılık İngilizcesi profesyonelleri için önemli

düzenlemeler önermiştir. Bu çalışmanın en önemli bulgularından biri, havacılıkta radyo-telefon iletişiminin neden olduğu zorluklar nedeniyle, dinleme becerisinin öğrenciler için büyük bir endişe kaynağı olarak ortaya çıkmasıdır. Ayrıca, Havacılık İngilizcesi derslerinde konuşma etkinlikleri için ayrılan sürenin maksimumda tutulması gerektiği tanımlanmış ve bunun da katılımcılar tarafından daha akıcı bir İngilizce konuşmacısı olma zorunluluğunun çok önemli olarak nitelendirilmesinden kaynaklandığı tespit edilmiştir. Bunun yanı sıra Havacılık İngilizcesi öğrencilerinin Havacılık İngilizcesini yalnızca ICAO dil standartlarını karşılama zorunluluğundan değil aynı zamanda havacılıktaki güvenlik sorunları ve mesleki gelişim amaçları için de bir gereksinim olarak algılamalarından ortaya çıktığı gerçeği bu çalışma ile belirlenmiştir. Bu bulgular ışığında, Havacılık İngilizcesi alanında gelecekteki araştırmalar için gerekli önerilerde bulunulmuştur.

Anahtar Kelimeler: Havacılık İngilizcesi, İhtiyaç Analizi, Özel Amaçlı İngilizce, İngiliz Dili Eğitimi

To my beloved wife and family

ACKNOWLEDGMENTS

I should confess that it has been a quite demanding but enjoyable experience for me. That's why, I would like to express my deepest appreciation to all scholars in the Department of English Language Teaching in Bahçeşehir University for their contributions to my master's degree. However, I owe special thanks to Assist. Prof. Hatime Çiftçi who has always been supportive of this remarkable study and guided me throughout this research day and night. In addition, I would like to thank member of my thesis committee Assoc. Prof. Kenan Dikilitaş and Assist. Prof. Zeynep Köylü for their invaluable feedback.

I am also really grateful to everybody who took part in this study and helped me collect a great deal of data by sharing their opinions with me.

Finally, and most importantly, I would like to thank to my whole family for their constant support whenever I needed. Especially, I owe my deepest gratitude to my dear wife who has always been supportive of this study and backed me up in many ways.

TABLE OF CONTENTS

LIST OF TABLES

TABLES

LIST OF FIGURES

FIGURES

LIST OF ABBREVIATIONS

ASRS	Aviation Safety Reporting System
BA	Business English
CNP	Communication Needs Processor
CSD	Communicative Syllabus Design
DGCA	Directorate General of Civil Aviation
EBE	English for Business and Economics
EFL	English for Specific Purposes
ELT	English Language Teaching
ESP	English for Specific Purposes
ESS	English for Social Studies
EST	English for Science and Technology
GDSAA	General Directorate of State Airports Authority
GE	General English
ICAO	International Civil Aviation Organization
LSA	Learning situation Analysis
MA	Means Analysis
NASA	National Aeronautics and Space Administration
PSA	Present Situation Analysis
TSA	Target Situation Analysis

Chapter 1
Introduction

This chapter seeks to provide the background of current study titled "Ready for Take-off: An Aviation English Needs Analysis Study in Turkey" by touching upon ongoing changes in world aviation industry and the effects of these changes on the field English Language Teaching (ELT). Furthermore, the rationale behind the need for this needs analysis study and the importance this research for both Turkish Civil Aviation and English for Specific Purposes (ESP) learners are explained by referring to the key terms existing in the study.

1.1 Background of the Study

In our ever-changing and expanding world, aviation and Aviation English play a major role in our everyday lives. With the latest developments in technology and engineering, air travels have become quite an ordinary part of human life all around the world. However, the mediocrity of air crash news on social media and other platforms is not a surprise in 21st century. For instance, according to International Civil Aviation Organization (ICAO), 2008 was the year with the highest number of accidents (*n*=130) and 2014 was the year with the highest number of fatalities (*n*=911) since 1946 when the record of air crashes started to be kept ("ICAO Accident Statistics," n.d.).

Another interesting fact about these accidents is that the rise in the number of air accidents are closely related to the rise in the number of scheduled commercial flights. However, the most striking fact is that out of 183 accidents from 1996 to 2005, the precise reason of which are known, 74 accidents occurred because of pilot error (planecrash.info). In an attempt to identify the causes of such accidents, Murphy (1980) conducted a research and found out that communication, decision making, and crew interaction were the most notable problems in eighty-four commercial aviation accident reports he collected through National Aeronautics and Space Administration's (NASA) Aviation Safety Reporting System (ASRS). What's more some other researchers (Cushing, 1997; Drury and Ma, 2002; Molesworth and Estival, 2015;) dug out the role of miscommunication in air traffic accidents.

Thus, the increasing importance of English language has grabbed the attention of aviation authorities. Taking the crucial role of language in aviation and its drastic effects on aviators, aviation authorities took a step to improve the safety in aviation. In addition to the requirement of holding radio telephony license and having a functioning radio in airplanes, ICAO also implemented a new standard for aircraft operators and aviators in 2003: having a certain degree of English language proficiency. Effective from 2008, the placement of this prerequisite to become an aviator or to keep on flying on top of the safety precaution list has obliged aviators to hold a minimum of Operational Level (Level 4) English Language Proficiency. As stated in ICAO Language Proficiency Rating Scale (ICAO, 2006) all aviation personnel should comply with the language requirements in terms of pronunciation, vocabulary, fluency, comprehension, interactions, and structure.

Turkey, a growing competitor in world aviation industry, has also been affected by the new implementations in the world and Turkish aviation has undergone some changes over the years just like the rest of the world. What started as a small business with only five aircrafts in 1933, Turkish aviation now plays a major role in meeting the needs of people and businesses in Turkey. The aim of keeping in touch with other nations and keeping up with the modern world have brought some new implementations in our homeland since 1933. For example, beginning from 1930s up today, General Directorate of State Airports Authority (GDSAA) was founded in 1933, then Directorate General of Civil Aviation (DGCA) in 1987, Turkey enrolled in the Convention on International Civil Aviation in 1944 which is also known as the Chicago Convention and finally took part in the foundation of ICAO in 1947.

All of these cornerstones in Turkish aviation history have led Turkish aviation authorities to comply with current requisites in world aviation industry, which concern both safety and quality. As of 2013, in terms of safety, DGCA requires the aviation personnel to fulfill the language requirements stated by ICAO ten years earlier. Consequently, the increasing demand on aviation personnel and the need to train these people have lately been and will always be at the core of English Language Teaching (ELT) in Turkey.

1.2 Theoretical Framework

Throughout the history, human beings have witnessed innumerable changes yet the most significant change in human history can be seen in aviation. In the past, there used to be less demand on aviation personnel but today there is a significant increase in the number of employment figures in the industry. However, latest regulations, as stated in the previous section, have resulted in a new situation. Henceforth, anyone who desires to be employed in aviation industry must have certain English language qualifications as required by ICAO. That's why, there are millions of potential ESP learners all around the world and these people are in need of effective teaching of Aviation English. Consequently, the rise in the demand on ESP programs, specifically Aviation English programs, has grabbed the attention of researchers in the field of ESP in recent years.

Several researchers refer to the points which differ ESP from General English (GE): Robinson (1991) states that ESP is goal-directed; Dudley-Evans and St. John (1998) express that ESP may use a different methodology than GE; Rahman (2015) mentions that ESP is focused-English in which both teaching and learning surroundings are totally contrary to that of GE. For these reasons, any needs analysis study on Aviation English which is classified under ESP should focus on the fact that Aviation English courses cannot be separated from the learners' real world and that the success of such courses depends on uncloaking the most needed language skills by learners. The activities used to collect data to meet the needs of a group of learners are defined as needs analysis (Iwai, Kondo, Lim, Ray, Shimizu, & Brown, 1999). Conducting a needs analysis is crucial because learners make sacrifices in terms of finance and time. That's why, ESP learners expect that their investment will worth it (Poedjiastutie, & Oliver, 2017). Similarly, current study aim at meeting the expectations of ESP learners and helping them comply with the language requirements defined by ICAO by placing need analysis at the heart of the research so that it can also enhance Aviation English course programs by providing relevant data based on real needs of these learners.

1.3 Statement of the Problem

ESP is no doubt a real attention-grabber for researchers and they have so far focused on various learner groups: foreign language needs of students of medical sciences (Mazdayasna and Athririan, 2008), the needs of Business English undergraduates (Li, 2014), police officers (Ulum, 2016), gendarmerie personnel (Solak, 2012), academics (Durmuşoğlu Köse, Yüksel, Öztürk, and Tömen, 2019), and engineering students (Alsamadani, 2017). All of these studies have shed light on their specific ESP context, and they all have contributed a lot to increase the quality of education provided.

However, it is quite surprising that there is so little empirical research on Aviation English. The existing studies (Aiguo, 2008; Koparan, 2016; Barkhordari and Chalak, 2017) looked through the needs of airport services personnel in Iran, Chinese learners and Civil Aviation cabin services students in Turkey. Nevertheless, no research has been conducted regarding Turkish learners of Aviation English specifically with the purpose of revealing the needs of these learners in terms of meeting ICAO language standards.

1.4 Purpose of the Study

Keeping up with the latest developments in aviation industry around the world, Turkish aviation companies need highly qualified personnel. Connately, people who seek jobs in this industry must have certain language qualifications. Also, the last and the most important component of this cyclical relationship is ESP practitioners and researchers. Within the frame of such circumstance, the role ESP researchers is to supply teachers with the necessary data on which an effective curriculum or a teaching program can be designed. On the other hand, the role of ESP practitioners is to make sure that Aviation English is taught so as to meet the needs of learners. However, an effective teaching of Aviation English requires an in-depth analysis of learners' needs and there is no prior research in the literature pertaining to such an analysis of Aviation English.

To this end, the purposes of current study can be summarized as follows. First, this research aims to fill in the gap in the literature by determining the needs of Turkish ESP learners in terms of Aviation English. Second, the study aims at contributing to

curriculum designers when planning Aviation English course programs. Third, this study aims at providing insights to ESP practitioners to look over their teaching methods and develop new materials so that the courses correspond to the needs of Aviation English learners.

1.5 Research Questions

The researcher addresses the following research questions and seeks answers to serve for the purposes mentioned above.

1. What are the language needs of Aviation English learners at a national state university in Turkey to meet the ICAO language standards in terms of lacks, wants, and necessities?
2. What are the expectations of Aviation English learners at a national state university in Turkey from Aviation English courses?
3. What are the perceptions of Aviation English learners at a national state university in Turkey towards Aviation English?

1.6 Significance of the Study

Aviation English has been the main concern of more and more people in Turkey with the increase in the number of air travels in Turkey. According to Turkish Ministry of Transportation and Infrastructure, thirty-four million traveled by plane in 2003 and the same figure rose up to one-hundred and seventy-four million in 2016; one-hundred and ninety-three million in 2017; two-hundred million in 2018 (“Türkiye Geneli Havalimanı İstatistikleri”, n.d.). So, these changes in the number of air travels signal the need for qualified aviation personnel in terms of having Aviation English language competency.

Being the de facto international language of aviation, English is more important today than ever before. Similarly, Aviation English courses are equally important in Turkey and in the world. However, there must be more and more research on Aviation English yet the limited number of studies in the field makes it difficult to improve the effectiveness of such courses in Turkey. So far, only few researchers (Aiguo, 2008; Kim & Elder, 2009; Downey, Suzuki, & Van-Moere, 2010; Douglas, 2014; Sahin &

Secer, 2016; Park, 2018; Karimi, Lotfi, & Biria, 2019) have attempted to explore some aspects of Aviation English. However, there is almost no research which analyzes the needs of Aviation English students except Koparan (2016) and Barkhordari and Chalak (2017). In this sense, any contribution to Aviation English studies in Turkey and in the world should be regarded as a corner stone in the field ESP. Taking it into consideration, it can be said that the scope and focus of current study is of great importance for the field of ESP because it has been the very first research to determine the needs of tertiary level Aviation English learners in Turkey and provide precious data towards developing more effective curricula and helping Aviation English learners meet the English language criteria set by ICAO.

Chapter 2
Literature Review

2.1 Needs Analysis

Needs analysis is regarded as a vital asset for instructors of ESP to get an idea about what their learners need, lack, or want to reach their goals. Simply defined by Nunan (1988) as a data collection process, the first studies regarding needs analysis can be found in 1960s. Moreover, the term of needs analysis has been defined, classified and stressed by several scholars and researchers (Dudley- Evans and St John, 1998; Hutchinson and Waters, 1987; Brown, 1995; Richards, 2001; Seedhouse, 1995) in various settings since then. As a result of being such a broad notion, an in-depth review of both ESP and needs analysis (NA) including the emergence, definition, different types, and models of NA is the focus of this chapter under specific titles for each feature.

2.1.1 History of Needs Analysis. It can be disputed that there seems to be no exact date for the first emergence of needs analysis in the literature. However, something is for sure that the concept of needs analysis came to existence for several specific reasons which were verbalized by Hutchinson and Waters (1987). One of these causes was the developments after the World War II.

There is no doubt that human beings at that time bore witness to such an age which harbored significant progress in technology and science. The increasing

investment in industrialization also played a significant role in such changes. On one hand, after the bloodiest war in human history with sixty million dead and thousands of war veterans, the term of 'superpower' was recoined because the world had a new economic ruler, the United States of America. Moreover, the victory and the self-confidence it unveiled to get rid of the biggest economic disaster which had taken place in 1929 in the USA encouraged American society to have a say on world economic affairs more bravely. On the other hand, as the victorious nation of the World War II, the USA was not only an economic superpower but also a military superpower that challenged once military great powers of Germany and Japan.

These occurrences in the world inevitably triggered technological development as well, and its impact was widespread both in the USA and other countries. Beginning from 1950s televisions and telephones became very common and affordable; humankind landed on the Moon again; jet engine was invented which made air travel easier; the internet was invented which made it possible to get the information faster. When looked from a broader perspective, all of these developments was not restricted only to the USA but rather they affected the rest of the world to a great extent. That's why, it eventually resulted in the need for an international language paving the way for needs analysis and English for Specific Purposes studies in the upcoming years.

Another cause of the emergence of needs analysis researches was, as stated by Elsaid Mohammed and Nur (2018), the results of linguistic research on language use. To put it different, human beings need different skills based on their profession; similarly, their linguistic needs vary depending on the field they work in. So, there have been many attempts to define such language needs and there has been a great number of needs analysis studies in the field of ESP.

The emergence of ESP dates back to 1960s and researchers have been interested in various subsections of ESP since then. Hutchinson and Waters (1987, p. 16) define these subsections under three titles: English for Business and Economics (EBE), English for Science and Technology (EST), and English for Social Studies (ESS).

As part of EBE some researchers (Wu, 2012; Li, 2014; Guiyi and Yang, 2016) focused on the needs of Business English learners. Wu (2012) aimed at discovering the present situation needs, learning situation needs, and target situation needs of Business English learners in colleges in China; Li (2014) focused on undergraduate BA learners' needs to give insights into goals, materials, and methodology; Guiyi and

Yang (2016) researched the types of problems Business English (BE) learners faced and the position of BA in China at that time.

On the other hand, Porcaro (2013), Clement and Murugavel (2015), and Lin, Liu, and Wang (2017) analyzed the needs of EST learners. While Porcaro (2013) tried to explain his approach to teaching EST based on the needs of his learners in his report, Clement and Murugavel (2015) wanted to figure out which skills Indian EST learners need to improve themselves. In addition, Lin et al. (2017) employed needs analysis to come up with a tool to develop Chinese learners writing skill.

In terms of English for Social Studies, there are innumerable studies (Akyel and Ozek, 2010; Solak, 2012; Ulum, 2015; Vatanartiran and Karadeniz, 2015; Guven, Ozturk & Duman, 2016; Ulum, 2016; Durmusoglu Kose, Yuksel, Ozturk & Tomen, 2019) even only in the field of ESP both in Turkey and in the world. Consequentially, the literature review indicates that the emergence of NA in the 1960s has so far been of great importance for scholars, researchers, decision-makers, and curriculum developers, and this will carry on with an increased importance in the field of ESP owing to the latest developments in technology and science which will inevitably affect the aviation industry in the upcoming years.

2.1.2 Definition of Needs Analysis. Despite having been discussed by many scholars and researchers in the academic context for more than sixty years, there seems to be no consensus over the exact definition of needs analysis. This section reviews the literature related to the various definitions that have been set forth so far.

All of the definitions provided in the literature focus on different aspects of two terms: needs and analysis: For instance, according to Hutchinson and Waters (1987, p. 54), needs refer to those which the learner must comply with to learn. By doing so, they associate the needs with the learners' responsibilities. However, Widdowson (1981) associate needs with what learners look for to learn upon completing the language course. Mountford (1981) comments on needs from a totally different perspective and states that needs are, in fact, related to the organization which provides the course. That's to say that needs are not defined by the learner bur rather by the teaching organization because it is what that organization perceives as necessary and it is at the same time what the learner must learn to meet the demand of that organization. In short, although these definitions do not meet on common grounds in terms of identifying who determines the needs, they all regard needs as goal-oriented,

which is to say that learners must reach to a certain level of competency once they complete the language course.

An extensive literature has also developed on another aspect of needs unlike the goal-oriented ones mentioned above. Richterich (1980) puts emphasis on the fact that it is the learner who will make use of the language after the end of language course and that's why the point of interest should be the information gathered from the learners rather than demands gathered from the institutions. Brindley (1989) further comments on it by claiming that the process of determining the needs of learners should not be restricted to the program requirements and this process should also take learners' wants into consideration because they are the things learners would like to learn. Berwick (1989), on the other hand, draws a line between learners' current situation and the desired situation at the end of the course. According to him, the gap between these two situations is what we should call as 'needs'. As a result, this second group of researchers can be interpreted as the ones who regard needs as what should be acquired throughout the learning process rather than what should be acquired once the course is over. For this reason, it can be said that, according to these researchers, needs are process-oriented rather than goal-oriented.

In summary, the literature pertaining to the definition of needs analysis strongly suggests that the conflict between scholars over the definition of needs has resulted in two major concepts: goal-oriented needs which derive from learners' target situation; process-oriented needs which derive from the learning situation.

2.1.3 Types of Needs Analysis. This section points out variations in the literature in terms of approaches to the classification of needs analysis. Several theories have been proposed and reported in the literature by several researchers so far. Hutchinson and Waters (1987, p. 55) categorize needs as necessities, wants, and lacks; target needs and learning needs (Figure 1); Brindley (1989) and Robinson (1991) analyze needs in two ways: objective needs and subjective needs; Berwick (1989) differentiates between perceived and felt needs; Dudley-Evans and St. John (1998) mentions the perspective of outsiders and insiders when classifying the needs (Figure 2).

There exists a considerable body of literature on target needs and learning needs, and these classifications have been explored in prior studies of Hutchinson and Waters (1987, p. 54). According to them, target needs are closely related to the

requirements of the target situation of learners. That's to say, what learners must be capable of doing in the target situation when they complete the learning process is regarded as their target needs. To exemplify, in a typical target situation a pilot needs both oral and verbal skills to successfully fulfill his/her duties. S/he needs to speak fluently, his/her accent must be clear, his/her pronunciation must be correct, s/he should be able to interact with other aviation personnel easily; s/he should be able to ask for clarification to the air traffic controller when s/he cannot acknowledge a command. Similarly, a pilot should be capable of reading aircraft manual, s/he should be able to comprehend what is suggested in case of emergency, s/he should be able to express his/her needs related to the flight operations from the other aviation personnel, s/he should be able to report any problem to the technical staff in black and white. That's why, it should be noted that target needs are mostly related to objective needs of learners rather than learners' desires or wants because there is a set of language standards defined by ICAO and learners must comply with this target situation.

However, Li (2014) states that merely defining the needs of learners in the target situation (target needs) is not enough because specific needs of learners are also important in language teaching, and it should be noted that taking what learners already know (present situation) before the language course takes place into consideration is also of great importance. If the needs analysis is conducted as suggested by Li, it is possible to analyze to what extent the learner meets the standards based on the comparison of their present situation and the requirements of target situation. In the case of assessing the needs of learners of Aviation English, their present situation can be regarded as their level of meeting ICAO standards before the course starts, and their target situation can be regarded as the competencies they must acquire at the end of the course to be able to comply with the same standards. So, defining learners' needs by covering this gap between their target situation and present situation, the instructors and teachers can get an idea on developing a more suitable course design.

However, Hutchinson and Waters (1987, p. 55) researched more on target needs for more reliable results and in the end, they came up with a more detailed division of target needs under three sub-categories: necessities, wants and lacks. While necessities refer to what the learner must know to be able to make use of the language in the target situation, wants refer to what the learner feels as necessary for the same purpose, and lacks refer to the gap between what the learner already knows and what the learner must know in the end.

Hutchinson and Waters (1987, p. 60) also mentioned another classification of needs analysis type: learning needs. It is argued that designing a language course based only on target needs is very much like setting off on a journey by only taking the starting point and destination into consideration (Li, 2014, p. 14). However, what you may come across on the road throughout your journey should also be considered before the departure. Hutchinson and Waters (1987, p. 60) regard these possible "constraints, needs, and potential" (Li, 2014, p. 14) as learning needs. When applied to Aviation English course programs, it is vital to know everything about your departure airport (lacks), about your destination airport (necessities) but it is also of great importance to know about the en-route weather conditions, wind, and airspace constrains. This gap between lacks and necessities is regarded as learning needs. Furthermore, Munby (1978) defines this process of identifying learners' needs as the first step towards designing ESP course syllabus, and it is the prerequisite before a course designer may go on with the next step which is the curriculum design.

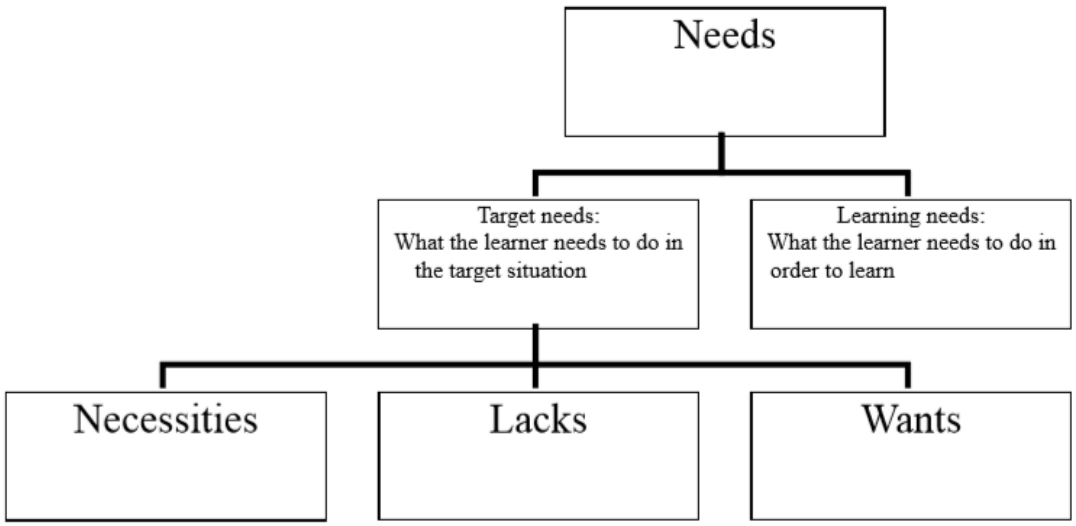

Figure 1. Hutchinson & Waters (1987) Classification of needs analysis

Berwick (1989) proposes that there is a difference between perceived needs and felt needs. What we call as perceived needs is what is predefined as goals by others for learners based on the previous learning experiences. Contrastively, felt needs are what we really think as crucial and necessary, and what we define by ourselves. That's why the claim of Berwick places the decision-maker in the heart of the discussion.

It is also reported in the literature that some other researchers (Brindley, 1989; Robinson, 1991) divide needs into different categories as objective needs and

subjective needs. For instance, Brindley (1989, pp. 63-78) puts forward the idea that objective needs are the ones that learners judge from their previous learning experiences such as their language competency when they take courses, the perceived language difficulties and their demand of language in real communication situations.

However, perceived needs are the ones that are affected by affective and cognitive factors of learners such as "personality, self-confidence, personal cognitive styles, expectations, and self-esteem during the learning process" (Li, 2014, p. 13). Eventually, the point where objective needs differ from subjective needs is that objective needs can be easily diagnosed by professionals in the field because you can get the relevant data directly from the learners' personal data unlike to the data related to learners' subjective needs which requires an observation an data collection instruments throughout the learning process. Li (2014) further comments on objective needs assessment that embedding the data about learners' personal info into the assessment process is crucial and easy, but it is not the case in many subjective needs assessment processes in which students cannot even clearly provide such information about themselves on their own. In the light of reported literature, it is conceivable that both objective and subjective needs assessment can provide a great deal of vital data about the learners to develop a convenient course program or a curriculum that can meet the needs of learners as much as possible.

Dudley-Evans and St. John (1998) put forward a similar classification of needs to that of Hutchinson and Waters (1987), Berwick (1989), Brindley (1989), Robinson (1991). Their categorization is rather a summary of previous research (Figure 2). They claim that what we already know (facts) is called objective needs and perceived needs, and this is what they call as outsiders' perspective. As suggested in prior research it is easier for educators to observe learners and gather data on their objective and perceived needs. On the other hand, the cognitive and affective factors make up the subjective needs and felt needs, and this is regarded by Dudley-Evans and St. John as insiders' perspective. In this case, it is more difficult to collect data because it requires professionals to observe learners throughout a learning period to be able to come up with a consistent data on learners' needs.

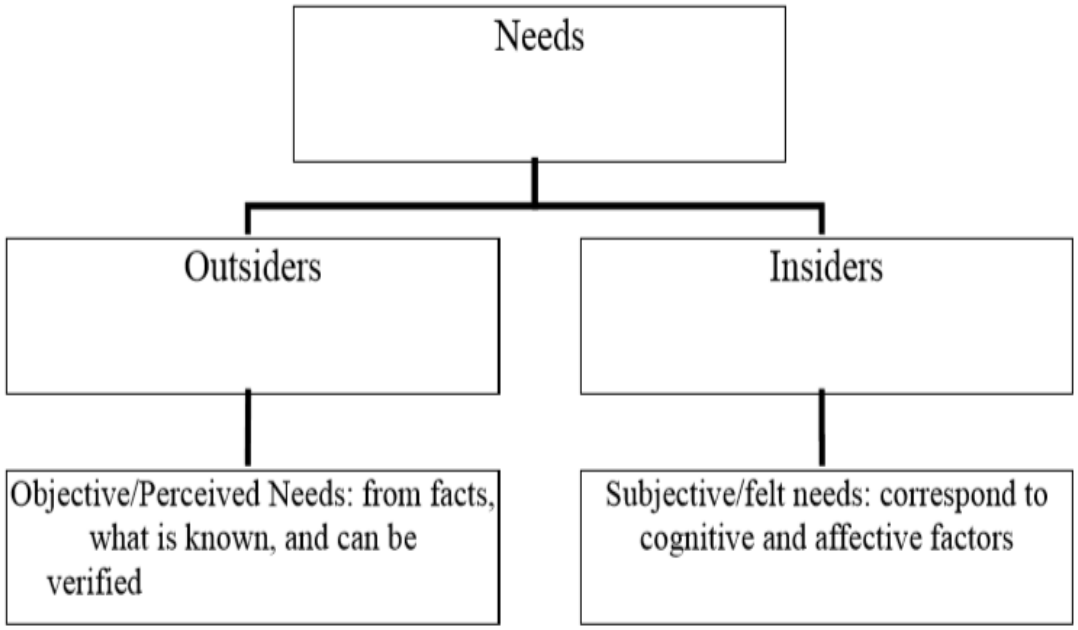

Figure 2. Dudley-Evans and St. John (1998) Perspective of Insider and Outsider

The majority of prior research has applied the classifications mentioned above. However, needs are further explained in three larger categories as target situation analysis (TSA), learning situation analysis (LSA), present situation analysis (PSA) (Dudley-Evans & St. John, 1998, pp. 53-64).

2.1.3.1 Target Situation Analysis. TSA is one of the primary components of needs analysis (Rahman, 2015) and it focuses on digging out learners' language requirements in areas such as occupational and academic. Rahman (2015, p. 26) further comments that TSA was used to be conducted to get an idea about to what extent English was used. The researchers (Robinson, 1991; Munby, 1978; Dudley-Evans & St. John, 1998) bring some information about the background of TSA with different suggestions. While Robinson (1991, p.8) states that learners' needs upon completing a language course can be regarded as TSA, Munby (1978, pp. 93-97) claims that the stage where 'good enough' competency to be able to fulfill the requirements of the job is acquired can be called as TSA. That's why, Munby prioritizes the target-level performance of learners.

With this in mind, the so called performance of learners of Aviation English can be exemplified with the following situations stated in ICAO Language Proficiency Rating Scale ("ICAO," 2006): giving immediate, appropriate, and informative

responses, managing the speaker/listener relationship effectively, making use of appropriate discourse markers or connectors, maintaining interaction when a misunderstanding occurs, and so on. Furthermore, previous research shows that questionnaire is used quite often as the data collection instrument in needs analysis studies (Dudley-Evans & St. John, 1998).

Similarly, Chostelidou (2010) analyzed the needs of learners enrolled in Greek tertiary education by instrumenting a questionnaire and 395 students took part in that research. The results of that study revealed the need to develop a language course program based on Greek learners' target needs. Guiyu and Yang (2016) also made use of a questionnaire as the data collection instrument in their target situation needs analysis study and they researched 226 students enrolled in Business English program of Guangdong University in China. The findings of that research suggested significant data which showed that students' needs based on target situation requirements are not met by Business English instructors, Business English textbooks, and Business English course program.

Ulum (2015) is another researcher who implemented TSA needs analysis to assess the needs of tertiary level ELT students in Çukurova University in Turkey and graduates of the same department. His purpose was to develop speaking course program in the ELT department by specifying the needs of those undergraduate and graduate ELT students. It is suggested in his research that they need to communicate more with native speakers which matches up with the participants' target needs.

Another significant target situation analysis study in the field (Wu, 2012) focused on college Business English courses in China and it aimed at gathering data on the needs of college learners by instrumenting a questionnaire with 220 college students taking Business English classes. The results of her study indicate that learners need to be provided with tasks from real work situation which will correspond to their target needs. In summary, the literature shows that target situation analysis is an important component of defining learners' needs effectively and it plays a key role in needs analysis studies.

2.1.3.2 Learning Situation Analysis. In the literature the term LSA is used to refer to what learners expect to learn (Rahman, 2015, p. 27), and in needs analysis studies, it is frequently preferred to include a learning situation analysis alongside with a target situation analysis and a present situation analysis. The main reason for LSA is

that it is an effective way of observing learners' needs during the teaching process. Moreover, Dudley-Evans and St. John (1998, p. 124) states that LSA explains the reason why a specific group of learners want to learn by setting the light to their subjective and felts needs which correspond to cognitive and affective factors. This process helps teaching professionals take measures to raise interest, stimulate motivation, and serve for learners' purpose more effectively.

As an illustration, the analysis of learners' needs during the process of teaching in a course program was conducted by Guiyu and Yang (2016). Their research was, as stated above, coupled with a TSA and a PSA. They specifically focused on curriculum arrangements, teaching methods, teaching materials and teachers in the part related to LSA. The findings of their study provide valuable insight to the level of students' satisfaction with the course program and the reason for being unsatisfied with the program. It is also noticeable that the data gathered from the LSA indicates which skill should be the focus of the course program.

Wu (2012) also applied LSA in her research together with TSA and PSA. She collected significant data on learners' motivation and interest as part of the LSA in her study, and the findings indicate that students are in favor of BA course books which correspond to their needs in real life. Moreover, students are mostly motivated by the job opportunities and all of these reasons emerging from the LSA give the advice to the teachers to enable students to observe real work situations. In brief, LSA is an indispensable part of needs analysis studies for improving the effectiveness of the course program and ensuring high-quality and learner-centered teaching.

2.1.3.3 Present Situation Analysis. Another key point of needs analysis is PSA, and as mentioned briefly at the beginning of this section, what is delineated by researchers as present situation shows teachers "what the students are akin to at the start of their language course, looking into their strengths and weaknesses" (Rahman, 2015, p. 27). The process of collecting data before any language course takes place is crucial in that it provides precious info regarding the proficiency level of students, their abilities, and their attitude towards language learning. Then, practitioners can design more suitable course plans which may help learners acquire necessary skills set for them upon the completion of the relevant teaching program.

Dudley-Evans and St. John (1998, p. 124) also mentioned the same function of PSA in estimating the powerful and weak attributes of learners. To do so, Richterich

and Chancerel (1980) put forward three sources of information: students themselves, language teaching institution, and places where the learner will make use of the language. Songhori (2008, p.10) claims that this term was coined to serve for the purpose of getting to know about learners from various sources. Furthermore, Robinson (1991, p. 9) and Jordan (1997, p. 24) claims that PSA should not be seen as substitute for TSA but rather as a compliment to it. That's why, PSA indicates the starting point of a language teaching program, and in a word the role of researchers is to collect data regarding each of these sources.

Yundani (2018) aimed at collecting such data from a group of English learners in Jakarta, Indonesia. She focused on identifying students' present situation by using descriptive inquiry method and finding out their writing competency level, behaviors, characteristics, and perception towards writing in English at that time.

Another needs analysis study regarding present situation analysis was conducted by Elsaid Mohammed and Nur (2018), and they identified the needs of teaching assistants in a university in Sudan by first analyzing their present situation related to their English language proficiency. In a recent study, Al-Kadi (2018) conducted a present situation analysis with the aim of updating the ESP learners of medicine in Yemen. His research provided insight into teaching of medical English in Yemen and based on his present situation analysis, he found out that students are unable to understand the lectures because of their limited English language proficiency and that teachers have difficulty in delivering their lectures because of students' lack of proficiency.

Most early studies as well as current work reveal that ESP needs analysis should be regarded as a whole together with PSA, LSA, and TSA because they complement each other. However, it should be also noted that these concepts are, in practice, different from each other in terms of their purpose and each one of them reveals a different kind of information. This is explained by Dudley- Evans and St. John (1998) in Figure 3 with the following statements:

1. I need to see vocabulary written down (LSA-learning need)
2. I have occasional meetings with British colleagues (TSA-target need)
3. I find it difficult to write persuasively (PSA-present need)
4. I pick things up by listening (LSA-learning need)
5. Students X needs to read more widely (TSA-target need)
6. I like problem solving (LSA-learning needs)
7. I hate group work (LSA-learning needs)
8. I have to write reports (TSA-target need)
9. My problem is finding the right word (PSA-present need)

Figure 3. Dudley-Evans and St. John (1998) Statements regarding situation analysis

The figure illustrates the differences of each type of situation analysis and it sums up the specific features of PSA, LSA, and TSA which have been discussed so far. To sum up, PSA shows the overall situation of a learner before the start of a language course while TSA shows what is expected from the same learner at the end of the course program. LSA, on the other hand, focuses on learning needs of the learner during the process of teaching.

2.1.3.4 Means Analysis. Apart from the most significant types of needs analysis (PSA, LSA, and TSA), means analysis (MA) is regarded to have been developed as a complement to TSA (Jordan, 1997, p. 27; West 1994, pp. 1-19). Its main function is to synthesize whether what works well in a specific setting can also be useful in another situation or not. For this reason, MA is mostly the confirmation of the variable of environment in language courses. Having such a function, MA can be seen as a tool to discover more about learners' various "types of needs in how they are preferred, ordered, and participated will be different" (Saieed, 2012). Its function is further explained by Mohammadi and Mousavi (2013) stating that MA researches the local context and its constituents like available resources, teaching professionals, and cultural approaches to language learning to see how a course can be implemented in that context to meet the needs of learners.

2.1.4 Models of Needs Analysis. What we know about needs analysis is not only limited to different ways of defining needs. There is also a large volume of published studies describing different models of needs analysis (Munby, 1978; McDonough, 1984; Hutchinson & Waters, 1987; Robinson, 1991; West, 1994; Jordan, 1997; and Dudley-Evans & St. John, 1998). Although, they all tried to explain how to ascertain learners' needs, each one of these prominent researchers differed from each other in terms of their point of focus throughout the process of needs analysis. This section reviews the literature on four different models of needs analysis namely Communicative Syllabus Design; Communication Needs Processor; Integrated Procedure; Necessities, Lacks, and Wants; and Comprehensive Model.

2.1.4.1 Communicative Syllabus Design. In the light of literature, the most common model, Communicative Syllabus Design (CSD), is suggested by Munby (1978) and his model mainly focuses on the desired learner profile at the end of the language course which he also calls Communication Needs Processor (CNP) (p. 32). It offers a detailed analysis of learners through a series of measurements called "Purposive Domain", "Setting", "Interaction", "Instrumentality", "Dialect", "Target Level", "Communicative Event", and "Communicative Key". The whole process of analysis is illustrated in Figure 4.

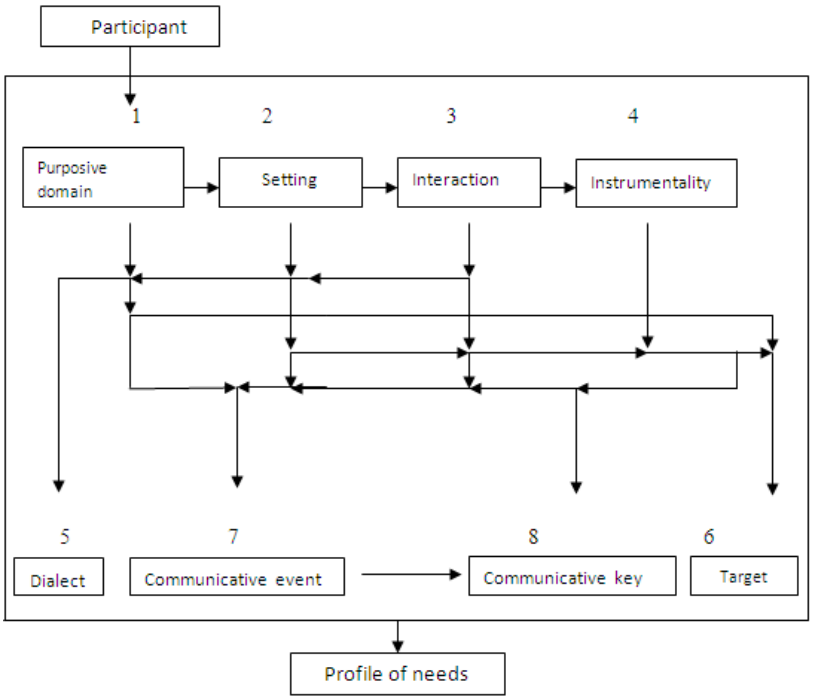

Figure 4. Munby (1978) Communication Needs Processor

Although it is an all-inclusive analysis, Rahman (2015, p. 29) comments it has some limitations on its influence and detail. Hutchinson and Waters (1987, p. 54) criticizes that it does not take into account the desired needs to be acquired (target needs) from different perspectives such as teachers and learners. West (1994, pp. 1-14) further states that Munby's model is inflexible, complicated, and a waste-of-time as it is too systematic. Moreover, Jordan (1997, p. 24) is of the opinion that the items in Munby's model do not reflect the items in real world which is the setting the learner is expected to use the language.

2.1.4.2 Integrated Procedure. After the first serious discussions on Munby's CSD, McDonough (1984) offered another needs analysis model which included an integrated procedure of defining learners' needs. As can be seen in Figure 5, McDonough places the learner at the heart of his model and designs the course based on learners' different types of needs. What differs McDonough from Munby is that McDonough does not regard needs as static but rather active, changing over time. By extending the scope of his needs analysis model, Munby makes it possible to analyze the needs from different perspectives which is the point Munby is criticized a lot. However, there are some deficiencies of this model as well. For instance, McDonough's model is only limited to learners' present needs and target needs disregarding their learning needs. Previous research has so far embraced all of these three types of needs (present needs, learning needs, and target needs). That's why McDonough's model has been criticized and has led to the emergence of another model in the field.

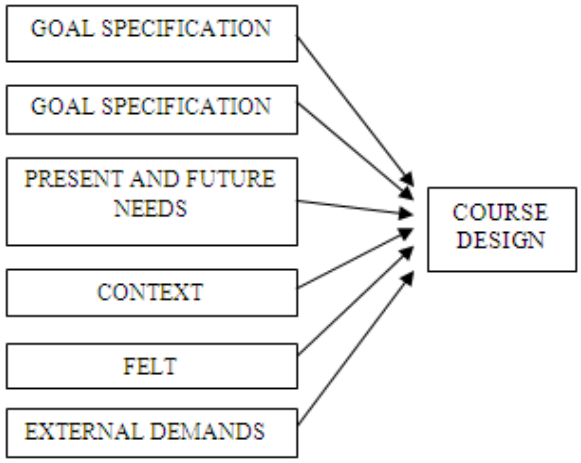

Figure 5. McDonough (1984) Integrated Procedure

2.1.4.3 Necessities, Lacks, and Wants. Hutchinson and Waters (1987) also attempted to offer a needs analysis model which is shown in Figure 6.

	OBJECTIVE (i.e. as perceived by course designers)	**SUBJECTIVE** (i.e. as perceived by learners)
NECESSITIES	The English needed for success in Agriculture or Veterinary Studies	To Reluctantly cope with a 'second-best' situation
LACKS	(Presumably) areas of English needed for Agriculture or Veterinary Studies	Means of doing Medical Studies
WANTS	To succeed in Agricultural or Veterinary Studies	To undertake Medical Studies

Figure 6. Hutchinson and Waters (1987) Lacks, Wants, and Necessities

Hutchinson and Waters' model embodies present needs, learning needs, and target needs unlike the models developed by Munby and McDonough. This model is similar to McDonough's model in that both tried to include different perspectives (objective and subjective). However, it is different from other models in that Hutchinson and Waters further divided needs into three: necessities, lacks, and wants. Based on their definitions, necessities are determined by the target demands and learners must know these necessities to be able to effectively function in the target situation.

On the other hand, they regard lacks as a type of needs which should be investigated thoroughly to see what the learners are already familiar with, so that the professionals in the field can decide on the necessities that learners lack. Finally, what is called 'wants' is actually what the learners desire to learn. In this respect their model is of great importance as it focuses on target needs, present needs, and learning needs in a single model. Nevertheless, their model is criticized by Dudley-Evans and St. John (1998; pp. 123-125) for lacking some other types of needs analysis such as means analysis and discourse analysis, which are the principles of the model provided by Dudley-Evans and St. John in the following sub-section.

2.1.4.4 Comprehensive Model. To date various needs analysis models have been suggested by scholars and researchers and, as mentioned above, each model focuses on a different aspect of needs analysis. Herewith, there seems to be no consensus over the most efficient type of needs analysis models. As a result, Dudley-Evans and St. John (1998) came up with a comprehensive model with the ultimate goal of covering all other needs analysis models (Figure 7), and it can be regarded as the most recent model in the field.

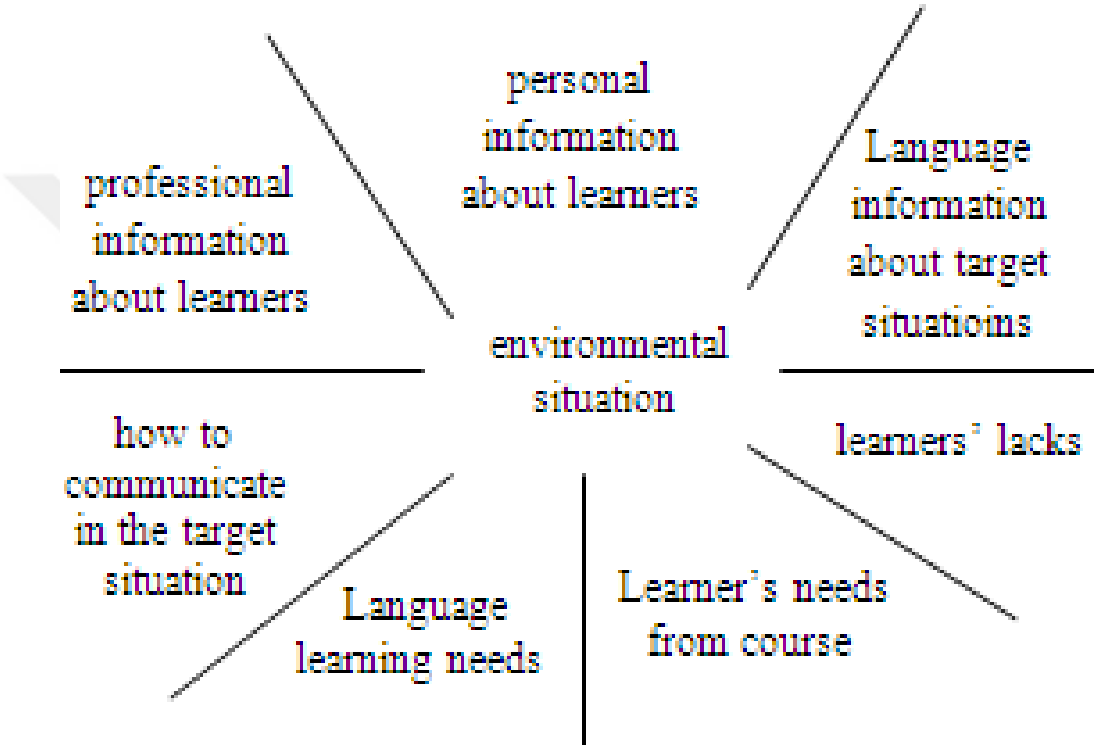

Figure 7. Dudley-Evans and St. John (1998) Comprehensive Model

Being regarded as the most comprehensive model, it focuses on eight different aspects of needs: professional information about learners investigating the tasks they will use in the target situation; how to communicate in the target situation focusing on communicative needs; language learning needs creating a learner profile; learner's needs from course presenting what learners expect from course; learners' lacks showing the gap between learners professional needs and their current level; language information about target situation; personal information about learners focusing on learners' previous learning experiences; and environmental situation analyzing the setting in which the course will take place.

In short, ESP is concerned with some specific learning needs of English learners, and the practitioners of ESP should take everything into consideration before starting an ESP language course. To do so, they cannot just make use of a single needs analysis model but rather they can instrument a flexible framework that can suit their setting the most. In such previous attempts, Beatty and Chan (1984) utilized needs analysis for their investigation with graduate students in People's Republic of China. They researched students' English language needs before they leave China and then again after they spend a year in the USA. The researchers suggested that NA is a useful tool to collect data on students about the content of the language course or field of study.

Needs analysis has also been explored in a prior study by Basturkmen (1998), and the researcher aimed at understanding the needs of English learners in Kuwait University's College of Petroleum. She also supported the importance of effectiveness of needs analysis to collect information on students' language needs.

With a similar purpose, Lepetit & Cichocki (2002) conducted a needs analysis study on tertiary level students. Their participants were taking a language course and studying to be health professionals. They also stated the importance of needs analysis as precious source of getting information about the learners before the design of a curriculum for health professionals. However, no previous study has investigated the needs of learners of Aviation English in Turkey so the key contribution of current work in the field of ESP needs analysis is that it covers as many needs analysis models as possible to be able to define the needs of learners of Aviation English so that the course they will take in the upcoming academic year can effectively serve for their ultimate goal of meeting ICAO language standards in the future.

2.2 English for Specific Purposes

English for Specific Purposes (ESP) is a sub-branch of English as a second language (ESL) or English as foreign language (EFL) referring to the teaching of English a group of learners whose aim is to be a proficient user of the target language in the target situation. For this reason, ESP can be regarded as an umbrella term which houses various language teaching/learning settings under it such as English language teaching for professionals in business, tourism, medicine, science, law, technology, and of course aviation (Celce-Murcia, 2001; Richards and Schmidt, 2010; Hossain,

2013; Otilia, 2015). This section presents a review of existing literature on ESP in terms of its emergence in history and its characteristics.

2.2.1 The emergence of English for Specific Purposes. Being in the center of many needs analysis studies in these days, ESP has a considerably long history. From its first emergence around 1960s until today, ESP has grabbed the attention of scholars. In its early years, ESP was put into practice when a General English course was thought to be insufficient to meet specific needs of learners. Quite similar to the emergence of needs analysis, the first appearance of ESP was also as a result of some factors resulting from the significant changes in the world including the necessities of the new world order, changes in the need to learn a foreign language, and learner centered education.

Ulum (2016) puts forward the idea that ESP has two climaxes in history. According to him, the first climax was at the end of the World War II in 1945 which paved the way for a period of big and significant developments in science, technology and economy which of course were the results of such things as the rise in the power of the United States as the new superpower. This resulted in English being regarded as the international language or lingua franca. Kim and Elder (2009) comments on the role of English as a lingua franca in Korean aviation context and tries to find its implications on Korean aviation personnel.

The second climax was the crisis over oil in the very early years of 1970s which caused western finance and knowledge to get into the oil-rich lands (Ulum, 2016, p. 19). Then, it is believed that English language started to have an impact on world business which, in turn, affected people to prioritize learning English rather than other foreign languages. Furthermore, teaching of ESP can be said to have started in 1950s and 1960s but it became popular especially in 1970s (Dudley-Evans and St John, 1998, p. 22). Hutchinson and Waters (1987, p. 6) also stated the important role of English as lingua franca and commented that as English started to be regarded as lingua franca, it created contemporary learners who definitely knew why they were learning a foreign language which is English in our aviation context. Having summarized the history and emergence of ESP, the following part will highlight characteristics of ESP.

2.2.2 Characteristics of ESP. This section begins with a short review of the literature regarding the features of ESP. It is reported in literature that ESP is different from General English (GE) in terms of both the learning and teaching situation.

One of the most significant differences between ESP and GE is the learners. While learners of GE are from a wide range of ages, ESP learners are mostly the adult ones who already have familiarity with English language and learn it to be a more proficient user of the target language so as to perform well in the target situation. Another important factor which places ESP in a different place than GE is the purpose of learners. On one hand, learners of GE study English as part of compulsory education or out of personal interest. On the other hand, the purpose of learning English for Specific Purposes is that these learners are motivated mostly by professional needs. Furthermore, ESP courses are structured around the target language in the target context rather than a grammar-based teaching in most cases of GE. Such a course plan requires a thorough investigation of needs and demands in the related context and it should also bear a resemblance to real world situation of the intended setting in which the language will be used.

As a specific area of instruction, ESP also differs GE in that GE concentrates on all four language skills equally; reading, writing, listening, and speaking. However, ESP curricula may focus on only some certain language skills based on the professional needs of learners. For instance, in a recent study with Turkish academics Durmuşoğlu Köse, Yüksel, Öztürk, and Tömen (2019) found out that the participants (*n*=2,198) "mostly emphasized their needs for academic writing competencies", and the researchers suggested developing a curriculum relevant to the needs of Turkish academics. In the light of reported studies, it is crucial that the process of designing an ESP course should be planned very carefully so that the learners can benefit from the course and take a step forward to meet the target situation demands related to their profession.

Having played such an important role in English language teaching from its emergence in 1960s to date, there have naturally been numerous attempts to identify what ESP actually means. Hutchinson and Waters (1987, p. 19) defined ESP as "an approach to language teaching in which all decisions as to content and method are based on learners' reason for learning". So, they suggested that the language course program should be centered on the needs of learners. Robinson (1991, p. 3) regarded ESP as a 'goal-directed' language teaching program. Richards and Schmidt (2002)

also worded ESP as "the role of English in a language course or program of instruction in which the content and aims of the course are fixed by the specific needs of a particular group of learners." (p. 198). Apart from these attempts to define ESP, Strevens (1980, pp. 1-12) formulated a broader definition of ESP in an earlier attempt and made a distinction between four absolute and two variable characteristics. Dudley-Evans and St. John (1998, pp. 4-5) also suggested another definition of ESP centering on Streven's proposal of absolute and variable characteristics which are given below.

Absolute Characteristics of ESP:

1. ESP is designed with the purpose of meeting certain needs of learners;
2. "ESP makes use of the underlying methodology and activities of the disciplines it serves" (Rahman, 2015, p. 25).
3. ESP focuses on language skills and discourse suitable to the target situation.

Variable Characteristics of ESP:

1. ESP courses of curricula can be designed to serve for specific professions.
2. ESP can make use of different methodologies from that of GE depending on the needs of learners.
3. ESP is mostly designed for adults or professionals in a specific discipline.
4. ESP suits more to those who are at intermediate or advanced level of English language proficiency, but it can also be useful for students in secondary schools.

To sum up, ESP in the context of Aviation English has so much to be uncovered in terms of the needs of Aviation English learners, and the ever-increasing demand on professionals in the aviation industry provides researchers with an invaluable and unlimited source of information. In one such case, the current study tries to uncover the language needs of Aviation English learners in Turkey with a specific focus on tertiary level cadets.

2.3 Aviation English

Aviation is fast becoming a key instrument in people's lives, and Aviation English has started to be increasingly recognized as a crucial component of aviation industry. Also, it is described as a subset of English for Specific Purposes with a direct and specialized focus on aviation including both the phraseology and plain language (Aiguo, 2008, p. 152). This difference in the way aviation professionals communicate with others implies two things:

> On the one hand, it means the correct and standard use of terminologies or phraseologies in air/ground communication, aircraft manufacturing and its specification, even legal terms in aviation law; on the other hand, it refers to the general use of the English language among aviation staff in daily communication, regardless of its nationality, race, and different cultural backgrounds (Aiguo, 2008, p. 154).

That's why the investigation of the role of both a standardized way of communication in aviation and that of daily communication have become inevitable for aviation safety because of an increase in both the demand on air travels and number of incidents resulting from communication breaks.

Just over the past fifty years or so, humanity have witnessed a number of dramatic air collisions such as so-called Tenerife accident in 1977 with 583 dead, the mid-air collision in 1996 over Charkhi Dadri in India with 349 dead, and the inability a flight crew to report the critical fuel level to the air traffic controllers leading to a fatal crash with 73 dead. It was reported by ICAO (2003) that "communications, or the lack thereof, has been shown by many accident investigations to play a significant role". The same issue is reported by ICAO in ASRS (Aviation Safety Reporting System Database, n.d.) reports as well which state that problems resulting from information transfer make up 70% of total 28,000 reports.

Another interesting data provided in the same database also lays emphasis on the role of communication in English for aviation safety. According to it, there have occurred 321 aviation incidents from 1999 until today, all of which involved communication breakdown and resulted in aircraft damage. For instance, a recent incident took place in the USA in December 2018 because of the lack of communication between an instructor pilot and a student pilot during take-off. As the instructor pilot reported the incident, it was because the instructor pilot informed the student pilot to pull on the yoke when instructed but not how hard to do it, which caused damage on the tail of aircraft. The instructor pilot did not make her/his instruction clear and the student pilot should have confirmed that the instruction was comprehended. In fact, this situation required the both speakers of English to ask for clarification but either the instructor pilot or the student pilot failed to comply with ICAO language standards. All of these issues pointed to the need for a course program with more emphasis on clarification strategies.

Another situation of communication breakdown took place in March 2019 at John F. Kennedy airport in the USA. The communication breakdown was between the pilot of a jet-engine passenger aircraft and an air traffic controller. Based on the reporting considering the incident, it can be concluded that two similar aircraft callsigns caused the problem because while the air traffic controller were trying to speak with the pilots of the intended flight and give the aircraft take-off clearance, the controller suddenly realized that the aircraft on the departure roll was actually another aircraft with a similar sounding callsign. However, the pilots of the intended flight were unable to identify the difference between the sounding of their own callsign and that of the other flight. In the end, this situation caused the wrong flight to be coordinated which might have caused even a mid-air collision. To prevent such issues, ICAO language standards requires aviation personnel to be capable of comprehending the work-related topics.

As exemplified with two most recent incidents, teaching English for Specific Purposes to professionals in aviation has become much more important than ever. However, it requires a great deal of hard work before any Aviation English course can be offered and the starting point for such a purpose should be the analysis of needs, as always. Instrumenting a needs analysis before an Aviation English course is a must to define the expected outcomes of the target language which are the language abilities to be acquired and expected to be used in the target situation.

However, the concept of language ability is quite abstract so 'ability' should be defined explicitly to assess the target language competency (Park, 2018, p. 198). So, the expectations were defined by ICAO (2006) under six topics namely pronunciation, structure, vocabulary, fluency, comprehension, and interactions. For each topic, the learners are required to meet the minimum 'Level 4 Operational' standards.

To exemplify, the learners' "pronunciation, stress, rhythm, and intonation are influenced by the first language or regional variation but only sometimes interfere with ease of understanding" (ICAO, 2006). What's more the learners "vocabulary range and accuracy are usually sufficient to communicate effectively on common concrete, and work-related topics" (ICAO, 2006). For these reasons, taking such standards into account, the assessment of learners' present situation to the extent they can meet those requirements (lacks), learners' expectations from ESP courses (wants), and the target

situation demands (necessities) should be the basis of Aviation English needs analysis studies.

Seminal contributions have been made by several researchers to develop Aviation English courses (Aiguo, 2008; Kim & Elder, 2009; Downey, Suzuki, & Van-Moere, 2010; Douglas, 2014; Koparan, 2016; Sahin & Secer, 2016; Barkhordari & Chalak, 2017; Park, 2018; Karimi, Lotfi, & Biria, 2019).

In an attempt to develop a suitable approach to Aviation English courses in China, Aiguo (2008, p.161) researched the ESP setting in the country and proposed some changes such as increasing the teaching time of aviation phraseology, improving listening skills of learners, increasing the pronunciation accuracy, and expanding professional knowledge.

Differently, Kim and Elder (2009, p. 23) focused on learners' pronunciation and the threats their wrong pronunciation may pose on aviation safety, and they suggested that communication in aviation is quite a complex process and the courses should be expanded to cover the samples of a broader range of communication breakdowns.

Apart from these studies on a variety of topics on Aviation English, Koparan (2016) analyzed the motivating factors for learners to learn Aviation English and put forward the needs of these learners for a better design of Aviation English course curricula in her more recent study. Her study is quite valuable in that it is one of the limited researches in Turkey aiming at digging out learners' needs regarding vocabulary learning in aviation context.

Another significant study existing in the literature was completed by Şahin and Seçer (2016). They wanted to find out "the challenges encountered in the use of video as audio-visual material as a warm-up activity in Aviation English course at high school level" (Şahin & Seçer, 2016, p. 860). Based on their findings they suggested a redesign of Aviation English curriculum to have a positive effect on learners' motivation and participation. However, despite significant efforts in the field, previous research still lacks a focus on the needs of learners of Aviation English at tertiary level.

This section pointed out previous contributions and the deficiencies in the extant research. Therefore, the current thesis study is expected to present precious information to ESP practitioners and other professionals in the field of Aviation English and fill in the gap in the literature regarding a comprehensive needs analysis of Aviation English learners.

Chapter 3
Methodology

In prior research, various research designs have been preferred by scholars and a number of methods have been used to assess learners' needs. Each has its own advantages and drawbacks. This chapter seeks to explain the methodological rationale of current study firstly by presenting a brief overview of the research paradigm and research design, and then by mentioning setting, participants, data collection instruments, data collection procedures, data analysis, reliability, validity, and limitations. Research questions pertaining to the methodological framework of this study are reminded as follows:

1. What are the language needs of Aviation English learners at a national state university in Turkey to meet the ICAO language standards in terms of lacks, wants, and necessities?
2. What are the expectations of Aviation English learners at a national state university in Turkey from Aviation English courses?
3. What are the perceptions of Aviation English learners at a national state university in Turkey towards Aviation English?

3.1 Philosophical Paradigm

Paradigm can be worded as "the consensual set of beliefs and practices that guide a field" (Morgan, 2007, p. 49). According to Kuhn (1962) it is the group of perspectives and suppositions concurred by scientists about how issues can be fathomed. Similarly, Doyle, Brady, and Byrne (2009) state any research paradigm that a researcher takes in is a consolidation of that researcher's world view. It is further explained by Kuhn (1962) that a research paradigm is made up of two features: first of all, it should be remarkable enough to engage persistent group away clashing methods of logical activity. The second feature is that it should be "sufficiently open-ended to leave all sorts of problems for the redefined group of practitioners to resolve" (Kuhn, 1962, p. 10). In the light of the literature related to research paradigm, the three most common paradigms are positivism, constructivism, and pragmatism. To briefly

mention them, positivism takes on the idea that there is a single reality and it can be comprehended by making use of quantitative methods. Contrastively, constructivism sets forth the idea that there is no single reality. For this reason, constructivists believe that qualitative methods should be utilized to interpret these multiple realities. Finally, pragmatism claims that the reality is continuously interpreted and debated so the most suitable method should be the one which solves the problem to understand the reality. Based on the positivist and constructivist paradigms, quantitative and qualitative research methods are the two most common ways to conduct a research.

On one hand, quantitative research is characterized as the precise examination of marvels by gathering quantifiable information and performing measurable, scientific or computational systems (Creswell, 2003). It assembles data from existing and potential samples utilizing testing techniques and conveying on the web reviews, online surveys, polls and so forth, the consequences of which can be portrayed numerically. Quantitative research is for the most part led in social sciences to gather quantitative information and in this exploration technique, researchers convey scientific systems and hypotheses that relate to the amount under inquiry (Singh, 2007). The outcomes accomplished from this exploration strategy are logical, factual and unprejudiced (Dörnyei, 2007). Data collection takes place by utilizing an organized technique and directed on bigger examples which speak to the whole population. Similarly, in the first phase of current research, quantitative research method was preferred due to the nature of the study. The aim was to gather information about tertiary level ESP students in terms of their sociocultural backgrounds and language competencies so that a reliable analysis of their needs could be identified. Dörnyei (2007) states "the main data collection method in surveys is the use of questionnaires" (p. 101). That's why, a needs analysis questionnaire was developed and utilized to serve for the purposes mentioned above.

On the other hand, qualitative research is essentially an exploratory research and it differs from quantitative research in many ways. For instance, qualitative research is utilized to pick up a comprehension of hidden reasons, assessments, and inspirations. It also gives bits of knowledge into the issue or creates thoughts or theories for potential quantitative research. What's more qualitative research is conducted to reveal some conclusions and jump further into the issue. Qualitative information gathering strategies vary utilizing unstructured or semi-organized systems. Most commonly, the techniques incorporate focus group discussions,

individual interviews, and participation/observations. The example size is normally smaller when compared to that of quantitative research, and respondents are chosen to satisfy a given amount. In short, qualitative methods offer an effective way of setting forth the focal point of a research study. Despite the variety of techniques in qualitative research, the most common way of collecting qualitative data is conducting interviews (Dörnyei, 2007, p. 134; Ary et al., 2010). That's why in the second phase of current study qualitative research method was utilized in order to gain insights into specific needs, wants, and necessities of tertiary level ESP students. To do so, individual interviews were applied to make the research study more reliable and underpin the implications of the first phase of the same study.

Other than quantitative and qualitative research designs which are advocated by positivists and constructivists, mixed method research has also gained popularity over the last few decades in social sciences. Saunders, Lewis, and Thornhill (2012) stated "there are many different ways of interpreting the world and undertaking research, that no single point of view can ever give the entire picture and that there may be multiple realities". Also, various researchers have debated the concepts, methods, and standards of quality for studies that utilize a combination of qualitative and quantitative approaches (Creswell, 2003; Greene & Caracelli, 1997; Miles & Huberman, 1994; Newman & Benz, 1998; Tashakkori & Teddlie, 2003). Creswell (2003) defines the purpose of mixed research design as to "simultaneously collect both quantitative and qualitative data, merge data, and use the results to understand a research problem"(p. 557). Furthermore, Bazeley (2018) suggests the way researchers choose a research design should definitely be led by their research questions, and Robinson (1991) lists different methods for needs analysis studies such as interviews, questionnaires, tests, authentic data, and case studies. Johnson and Onwuegbuzie (2004) shed light on mixed methods research stating it "truly opens up an exciting and almost unlimited potential for future research" (p. 20). In the light of relevant literature, pragmatist research paradigm and mixed method research design with a combination of a questionnaire and individual interviews was preferred as it was thought to be the most suitable design for the purpose of finding answers to the research questions of current study and of having a clear view of learners' needs. Having explained the methodological rationale behind the current study briefly, the following chapter will present an in-depth analysis of the preferred research design.

3.2 Research Design

The main purpose of current study was to give insight into the needs of tertiary level Aviation English learners with a specific interest in helping these learners meet the language standards set by ICAO. Previous literature showed that in needs analysis studies, researchers (Akyel, & Özek, 2010; Park, & Slater, 2015; Alsamadani, 2017; Poedjiastutie, & Oliver, 2017) mostly utilized mixed method research design. However, it was reported by Tashakkori and Teddlie (2003) that there are forty mixed-methods research designs. In this study, mixed-methods sequential explanatory design was preferred. Ivankova, Creswell, and Stick (2006) state that it includes collecting and analyzing quantitative and then qualitative data in two consecutive phases within one study. Creswell (2003) also comments that the overall intent of it is to have the qualitative data help explain in more detail the initial quantitative results. In the light of this information, the quantitative data was collected by means of a needs analysis questionnaire and it was followed up by structured individual interviews.

In terms of quantitative data, a needs analysis questionnaire was developed as there was no other survey in the previous literature with the same focus of research area as current study did. Basically, the whole process of developing the questionnaire included some basic steps as suggested by Gillham (2015): thematic analysis of the relevant literature, item generation, content adequacy assessment, pilot study, questionnaire administration, factor analysis, reliability analysis, and validity analysis, which will be explained in detail in the following chapters.

In terms of qualitative data, structured individual interviews were conducted. The use of interviews was a supplement to the quantitative data. By doing so, more precise outcome of the research study was intended. Questions addressed to interviewees were drawn based on the set of standards which had been defined by ICAO. The expected contribution of utilizing interviews was to get more information about learners' present situation (lacks), learning situation (wants), and target situation (necessities) regarding the Aviation English courses. Herewith, the data gathered from each component of mixed method research design was analyzed separately as quantitatively and qualitatively, and then the findings were reviewed to come up with satisfactory answers to the research questions of current study.

3.3. Setting and Participants

3.3.1 Setting. The study was carried out with tertiary level ESP students in Turkey during the spring semester of 2018-2019 academic year. In Turkey, Aviation English courses have been gaining popularity in Turkey as the demand on highly qualified personnel increases continuously, and such courses can be accessed easily thanks to various institutions offering these courses.

In this sense, as of 2019, there are various departments of universities which offer Aviation English courses. Out of total 26 universities in Turkey, 13 universities have a department or a faculty offering 4-year programs on aviation. The rest of those universities offer 2-year programs on aviation. On the other hand, there are some universities which offer higher education programs like Civil Aviation Cabinet Services Program. The point where all of these programs meet on common grounds is that they all require students to take Aviation English courses for at least one semester. Moreover, it is even compulsory to take both Aviation English course and Aviation Phraseology course.

On the other hand, there exist a considerable number of language schools with a dedicated course program on Aviation English. The number of such schools in Turkey is at least 10 under different names. This is, of course, just the tip of iceberg because the available courses are not limited to these language schools or tertiary programs.

The majority of Aviation English courses with a specific focus on ICAO Language Proficiency Test are offered by Aviation schools and Turkish Airlines. As of 2019, there are 6 institutions accredited by the Turkish civil Aviation Authority to hold ICAO Language Proficiency Test in Turkey which are namely ‘Özyeğin University’, ‘Akademi Havacılık’, ‘Türkiye Havayolu Pilotlari Derneği İktisadi İşletmesi (TALPA)’, ‘University of Turkish Aeronautical Association’, University of Girne’, and ‘AEC Özel Eğitim Hizmetleri’. What’s more Turkish Aviation Academy under the supervision of Turkish Airlines, national flag carrier of Turkish Republic, offers courses such as ‘Aviation English 1 (Cabin)’, ‘English Speaking Skills for Ground Handling’, ‘Introduction to Aviation English 1 (Cockpit)’, ‘Introduction to Aviation English 2 (Cockpit)’, Introduction to Cargo English (General)’, ‘English for Building Business Relations’, ‘English for E-mails’, and ‘English for Negotiations’.

In conclusion, the rise of the importance of Aviation English in Turkey and the number of Aviation English courses offered within the borders of Turkey require a suitable course program for learners of Aviation English, and in this context, it is a must to pioneer these institutions with needs analysis studies presenting valid and reliable data on these learners' needs for a successful and effective ESP teaching.

3.3.2 Participants. The current study was carried out with tertiary level students who were studying in a state university located in northeastern part of Turkey. It is recommended by most scholars that the sample size should be at least 300 (McCrosky & Young, 1979; Henson & Roberts, 2006; Pett, Lackey, & Sulivan, 2003; Worthington & Whittaker, 2006). Of the total 374 respondents who were selected for the study, 323 returned a valid questionnaire. Moreover, "Comrey and Lee (1992) provided a guide: 50 (very poor), 100 (poor), 200 (fair), 300 (good), 500 (very good), and 1000 (excellent)" (Comrey and Lee, 1992 as cited in Carpenter, 2018). The sample was specifically chosen as the sampling group was thought to be appropriate for the purpose of the study in two ways: First, this group of participants would need to meet the ICAO standards as part of their profession so their needs could be regarded as a perfect match for the researcher's purpose in this study. Second, the selected group were about to complete the preparatory class at the time this study was planned to be conducted so the differences within the participants in terms of language competency would be minimum, which would lead to more consistent data set for the researcher. What's more the participants' English proficiency level had been determined at the beginning of 2018-2019 academic year (October 2018) in which the study took place, and Pearson placement test had been utilized to determine the participants' level by the Foreign Languages Department of the university in which students were enrolled. Based on students' scores on the Pearson placement test, all of the participants were at A1 level of English Language Proficiency. Also, the English language curriculum is the same for all of the participants for a total of five-year (10 semesters) academic education: the first year (first and second semesters) consists of a compulsory preparatory class as part of which students have to take 30 hours of General English (GE) classes per week; in the second year (third and fourth semesters) 8 classes of GE; in the third year (fifth and sixth semesters) 8 classes of GE; in the fourth year (seventh and eighth semesters) 8 classes of GE; and in the last year (ninth and tenth semesters) 3 classes of Aviation English.

The structured individual interviews were held with the students from the same target population. In the first phase of the study, the participants had been informed about the second phase of the study and were asked whether to voluntarily take part or not. Of all respondents to the questionnaire, 23 students volunteered to join the second phase, and 10 students were interviewed in the second part of the study. This enabled the researcher to get insights into the expectations of learners from Aviation English courses and to discover learners' perceptions towards Aviation English so that the researcher can compare and contrast the initial findings of the first phase of the study with that of the second phase. The detailed analysis of data pertaining to the questionnaire and structured individual interviews were presented in Chapter 4.

3.4 Procedures

In this section of the study data collection instruments, data collection procedures, data analysis procedures, reliability and validity of the study were discussed respectively.

3.4.1 Data Collection Instruments. The current study instrumented a needs analysis questionnaire and structured individual interviews as data collection instruments. The researcher sought for answers to the first research question (RQ1: What are the language needs of Aviation English learners at a national state university in Turkey to meet the ICAO language standards in terms of lacks, wants, and necessities?) by utilizing the needs analysis questionnaire. Similarly, second (RQ2: What are the expectations of Aviation English learners at a national state university in Turkey from Aviation English courses?) and third (RQ3: What are the perceptions of Aviation English learners at a national state university in Turkey towards Aviation English?) research questions were investigated by conducting interviews.

3.4.1.1 Questionnaire. The major interest of scientific research is to seek answers to the research questions in a systematic way and the instrumentation of questionnaires has become quite popular in the social sciences (Dörnyei, 2007, p. 101). Despite its common use in the field, developing a questionnaire is a long and challenging process because it is not enough to have good word processing software in order to design a questionnaire. Hinkin (1995) recommended a process that includes

some necessary steps to be taken to ensure the validity and reliability. According to Hinkin (1995, p. 969) these steps were creating an item pool, getting experts' opinion, pilot study, and validity and reliability analysis. These suggested steps were exactly taken when developing the questionnaire.

The first step was creating an item pool and the items were generated deductively. "Deductive scale development uses a theoretical definition of a-construct which is then used as a guide for the creation of items" (Schwab, 1980 as cited in Hinkin, Tracey, and Enz, 1997, p. 103). The basis for the generation was ICAO Language Proficiency Descriptors (see Appendix A). The items were generated to be understood by the respondents easily so that meaningful responses could be gathered. The researcher tried to keep the items as short as possible and the number of reverse-items was kept at the minimum to properly construct the questionnaire as a whole. The item pool consisted of 58 items in total.

As part of the second step the researcher was required to group the items that have commonality. Although there were various methods to do it, the most common method suggested by Hinkin, et al. (1997) was the categorization of items "based on their similarity to construct definitions" (p. 104). However, pretesting of items was necessary for such groupings. Carpenter (2018) also stated pre-tests on smaller samples were functional and item feedback could be applied to see how the data would fall to decide whether any items should be removed, or some new items should be written (p. 33). To do so, a pilot study was conducted with 60 students who were randomly selected and were not included in the main study.

The number of participants was decided based on suggestions of scholars in previous literature. For instance, Connelly (2008) suggested that a pilot study sample should be 10% of the sample researched for the main study. However, Hertzog (2008) cautioned that this was not a straightforward thing to resolve because these types of studies were influenced by many factors. Nevertheless, Isaac and Michael (1995) suggested 10 – 30 participants, and Hill (1998) offered 10 to 30 participants for pilots in survey research. As a result, 60 participants were thought to be appropriate for the piloting of the survey.

The questionnaire of the pilot study consisted of 58 items which were taken from the item pool, and the survey was accessed by students online via Google Forms web page. Upon the completion of pilot study, the data was analyzed statistically with Statistical Package for The Social Sciences (SPSS) version 23 to check validity and

reliability, and inter-item correlation (Appendix D). The analysis was also performed to assess whether any item reduction or grouping was necessary. Churchill (1979) stated a high coefficient alpha score indicates strong item covariance. Moreover, Carpenter (2018) asserted "the final scale, however, should not contain insufficiently distinct items that inflate reliability levels and have a negative impact on the goal of parsimony. In fact, high coefficient alpha levels may suggest an over-inclusion of certain items" (p. 40). That's why, the analysis of pilot study was shared with an expert from the University of South Florida to ensure that the questionnaire was reliable before conducting the main study. Based on the expert feedback on the relevant analysis, it was concluded that the questionnaire had to be refined so that the repetitive items were excluded from the main research instrument. After refining the items, final version of the "Aviation English Needs Analysis Questionnaire" (see Appendix B) was shaped with 29 items in total. The items were grouped based on their similarity and the classification given by Hutchinson and Waters (1987) who divided target needs into three as lacks, wants, and necessities. Similarly, the survey consisted three different sub sections specifically analyzing the target needs of learners based on the classification explained previously. In the first part of the questionnaire (Part A), demographic data of the participants was collected. In the second part (Part B), researcher attempted to collect data related to learners' 'lacks' which consisted of six items. The third part of the questionnaire (Part C) included items related to learners' 'wants', and the number of items in this part was five. Finally, the fourth part of the questionnaire (Part D) consisted of 18 items with a purpose of analyzing 'necessities' of the desired target situation of learners. This step of grouping items based on their similarity and function as 'lacks', 'wants', and 'necessities' was taken to ensure that the development of the questionnaire was parallel to the necessary steps suggested by Hinkin (1995).

The next step in constructing the research instrument of this study based on Hinkin's (1995) suggestions was administering the main study. The main disagreement among scholars when developing a questionnaire has been on the sample size with just one exception regarding that the higher number of participants will result in more reliable data. In short, the debate over the sampling size can be summed up as follows: a sample size of minimum 300 is recommended by the majority of scholars (McCrosky & Young, 1979; Henson & Roberts, 2006; Pett et al., 2003; Worthington & Whittaker, 2006). On the other hand, a minority of scholars present different

opinions from these scholars. For instance, Comrey and Lee (1992) defined a sample size of 50 as very poor; 100 as poor; 200 as fair; 300 as good; 500 as very good; and finally, 1000 as excellent. Moreover, Brown (2006) suggested minimum of 100 to 200 sample size for conducting a reliable factor analysis (p. 413). In the light of the existing literature, the main study's research instrument of needs analysis questionnaire was shared with 374 students online via Google Forms, the number of valid responses to the main research instrument was 323.

3.4.1.2 Structured Individual Interviews. The second data collection instrument of this study was structured individual interviews. In terms of interviews' format, a "pre-prepared, elaborate interview schedule/guide" (Dörnyei, 2007, p. 135) was followed. This format included a specific list of questions (see Appendix C) to be asked to each interviewee so that the answers could be compared across different interviewees. The main advantage of structured interviews was that it made the researcher sure that the interviewees' focus was on the target topic. Also, it enabled the researcher to get more reliable information through instant questions at times when a clarification was needed (Ary, Jacobs, and Sorensen, 2006). At the end of the questionnaire, the participants had been asked whether to voluntarily take part in the second phase of this study which was structured individual interviews. Based on the responses to that question, the sample was chosen randomly among these volunteers, and the interviews were held online with 10 students as face-to-face interview was not a chance in terms of the timing of data collection of the second phase. All of the participants were male and they were informed on the confidentiality of interviews. Moreover, they were sent a consent form online before the interviews were conducted and the interviews took approximately 10-15 minutes each.

3.4.2 Data Collection Procedures. The quantitative and qualitative data of this study were collected between June 3 and July 5, 2019. In order to save time and make the process of filling in the questionnaire as intriguing as possible, the first phase of this study that included quantitative data collection was structured in the form of an online survey format on *Google Forms* which also enabled the researcher to reach a large number of participants more easily. An informative notice was given by the researcher in the beginning of the questionnaire related to the confidentiality, purpose

and the scope of the study. The link for access to the questionnaire was shared with 374 students via e-mail and 323 students filled in the questionnaire fully.

The survey was generated in English however it was translated into Turkish and conducted in Turkish as well. The reason was that the questionnaire included language proficiency descriptors which could have been difficult for the participants at A2 English proficiency level to comprehend them in English, and it could have resulted in unreliable data.

The questionnaire consisted of two main parts: part 1 aimed at collecting demographic data and students' educational background. Part 2, on the other hand, had items aimed at determining learners' needs under some sub-sections. In brief, after collecting quantitative data in Turkish, the responses were carefully analyzed by the researcher to make inferences about the research questions. In the second phase of this study, qualitative data was collected through structured individual interviews. Similar to the questionnaire, interviews were conducted in Turkish to get more reliable data from the interviewees and each interview was recorded for the analysis. The recorded data was then translated into English with an expert in the field of Translation and Interpreting. Finally, the data was pattern-coded and necessary implications were drawn up.

3.4.3 Data Analysis Procedures. The analysis of quantitative data is done through numbers and mathematical processes (Walliman, 2006). Similarly, the quantitative data analysis of this study was carried out through IBM SPSS version 23. First of all, descriptive statistics including means, standard deviation, and percentages were measured in order to see the distribution of both demographic and educational background of participants. Then, the data obtained in the second (Part B), third (Part C), and fourth (Part D) parts of the questionnaire which were directly related to defining learners' lack, wants, and necessities was analyzed thoroughly (Research Question 1).

This analysis included the inter-item correlation, reliability, and item-total statistics. "NA is considered a crucial component of systematic curriculum development" (Kumazawa, 2006, p. 2) and this study aimed at providing insight to curriculum developers in the field ESP, so each part of the questionnaire was separately analyzed to ensure internal validity and construct validity. To do so, an exploratory factor analysis was carried out and according to Fraenkel and Wallen (1996) it helps

researchers determine if the number of variables can de reduced so that the same variables can de described by few factors.

This process, first of all, included checking the factorability of the data through Kaise-Meyer-Olkin (KMO). It is suggested that the KMO value should be interpreted as Mediocre if the value is between 0.5 - 0.7; good if the value is between 0.7 - 0.8; and very good if the value is 0.8 - 0.9 (Field, 2009). The KMO value for each part of the questionnaire is given in the following table (Table 1).

Table 1

KMO values of Part B, C, and D, and Bartlett's test scores

	Part B	Part C	Part D
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	,707	,721	,749
Bartlett's Test of Sphericity- Approx. Chi-Square	821,27	616,75	5387,08
Bartlett's Test of Sphericity- df	15	10	153
Bartlett's Test of Sphericity- Sig.	,000	,000	,000

The KMO value for each part was measured as '.707', '.721', and '.749' respectively indicating a good factorability of the data (Field, 2009). Moreover, according to Bartlett's Test of Sphericity, small values (less than 0.05) of the significance level (Sig.) indicate that a factor analysis can be useful, which are '.000' for all parts of the questionnaire. Having reached a good sampling adequacy based on KMO value and proved significance of items based on Bartlett's Test of Sphericity, the second set of analysis was run via the same software.

It was put forward by Dunteman (1989) that there are various criteria to determine the number of factors to be attained which are namely Eigenvalues statistics, Scree test, total variance percentage method, Joliffe criteria, explained variance criteria, and determining the number of factors by the researchers. In the light of this information, a maximum likelihood analysis was conducted on each part of the questionnaire with direct oblimin rotation so that the factors could be extracted by taking the Eigenvalue of 1.0 as the cut-off point as described by Field (2009, p. 640).

Also, the scree plots of each part indicated the sharp descents and leveling off in each part of the questionnaire indicating the number of factors to be extracted. Besides, the factor matrixes based on maximum likelihood method showed the

correlation between variables and factors. According to the results of this factor analysis, two components had Eigenvalues over Kaiser's criterion of 1.0 in Part B (lacks), and these two factors extracted from Part B are shown in Table 2.

Table 2

Factor analysis of Part B (lacks)

	Factors					
	1	2	3	4	5	6
Percentage of Variance	51.4	21.2	10.9	7.7	5.3	3.2
Eigenvalue	3.0	1.2	.63	.44	.37	.19

As can be seen in Table 2, factor analysis extracted 2 factors out of 6 items. These items were related to students' lacks in terms of language skills in the target situation.

The factor analysis of Part C (wants) indicated that two components had Eigenvalues over Kaiser's criterion of 1 in Part C and they are shown in Table 3.

Table 3

Factor analysis of Part C (wants)

	Factors				
	1	2	3	4	5
Percentage of Variance	54.5	20.8	12.3	8.0	4.0
Eigenvalue	2.7	1.0	.62	.45	.27

The results pertaining to the factor analysis of Part D (necessities) indicated that two components had Eigenvalues over Kaiser's criterion of 1 in Part D and they are given in Table 4.

Table 4

Factor analysis of Part D (necessities)

	Factors									
	1	2	3	4	5	6	7	8	9	10
Percentage of Variance	44.4	11.5	10.6	7.4	4.7	4.2	3.6	3.1	1.9	1.7
Eigenvalue	8.0	2.0	.91	.88	.85	.76	.65	.57	.35	.31

The second phase of this study was structured individual interviews which were conducted with 10 students. The interviews were held in Turkish in order to get more detailed data from the students and to make the participants feel more relaxed to give more sincere answers to the questions. Then the answers were translated into English with an expert in the field of Translation and Interpreting. Finally, the relevant data was analyzed qualitatively. Saldaña (2016) defined coding as a way of summarizing segments of data and pattern coding as "a way of grouping those summaries into a smaller number of categories, themes, or concepts" (p. 236). Similarly, the qualitative data was pattern-coded to get a better idea on learners' needs regarding the Aviation English courses. After the whole process of pattern coding the raw data, 3 main themes emerged: 'Active User of the Language', 'Professional Development' and 'Aviation Safety' which are discussed in detail in Chapter 4.

3.4.4 Reliability and Validity. The questionnaire of current study was developed by the researcher as there was no other scale existing in the previous literature. The steps for the generation of the scale were explained in the previous section. To briefly remind the previously discussed issue, the questionnaire was first of all developed by generating an item pool, getting experts' opinions, conducting a pilot study with a sample size of 60, analyzing the pilot study quantitatively to check the reliability, refining the reverse items and repetitive items to increase and reliability. The final step was conducting the main study with 323 students all of whom returned valid responses to all the questions in the questionnaire.

The sample size was enough to get reliable data based on scholars' suggestions (McCrosky & Young, 1979; Comrey & Lee, 1992; Henson & Roberts, 2006; Pett, Lackey, & Sulivan, 2003; Worthington & Whittaker, 2006). The survey utilized a 5-point Likert type scale (1 "Strongly Disagree"; 2 "Disagree"; 3 "Neither agree nor disagree"; 4 "Agree"; 5 "Strongly agree") to serve for the purpose of determining language needs of tertiary level ESP learners with a specific focus on Aviation English courses. In short, the validity and reliability of the scale can serve as a great tool to make inferences on a similar group of learners in aviation context in the future.

As for the reliability, Nunnally (1978) made a distinction between the reliability of instruments in basic researchers and applied researches indicating that a Cronbach Alpha coefficient of .70 or higher should be reached in basic researches whereas the same score should be .80 or higher in applied researches, and in cases such as when important decisions are made on the basis of test scores, reliability should be at least .90, preferably .95 or better (p. 245). So, the Cronbach alpha score of pilot study had been measured as .932 which could be regarded as quite good.

As stated before, there were several suggestions for the Cronbach Alpha coefficient but the common point where researchers meet was that the reliability score must be .80 or higher. After running the reliability test via SPSS version 23, the reliability score of the questionnaire indicated that the results of this research are highly reliable. The Cronbach Alpha score of the questionnaire is given in Table 5.

Table 5

Cronbach Alpha Score of the questionnaire after main study

	Cronbach Alpha	Cronbach Alpha based on standardized items	N of items
Main Study Questionnaire	.893	.898	29

3.5 Limitations and Delimitations

There exists a number of limitations and delimitations in this study. Firstly, in terms of target group, there exists no other study with tertiary level Aviation English learners in the previous literature. Moreover, this study can be regarded as the very

first research in Turkey on language needs of Aviation English learners regarding the requirement of meeting ICAO language standards.

Another delimitation of this study was that it did not only determine the needs mentioned above but also it served as a guideline to develop an effective Aviation English curriculum in Turkey, and to redesign the existing curricula to match with learners' lacks, wants, and necessities. Nonetheless, it also had some limitations. For instance, although it was conducted with a significant number of participants, its scope can be further widened in the future. Also, this study should be replicated during the learning process and at the end of learning process to get better insight into the learning situation and target situation so that any necessary changes can be implemented for the benefit of learners.

Chapter 4
Results

4.1 Overview

The purpose of this study was to analyze language needs of Aviation English learners in Turkey so that these learners can meet language standards set by ICAO and more suitable curricula can be developed for the same learner group. In the first part of this chapter descriptive statistics of data collected from 323 participants by means of "Aviation English Needs Analysis Questionnaire" is presented. Then, comparative analyses of both quantitative and qualitative data are set out for each research question to further elaborate on the research problem stated by the researcher.

4.2 Descriptive Statistics

Several analyses were performed using computer software called SPSS version 23 and responses to the questionnaire were compared by checking frequencies, standard deviation, mean, and Pearson correlation coefficient values.

Table 6

Demographic data pertaining to participants of main study

	Variables	N	(%)
Gender	Male	321	99,4
	Female	2	0,6
Age	18	59	18,3
	19	216	66,9
	20	48	14,9
Learning Experience	0-1 year	12	3,7
	1-3 years	36	11,1
	3-6 years	56	17,3
	6-10 years	12	3,7
	More than 10 years	207	64,1
Learning Circumstances	In a language school	4	1,2
	Compulsory education	317	98,1
	Abroad	2	0,6
	With a tutor	0	0

Note: N: Number of responses, %: Percentage of responses

The present study analyzed demographic background of the participants to correlate learners' previous learning situation with their previous learning experiences. Simple statistical analysis was used to get the frequencies of participants' responses to the questions in Part A.

Table 6 shows the summary statistics for the learning experience and learning circumstances. According to this proportion of frequencies, it can be concluded that most of the participants (*n*=207) had an experience of learning English for more than 10 years whereas 3,7% (*n*=12) students had the same experience for 6-10 years. Similarly, 17,3% (*n*=56) of participants (*n*=56) had experienced learning English for 3-6 years, 11,1% (*n*=36) had experienced for 1-3 years, and 3,7% (*n*=12) had learned

English only for maximum of 1 year at the time this study was conducted. When their learning circumstances were statistically analyzed, the results indicated that none of the participants had learned English with a tutor.

However, the majority of them (*n*=317) had received English language education as part of their compulsory education whereas %1,2 of the students (*n*=4) had learned English in a language school and 0,6% (*n*=2) of the students had learned English abroad. Table 7 presents the results obtained from the statistical analysis of Part A which included questions related to learners' familiarity with Aviation English and ICAO language standards.

Table 7

Analysis of participants' familiarity with Aviation English and ICAO language standards

	Variables	N	(%)
Are you familiar with Aviation English?	Yes	155	48,0
	No	168	52,0
Are you familiar with ICAO language standards in aviation?	Yes	83	25,7
	No	240	74,3

Note: N: Number of responses, %: Percentage of responses

The table provides statistical data on learners' familiarity with the requirements of their profession. According to it, 48% (*n*=155) of the students were familiar with Aviation English whereas 52% (*n*=168) were unfamiliar with the same variable. Also, majority of participants (*n*=240) were familiar with ICAO language standards in aviation whereas a minority of respondents (*n*=83) were unfamiliar with the same standards. The following table (Table 8) presents statistical analysis of respondents' own perception of their English language proficiency level based on The Common European Framework of Reference for Languages (CEFR) norms at the time this study was conducted.

Table 8

Respondents' own perceptions of their English language proficiency level

	Variables	N	(%)
What is your current speaking competency level in English?	A1	0	0
	A2	95	29,4
	B1	216	66,9
	B2	12	3,7
	C1	0	0
	C2	0	0
What is your current listening competency level in English?	A1	0	0
	A2	95	29,4
	B1	204	63,2
	B2	24	7,4
	C1	0	0
	C2	0	0
What is your current reading competency level in English?	A1	0	0
	A2	35	10,8
	B1	252	78,0
	B2	24	7,4
	C1	0	0
	C2	0	0
What is your current writing competency level in English?	A1	0	0
	A2	47	14,6
	B1	252	78,0
	B2	24	7,4
	C1	0	0
	C2	0	0

Note: N: Number of responses, %: Percentage of responses

This table indicates that majority of students (*n*=216) stated their speaking competency level in English as 'B1' whereas 29,4% (*n*=95) students were at 'A2' level and 3,7% (*n*=12) of them were at 'B2' level based on CEFR norms. On the other hand, data related to students' listening competency level revealed that majority of participants (*n*=204) were at 'B1' level whereas 7,4% (n=24) of students were at 'B2' level and 29,4% (*n*=95) of them were at 'A2' level in terms of listening competency.

The table also presented data on the participants' reading competency level. It is seen that most of the students (*n*=252) were at 'B1' level whereas 10,8% (*n*=35) were at 'A2' level and 7,4% (*n*=24) were at 'B2' level in terms of reading competency. Finally, it was presented in the table that participants were mostly (*n*=252) at 'B1' writing competency level whereas 14,6% (*n*=47) of them were at 'A2' level and 7,4% (*n*=24) of them were at 'B2' level of English writing competency.

The following table (Table 9) presents results pertaining to students' responses to the most difficult language skill to develop.

Table 9

The most difficult language skill to develop

	Variables	N	(%)
What is the most difficult skill for you to develop in English?	Listening	216	66,9
	Speaking	84	26,0
	Writing	23	7,1
	Reading	0	0

Note: N: Number of responses, %: Percentage of responses

According to the table above, majority of students (*n*=216) stated that listening is the most difficult skill to develop whereas 26,0% (*n*=84) of students regarded speaking as the most difficult one and 7,1% (*n*=23) of students chose writing as the most difficult skill. Finally, the following data explained the importance of English for aviation and students' profession (Table 10).

Table 10

The importance of English for students

	Variables	N	(%)
How important is English in aviation according to you?	Not at all important	0	0
	Slightly important	0	0
	Moderately important	0	0
	Important	83	25,7
	Extremely important	240	74,3
How important is it for you to learn English for your aviation career?	Not at all important	0	0
	Slightly important	0	0
	Moderately important	12	3,7
	Important	35	10,8
	Extremely important	276	85,4

Note: N: Number of responses, %: Percentage of responses

The table indicated that majority of students (*n*=240) regarded English as 'extremely important' whereas the rest of students (*n*=83) regarded it as 'important' for aviation. Additionally, 12 students (%=3,7) reported that learning English for their profession is 'moderately important' whereas 35 students (%=10,8) reported it as 'important' and 276 students (%=85,4) reported it as 'extremely important'.

4.3 Analysis of Research Questions

In this sub-heading, quantitative and qualitative data pertaining to each research question are presented for a better understanding of the research sample. There are four sub-sections as part of the analysis of research questions. The first sub-section covers the first research question which was developed for the purpose of defining students' language needs. On the other hand, the second sub-section provides an analysis of the second research question which aimed at discovering students' expectations from Aviation English courses. Finally, the last sub-section focuses on the third research question which aimed at getting insights into students' perceptions towards Aviation English.

4.3.1 RQ 1: Language needs of Learners. The first research question aimed at discovering language needs of Aviation English learners so that effective course programs can be designed for these learners to help them meet the language criteria set by ICAO. To come up with meaningful insights into this research question, the data collected from the participants by means of "Aviation English Needs Analysis Questionnaire" developed by the researcher was analyzed statistically with SPSS software version 23 and frequencies and descriptive statistics were investigated for each part of the questionnaire.

4.3.1.1. Part B: Lacks. The second part of the questionnaire (Part B) focused on discovering what learners lack in terms of language skills they would need in the target situation. The following table (Table 11) provides the results obtained from the descriptive analysis of Part B.

Table 11

Mean Score and Standard Deviation of Items in Part B

	Mean	Std. Deviation	N
1. I need to improve my pronunciation more than the other skills in aviation English.	4,07	1,019	323
2. I need to be a more fluent speaker of Aviation English.	4,33	,819	323
3. I need to break through the difficulty of understanding different accents of aviators.	3,18	,906	323
4. I need to improve my listening skill to meet the Aviation English language standards.	4,15	1,010	323
5. I need to improve my reading comprehension skill to meet the Aviation English language	3,64	1,276	323
6. I need to improve my oral communication skill to meet the Aviation English language standards.	4,37	,677	323

As Table 11 indicates the mean score of Item 6 regarding *I need to improve my oral communication skill to meet the Aviation English language standards* was found to be 4,37 while the mean score of Item 2 regarding *I need to be a more fluent speaker*

of Aviation English was 4,33 which means that these two items were the most agreed upon items among students. Also, it can be seen from the data in the table above that the mean scores of Item 4 regarding *I need to improve my listening skill to meet the Aviation English language standards* and Item 1 regarding *I need to improve my pronunciation more than the other skills in aviation English* were respectively 4,15 and 4,07 which made these items third and fourth mostly agreed items based on students' responses. On the other hand, the mean score of Item 3 regarding *I need to break through the difficulty of understanding different accents of aviators* was calculated as 3,18 which made it the least agreed upon item among students. Additionally, an exploratory factor analysis was run through SPSS to see the factor loadings of variables in Part B and the data pertaining to this analysis was explained with the table of below (Table 12).

Table 12

Factor Loadings of Variables in Part B

	Factors		
	1	2	h^2
Factor 1: Lack of pronunciation micro skill			
1. I need to improve my pronunciation more than the other skills in aviation English.	.99		.41
Factor 2: Learners' lacks in macro skills			
2. I need to be a more fluent speaker of Aviation English.		.73	.58
3. I need to break through the difficulty of understanding different accents of aviators.		.73	.53
4. I need to improve my listening skill to meet the Aviation English language standards.		.89	.69
5. I need to improve my reading comprehension skill to meet the Aviation English language standards.		.60	.43
6. I need to improve my oral communication skill to meet the Aviation English language standards.		.61	.44

The table indicates that two factors were extracted after the factor analysis. The first factor with the Eigenvalue of 3,085 accounted for 51,416% of all variances in Part B itself. On the other hand, the second factor with the Eigenvalue of 1,276 accounted for 21,259% of all variances in the same part. In short, the two factors extracted from the factor analysis were together able to account for 72,678% of all variances in Part B. While the loadings of the first factor (F1) was found to be .99 after the analysis, the loadings of the second factor (F2) ranged from a minimum value of .61 to a maximum value of .89 according to the results obtained from the same analysis. Labeled as *Lack of pronunciation micro skill,* the first factor (F1) was about learners' lack in terms of pronunciation in Aviation English whereas the second factor (F2) was labeled as *Learners' lacks in macro skills,* and it included items related to learners' lacks in terms of macro skills in Aviation English. In the light of the factor loadings, the following figure provides the factor plot of Part B which presents the distribution of items on each factor (Figure 8).

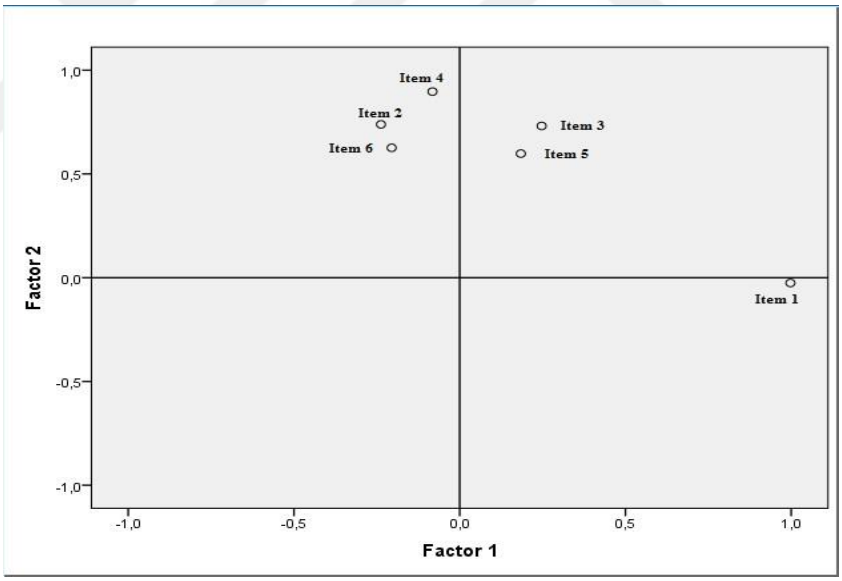

Figure 8. Factor Plot of Items in Part B

It is seen in the figure that all items in the relevant data appeared normal and the data followed a normal distribution in which no extreme outliers were apparent. Also, Item 1 regarding *I need to improve my pronunciation more than the other skills in aviation English* appeared to be one of the two factors extracted after the exploratory factor analysis whereas all other items in Part B (Item 2, 3, 4, 5, and 6) were grouped together as the second factor of this part related to lacks of students. So, the first factor

appeared to be the learners' lack of pronunciation micro skill whereas the second factor was learners' lacks in macro skills. The following table highlights the frequencies of students' responses to factor 1 in Part B (Table 13).

Table 13

Frequencies of Students' Responses to Factor 1 in Part B

Factor 1: Lack of pronunciation micro skill	1	2	3	4	5
1. I need to improve my pronunciation more than the other skills in aviation English.	0	36	48	95	144

Note: 1: Strongly Disagree, 2: Disagree, 3: Neither agree nor disagree, 4: Agree, 5: Strongly Agree.

The table shows majority of students (*n*=144) 'strongly agree' with the statement that they need to improve their pronunciation more than the other skills in Aviation English and 95 students also stated that they 'agree' with the same statement which indicated that learners' lack of pronunciation as a micro skill in the target situation is something 239 out of 323 participants agreed on. Table (14) presents frequencies for items forming Factor 2.

Table 14

Frequencies of Students' Responses to Factor 2 in Part B

Factor 2: Learners' lacks in macro skills	1	2	3	4	5
2. I need to be a more fluent speaker of Aviation English.	0	0	72	71	180
3. I need to break through the difficulty of understanding different accents of aviators.	0	96	84	131	12
4. I need to improve my listening skill to meet the Aviation English language standards.	0	36	36	96	155
5. I need to improve my reading comprehension skill to meet the Aviation	11	72	60	60	120
6. I need to improve my oral communication skill to meet the Aviation English language	0	0	36	131	156

Note: 1: Strongly Disagree, 2: Disagree, 3: Neither agree nor disagree, 4: Agree, 5: Strongly Agree.

This table shows 131 students ‘agree’ with Item 6 regarding *I need to improve my oral communication skill to meet the Aviation English language standards* whereas 156 students ‘strongly agree’ with the same statement which makes up a total of 287 responses out of 323 responses in total. Also, 36 students ‘disagree’ with Item 5 regarding *I need to improve my listening skill to meet the Aviation English language standards* whereas 36 students ‘neither agree nor disagree’. However, 251 students out of 323 either ‘agree’ or ‘strongly agree’ with the same statement. Also, 251 students stated that they either ‘agree’ or ‘strongly agree’ with Item 2 regarding *I need to be a more fluent speaker of Aviation English.* On the contrary, participants’ responses to Item 3 regarding *I need to break through the difficulty of understanding different accents of aviators* varied as follows: while 131 students seemed to ‘agree’ with this item, 96 students seemed to ‘disagree’ with it.

4.3.1.2. Part C: Wants. The third part of the questionnaire (Part C) focused on discovering what learners ‘want’ to learn in terms of language skills they would need in the target situation. The following table (Table 15) presents the results obtained from the descriptive analysis of Part C.

Table 15

Mean Score and Standard Deviation of Items in Part C

	Mean	Std. Deviation	N
7. It is essential for me to comprehend what I read in order to meet the Aviation English language standards.	4,26	,888	323
8. It is essential for me to comprehend oral messages in order to meet the Aviation English language standards.	4,63	,677	323
9. It is vital for me to understand written aviation documents in order to meet the Aviation English language standards.	4,26	,751	323

Table 15 cont'd

	Mean	Std. Deviation	N
10. It is vital for me to understand aviation related speeches in order to meet the Aviation English language standards.	3,27	1,320	323
11. Oral communication is vital for me to be competent in Aviation English.	4,41	,916	323

Note: N: number of responses.

By looking at the mean scores and standard deviations of items in Part C, it can be concluded from Table 15 that Item 8 regarding *It is essential for me to comprehend oral messages in order to meet the Aviation English language standards* has the highest mean score of 4,63. Moreover, it can be seen in the same table that Item 8 is also the one with the lowest standard deviation (σ8=,677).

Contrastively, the table presents the information that Item 10 regarding *It is vital for me to understand aviation related speeches in order to meet the Aviation English language standards* has the lowest mean score of 3,27 and it is also the item with the highest standard deviation (σ10=1,320) in the table. The mean scores of Item 11 regarding *Oral communication is vital for me to be competent in Aviation English* was found to be 4,41 whereas the same score of Items 7 regarding *It is essential for me to comprehend what I read in order to meet the Aviation English language standards* and 9 regarding *It is vital for me to understand written aviation documents in order to meet the Aviation English language standards* were found to be the same (4,26). However, the standard deviation of these items was different. While it was σ=,751 for Item 9, the same value for Item 7 was σ=,888. Moreover, an exploratory factor analysis was run through SPSS to see the factor loadings of variables in Part C and the data pertaining to this analysis was explained with the table below (Table 16).

Table 16

Factor Loadings of Variables in Part C

	Factors		
	1	2	h^2
Factor 1: Learners' wants in terms of comprehension			
7. It is essential for me to comprehend what I read in order to meet the Aviation English language standards.	.98		.66
8. It is essential for me to comprehend oral messages in order to meet the Aviation English language standards.	.80		.63
9. It is vital for me to understand written aviation documents in order to meet the Aviation English language standards.	.52		.43
11. Oral communication is vital for me to be competent in Aviation English.	.63		.46
Factor 2: Learners' wants in terms of comprehending oral communication			
10. It is vital for me to understand aviation related speeches in order to meet the Aviation English language standards.		.66	.42

Data pertaining to the analysis of factor loadings in Part C (wants) indicates that two factors were extracted based on extraction method of maximum likelihood. As it was explained before, there were two factors to have initial Eigenvalues of more than 1 and they explained 75,439% of all variances in Part C. Labeled as *Learners' wants in terms of comprehension*, the first factor (F1) accounted for 54.5% of all variance and included items referring to various issues pertaining to the comprehension skills in various aspects of Aviation English. Also, the loadings of variables ranged from .63 to .98 for factor 1. On the other hand, the second factor (F2), labeled as *Learners' wants in terms of comprehending oral communication*, accounted for 20.8% of all variance and included item 10 *It is vital for me to understand aviation related speeches in order to meet the Aviation English language standards*, the loading of which was found to be .66 after the analysis.

For a more meaningful explanation of these factors, factor plot of Part C was also analyzed carefully and the distribution of items in Part C are given in the figure below (Figure 9).

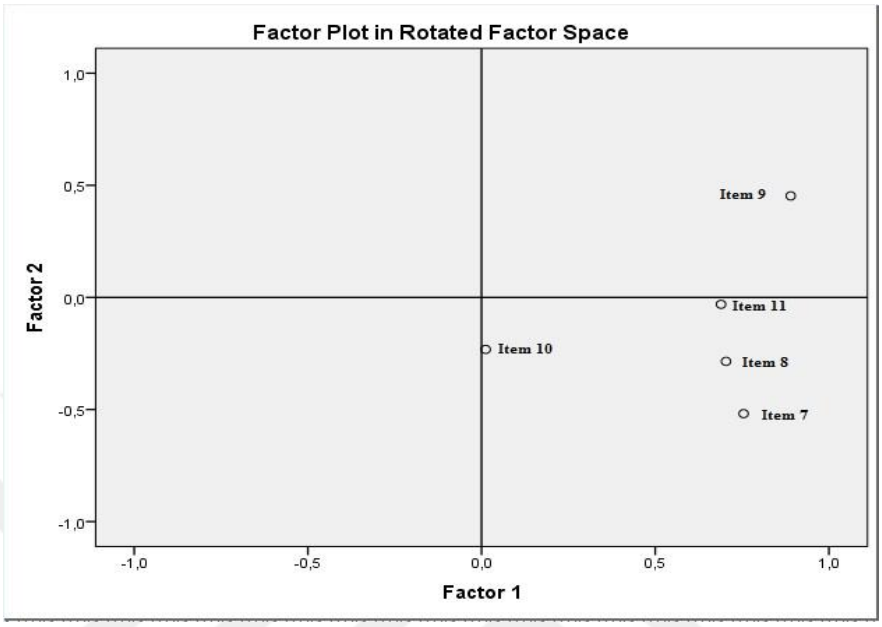

Figure 9. Factor Plot of Items in Part C

It can be seen in Figure 9 that items 7, 8, 9, and 11 in the relevant data appeared normal except Item 10. Also, the same data seemed to have followed a normal distribution in which only Item 10 appeared as an extreme outlier. While items 7, 8, 9, and 11 were grouped as a single factor, Item 10 was displayed as the second factor of Part C. Moreover, Item 7 regarding *It is essential for me to comprehend what I read in order to meet the Aviation English language standards*, Item 8 regarding *It is essential for me to comprehend oral messages in order to meet the Aviation English language standards*, Item 9 regarding *It is vital for me to understand written aviation documents in order to meet the Aviation English language standards*, and Item 11 regarding *Oral communication is vital for me to be competent in Aviation English* were given as Factor 1 and it was calculated to account for 54,597% of all variances in Part C. This factor was found to be explaining students' 'wants' in terms of their comprehension skills. On the other hand, Item 10 regarding *It is vital for me to understand aviation related speeches in order to meet the Aviation English language standards* was extracted as Factor 2 in Part C (wants), which was related to students' wants in terms of their competency in understanding oral communication and it was earlier found to explain

20,842 of all variances in this part of the questionnaire. The following table aims at highlighting the frequencies of students' responses to factor 1 in Part C (Table 17).

Table 17

Frequencies of Students' Responses to Factor 1 in Part C

Factor 1: Learners' wants in terms of comprehension skills	1	2	3	4	5
7. It is essential for me to comprehend what I read in order to meet the Aviation English language standards.	0	24	24	119	156
8. It is essential for me to comprehend oral messages in order to meet the Aviation English language standards.	0	0	36	48	239
9. It is vital for me to understand written aviation documents in order to meet the Aviation English language standards.	0	0	60	120	143
11. Oral communication is vital for me to be competent in Aviation English.	0	24	24	71	204

Note: 1: Strongly Disagree, 2: Disagree, 3: Neither agree nor disagree, 4: Agree, 5: Strongly Agree.

The table above indicates that most of the students (*n*=275) chose either 'agree' or 'strongly agree' for Item 1 regarding *It is essential for me to comprehend what I read in order to meet the Aviation English language standards* and the same number of responses (*n*=275) could also be seen in Item 11 regarding *Oral communication is vital for me to be competent in Aviation English*. Similar number of responses could be seen in Item 8 and Item 9 as well. While 48 students responded as 'agree' and 239 students responded as 'strongly agree' to Item 8 regarding *It is essential for me to comprehend oral messages in order to meet the Aviation English language standards*, 143 students chose 'strongly agree' and 120 students chose 'agree' in Item 9 regarding *It is vital for me to understand written aviation documents in order to meet the Aviation English language standards*. However, there were 60 students who stated they 'neither agree nor disagree' with statement that *It is vital for me to understand written aviation*

documents in order to meet the Aviation English language standards (Item 9) which was the highest value in terms indecisive responses in Part C. Also, it can be seen in the table that the number of students who 'disagree' with the statement that *Oral communication is vital for me to be competent in Aviation English* (Item 11) was 24, and the same value can be seen in Item 7 which asked participants' opinion on the vitality of comprehending what learners read in the target situation. Table 18 below presents data on the frequency of responses to Item 10 which was extracted as the second factor in Part C.

Table 18

Frequencies of Students' Responses to Factor 2 in Part C

Factor 2: Learners' wants in terms of comprehending oral communication	1	2	3	4	5
10. It is vital for me to understand aviation related speeches in order to meet the Aviation English language standards.	47	48	60	108	60

Note: 1: Strongly Disagree, 2: Disagree, 3: Neither agree nor disagree, 4: Agree, 5: Strongly Agree.

The table above shows the responses to Item 10 varied from 'strongly disagree' to 'strongly agree'. While 47 students preferred 'strongly disagree', 48 students preferred 'disagree'. On the contrary, 108 students chose 'agree' and 60 students chose 'strongly agree'. Also, the number of indecisive respondents was 60 as well. When total number of negative and positive responses are added, it can be seen that in total there were 95 students who regarded understanding aviation related speeches as secondary or unimportant whereas 168 regarded the same statement as vital.

4.3.1.3. Part D: Necessities. The last part of the questionnaire (Part D) aimed at finding out the 'necessities' which would be needed by learners in the target situation. These necessities covered what ICAO defined as necessary language competencies just like other parts of the questionnaire (Part B and C) did. First of all, the descriptive analysis of Part D is presented in Table 19 below. It includes mean scores and standard deviation.

Table 19

Mean Score and Standard Deviation of Items in Part D

	Mean	Std. Deviation	N
12. I can speak Aviation English fluently.	2,55	1,103	323
13. I can pronounce Aviation English terms correctly.	3,15	1,010	323
14. My Aviation English accent is intelligible for other aviators.	3,33	1,057	323
15. I can have good control of sentence patterns in Aviation English.	3,26	,929	323
16. My knowledge of Aviation English terms is enough to understand audio files related to Aviation English.	2,89	,788	323
17. My knowledge of Aviation English terms is enough to express myself to other aviators.	2,67	,945	323
18. My knowledge of Aviation English terms is enough to explain an emergency situation.	2,67	,901	323
19. I can communicate with other aviators effectively.	3,15	,933	323
20. I can maintain fluent speech even in emergency situations.	2,74	,800	323
21. I am a fluent English speaker in terms of aviation.	2,81	,865	323
22. I can respond to the questions of other aviators appropriately.	3,00	,770	323
23. I can maintain effective communication when I speak Aviation English.	3,00	,944	323
24. I can easily understand a speech related to aviation.	2,97	,745	323
25. I can ask for clarification when I do not understand other people in Aviation English.	3,75	,924	323
26. I can easily inform other aviators on a topic related to aviation.	3,11	,875	323

Table 19 cont'd

	Mean	Std. Deviation	N
27. My knowledge of Aviation English terms is enough to explain a problem.	3,04	,744	323
28. I can ask for confirmation when a misunderstanding occurs.	3,67	,818	323
29. I can express myself in black and white easily.	3,45	,818	323

Note: N: number of responses.

The data presented in Table 19 makes it clear that Item 25 regarding *I can ask for clarification when I do not understand other people in terms of Aviation English* had the highest mean score of 3,75 in Part D and the standard deviation of the same item was σ25=,924. The second highest mean score in this part was calculated as 3,67 which belonged to Item 28 regarding *I can ask for confirmation when a misunderstanding occurs* and the standard deviation of it was found to be σ28=,818. Also, Item 29 regarding *I can express myself in black and white easily* was presented as the item with the third highest mean score of 3,45 and its standard deviation was found to be σ29=,818. These three variables were the ones on which students mostly agreed in Part D. Contrastively, the mean score of Item 12 regarding *I can speak Aviation English fluently* was calculated as 2,55 which made it the lowest mean score in the same part of this questionnaire. Moreover, the standard deviation of Item 12 was found to be σ12=1,103 which was also the highest standard deviation in Part D. However, the lowest value of standard deviation in this part was calculated as σ=,744 which belonged to Item 27 regarding *My knowledge of Aviation English terms is enough to explain a problem* which meant that responses to this item did not vary as much as the responses to other items in Part D did.

Similarly, the standard deviation of Item 24 regarding *I can easily understand a speech related to aviation* was found to be σ24=,745 which was the second lowest value in terms of standard deviation. Furthermore, in the light of this descriptive statistics of Part D, an exploratory factor analysis was also run through SPSS to see the factor loadings of variables in Part D and the data pertaining to this analysis was presented with the following table (Table 20).

Table 20

Factor Loadings of Variables in Part D

	Factors		
	1	2	h^2
Factor 1: Necessities regarding effective communication			
14. My Aviation English accent is intelligible for other aviators.	.78		.82
15. I can have good control of sentence patterns in Aviation English.	.66		.72
16. My knowledge of Aviation English terms is enough to understand audio files related to Aviation English.	.69		.81
17. My knowledge of Aviation English terms is enough to express myself to other aviators.	.56		.85
18. My knowledge of Aviation English terms is enough to explain an emergency situation.	.43		.78
19. I can communicate with other aviators effectively.	.70		.85
20. I can maintain fluent speech even in emergency situations.	.65		.76
21. I am a fluent English speaker in terms of aviation.	.83		.88
22. I can respond to the questions of other aviators appropriately.	.64		.80
23. I can maintain effective communication when I speak Aviation English.	.69		.81
24. I can easily understand a speech related to aviation.	.42		.61
25. I can ask for clarification when I do not understand other people in terms of Aviation English.	.46		.69
26. I can easily inform other aviators on a topic related to aviation.	.73		.76
27. My knowledge of Aviation English terms is enough to explain a problem.	.54		.75

Table 20 cont'd

	Factors		
	1	2	h^2
28. I can ask for confirmation when a misunderstanding occurs.	.41		.70
29. I can express myself in black and white easily.	.45		.76
Factor 2: Necessities regarding speaking			
12. I can speak Aviation English fluently.		.83	.87
13. I can pronounce Aviation English terms correctly.		.80	.84

Data pertaining to the analysis of factor loadings in Part D (necessities) indicated that two factors were extracted based on extraction method of maximum likelihood. As it was explained before, there were two factors to have initial Eigenvalues of more than 1 and they explained 55.9% of all variances in Part D. Labeled as *Necessities regarding effective communication*, the first factor (F1) accounted for 44.9% of all variance and included various items regarding learners' necessities for effective communication skills in Aviation English.

Also, the first factor consisted of 16 items and the loadings of these items ranged from minimum value of .41 to a maximum value of .83 for factor 1. On the other hand, the second factor (F2), labeled as *Necessities regarding speaking,* accounted for 11.5% of all variance and included 2 items which were all about speaking skill in Aviation English. Also, the loadings of these two items were calculated as .83 *(Item 12)* and .80 *(Item 13)* after the analysis, and in the following figure, the factor plot of Part D was presented with the distribution of factor loadings so that the groupings forming each factor could be explained in no uncertain terms (Figure 10).

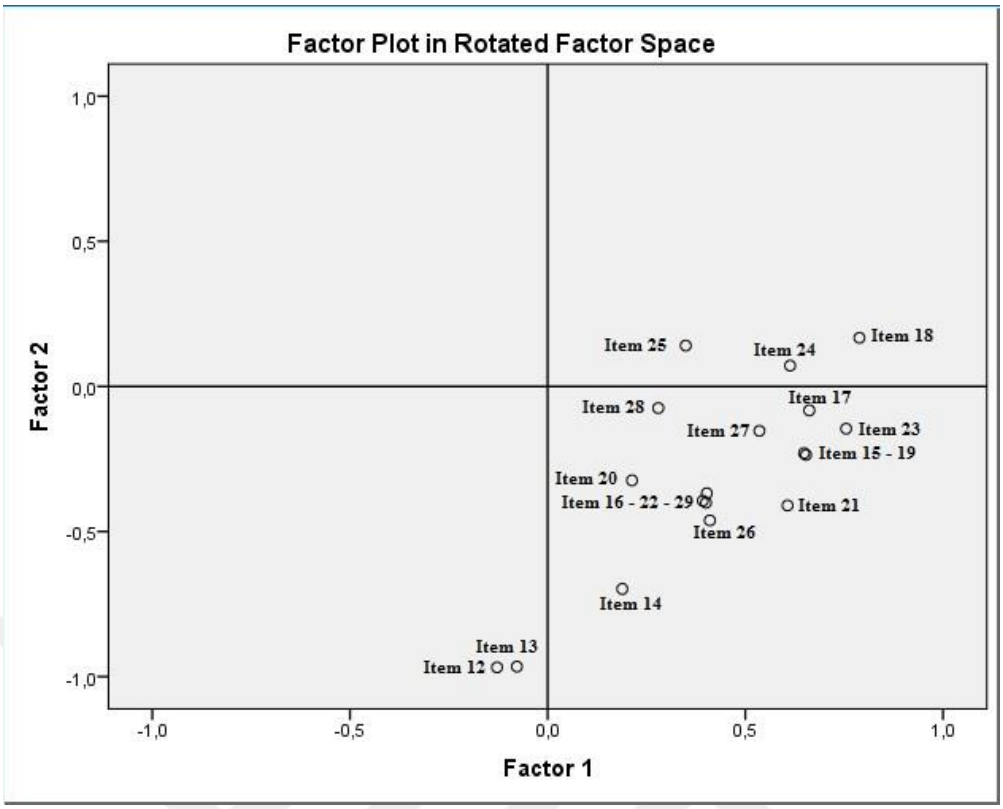

Figure 10. Factor Plot of Items in Part D

It is clear from the figure that items 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, and 29 in the relevant data appeared normal as there was no extreme outlier in this grouping except Item 14 regarding *My Aviation English accent is intelligible for other aviators*. Also, Item 12 regarding *I can speak Aviation English fluently*, and Item 13 regarding *I can pronounce Aviation English terms correctly* were grouped separately after the exploratory factor analysis. The distribution of these two groupings which were the two factors extracted from the analysis followed a normal pattern. As a result, while Item 12 and Item 13 generated Factor 2 of Part D, the other items in Part D formed Factor 1. As reported in the previous table, Factor 1 accounted for 44,492% of all variances in the last part of the questionnaire and the first factor was found to be related to the necessities of the target situation in terms of 'effective communication' in the broadest context. On the other hand, the second factor of the last part was found to account for 11,548% of all variances in Part D and it was figured out to explain the necessities regarding 'speaking' in the target situation. The overall power of these two factors were found to explain 56,040% of all necessities of the target situation that students need to meet.

Table 21

Frequencies of Students' Responses to Factor 1 in Part D

Factor 1: Necessities regarding effective communication	1	2	3	4	5
14. My Aviation English accent is intelligible for other aviators.	72	72	131	39	9
15. I can have good control of sentence patterns in Aviation English.	12	60	96	143	12
16. My knowledge of Aviation English terms is enough to understand audio files related to Aviation English.	155	108	47	13	0
17. My knowledge of Aviation English terms is enough to express myself to other aviators.	36	191	72	18	6
18. My knowledge of Aviation English terms is enough to explain an emergency situation.	132	96	72	23	0
19. I can communicate with other aviators effectively.	72	108	119	14	10
20. I can maintain fluent speech even in emergency situations.	167	84	24	48	0
21. I am a fluent English speaker in terms of aviation.	198	77	11	37	0
22. I can respond to the questions of other aviators appropriately.	0	83	168	60	12
23. I can maintain effective communication when I speak Aviation English.	83	145	11	60	24
24. I can easily understand a speech related to aviation.	84	95	144	0	0
25. I can ask for clarification when I do not understand other people in terms of Aviation English.	0	35	84	132	72
26. I can easily inform other aviators on a topic related to aviation.	71	133	108	11	0

Table 21 cont'd

Factor 1: Necessities regarding effective communication	1	2	3	4	5
27. My knowledge of Aviation English terms is enough to explain a problem.	144	83	96	0	0
28. I can ask for confirmation when a misunderstanding occurs.	48	24	107	144	0
29. I can express myself in black and white easily.	0	21	108	158	36

Note: 1: Strongly Disagree, 2: Disagree, 3: Neither agree nor disagree, 4: Agree, 5: Strongly Agree.

The distribution of responses to items consisting of factor 1 in Part D shows that 227 responses out of 323 were 'disagree' and 'strongly disagree' when it came to the statement of *My knowledge of Aviation English terms is enough to express myself to other aviators* (Item 17) whereas only 18 respondents agreed with the same item. Also, there were 198 students who 'strongly disagreed' with the statement that I am a fluent English speaker in terms of aviation (Item 21) and the number of responses to the same item as 'disagree' was 77 whereas only 37 students agreed with this statement.

When items 20 regarding *I can maintain fluent speech even in emergency situations* and 27 regarding *My knowledge of Aviation English terms is enough to explain a problem* were analyzed, it can be seen that the number of negative responses to these items were high. While 167 students 'strongly disagreed' with Item 20 and 144 responded the same to Item 27, only 48 students agreed with the statement in Item 20 and there was no positive response to Item 27.

The number of responses to another item (Item 19) related to the factor of 'effective communication' in Part D was as follows: while 180 students responded negatively to the statement that *I can communicate with other aviators effectively,* 24 positive responses were calculated for the same statement. Contrastively, the number of positive responses to Item 29 regarding *I can express myself in black and white easily* was higher than the negative responses. While 21 participants 'disagreed' with

this statement, 194 participants either ‘agreed’ or ‘strongly agreed’ with it. The following table presents data related to the frequencies of participants’ responses to the items forming Factor 2 of Part D (Table 22).

Table 22

Frequencies of Students’ Responses to Factor 2 in Part D

Factor 2: Necessities regarding speaking	1	2	3	4	5
12. I can speak Aviation English fluently.	101	161	49	12	0
13. I can pronounce Aviation English terms correctly.	107	84	96	23	11

Note: 1: Strongly Disagree, 2: Disagree, 3: Neither agree nor disagree, 4: Agree, 5: Strongly Agree.

This table presents data on necessities related to speaking. It shows that of 323 responses to Item 12 regarding *I can speak Aviation English fluently* there were 12 students who preferred ‘agree’ while 161 students preferred ‘disagree’ and 101 students preferred ‘strongly disagree’. Moreover, Item 13 regarding *I can pronounce Aviation English terms correctly* received 34 positive responses whereas 84 students ‘disagreed’ with this statement and 107 students ‘strongly disagreed’ with the same item.

4.3.2 Theme-based Analysis of Research Question 2. The findings of structured individual interviews, conducted with 10 voluntary students who had stated their preference to take part in the second phase of the study, formed the qualitative part of current research. The questions given in Appendix C were used as the guideline for conducting the interviews. The purpose of the researcher was to qualitatively analyze the expectations of students from Aviation English courses (RQ 2) and perceptions of these students towards Aviation English (RQ 3) by utilizing individual interviews. After collecting the qualitative data from 10 participants, it was pattern-coded and two main themes emerged pertaining to the expectations of learners from Aviation English courses (RQ 2): active user of the target language (Theme 1) and

professional development (Theme 2). Also, in response to the last research question (RQ 3) aviation safety (Theme 3) emerged as the third main theme of the interviews. The following sub-sections provide detailed analysis of each theme.

4.3.2.1 Theme 1: Being an Active User of the Target Language. The first theme that emerged from the analysis was being an active user and a number of issues were identified in terms of interviewees' responses to questions 3, 6, and 8 which were asked to discover students' language needs. For instance, this theme came up in discussions of what learners really need. When the responses of interviewees to third question of the interview regarding '*Which language skills do you think you will need as a cadet pilot? And which ones do you need to develop?'* were analyzed, it was seen that a common view amongst interviewees was that 8 interviewees needed listening and speaking most. Talking about this issue the interviewees below reported as follows:

> *Speaking and listening. You can develop your writing and reading skills on your own to an extent. However, it is not the case for listening and speaking. In aviation comprehending a message and responding to it very quickly is of great importance so I need to develop these skills. Also, we are not native speakers so I will always need to work on my pronunciation to be a better pilot.* (Interviewee 3, online interview, June 27, 2019)
>
> *Definitely listening because air traffic control communications are very difficult to understand even in Turkish and the main reason is of course radiotelephony. Minimum writing… Mostly speaking and listening I mean for I will need them throughout my life as a pilot for effective communication. It is a part of my profession and I need to use it actively.* (Interviewee 6, online interview, July 2, 2019)

> *Speaking and listening. You can develop your writing and reading skills on your own to an extent. However, it is not the case for listening and speaking. In aviation comprehending a message and responding to it very quickly is of great importance so I need to develop these skills. Also, we are not native speakers so I will always need to work on my pronunciation.* (Interviewee 7, online interview, July 3, 2019)

However, two of the interviewees argued that they needed different things in terms of language skills:

I think, reading and listening comprehension because you have to understand all of those written documents related to the aircraft and procedures. Also, you have to understand the radio messages instantly. (Interviewee 10, online interview, July 5, 2019).

I believe that speaking and reading are the skills that I will need most when I graduate because I must talk with the air traffic controllers and other aviators effectively. Moreover, reading and understanding the user manuals and aviation rules are the first steps to be a pilot. If you cannot understand those things, it does not matter how talented you are. (Interviewee 5, online interview, July 1, 2019)

The sixth question of the interview regarding *'What should be the differences between Aviation English courses from General English courses?'* In response to this question, a range of responses was elicited. The majority of those who responded to this question (*n*=9) pointed speaking activities while only 1 interviewee mentioned aviation terminology:

The courses must be planned in such a way that I should speak more. (Interviewee 4, online interview, June 28, 2019)

I have written and read a lot in the classroom so Aviation English courses must be different. I think it should focus more on speaking skill because this is my profession and this is what we will need most. (Interviewee 8, online interview, July 4, 2019)

I do not want to translate sentences or words into Turkish any more rather I want to use the language, I want to speak English. This is what I expect from these courses to be able develop myself as part of my profession. (Interviewee 1, online interview, June 25, 2019)

Actually, it is the first time somebody asks me what I want to do in the classroom so I am very pleased, and I think the difference should be what I have not done before. So, it was all about writing and completing the activities in the course book. That's why, I have always wanted to speak with my friends in the classroom. Now that I have this chance, I can do it and I should do it for my job. (Interviewee 7, online interview, July 3, 2019)

However, only one individual mentioned a different thing:

Aviation English courses should teach me the aviation terminology and the statements should be clear-cut and intelligible. (Interviewee 2, online interview, June 26, 2019)

The last question pertaining students' language needs was the eighth question of the interview: 'What can motivate you throughout the Aviation English course?' and a common view amongst interviewees was that the requirements of their profession was all about making use of the language. Hence, they all commented in favor of practicing the target language:

Using the language, I mean practicing it in the classroom... Also, taking active part in in-class activities can motivate me. I think, there should be practices related to different scenarios in aviation because I will need to be familiar with those scenarios as well. (Interviewee 10, online interview, July 5, 2019)

Making use of the language of course. The reason is that the examinee talks to air traffic controller during the tests so going over such cases can motivate me a lot. (Interviewee 2, online interview, June 26, 2019)

More catchy materials… I mean videos related to aviation and audio recordings between pilots and controllers, and of course speaking activities. They should be as intriguing as possible. (Interviewee 9, online interview, July 5, 2019)

Actually, we talk about many different topics in the course book but they are sometimes quite boring because I may not be always interested in all of those topics. At the moment, my interest and more importantly my profession is related to aviation. That's why, anything about aviation can motivate me especially speaking exercises such as acting like a pilot. (Interviewee 1, online interview, June 25, 2019)

4.3.2.2 Theme 2: Professional Development. The second theme that emerged from the analysis was the professional development and this was found out from the interviewees' responses to questions 2 *(What do you expect from Aviation English courses?)* and 4 (*What do you think of similarities and differences between your needs and language standards set by ICAO?).* These questions were addressed to get information about interviewees' expectations from Aviation English courses. A recurrent issue in the interviews was that respondents expected to develop themselves for professional purposes. For instance, this was the most prominent issue in the second question. When interviewees were asked to state their opinion on what they expect from Aviation English courses, they responded as follows:

> *There are some specific qualifications that I must have in terms of Aviation English and there are some exams to test my capability. That's why, first of all, I must be capable of complying with those standards. What's more I must be capable of speaking English fluently when I am airborne and it is a never-ending need for me because it is a part of my profession. All in all, I expect to see something to help with such needs.* (Interviewee 2, online interview, June 26, 2019)

> *I am not sure but I think I must be at least at a level of B2. Also, listening and speaking… So, that's all I want to learn.* (Interviewee 3, online interview, June 27, 2019)

B1 is a must, I think. That's why, I should study hard and be successful. However, I cannot do it myself so I need this course to be a pilot. Also, I expect to develop my pronunciation as well as my listening skill. These are all necessary both now and when I become a pilot as well. (Interviewee 7, July 3, 2019)

When the fourth interview question *(What do you think of similarities and differences between your needs and language standards set by ICAO?)* was analyzed, it was found out that students' expectations from Aviation English courses in terms of their language needs were the same:

> *You may need to be competent in terms of pen and paper exams, so you may need to develop those skills. However, I need to develop my listening and speaking skills more than the others. I need more activities on which I can practically exercise what I learn. Similarly, this is what is expected by ICAO so, my needs are similar in terms of speaking and listening.* (Interviewee 5, online interview, June 28, 2019)

> *Quite similar… I have seen a couple of videos about ICAO tests and the content was 90% the same as my needs.* (Interviewee 8, online interview, July 4, 2019)

> *In terms of ICAO standards, everything is more detailed and the skills are more than 4, I believe. First of all, you need to have a certain level of English competency for Aviation English. However, you can learn General English from scratch.* (Interviewee 4, online interview, June 27, 2019)

4.3.3 Theme-based Analysis of Research Question 3. The participants were addressed the following questions to get an idea about their perceptions towards Aviation English: *'What does Aviation English mean to you?'* (Interview Question 1), *'What can be the difficulties of Aviation English courses?'* (Interview Question 5), *'What do you think of Aviation English terminology as a cadet pilot?'* (Interview Question 7), and *'How can the Aviation English course contribute to your development'* (Interview Question 9). After the analysis of relevant data, the third and last theme of the interviews emerged as safety in aviation and interviewees were found to have met on common grounds when their perceptions towards Aviation English were on the table.

4.3.3.1 Theme 3: Aviation Safety. When the responses to the first question of the interview was analyzed, it was seen that some interviewees argued that some felt

that communication in aviation is very crucial for safety, while others commented that terminology is of great importance in terms of safety issues:

> *Aviation English is a totally different part of English. It is something I will definitely need and make use of when I graduate. I know that I must be familiar with the terminology when I am airborne because it is an important component of safety.* (Interviewee 3, online interview, June 27, 2019)

> *It means a lot of things to do because it makes up 70% of my profession. It means a lot of things to learn and discover.* (Interviewee 4, online interview, June 28, 2019)

> *I regard it as a tool which can help me do my profession as good as I can. It is also something each and every pilot should know and it is a must to prevent communication breakdowns, I think. As far as I remember, the number of aircraft accidents because of communication problems was quite high so it means a lot for aviators.* (Interviewee 8, online interview, July 4, 2019)

> *I did not know anything about Aviation English before I attended this school. However, I have heard so many things from other students and I have developed my English a lot. Now, I believe that it means everything to me. It is my life and it is something I need to develop all the time as part of my profession because the safety of other people depends on my actions in the cockpit.* (Interviewee 10, online interview, July 5, 2019)

Issues related to aviation terminology (Interview Question 7: What do you think of Aviation English terminology as a cadet pilot?) were also prominent in the interview data when it was analyzed in terms of safety in aviation:

> *Aviation is all about terminology both on the ground and in the air. Also, I will need it as a commercial pilot.* (Interviewee 1, online interview, June 25, 2019)

> *It would be very good for me to learn key terms at first. Then I can learn the*

rest of terminology because there can be some moments when you explain something with 5-6 words but actually there is a single word accounting for the same thing. (Interviewee 6, online interview, July 2, 2019)

I have to know them because they are quite different from what you can come across in your everyday life. It improves my self-confidence. It may also affect other the safety of other people. That's why I have to know them all for effective communication with air traffic controllers and other people. (Interviewee 9, online interview, July 5, 2019)

However, one of the interviewees had different opinions when asked about his thoughts on the aviation terminology:

In my opinion, learning the terminology is something I should for the ICAO language tests because I know that I can get extra points, if I use a couple of aviation terms during the oral examination. (Interviewee 7, online interview, July 3, 2019)

Chapter 5
Discussion

5.1 Overview

The purpose of this research was to analyze language needs of tertiary level ESP students who would take Aviation English courses in the upcoming academic year beginning from Fall 2019 semester. By assessing the needs of these students, the researcher aimed at providing insights to course planners, curriculum designers, and all other decision makers in the field of Aviation English in Turkey.

The mixed methods research design was preferred to collect both quantitative and qualitative data and the current study consisted of two phases. In the first phase of this study, quantitative data pertaining to students' lacks, wants, and necessities was gathered by instrumenting the 'Aviation English Needs Analysis Questionnaire' which was developed by the researcher. Of 374 possible participants, 323 returned and filled

in the online questionnaire. As part of the second phase, qualitative data was collected by means of structured individual interviews which were conducted online with 10 students who were randomly selected among the students volunteered for the second phase. Both the quantitative and qualitative data were analyzed carefully for any implications that could provide crucial information to answer the research questions addressed in this study.

As mentioned in the literature review, Hutchinson and Waters (1987) categorized needs as necessities, wants, and lacks classified under target needs referring to "what the learner needs to do in the target situation" (p. 55). However, in reviewing the literature, no data was found on the target needs of Aviation English learners in Turkey. That's why, this study set out with the aim of filling in this gap in the literature.

This chapter addresses to findings of each research question in the following sub-sections, the relevant pedagogical implications are presented, and the necessary conclusions are shared in the end.

5.2 Discussion of Results for the First Research Question in Terms of Lacks, Wants, and Necessities

The results pertaining to students' lacks in the target situation indicated that two of the macro skills in English language, namely speaking and listening, were the most difficult skills to be developed by students. Of 323 respondents, 26% (*n*=84) reported speaking as the most difficult skill while 66,9% (*n*=216) reported listening as the most difficult skill. What is surprising was that these skills played important roles when communication breakdowns resulting in aircraft accidents were analyzed. The findings of the current study are consistent with those of Murphy (1980) who found out that communication, decision making, and crew interaction were the most notable problems in eighty-four commercial aviation accident reports he collected through National Aeronautics and Space Administration's (NASA) Aviation Safety Reporting System (ASRS) and similarly, this issue was one of the corner stones of this study as explained in Chapter 1, 'Background of the Study'. This finding in the questionnaire was also supported by the interviews which included data stating that it was difficult to understand air traffic control conversations because of the radiotelephony and that they needed more exercise from real life situations. That's why, it can be said that this

analysis found evidence for the development of specific listening materials to be used in Aviation English courses. In this sense, providing students with unique aviation materials to develop their listening skills is strongly suggested and these materials should be given a great deal of class time when planning Aviation English courses.

It is somewhat surprising that this study did not find a significant lack of needs in terms of reading comprehension skill. Understanding the written documents is listed as one of the necessary skills in ICAO language proficiency descriptors (Appendix A). However, participants did not regard reading as a difficult skill to develop because there was no single response out of 323 responses in the questionnaire *(Q4: What is the most difficult skill to develop according to you?)*. Such an unexpected finding was, surprisingly, supported by the responses to Item 7 regarding *It is essential for me to comprehend what I read in order to meet the Aviation English language standards*. The mean score of Item 7 was 4,26 and 275 students out of 323 either 'agreed' or 'strongly agreed' with this statement. So, this finding of the study clearly demonstrates two things. First, students' previous learning experiences in high school or earlier might have affected their perspectives towards learning a foreign language or learning a language for specific purposes just like in the case of Aviation English. The reason is that it had been reported in the interviews that the course plans were all shaped around reading comprehension and translation activities so it might affected learners negatively.

Second, the percentage of students who were familiar with the language standards set by ICAO was 25,7% (*n*=83) while the percentage of students who had idea on what ICAO requires these students in terms of language needs was 74,3 (*n*=240). That's why, this majority of respondents (74,3%) was most probably unaware of the fact that reading comprehension is also a competence they need to have. In summary, whether it was because of previous learning experience or awareness of the target situation, these results casted a new light on evaluation of the time allocated for reading comprehension skill in course plans and it should be carefully done when planning these courses.

It is also worth discussing another fact revealed by the results of this study that the lacks of students in terms of speaking skill is prominent. When participants were asked to state their opinion on Item 2 regarding *I need to be a more fluent speaker of Aviation English,* it was found out that 251 respondents either 'agreed' or 'strongly agreed' with this statement. Furthermore, the lack of speaking skill was expressed by

interviewees as well who stated that the courses must be planned in such a way that they could speak English more and that the courses must focus more on speaking skill because it was what they would need most. That's why it was confirmed that the link between what Hutchinson and Waters (1987) defined as target needs referring to what learners need to do in the target situation and what Aviation English learners lack in terms of target needs matches perfectly. This finding also supported previous research into this brain area by Ulum (2016) who had analyzed language needs of public order police officers in Turkey and suggested 'Special emphasis should be put into speaking and listening instructions of police officers who may work at touristic places' (Ulum, 2016, p. 27). Similarly, this study strongly suggests implementation of course programs with a specific focus on speaking skills in the target situation, which are in this case specified by the language proficiency descriptors of ICAO Annex A (Appendix A).

5.3 Discussion of Results for the Second Research Question

The second research question aimed at discovering students' expectations from Aviation English courses. The analysis of data presented precious results pointing the language needs of students as part of their professional development. It was found in statistical analysis of the data collected by means of the 'Aviation English Needs Analysis Questionnaire' that 25,7% of participants (*n*=83) regarded English as 'important' in aviation while 74,3% of the participants (*n*=240) regarded English as 'extremely important' in aviation. Similarly, 96,2% of all participants (*n*=311) regarded learning English for their profession as either 'important' or 'extremely important'.

This result was also proved to be valid after the analysis of qualitative data which provided the researcher with such responses as Aviation English could contribute to students' professional development after graduation, Aviation English could make their lives easier in terms of meeting professional requirements, and Aviation English could possibly trigger their personal development.

When these findings are taken into consideration as a whole, it can be argued that such a result in this study can indicate an undeniable fact that students' expectations may not be shaped solely by the need to pass a test, which is the language proficiency test of ICAO in this case, but rather they can be shaped by the overall

requirements of a profession. This is an important finding in the understanding of factors shaping learners' expectations in terms of the reasons for learning a foreign language.

However, an apparent limitation of the study was that the participants were familiar with the language standards and the proficiency tests in aviation. So, this may definitely vary in cases where there is no restriction for the professionals of a specific job to take a language proficiency exam to prove that they are competent in that profession in terms of using the target language as part of their profession. This result therefore need to be interpreted with caution by ESP practitioners and course designers when making decisions.

5.3 Discussion of Results for the Third Research Question

The purpose of the third research question was to determine students' perceptions towards Aviation English. The findings of the third research question after the analysis of the relevant data shed light on the fact that students' perceptions towards Aviation English could be grouped under safety in aviation. This finding implied that students regard learning aviation as a must to avoid any accident. The implications of this finding can be explained with two possible reasons. First, it is likely that the increase in the number of people using internet in the 21st century seems to take us to the inference that more people are aware of the reasons for air traffic accidents. Second, it may also be the case that the annual reports published by the aviation authorities make it easier to catch up with the latest issues in a profession. In the case of aviation, it is assumed by the researcher that participants' awareness towards the reasons for air traffic accidents and the role of English in these accidents can be one of the most notable reasons to the common point in the responses of students.

It was even reported in the interviews that English language competency of the aviators could also affect the safety of other people so it was crucial for all aviators (Interviewee 9, online interview, July 5, 2019). This was also consistent with the responses to relevant questions in the questionnaire. Most of the participants (n=180) responded that effective communication with other aviators was one of their lacks in the target situation which implies that they did not feel competent enough when it was about the most notable factor in aviation safety while only 24 students felt they did not

lack such a skill. This also accorded with our earlier observations in the literature review, which showed that Barkhordari and Chalak (2017) attained the same result pertaining to the perceptions of aviators in Iran. According to the findings of their study, "it is crucial for the aviation employees to be proficient in using English language at the workplace to perform their job effectively" (Barkhordari & Chalak, 2017, p. 88). In the light of this finding, it can be argued that there is a link between effective communication in the target language and safety in aviation and that this link is what shapes students' perceptions towards Aviation English.

In short, effective communication should definitely be regarded as one of the most recurring needs of students when their perception towards Aviation English is taken into account and ESP practitioners and course designers should certainly make room for activities to develop students' communicative skills.

These findings may also help us to understand another recurring issue among Aviation English students, aviation terminology. As it is generally agreed that mystery of effective communication for safety in aviation is not limited to having a clear and intelligible English accent rather aviators also need to use standard phraseology effectively. This was reported by participants many times in the interviews. While some of them related aviation totally with the terminology (Interviewee 1, online interview, June 25,2019), others wanted to learn the terminology to explain themselves more clearly (Interviewee 6, online interview, July 2, 2019).

A strong relationship between the issue of safety in aviation as students' perception and learning aviation terminology was put into words by students in the questionnaire as well. As stated before in statistical analysis of Part D (necessities), the majority of students (n=228) did not agree with the statement regarding *My knowledge of Aviation English terms is enough to explain an emergency situation* (Item 18). It clearly supported the possible correlation between language needs in terms of effective communication and safety in aviation. In this sense, it can be said that students took learning aviation terminology quite seriously and that the initial objective of the research question, discovering students' perceptions, was met.

This result tied well with previous studies wherein Kim and Elder (2009) analyzed perceptions of Korean aviation personnel and found out "communication in the aviation context is a complex matter ... Communicating effectively in aviation contexts is more than just a matter of using standard phraseology" (p. 14). In conclusion, this finding had the potential to give clear implications for professionals

in the field of ESP and the teaching of aviation phraseology should be the focus of ESP practitioners all the time.

5.5 Pedagogical Implications

The findings of this research study prognosticate some necessary implementations in the field of ESP, specifically Aviation English. The first thing should be the development of a working course plan that can suit the needs of Aviation English learners. To sum up the needs that showed up in this study were as follows:

- Students should be provided with as many unique materials related to aviation as possible to help them develop their listening skills.
- Students should be provided with materials from real life situations such as conversations between air traffic controllers and pilots, and audio recordings covering an emergency situation.
- More class time should be allocated for speaking activities in which students should be required to use the relevant terminology.
- Teaching of aviation phraseology should definitely be a part of Aviation English course plans.
- Students' perception towards learning Aviation English as part of their professional development should not be neglected and necessary planning should be made for lifelong learning programs in aviation.
- Students' perception towards learning Aviation English for safety reasons should be taken into consideration very seriously and course plans should be designed in such a way that they touch upon scenarios related to communication breakdowns that pose threats to safety in aviation.
- ESP practitioners should take necessary steps towards allocating less class time to lectures and more class time to activities such as role plays, simulations, information gaps, picture descriptions, picture narrations, and reporting.

5.6 Conclusion

This study was designed conducted to find out the language needs of tertiary level Aviation English learners studying at a state university in Turkey. There was no previous research towards assessing the needs of such a sample in the literature. That's why, the findings of current study were significant towards meeting the needs of these learners and the relevant suggestions should be considered with caution by ESP practitioners, course designers, and other professionals in this field.

The investigation of students' needs has shown that students need to be a more fluent speaker of Aviation English to be able to meet the language standards set by ICAO. Moreover, they need more time in the classroom for speaking activities. The most obvious finding to emerge from this study is that the difficulty of comprehending radiotelephony messages is something students feel as compulsory to develop to be proficient in Aviation English. That's why, the findings in this study provide a new understanding of teaching of Aviation English as listening comprehension has occurred to be a vital component of it. It was also shown that students' tendency towards regarding learning Aviation English was not limited to ICAO language standards rather it also included some other professional issues regarding safety in aviation. Taken together, these results suggest that necessary steps should be taken by professionals in this field towards planning or implementing revisions on the content of Aviation English courses so that these courses can be oriented towards helping more to these students to meet the ICAO language standards.

This study has demonstrated, for the first time, that assessing the needs of a group of students before planning a course is of great importance. That's why, it is believed that this research will serve as a base for professionals in the field of Aviation English who designed their courses without conducting any needs analysis or for those who will design new Aviation English courses in the future. The scope and the focus of this research provide reliable data for future research and the natural progression of this work is to analyse the needs of Aviation English students while they take the course so as to understand the learning situation of the sample which will lead the future researchers towards implementing any necessary changes in the course plans during the intended course program. Therefore, there is also a definite need for developing proper and helpful course materials that suit the needs of these students. When taken into consideration together, all of the findings and implications of this

study suggest that there is very little work on Aviation English in Turkey and there is still too much work to be done by the researchers in the field of ELT and specifically ESP.

REFERENCES

Aiguo, W. (2008). Reassessing the position of Aviation English: From a special language to English for Specific Purposes. *Ibérica: Revista de la Asociación Europea de Lenguas para Fines Específicos (AELFE), 15*, 151-164.

Akyel, A. S., & Ozek, Y. (2010). A language needs analysis research at an English medium university in Turkey. *Procedia - Social and Behavioral Sciences, 2*(2), 969-975. doi:10.1016/j.sbspro.2010.03.136

Alsamadani, H. A. (2017). Needs Analysis in ESP Context: Saudi Engineering Students as a Case Study. *Advances in Language and Literary Studies, 8*(6), 58.

Al-Kadi, A. (2018*).* Towards humanizing ELT: Revisiting the need for English in the medical context in Yemen. *Language Teaching and Educational Research (LATER), 1* (2), 121-138.

Ary, D., Jacobs, L. C., & Sorensen, C. K. (2006). *Introduction to research in education (8th ed.)*. Belmont, CA: Wadsworth, Cengage Learning.

Aviation Safety Reporting System Database. (n.d.). Retrieved June 27, 2019, from https://asrs.arc.nasa.gov/search/database.html.

Barkhordari, R. & Chalak, A. (2017). English Needs Analysis of Iran Air Airport Services Personnel at Isfahan Airport. *International Journal of Foreign Language Teaching & Research 5*(19).

Basturkmen, H. (1998). Refining procedures: A needs analysis projects at Kuwait University. *English Teaching Forum, 36*(4), 2-9.

Bazeley, P. (2018). *Integrating analyses in mixed methods research*. Los Angeles: Sage Publications.

Beatty, C. J., & Chan. M. J. (1984). Chinese Scholars Abroad: Changes in perceived academic needs. *The ESP Journal, 3*(1), 53-59.

Brindley, G. (1989). The role of needs analysis in adult ESL programme design. In R. Johnson (Ed.). *The Second Language Curriculum* (pp. 35-70). Cambridge: Cambridge University Press.

Brown, J. D. (1995). *The elements of language curriculum*. Boston, MA: Heinle & Heinle.

Brown, T. A. (2006). *Confirmatory factor analysis for applied research* (2nd ed.). New York: The Guilford Press.

Carpenter, S. (2018). Ten Steps in Scale Development and Reporting: A Guide for Researchers. *Communication Methods and Measures, 12*(1), 25-44, doi: 10.1080/19312458.2017.1396583

Causes of Fatal Accidents by Decade. (n.d.). Retrieved May 28, 2019, from http://www.planecrashinfo.com/cause

Chostelidou, D. (2010). A needs analysis approach to ESP syllabus design in Greek tertiary education: A descriptive account of students' needs. *Procedia - Social and Behavioral Sciences, 2*(2), 4507-4512.

Churchill, G.A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research, 16*, 64-73.

Clement, A., & Murugavel, T. (2015). English for Employability: A Case Study of the English Language Training Need Analysis for Engineering Students in India. *English Language Teaching, 8*(2).

Comrey, A. L., & Lee, H. B. (1992). *A first course in factor analysis.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Connelly, L. M. (2008). *Pilot studies.* Medsurg Nursing, 17(6), 411-2.

Creswell, J. W. (2003). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches.* California: SAGE Publications.

Cushing, S. (1997). *Fatal Words: Communication Clashes and Aircraft Crashes.* Chicago, IL: The University of Chicago Press.

Douglas, D. (2014). Nobody seems to speak English here today: Enhancing assessment and training in aviation English. *Iranian Journal of Language Teaching Research, 2*(2), 1-12.

Downey, R., Suzuki, M., & Van-Moere, A. (2010). High-Stakes English-Language Assessments for Aviation Professionals: Supporting the Use of a Fully Automated Test of Spoken-Language Proficiency. *Professional Communication, IEEE Transactions on. 53*. 18-32.

Doyle, L., Brady, A., & Byrne, G. (2009). An overview of mixed methods research. *Journal of Research in Nursing, 14*(2), 175 – 185.

Dörnyei, Z. (2007). *Research methods in applied linguistics: Quantitative, qualitative, and mixed methodologies.* Oxford: Oxford University Press.

Drury, C. G. & Ma, J. (2002). *Language Error Analysis – Report on Literature of Aviation Language Errors and Analysis of Error Databases.* Report prepared for the FAA. University of Buffalo, State University of New York.

Dudley-Evans, T., & St. John, M. J. (1998). *Developments in English for Specific Purposes: A multidisciplinary approach*. Cambridge University Press.

Dunteman, G. H. (1989). *Principal component analysis, Quantitative applications in the social sciences series* (vol. 69). Thousand Oaks, CA: Sage.

Durmuşoğlu Köse, G., Yüksel, İ., Öztürk, Y., & Tömen, M. (2019). Turkish Academics' Foreign Language Academic Literacy: A Needs Analysis Study. *International Journal of Instruction, 12*(1), 717-736.

Elsaid Mohammed, A. S., & Nur, H. S. M. (2018). Needs analysis in English for academic purposes: The case of teaching assistants at the University of Khartoum. *HOW, 25*(2), 49-68. https://doi.org/10.19183/how.25.2.409

Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). London: SAGE.

Fraenkel J. R. & Wallen NE (1996). *How to Design and Evaluate Research in Education*, New York: McGraw-Hill.

Gillham, B. (2015). *Developing a questionnaire*. London: Bloomsbury Academic.

Guiyu, D., & Yang, L. (2016). An Empirical Study on Business English Teaching and Development in China—A Needs Analysis Approach. *Higher Education Studies, 6*(2), 142.

Henson, R. K., & Roberts, J. K. (2006). Use of exploratory factor analysis in published research. Common errors and some comment on improved practice. *Education and Psychological Measurement, 66*(3), 393–416.

Hertzog, M.A. (2008). Considerations in determining sample size for pilot studies. *Research in Nursing & Health, 31*,180-191.

Hill, R. (1998). What sample size is "enough" in internet survey research? *Interpersonal Computing and Technology: An Electronic Journal for the 21st Century, 6*, 3-4.

Hinkin, T. (1995). A review of scale development practices in the study of organizations. *Journal of Management, 21*(5), 967-988.

Hinkin, T. R., Tracey, J. B., & Enz, C. A. (1997). Scale construction: Developing reliable and valid measurement instruments. *Journal of Hospitality & Tourism Research, 21*(1), 100-120. doi:10.1177/109634809702100108

Hutchinson, T., & Waters, A. (1987). *English for Specific Purposes: A Learning Centred Approach*. Cambridge: Cambridge University Press.

ICAO Accident Statistics. (n.d.). Retrieved May 28, 2019, from https://www.icao.int/safety/iStars/Pages/Accident-Statistics.aspx

ICAO Annex 1 Personnel Licensing. (2006). Retrieved May 28, 2019 from http://web.shgm.gov.tr/documents/sivilhavacilik/files/pdf/saglik_birimi/mevzuat/ICAO_Annex%201-ed11.pdf

ICAO Status of English Language Standards for Use in Civil Aviation (2003). Report presented by Federal Aviation Administration. Buenos Aires, Argentina. Retrieved June 25, 2019 from http://www.icao.int/SAM/Documents/2003/RAAC8/RAAC8IP18.pdf

Isaac, S., & Michael, W. B. (1995). *Handbook in research and evaluation.* San Diego, CA: Educational and Industrial Testing Services.

Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using Mixed-Methods Sequential Explanatory Design: From Theory to Practice. *Field Methods, 18*(1), 3-20. doi:10.1177/1525822x05282260

Iwai, T., Kondo, K., Lim, D.S.J., Ray, G., Shimizu, H., & Brown, J.D. (1998-1999). *Japanese language needs analysis* (Rep.).

Johnson, R. B. & Onwuegbuzie, A. J. (2004). Mixed Methods Research: A Research Paradigm Whose Time Has Come. *Educational Researcher 33*(7), 14-26.

Jordan, R. (1997). *English for academic purposes: A guide and resource book for teachers.* Cambridge, UK and New York, NY: CUP.

Karimi, P., Lotfi, A. R., & Biria, R. (2019). Enhancing Pilot's Aviation English Learning, Attitude and Motivation through the Application of Content and Language Integrated Learning. *International Journal of Instruction, 12*(1), 751-766.

Kim, H., & Elder, C. (2009). Understanding Aviation English as a Lingua Franca. *Australian Review of Applied Linguistics, 32*(3).

Koparan, N. (2016, November 17-18). *Needs Analysis Research Project of Aviation English Students; What Are the Basic Needs Regarding Vocabulary Learning?* Paper presented at the International Conference on ICT for Language Learning the 9th Edition, Florence, Italy. Retrieved from https://conference.pixel-online.net/ICT4LL/files/ict4ll/ed0009/FP/ 3220-LSP2066-FP-ICT4LL9.pdf

Kuhn, T. (1962). *The structure of scientific revolutions*, University of Chicago Press, Chicago.

Lepetit, D., & Cichocki, W. (2002). Teaching Languages to Future Health Professionals: A Needs Assessment Study. *The Modern Language Journal, 86*(3), 384-396.

Li, J. (2014). Needs Analysis of Business English Undergraduates and the Implications to Business English Curriculum Design. *Advances in Language and Literary Studies, 5*(4), 33-37.

Li, J. (2014). Literature Review of the Classifications of "Needs" in Needs Analysis Theory. *International Journal of Education & Literacy Studies. (2)*3. 12-16.

Lin, C.-C., Liu, G.-Z., & Wang, T.-I. (2017). Development and Usability Test of an e-Learning Tool for Engineering Graduates to Develop Academic Writing in English: A Case Study. *Educational Technology & Society, 20*(4), 148–161.

Mazdayasna, G., & Athririan, M. H. (2008). Developing a profile of the ESP needs of Iranian students: The case of students of nursing and midwifery. *Journal of English for Academic Purposes, 7*. 277-289.

McCrosky, J. C., & Young, T. J. (1979). The use and abuse of factor analysis in communication research. *Human Communication Research, 5*, 375–82.

Mohammadi, V., & Mousavi, N. (2013). Analyzing Needs Analysis in ESP: A (re) modeling. *International Research Journal of Applied and Basic Sciences, 4*(5), 1014-1020.

Morgan, D. L. (2007). Paradigms lost and pragmatism regained. Methodological implications of combining qualitative and quantitative methods. *Journal of Mixed Methods Research, 1*(1), 48-76.

Mountfourd, A. (1981). *The Way and the Way*. London: London: Longman Group.

Munby, J. (1978). *Communicative Syllabus Design*. Cambridge: Cambridge University Press.

Murphy, M. R. (1980). *Analysis of eighty-four commercial aviation incidents: Implications for a resource management approach to crew training*. (pp. 298-306). Proceedings of the Annual Reliability and Maintainability Symposium. New York: Institute of Electrical and Electronics Engineers.

Nunan, D. (1988). *The learner-centred curriculum: A study in second teaching.* New York: Cambridge University Press.

Nunnally, J.C. (1978). *Psychometric theory (2nd ed.).* NY: McGraw-Hill.

Park, M. (2018). Innovative assessment of aviation English in a virtual world: Windows into cognitive and metacognitive strategies. *ReCALL, 30*(2), 196-213.

Park, M., & Slater, T. (2015). A Typology of Tasks for Mobile-Assisted Language Learning: Recommendations from a Small-Scale Needs Analysis. *TESL Canada Journal, 31*,93. doi:10.18806/tesl.v31i0.1188

Pett, M. A., Lackey, N. R., & Sullivan, J. L. (2003). *Making sense of factor analysis. The use of factor analysis for instrument development in health care research.* Thousand Oaks, CA: Sage Publications, Inc.

Poedjiastutie, D., & Oliver, R. (2017). Exploring Students' Learning Needs: Expectation and Challenges. *English Language Teaching*, *10*(10).

Porcaro, J. W. (2013). *Teaching English for Science and Technology: An Approach for Reading with Engineering English* (Vol. 51, Ser. 2, pp. 32-39, Rep.). (ERIC Document Reproduction Service No. EJ1018833)

Rahman, M. (2015). English for Specific Purposes (ESP): A Holistic Review. *Universal Journal of Educational Research*, *3*(1), 24-31.

Richards, J. C. (2001). *Curriculum development in language teaching.* Cambridge, UK: Cambridge University Press. https://doi.org/10.1017/CBO9780511667220.

Richards, J. C., & Schmidt, R. (2002). English for Specific Purposes. *In Longman Dictionary of Language Teaching and Applied Linguistics* (3rd ed., p. 181). Pearson Education.

Richterich R. & Chancerel L. (1980). *Identifying the needs of adults learning foreign language*, Oxford: Pergamon Press for the Council of Europe.

Robinson P.C. (1991). *ESP today: A practitioner's guide.* New York: Prentice Hall.

Saunders, M., Lewis, P. & Thornhill, A. (2012) *Research Methods for Business Students.* 6th edition, Pearson Education Limited.

Şahin, M. & Seçer. Ş.Y. E. (2016). Challenges of using audio-visual aids as warm-up activity in teaching aviation English. *Educational Research and Reviews. 11*(8), 860-866.

Saieed, M. N. (2012, Spring). *English for Specific purposes: Needs Analysis* [Scholarly project]. In *Academia*. Retrieved June 18, 2019, from https://www.academia.edu/1639419/English_for_Specific_purposes.

Saldaña, J. (2016). *The coding manual for qualitative researchers.* Los Angeles, CA: SAGE.

Seedhouse, P. (1995). Needs analysis and the general English classroom. *ELT Journal, 49*(1), 59-65. https://doi.org/10.1093/elt/49.1.59.

Singh, K. (2007). *Quantitative social research methods*. Los Angeles, CA: Sage Publication.

Solak, E. (2012). A study of needs analysis at Turkish Gendarmerie in terms of English for specific purposes. *The Journal of Language and Linguistic Studies, 8* (2), 48-63.

Songhori, M. H. (2008). Introduction to needs analysis. *English for Specific Purposes World, 4*(20), 1-25.

Strevens, P. (1980). *Teaching English as an international language: From practice to principle.* Oxford and New York, UK & USA: Pergamon Press.

Tashakkori, A. & Teddlie, C. (2003). *Handbook of Mixed Methods in Social & Behavioral Research.* Thousand Oaks: Sage.

Türkiye Geneli Havalimanı İstatistikleri. (n.d.). Retrieved June 02, 2019, from https://www.dhmi.gov.tr/sayfalar/istatistik.aspx

Ulum, Ö. G. (2016). ESP Needs Analysis of Public Order Police Officers. *International Online Journal of Education and Teaching (IOJET), 4*(1). 19-30.

Walliman, N (2006). *Social research methods.* Thousand Oaks. CA Sage.

West, R. (1994). Needs analysis in language teaching. *Language Teaching, 27*(1), 1-19. doi:10.1017/S0261444800007527

Widdowson, H.G.(1981). English for specific purposes: Criteria for course design. In Selinker et al. (Eds.), *English for Academic and Technical Purposes: studies in honor of Louis Trimble* (pp.1-11). Rowley: Newbury House.

Worthington, R. L., & Whittaker, T. A. (2006). Scale development research. A content analysis for recommendations for best practices. *The Counseling Psychologist, 34*(6), 806–838.

Wu, Y. (2012). An Empirical Study on Needs Analysis of College Business English Course. *International Education Studies, 5*(2), 6.

Yundayani, Audi. (2018). Present Situation Analysis: Students' Early Characteristics in Writing for Academic Purposes. *English Review: Journal of English Education, 6*. 119.

APPENDICES

A. ICAO LANGUAGE PROFICIENCY DESCRIPTORS

PART II: ICAO LANGUAGE PROFICIENCY RATING SCALE (Attachment A to Annex 1)

1.1 Expert, extended and operational levels

LEVEL	*PRONUNCIATION* ***Assumes a dialect and/or accent intelligible to the aeronautical community.***	*STRUCTURE* ***Relevant grammatical structures and sentence patterns are determined by language functions appropriate to the task.***	*VOCABULARY*	*FLUENCY*	*COMPREHENSION*	*INTERACTIONS*
Expert 6	Pronunciation, stress, rhythm, and intonation, though possibly influenced by the first language or regional variation, almost never interfere with ease of understanding.	Both basic and complex grammatical structures and sentence patterns are consistently well controlled.	Vocabulary range and accuracy are sufficient to communicate effectively on a wide variety of familiar and unfamiliar topics. Vocabulary is idiomatic, nuanced, and sensitive to register.	Able to speak at length with a natural, effortless flow. Varies speech flow for stylistic effect, e.g. to emphasize a point. Uses appropriate discourse markers and connectors spontaneously.	Comprehension is consistently accurate in nearly all contexts and includes comprehension of linguistic and cultural subtleties.	Interacts with ease in nearly all situations. Is sensitive to verbal and non-verbal cues and responds to them appropriately.
Extended 5	Pronunciation, stress, rhythm, and intonation, though influenced by the first language or regional variation, rarely interfere with ease of understanding.	Basic grammatical structures and sentence patterns are consistently well. controlled. Complex structures are attempted but with errors which sometimes interfere with meaning.	Vocabulary range and accuracy are sufficient to communicate effectively on common, concrete, and work-related topics. Paraphrases consistently and successfully. Vocabulary is sometimes idiomatic.	Able to speak at length with relative ease on familiar topics but may not vary speech flow as a stylistic device. Can make use of appropriate discourse markers or connectors.	Comprehension is accurate on common, concrete, and work-related topics and mostly accurate when the speaker is confronted with a linguistic or situational complication or an unexpected turn of events. Is able to comprehend a range of speech varieties (dialect and/or accent) or registers.	Responses are immediate, appropriate, and informative. Manages the speaker/ listener relationship effectively.
Operational 4	Pronunciation, rhythm, and intonationstress, are influenced by the first language or regional variation but only sometimes interfere with ease of understanding.	Basic grammatical structures and sentence patterns are used creatively and are usually well controlled. Errors may occur, particularly in unusual or unexpected circumstances, but rarely interfere with meaning.	Vocabulary range and accuracy are usually sufficient to communicate effectively on common, concrete, and work-related topics. Can often paraphrase successfully when lacking vocabulary in unusual or unexpected circumstances.	Produces stretches of language at an appropriate tempo. There may be occasional loss of fluency on transition from rehearsed or formulaic speech to spontaneous interaction, but this does not prevent effective communication. Can make limited use of discourse markers or connectors. Fillers are not distracting.	Comprehension is mostly accurate on common, concrete, and work- related topics when the accent or variety used is sufficiently intelligible for an international community of users. When the speaker is confronted with a linguistic or situational complication or an unexpected turn of events, comprehension may be slower or require clarification strategies.	Responses are usually immediate, appropriate, and informative. Initiates and maintains exchanges even when dealing with an unexpected turn of events. Deals adequately with apparent misunderstandings by checking, confirming, or clarifying.
Pre- operational 3	Pronunciation, stress, rhythm, and intonation are influenced by the first language or regional variation and frequently interfere with ease of understanding.	Basic grammatical structures and sentence patterns associated with predictable situations are not always well controlled. Errors frequently interfere with meaning.	Vocabulary range and accuracy are often sufficient to communicate on common, concrete, or work-related topics, but range is limited and the word choice often inappropriate. Is often unable to paraphrase successfully when lacking vocabulary.	Produces stretches of language but phrasing and pausing are often inappropriate. Hesitations or slowness in language processing may prevent effective communication.Fillers are sometimes distracting.	Comprehension is often accurate on common, concrete, and work-related topics when the accent or variety used is sufficiently intelligible for an international community of users.May fail to understand a linguistic or situational complication or an unexpected turn of events.	Responses are sometimes immediate, appropriate, and informative. Can initiate and maintain exchanges with reasonable ease on familiar topics and in predictable situations. Generally inadequate when dealing with an unexpected turn of events.
Elementary 2	Pronunciation, stress, rhythm, and intonation are heavily influenced by the first language or regional variation and usually interfere with ease of understanding.	Shows only limited control of a few simple memorized grammatical structures and sentence patterns.	Limited vocabulary range consisting only of isolated words and memorized phrases.	Can produce very short, isolated, memorized utterances with frequent pausing and a distracting use of fillers to search for expressions and to articulate less familiar words.	Comprehension is limited to isolated, memorized phrases when they are carefully and slowly articulated.	Response time is slow and often inappropriate. Interaction is limited to simple routine exchanges.
Pre- elementary 1	Performs at a level below the Elementary level.	Performs at a level below the Elementary level.	Performs at a level below the Elementary level.	Performs at a level below the Elementary level.	Performs at a level below the Elementary level.	Performs at a level below the Elementary level.

B. NEEDS ANALYSIS QUESTIONNAIRE

AVIATION ENGLISH NEEDS ANALYSIS QUESTIONNAIRE

June 2019

You are invited to participate in a research study about tertiary level ESP students' needs in terms of Aviation English courses. The current study aims to analyze the possible needs of students to meet their aviation related language needs towards complying with International Civil Aviation Organization's (ICAO) Operational Level (4) Language Standards. This study is being conducted by Gökhan DEMİRDÖKEN, English Instructor from the Department of Foreign Language Education, Turkish Air Force Academy, as part of his MA Thesis study, supervised by Assist.Prof. Hatime ÇIFTÇI, at the Department of English Language Teaching, Faculty of Educational Sciences, Bahçeşehir University.

This survey is anonymous, and your personal data will be kept confidential. No one will be able to identify you or your answers, and no one will know whether you participated in the study or not. Should the data be published, no individual information will be disclosed. Participation is completely voluntary. You can decline to answer any question or to take part in the research any time you want.

If you have any questions about the study, please contact Gökhan DEMİRDÖKEN via gdemirdoken@hho.edu.tr . If you have read and agreed to take part in this research, please fill in the consent form below. Thank you for your contribution.

CONSENT

_____ _____

Participant's Name Participant's E-mail Address

_____ _____

Participant's Signature Date

PART A – PERSONAL INFORMATION

Age	
Gender	

Please put a tick ✓ for the most appropriate option for you.

1) How long have you been learning English?

0-1 year	
1-3 years	
3-6 years	
6-10 years	
More than 10 years	

2) Under what circumstances have you learned English?

I have learned English in a language school in Turkey.	
I have learned English as part of compulsory education.	
I have learned English abroad.	
I have learned English with a tutor.	

	Yes	**No**
3) Are you familiar with Aviation English?		
4) Are you familiar with ICAO language standards in aviation?		

5) Please state your current level of English.

	A1 Beginner	A2 Elementary	B1 Intermediate	B2 Upper Intermediate	C1 Advanced	C2 Proficient
Speaking						
Listening						
Reading						
Writing						

6) What is the most difficult skill for you to develop in English? (Please choose only one option.)

Speaking	
Listening	
Reading	
Writing	

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
7) How important is English in aviation according to you?					
8) How important is it for you to learn English for your aviation career?					

Please state your opinion on each item. ***(1 "Strongly Disagree"; 2 "Disagree"; 3 "Neither agree nor disagree"; 4 "Agree"; 5 "Strongly agree")***

PART B	**1**	**2**	**3**	**4**	**5**
1. I need to improve my pronunciation more than the other skills in aviation English.					
2. I need to be a more fluent speaker of Aviation English.					
3. I need to break through the difficulty of understanding different accents of aviators.					
4. I need to improve my listening skill to meet the Aviation English language standards.					
5. I need to improve my reading comprehension skill to meet the Aviation English language standards.					
6. I need to improve my oral communication skill to meet the Aviation English language standards.					

PART C	**1**	**2**	**3**	**4**	**5**
7. It is essential for me to comprehend what I read in order to meet the Aviation English language standards.					
8. It is essential for me to comprehend oral messages in order to meet the Aviation English language standards.					
9. It is vital for me to understand written aviation documents in order to meet the Aviation English language standards.					
10. It is vital for me to understand aviation related speeches in order to meet the Aviation English language standards.					
11. Oral communication is vital for me to be competent in Aviation English.					

PART D

	1	2	3	4	5
12. I can speak Aviation English fluently.					
13. I can pronounce Aviation English terms correctly.					
14. My Aviation English accent is intelligible for other aviators.					
15. I can have good control of sentence patterns in Aviation English.					
16. My knowledge of Aviation English terms is enough to understand audio files related to Aviation English.					
17. My knowledge of Aviation English terms is enough to express myself to other aviators.					
18. My knowledge of Aviation English terms is enough to explain an emergency situation.					
19. I can communicate with other aviators effectively.					
20. I can maintain fluent speech even in emergency situations.					
21. I am a fluent English speaker in terms of aviation.					
22. I can respond to the questions of other aviators appropriately.					
23. I can maintain effective communication when I speak Aviation English.					
24. I can easily understand a speech related to aviation.					
25. I can ask for clarification when I do not understand other people in terms of Aviation English.					
26. I can easily inform other aviators on a topic related to aviation.					
27. My knowledge of Aviation English terms is enough to explain a problem.					
28. I can ask for confirmation when a misunderstanding occurs.					
29. I can express myself in black and white easily.					

Please state your preference.	**Yes**	**No**
The second phase of the current research study is focus-group interviews. Do you want to take part in the second phase of this research study?		

C. STRUCTURED INDIVIDUAL INTERVIEW AND THE CONSENT FORM

AVIATION ENGLISH NEEDS ANALYSIS INTERVIEW

June 2019

You are invited to participate in a research study about tertiary level ESP students' needs in terms of Aviation English courses. The current study aims to analyze the possible needs of students to meet their aviation related language needs towards complying with International Civil Aviation Organization's (ICAO) Operational Level (4) Language Standards. This study is being conducted by Gökhan DEMİRDÖKEN, English Instructor from the Department of Foreign Language Education, Turkish Air Force Academy, as part of his MA Thesis study, supervised by Assist.Prof. Hatime ÇİFTÇİ, at the Department of English Language Teaching, Faculty of Educational Sciences, Bahçeşehir University. This interview is anonymous, and your personal data will be kept confidential. No one will be able to identify you or your answers, and no one will know whether you participated in the interviews or not. Participation is completely voluntary. You can decline to answer any question or to take part in the interview any time you want. I will record the interview with your permission and take notes during the interview. The recording is to accurately record the information you provide, and it will be used for transcription purposes only. If you have any questions about the study, please contact Gökhan DEMİRDÖKEN via gdemirdoken@hho.edu.tr . If you have read and agreed to take part in this research, please fill in the consent form below. Thank you for your contribution.

CONSENT

_____ _____

Participant's Name Participant's E-mail Address

_____ _____

Participant's Signature Date

Name and Surname:

Age:

Gender:

1. What does Aviation English mean to you?

2. What do you expect from Aviation English courses?

3. Which language skills do you think you will need as a cadet pilot? And which ones do you need to develop?

4. What do you think of similarities and differences between your needs and language standards set by ICAO?

5. What can be the difficulties of Aviation English courses?

6. What should be the differences between Aviation English courses from General English courses?

7. What do you think of Aviation English terminology as a cadet pilot?

8. What can motivate you throughout the Aviation English course?

9. How can the Aviation English course contribute to your development?

D. STATISTICAL ANALYSIS OF PILOT STUDY

Table 23

Cronbach Alpha score of the questionnaire after pilot study

	Cronbach Alpha	Cronbach Alpha based on standardized items	N of items
Pilot Study Questionnaire	.932	.938	58

Table 24

Summary item statistics of the pilot study

	Mean	Range	Variance	N of items
Item Means	3,323	2,550	,292	58
Item Variances	,770	1410	,109	58
Inter-item Covariance	,146	1699	,058	58
Inter-item Correlation	,208	1602	,090	58

E. CURRICULUM VITAE

PERSONAL INFORMATION

Surname, Name: Demirdöken, Gökhan

Nationality: Turkish (T.C.)

Date and Place of Birth: 28 April 1990, Ağrı

Marital Status: Married

Phone: +90 212 663 24 90 – 4528

Fax: +90 212 663 28 37

E-mail: gdemirdoken@hho.edu.tr

gokhan.demirdoken@gmail.com

EDUCATION

Degree	Institution	Year of Graduation
MA	Bahçeşehir University	2019
BA	Hacettepe University	2014
High School	Anıttepe Anatolian High School	2008

WORK EXPERIENCE

Year	Place	Enrollment
2010-2012	Çelebi Ground Handling Inc.	Passenger Services Agent
2012-2014	Çelebi Ground Handling Inc.	Passenger Services Lead Agent
2013-2014	Atatürk University	Visiting Aviation Instructor
2015-2017	Ministry of National Education	English Language Teacher
2017-...	Turkish Air Force Academy	English Language Instructor

FOREIGN LANGUAGES

English (Advanced), German (Elementary)

CERTIFICATES

Oxford ELTOC Certificate of Attendance (Online Conference) 2019

PUBLICATIONS

Demirdöken, G. "A Needs Analysis Study: Do Students Really Want to Share Their Desks with Technology" presented at the 7th INTERNATIONAL CONFERENCE on LANGUAGE, LITERATURE AND CULTURE, Trabzon, 2018.

PERSONAL INTERESTS

Aviation, Football, Technology