

Introducing Innovation into an ESP Program: Aviation English for Cadets

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Abstract The aim of English for Specific Teaching (ESP) in Turkish universities is to support the development of scientific literacy in learners' field of specialism in English. Implicit in this objective is to make the ESP curriculum tailor-made to meet the learners' specific needs. In this study, we describe evaluating the new Turkish Air Force Academy (TurAFA) curriculum, which has been in use for some time. TurAFA is unique in that it aims to train cadets to become combat pilots leading Turkish Air Force. After contextualizing our research, we provide an evaluation of an innovative "Aviation English for Cadets" (AEC) curriculum which has been designed to fulfill cadets' individual and institutional needs. AEC is based on a comprehensive needs analysis involving all stakeholders including the graduates, field experts, instructors and cadets. The most innovative aspect of the curriculum is the introduction of virtual aviation, a challenging innovation in the curriculum for cadets. We illustrate the course content with a simulated flight snapshot. Finally, we discuss the curriculum evaluation in relation to its professional relevance, use of technology, and challenges encountered in the curriculum development process. The study illustrates a localized practice; yet, we believe that it has implications for EAP/ESP practitioners and researchers globally.

Keywords Aviation English · Curriculum development and evaluation · Higher education

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1 Introduction

Aviation industry is growing at an enormous rate and highly sophisticated set of technologies are employed for achieving safety in aircraft operations. Though enormous efforts have been made to improve aircraft technologies, maintenance facilities, airports, and navigation aids, the industry still suffers from the aviation safety problems in other words tragic air accidents. One of the underlying problems leading to this problem is miscommunication. Communication problems, especially between pilots and air-traffic controllers, have a crucial role in the number of fatal air accidents (Kanki and Palmer 1993). These problems are even more severe for non-native English-speaking pilots and non-native English speaking controllers, since they have the highest probability of miscommunication and misunderstanding interacting with each other (Said 2011).

Communication in aircraft operations basically depends on English and the specialized subset of English related broadly to aviation is called Aviation English. Aviation English means more than technical phraseology and it is used for radiotelephony communications for a safe flight. So, in order to ensure aviation safety this particular subset of English needs to be mastered by all aviation industry professionals including pilots, co-pilots, flight attendants, air traffic controllers, mechanics, engineers, flight dispatchers and the ground staff including managers and officials within the aviation industry.

Like business English, aviation English is a subdivision of ESP and it is a kind of codified language basically made up of a list of structures that pilots and air traffic controllers have to use in the exact same way every time. These structures are to be efficient, clear, concise and unambiguous. Though pilots and air traffic controllers can operate on the basis of this standard phraseology, in case of emergencies and unexpected situations the English language proficiency is needed to rescue the crew and the aircraft. Majority of pilots and controllers state that “good communication is as important as technical proficiency for the safety of flight” (Wulle and Zerr 1997: 91). In other words, Air Traffic Communication (ATC), providing pilots with vital information about weather, airport and air traffic, leads pilots at the right altitudes, speeds and on routes and it plays crucial roles in operating aircraft safely. Krifka et al. (2003:1) states that in the last two decades the major cause of aircraft accidents has been miscommunication between the pilots and air traffic controllers. Furthermore, an Airbus study revealed the fact that, incorrect or incomplete pilot/controller communications brought about 80% of airplane incidents or accidents (FOBN 2004).

Through ATC communication pilots also give their flight information to the controllers, which, in turn ensures the current air traffic flow smoothly and safely. Since every international flight is a multi-cultural experience (Merritt and Ratwatte 1997:664), ATC communication takes place in multi-lingual environments and it requires a common language. Aviators interpret the content of communication on the basis of their cultures and, Schultz (2002) stated communication approaches of cultures affect aircraft accident rates. English is the *lingua franca* of aviation and

the nature of aviation English is depicted by Sullivan and Girginer's (2002:400) study. They analyzed ATC communications at a Turkish airport and in nine hours they observed 278 pilots communicating with the controllers. Those pilots were from 28 different countries and only two of them were from countries where English is the native language. So, for a pilot with inadequate English language i.e. aviation English proficiency it is impossible to attend an international flight.

2 Turkish Air Force Academy

Turkish Air Force Academy (TurAFA) was founded as a military academy on October 1, 1951 with a mission; to educate, train, and inspire the cadets in becoming motivated officers who will aspire to become combat pilots leading Turkish Air Force. As an institute of higher education, TurAFA offers not only a regular undergraduate education but also a 4-year military training composed of physical education classes and flight training activities. TurAFA offers undergraduate education in four academic majors i.e. aviation and aerospace engineering, electronics engineering, industrial engineering, and computer engineering. At graduation, each cadet earns a Bachelor degree and a commission as a second lieutenant in the Turkish Air Force.

TurAFA cadets graduate as combat pilot candidates, and unlike any other university graduates they all have pre-arranged career fields with clear-cut definitions. Right after graduation cadets are to attend Çiğli Air Base in Turkey to get their Flight Training and those students failing to earn pilot license are required to serve in Turkish Air Force as Ground Officers. As prospective North Atlantic Treaty Organization (NATO) officers, all TurAFA graduates are bound with NATO standards and procedures pertaining to flight training. Being part of multi-national task forces in many parts of the globe, TurAFA graduates are also expected to fulfill language requirements depicted in STANAG 6001¹. The language proficiency level expected from the cadets includes both the receptive and productive skills. In other words the cadets as the future officers of Turkish Air Force are expected to use the English language effectively not only in written and spoken contexts, but also in written and spoken encounters.

Although the medium of instruction is not English in the academy, English language education is given special attention and language classes have a vital share –32 credit hours- in the curriculum. TurAFA accepts high school graduates at the

¹A STANAG, or Standardization Agreement, is an international military standard created by the North Atlantic Treaty Organization (NATO) for regulating equipment, procedures, tactics, training and just about everything that affects how armed forces from different countries work together on operations and exercises.

STANAG 6001 is a language proficiency scale designed to allow comparisons of language ability in different countries. The scale consists of a set of descriptors with proficiency skills broken down into six levels, coded 1 through 6. (<http://www.campaignmilitaryenglish.com/Course/teacher.htm>)

ages of 17–19. Though since the beginning of the 1950s, English has been a mandatory subject at the secondary level (Kırkgöz 2007), stemming from the content that was taught, the materials used, the number of hours of instruction, and issues with teacher quality, large numbers of learners still have difficulty in achieving an adequate level of language proficiency (Çelik et al. 2017: p. 3). This leads to heterogeneity in English language proficiency levels among the cadet candidates. So, TurAFA English Language Teaching (ELT) program starts with a placement test which is carried out right before the freshman year. Based on the placement test results cadets are divided into five groups as beginner, pre-intermediate, intermediate, advanced and upper-advanced and given instruction accordingly.

3 ESP Instruction in TurAFA

Keeping in mind the facts that the main means of communication in NATO headquarters and among the elements of multinational task forces is English and English language education programs need to be modified in accordance with the needs of the particular student groups, the aim of TurAFA foreign language education and testing is set not only to prepare the cadets for academic settings but also to prepare them for military i.e. aviation workplace environments where English is the *lingua franca*. The dominant position of English in specific communication contexts has contributed to the growth of the field of English for Academic/Specific Purposes (Ferguson 2007). So, taking these facts into consideration, ESP² is integrated into the TurAFA ELT curriculum design. As Adamson and Adamson (2017: p.19) states language use serves not only to achieve language comprehension but it also helps learners to acquire the content syllabus. In the same way, TurAFA ESP instruction aims at enabling the cadets functioning in a real world in which they are supposed to do real things and understand the real world problems via speaking a language that is not their native language.

In order to keep the course aligned with the learners' needs, ESP curriculum renewal periodically is invaluable (Jackson 2005). Curriculum design and construction of new courses are supposed to take the learners' present knowledge, their limitations, the number of instructional hours, program outcome expectations and the background of the teachers into consideration. Hence, ESP curriculum design entails proper application of needs analysis which is the cornerstone of ESP (Dudley-Evans and St John 1998:121); thus, the role of needs analysis in any ESP curriculum should not be underestimated (Hamp-Lyons 2001). The needs analysis in an ESP curriculum design process is based on two sources: data acquired via student opinion surveys and teacher interviews (Mačianskienė and Bijeikienė 2017: p. 11).

²English for Specific Purposes (ESP) addresses the communicative needs and practices of particular professional or occupational groups (Hyland 2007, 391).

Taking all these into consideration, TurAFA launched a new ELT Curriculum for the cadets in the beginning of 2007–2008 academic years. The new program aiming at developing the four skills of the language i.e. listening, speaking, reading and writing has been designed in accordance with a comprehensive needs analysis carried out by collecting data from the graduates, field experts, instructors and cadets. The new curriculum mainly consists of two stages. In the first phase of the program, the cadets are expected to master the four skills of General English at advanced level. Following this stage, cadets are presented with an authentic ESP curriculum prepared by the Foreign Languages Department of TurAFA. The initial phase of the program lasts at least for two semesters and duration of this phase varies in accordance with the entry proficiency levels of cadets. For instance, for military high school and Anatolian high school graduates whose entry proficiency level of English is at least high-intermediate, this initial phase lasts two semesters. Upon the completion of the first phase of the program, cadets take ESP courses given via the above mentioned authentic course materials written to fulfill their individual and institutional needs. The ESP courses are offered to Common European Framework of Reference (CEFR) B2 level students and those courses are designed to teach students not only a range of vocabulary items and grammar structures to communicate in a number of professionally relevant situations, but also they are designed to teach students to communicate in a broad variety of professionally relevant situations.

The program is to be covered in six semesters through which a separate book is studied. The ESP books are all content-based course books and they are written by the Academy's English language instructors. The topics of each of the six books are decided by the program designers in cooperation with the Academy's teachers of English and the Turkish Air Force officers who are the subject matter experts in those specific contents. The course books are named as Turkish Air Force (TurAF), North Atlantic Treaty Organization (NATO), Current Issues in Turkish Foreign Affairs (CITFA), Academic English with Engineering Texts (AEET), Air Forces of the Allied Countries (AFACs), and Aviation English for Cadets (AEC) with respect to the timeline they are studied. So, the cadets are supposed to take *Aviation English for Cadets* course right before graduation. Though the scope and content of the whole ESP program is briefly introduced as follows, the focal point of this study will be *Aviation English for Cadets* course which aims at reinforcing the cadets' -the future aviators- professional knowledge through participating in real-world tasks. TurAFA ELT Curriculum is presented in Fig. 1.

TurAFA ESP curriculum design has been conducted in a way that the design meets both the institutional and individual needs of the learners. In order to meet those needs of learners and the institution; firstly, the needs of both the learners and the institution have been identified; secondly, an ESP program has been developed; then the course syllabus has been designed accordingly; and finally authentic materials have been developed. The program is designed for catering the needs thoroughly and it is intended to achieve effective and efficient English language teaching emphasizing the usage of reading, writing, listening, and speaking skills in various professional situations. So, course materials and exercises are selected to be correct and authentic with regard to the information they present on the military and aviation based topics.

YEAR	SEMESTER	C/H	LEVEL				
			BEGINNER	PRE-INTERMEDIATE	INTERMEDIATE	ADVANCED	UPPER ADVANCED
1	1	20	General English	General English	General English	General English	General English
	2	12	General English	General English	General English	General English	General English
2	1	4	General English	General English	General English	Turkish Air Force (TuAF)	Turkish Air Force (TuAF)
	2	4	General English	General English	General English	NATO	NATO
3	1	3	General English	General English	General English	Current Issues in Turkish Foreign Affairs (CITFA)	Current Issues in Turkish Foreign Affairs (CITFA)
	2	3	General English	General English	Turkish Air Force (TuAF)	Academic English with Engineering Texts (AEET)	Academic English with Engineering Texts (AEET)
4	1	3	General English	Turkish Air Force (TuAF)	NATO	Air Forces of the Allied Countries (AFACs)	Air Forces of the Allied Countries (AFACs)
	2	3	Turkish Air Force (TuAF)	NATO	Current Issues in Turkish Foreign Affairs (CITFA)	Aviation English for Cadets (AEC)	Aviation English for Cadets (AEC)

COLOR CODE
1st Phase: North Star course books
2nd Phase: Authentic CBI books

Fig. 1 TurAFA ELT curriculum

The content of the course books are as follows:

3.1 *Turkish Air Force (TuAF) Book*

This is the first book of the TurAFA ESP series and it includes basic information about Turkish Air Force. In the first unit, the students are presented with information about oneday of an F-16 pilot on a jet base and how a fighter pilot is trained and educated in Cigli Flight School. Second unit is about history of Turkish Air Force. The other units include issues and topics regarding ranks, Turkish Acrobatic Team namely Turkish Stars, main units of Turkish Air Force, Turkish Armed Forces, Turkish War Colleges, air ground branches and issues pertaining to the future of Turkish Air Force.

3.2 *NATO Book*

This is the second book of the TurAFA ESP series and it informs the cadets about NATO as an organization. Cadets learn how NATO works and what the underlying reasons of its foundation are. Timeline of NATO, peace keeping forces of NATO and the role of NATO today are the contents of the course book. There are also units concerning NATO's interventions and missions in history. Projections about the future of NATO are found in the last unit of the book.

3.3 Current Issues in Turkish Foreign Affairs (CITFA) Book

This is the third book of the TurAFA ESP series and it is prepared to teach current hot topics of Turkish foreign affairs to cadets. The first unit of the book is about agreements and treaties of the Republic of Turkey in history. The following unit includes Armenian and Turkish Allegations concerning 1915 events. Water dispute between Turkey and Greece, European Union (EU) and relationships between Turkey-EU, energy issues and water crisis in the Middle East are also discussed in CITFA units.

3.4 Academic English with Engineering Texts (AEET) Book

This is the fourth book of the TurAFA ESP series and it aims at giving some background information about general engineering topics to cadets. Some of the units and their contents are as follows: supercomputers unit is related to computer engineering, aircraft elements and unmanned aerial vehicles unit is related to aerospace engineering, modeling-simulation and operations research unit is connected to industrial engineering and electronic warfare unit is concerned with electronics engineering.

3.5 Air Forces of Allied Countries (AFACs) Book

Turkey is an ally of lots of countries and there are many possibilities for officers to come across personnel from allied countries. Also, commanding Turkish Air Force requires knowledge in numerous military areas. So, cadets are supposed to know general and important information about ally countries of Turkey. This book presents basic introductory information about Pakistan Air Force (PAF), Republic of South Korea Air Force (ROKAF), Royal Canadian Air Force (RCAF), Hellenic Air Force (HAF), Royal Air Force (RAF), and United States Air Force (USAF).

3.6 Aviation English for Cadets (AEC) Book

“Aviation English for Cadets” book is in the curriculum in order to teach aviation terminology regarding places, aircraft and flight. Furthermore, facilities of a base, meteorology, ground services, runway numbering systems, runway remarks, principles of flights, types of aircraft, modern military aircraft, radiotelephony communications, ICAO alphabets and numbers, the language of air traffic control (ATC) and an en route analysis are the issues covered in this course book.

Generally speaking, the contents of the TurAFA curriculum course books are real and they cover progressing issues. Some writing parts are comprised by pilots or other air force personnel from various ground branches. The realistic curriculum and course books with real life content increase the interest of air cadets in English courses. After the completion of these books, an air cadet can express himself/herself easily and properly. Being equipped with international issues makes an officer much more qualified as well. All the objective vocabulary of the course books are the ones which are used most-frequently in aviation area, and which they are going to use in the future when needed. Many topics of the course books related to aviation and aircraft are the issues which every air force officer should know. By the end of eight-term English language curriculum, air cadets graduate from Turkish Air Force Academy as well-qualified, equipped and capable warfare officers who have no problem in communication in English language.

4 Aviation English for Cadets (AEC) Course

Among the state and private foundation universities, Air Force Academy is unique in that through an engineering program it provides its cadets with an ESP course in order to prepare them for Flight Training to which they are supposed to attend for earning their pilot licenses. Since the language for aviation is English all over the world, TurAFA cadets who are to pursue a career in aviation will need to be able to speak and understand the English language to NATO standards. In order to fulfill this institutional need, TurAFA developed a course called “Aviation English for Cadets”. Cadets of TurAFA acquire their aviation knowledge via the *Aviation English for Cadets* course. > This book provides students with a basic, core aviation English vocabulary for exploring the world of aviation, and it allows them to develop their written and spoken communication skills in a context simulated with real world tasks. The major themes of the book are airport environment, aircraft elements and flight as an ongoing process.

Aviation English for Cadets has 4 modules and focuses on key language concepts, aviation vocabulary and the oral skills necessary to accomplish tasks both on the ground and in the air required for a safe flight. Designing the modules and creating the content of the book, authors of the book were consulted by two of TurAFA active fighter pilots. The chief author of the book is not only a senior instructor but also is pretty much interested in virtual aviation. It started as a hobby for his leisure activities in 2004 and today he still keeps track of the developments in the world of virtual aviation. The book *Aviation English for Cadets* was printed in 2011 and it has been in use since then. The course and its book *Aviation English for Cadets* is a challenging innovation in TurAFA curriculum both for cadets and instructors.

The cadets attending this course are required to have STANAG 6001 proficiency levels of 4 3 4 3 i.e. level 4 in Listening, level 3 in Speaking, level 4 in Reading and level 3 in Writing. On the other hand, TurAFA instructors of English are supposed



Fig. 2 Front cover and the content pages

to get through a tough in-service-training period in order to be authorized to teach aviation English.

Since classroom activities is essential in designing a curriculum, TurAFA ESP curriculum designers paid special attention to the development of the curriculum materials and organization of class activities.

Aviation English for Cadets course not only covers areas such as airport elements, aircraft structures and systems, standard phraseology and terminology, principles of flight and flight operations but also the course presents class activities aligned with the needs and backgrounds of the learners.

The content of *Aviation English for Cadets* modules are as follows (Fig. 2):

Module 1: Place

An Air Force Base, basic runway markings, meteorology, key words.

Module 2: Plane

Aircraft elements, principles of flight, flight basics, types of aircraft, modern military aircraft.

Module 3: Flight

The Language of Air Traffic Control (ATC), the ICAO Alphabet and Numbers, Radio communications, Chicago Convention.

Module 4: An En Route Analysis

Clearance delivery, startup and pushback with taxi request, taxi to the active runway, takeoff clearance and takeoff, climb to the cruising altitude, en route between waypoints, descent and approach, final approach and touchdown, taxi request and taxi to the terminal, avionics and engine cutoff.

Aviation English for Cadets is a compulsory three credit hour course for cadets. It is offered in the last semester of the academy right before the graduation and Çiğli Flight School where all TurAFA graduates are supposed to fly training aircrafts using English language as a means of communication. Aviation English for Cadets is actually a preliminary course to flight training and its modules are designed in such a way that cadets are presented tasks in an order from simple to complex. After

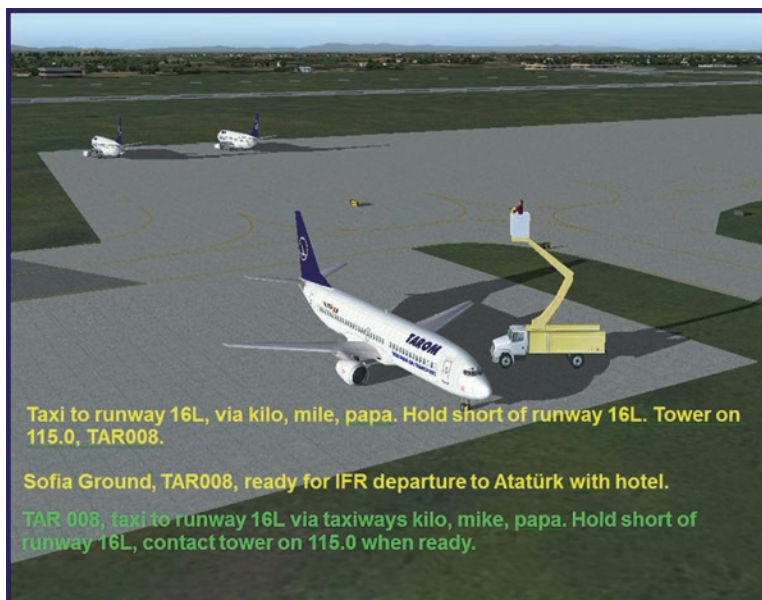


Fig. 3 A simulated flight snapshot

reviewing basic aviation knowledge pertaining to principles of flight, meteorology, radio communications etc., in the final module the book presents a complete enroute analysis which creates an opportunity for the cadets to practice their theoretical knowledge. The book is accompanied by a DVD for putting the theory in practice and a simulated flight snapshot is presented in Fig. 3.

The final module entails a simulated flight from İstanbul Atatürk Airport to İzmir Adnan Menderes Airport through the following steps: clearance delivery, taxi request, taxi to the active runway, takeoff clearance and takeoff, climb to the cruising altitude, en route between waypoints, descent and approach, final approach and touchdown, taxi request and taxi to the terminal, avionics and engine cutoff (Fig. 4).

This simulated flight is accompanied by role play activities during which cadets pretend to be the pilot and tower, try to solve given problems under the supervision of the instructor. In Figs. 5 and 6 two of these are given as sample cases.

Enabling the cadets to practice the theory presented in the course book, TurAFA Aviation English for Cadets course is quite an opportunity for pilot candidate senior cadets for getting prepared for Çiğli Flight School.

Learner evaluation is also an important element of ESP curriculum design. So, in addition to traditional achievement tests in the form of midterm and final exams, TurAFA ESP curriculum designers planned skill based means of evaluation to ensure that the cadets attain the proposed language proficiency levels. Thus, every single cadet is supposed to take four-session midterm and final exams. Those sessions are reading, writing, listening and speaking skills evaluation sessions and each of them make 25% of the final grade. Learner progress is measured with portfolios



Fig. 4 Steps followed during the simulated flight

and observations in given cases and for the sake of ensuring objectivity, assessments are done using checklists.

The scope of the evaluation activities in TurAFA aviation course includes especially the “speaking and listening ability” of the cadets in various aviation contexts. The ultimate goal of the program is to enable cadets to reach Stanag 6001 Level 3 which refers to the “professional” level of language proficiency. Cadets reaching this level in listening comprehension skill are adequate to follow radio broadcasts, speech conversations between two educated native speakers in the standard language and though they may miss the details and regional or dialectic forms, they can interpret general meaning correctly. Furthermore, cadets reaching this level in speaking comprehension skill are rarely impaired by hesitations, their flow of speech is maintained by circumlocution when necessary and there is no groping for words. Since lack of adherence to ICAO standards is a major cause of confusion and misunderstandings amongst pilots (Moder 2013), the target language proficiency levels of cadets are also specified in accordance with the Standards for The

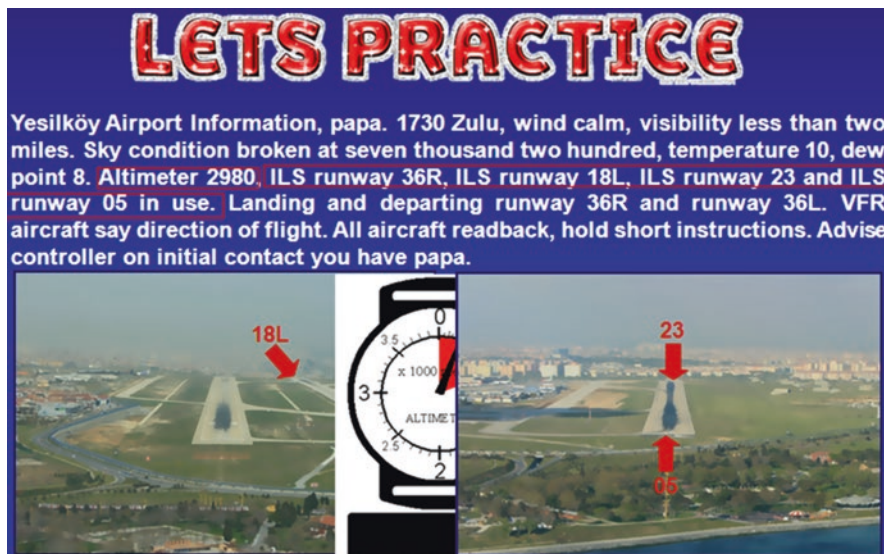


Fig. 5 A sample case for role play activity

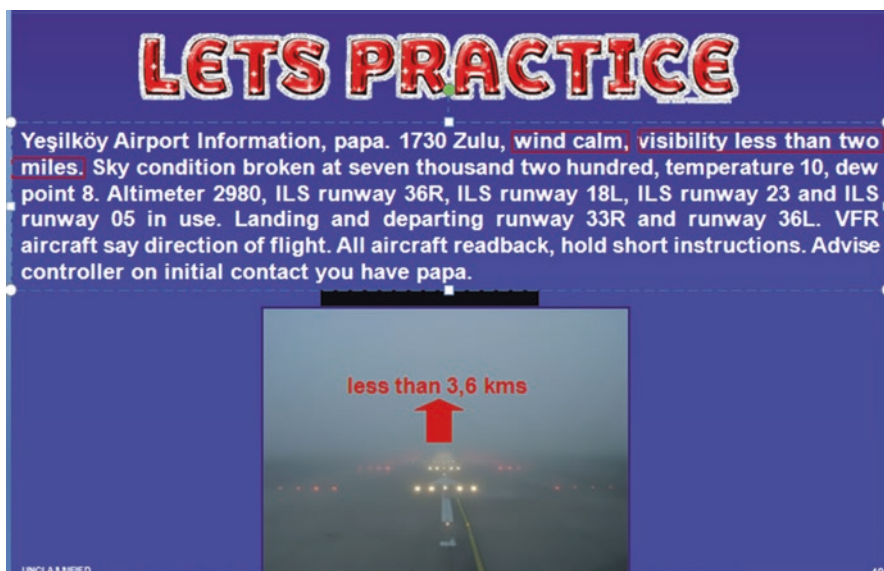


Fig. 6 A sample case for role play activity

International Civil Aviation Organization (ICAO) Rating Scale for Operational Level 4 and CEFR Level B2.³

³TurAFA cadets' language proficiency levels are measured in accordance with STANAG 6001 standards. Though translating Stanag6001 standards into CEFR is not that easy, Bureau for International Language Co-ordination (BILC) which is a NATO agency proposed a tentative rela-

5 Evaluation of the Program

In order to find out the relevance of the training, six of the graduate pilots and five of the course instructors were interviewed. Though the program was launched in 2007–2008 academic year, since aviation curriculum was placed in the final stage of the program cadets are exposed to Aviation English beginning from 2011 Spring Semester. Since only the cadets with CEFR B2 level language proficiency were admitted to take this course and the number of those cadets was only about 40 and almost half of those cadets were able to get pilot license, the number of participants for this qualitative research is not so few. Participants of the study were all male, and the pilots' average age was 36.3 and their average number of flight hours was 1416. As far as the instructors concerned, their average age was 32.2 and average number of teaching years was 8.8. So, both the pilots and the instructors were experienced enough to contribute to the study. Interview was in the participants' native tongue i.e. in Turkish in order to ensure the clarity of the statements and for the same purpose the interview was done face to face. Interview was composed of 12 items and all questions were pertaining to the relationship between the content of TurAFA Aviation English curriculum and Turkish Air Force (TurAF) flight training program. The interview questions and the responses are presented in Tables 1 and 2.

Item 1. *The content of TurAFA Aviation English curriculum increases aviation motivation of the pilot candidate cadets.*

As seen in Tables 1 and 2, both the graduate pilots and the instructors think that the content of TurAFA Aviation English curriculum has positive effects on the cadets' aviation motivation. While 83,3% of the pilot participants agreed with the statement, 16,7% of the pilots strongly agreed with the statement. So, we can conclude that all the pilot participants believe that TurAFA Aviation English curriculum increases aviation motivation of the pilot candidate cadets. Instructors responded to the item in a very similar way and while 60% of the instructors agreed with the statement, 20% of the instructors strongly agreed with the statement. Thus, 80% of the instructors believe that TurAFA Aviation English curriculum increases aviation motivation of the cadets.

Item 2. *The ESP program's supplementary audio visual materials enrich cadets' learning experiences.*

tion of two scales as follows; A1 (CEFR scale) → 0 or 1 (mostly 1) (Stanag6001 scale), A2 → 1, 1+ or 2 (mostly 1), B1 → 1+ or 2 (mostly 2), B2 → 2, 2+ or 3 (mostly 2), C1 → 2, 2+ or 3 (mostly 3) Source: http://www.natobilc.org/documents/Conferences_2010/MONDAY/A%20Tale%20of%20Two%20Tests%20STANAG%20and%20CEFR.ppt Furthermore, STANAG 6001 Language Proficiency. Level 3 is found as equal to CEFR B2 level (Tannenbaum and Baron 2010)

Table 1 The graduate pilots' responses

ITEM	1	2	3	4	5	6	7	8	9	10
Strongly disagree										
Disagree										
Don't know						16,6%	33,4%	16,6%	16,6%	
Agree	83,3%	50,0%	33,4%	33,4%	33,4%	33,4%	50,0%	33,4%	33,4%	33,4%
Strongly agree	16,7%	50,0%	66,6%	66,6%	66,6%	50,0%	16,6%	50,0%	50,0%	66,6%
Agree+Str. Agree	100,0%	100,0%	100%	100%	100%	83,4%	66,6%	83,4%	83,4%	100,0%

Table 2 TurAFA English language instructors’ responses

ITEM	1	2	3	4	5	6	7	8	9	10
Strongly disagree										
Disagree							20%		20%	
Don’t know	20%	20%	20%		20%	40%	40%		60%	40%
Agree	60%	80%	80%		40%	40%	20%	40%	20%	20%
Strongly agree	20%			100%	40%	20%	20%	60%		40%
Agree+Str. Agree	80%	80%	80%	100%	80%	60%	40%	100%	20%	60%

Both the graduate pilots and instructors believe that TurAFA ESP program’s supplementary audio visual materials enrich cadets’ learning experiences. While 50% of the pilot participants agreed with the statement, 50% of the pilots strongly agreed with the statement. So, we can conclude that 100% the pilot participants think that TurAFA Aviation English curriculum’s supplementary audio visual materials have positive effects on enriching the cadets’ learning experiences. Instructors responded the item in a slightly different way and while 80% of the instructors agreed with the statement, 20% of the instructors stated that they are not sure about the given statement. Thus, 80% of the instructors believe that TurAFA Aviation English supplementary audio visual materials have positive effects on enriching the cadets’ learning experiences.

Item 3. *TurAFA Aviation English curriculum has positive effects on cadets’ flight training activities.*

Majority of the pilot participants (66,6%) strongly believe that TurAFA Aviation English curriculum has positive effects on cadets’ flight training activities and 33,4% of those pilots agreed with the statement. So, we can conclude that all the pilot participants think that TurAFA Aviation English curriculum has positive effects on cadets’ flight training activities. As far as the instructors concerned, while 80% of the instructors agreed with the statement, 20% of the instructors stated that they are not sure about the given statement.

Item 4. *TurAFA English Language Teaching program having Aviation English curriculum as a basic component is beneficial for the cadets.*

Both the graduate pilots and instructors believe that TurAFA English Language Teaching program with ESP component is beneficial for the cadets.> As seen in Tables 1 and 2, all of the instructors and 66,6% of the graduate pilots strongly agreed with the statement.

Item 5. *TurAFA Aviation English curriculum fulfills the institutional language needs of Turkish Air Force.*

Majority of the pilot participants (66,6%) strongly believe that TurAFA Aviation English curriculum fulfills the institutional language needs of Turkish Air Force and 33,4% of those pilots agreed with the statement. As far as the instructors concerned,

while 80% of the instructors either agreed or strongly agreed with the statement, 20% of the instructors stated that they are not sure about the given statement.

Item 6. *The content of TurAFA Aviation English curriculum is applicable to the workplace environments of the cadets.*

Both the graduate pilots and instructors think that TurAFA Aviation English curriculum is applicable to the workplace environments of the cadets. Majority of the pilot participants (83,4%) either agreed or strongly agreed with the statement and, as far as the instructors concerned, while 60% of the instructors either agreed or strongly agreed with the statement, 40% of the instructors stated that they are not sure about the given statement.

Item 7. *The number of units in “Aviation English for Cadets” course book is directly proportional to the time allotted for the course.*

This item is one of the two items about which there is a discrepancy in the pilots’ and instructors’ opinions. While 83,4% of the pilot participants either agreed or strongly agreed with the statement, only 40% of the instructors either agreed or strongly agreed with the statement and 20% of them disagreed with the statement.

Item 8. *The order of units in “Aviation English for Cadets” course book is suitable for the cadets.*

Both the graduate pilots and instructors believe that the order of units in “Aviation English for Cadets” course book is suitable for the cadets. Majority of the pilot participants (83,4%) either agreed or strongly agreed with the statement and, as far as the instructors concerned, 100% of the instructors either agreed or strongly agreed with the statement. So, we can conclude that instructors all believe that the order of units in “Aviation English for Cadets” course book is suitable for the cadets.

Item 9. *The units in “Aviation English for Cadets” course book is attractive for the cadets.*

This item is one of the two items about which there is a discrepancy in the pilots’ and instructors’ opinions. While 66,6% of the pilot participants either agreed or strongly agreed with the statement, only 20% of the instructors agreed with the statement, 20% of them disagreed with the statement and 60% of them stated that they are not sure about the given statement.

Item 10. *TurAFA Aviation English curriculum fulfills the individual language needs of the cadets.*

Majority of the pilot participants (66,6%) strongly believe that TurAFA Aviation English curriculum fulfills the individual language needs of the cadets and 33,4% of those pilots agreed with the statement. So, we can conclude that all the pilot participants think that TurAFA Aviation English curriculum has positive effects on fulfilling the cadets’ individual language needs. As far as the instructors concerned, while 60% of the instructors either agreed or strongly agreed with the statement, 40% of the instructors stated that they are not sure about the given statement.

Item 11. Which parts of the “*Aviation English for Cadets*” course book are the most beneficial for the cadets?

Both the graduate pilots and instructors believe that Module 3 and Module 4 are the most beneficial parts of the book. Participants of the interview especially emphasized the value of Module 4 presenting an en route analysis via a simulated flight from İstanbul Atatürk Airport to İzmir Adnan Menderes Airport through following all the necessary steps for a safe flight. They also stated that the simulated flight accompanied by role play activities during which cadets are forced to solve given problems under the supervision of the instructor provides cadets with real world experience.

Item 12. Further comments...

Further comments on TurAFA Aviation English curriculum are as follows.

The final module -enroute analysis- had better include a simulated flight modeling Çiğli Flight School flight patterns and flight codes.

The aircraft chosen for the simulated flight had better be T-41 aircraft which is the flight training aircraft for all cadets during their Air Force Academy education. Furthermore Module 3 had better incorporate T-41 aircraft ATC communications.

This aviation curriculum forms a basis for Çiğli Flight School flight training.

This aviation curriculum can positively affect cadets’ aviation perception and increase their aviation safety awareness.

To sum up, all graduate pilots positively commented on the curriculum. Pilot participants of the study believe that the curriculum increases aviation motivation of the pilot candidate cadets and its supplementary audio visual materials have positive effects on enriching the cadets’ learning experiences. Furthermore, all the graduate pilots believe that TurAFA ELT program with ESP component is beneficial for the cadets and they think that the aviation English curriculum has positive effects on cadets’ flight training activities. Majority of the graduate pilots think that the curriculum is applicable to the workplace environments of the cadets and they think that it fulfills both the institutional language needs of Turkish Air Force and the individual needs of the cadets. Majority of the pilot participants are also content with the number of units in *Aviation English for Cadets* course book and they believe that the order of units in the course book is suitable for the cadets. Both the graduate pilots and instructors believe that Module 3 and Module 4 are the most beneficial parts of the book.

English language instructors also believe that the academy’s aviation English curriculum have positive effects on enriching the cadets’ learning experiences and it increases aviation motivation of the cadets. Furthermore, the instructors think that the curriculum have the potential to fulfill both the institutional language needs of the Turkish Air Force and the individual needs of the cadets. On the other hand, as far as the instructors are concerned, while 60% of the instructors believe that the

curriculum is applicable to the workplace environments of the cadets, 40% of the instructors have stated that they are not sure about this. This may stem from the fact that some of the instructors may not be familiar with the cadets' workplace environments i.e. air force bases. Instructors have rather solid statements about the course content and its length. For instance, less than half of the instructors agreed with the statement that "The number of units in the course book is directly proportional to the time allotted for the course" and 20% of them disagreed with the statement. The instructors all believe that the order of units in the course book is suitable for the cadets. But majority of the instructors think that the units in the course book is not attractive for the cadets.

6 Challenges

The most important elements in ESP curriculum design are to increase communication ability in work place environments, a balance between content and general language acquisition, materials working in heterogeneous and homogenous learner groups, and a continuous material development (Nunan 1987:75). Realization of such a design heavily depends on well qualified teachers. On the other hand, ESP instruction necessitates specialist knowledge but it can hardly be acquired from the English language teachers. Master (2005) states that teacher's content knowledge is a potential obstacle to teaching ESP. Answering interview questions, TurAFA instructors also stated the need to study the specific content before attending the class. They also admitted the fact that in some cases pilot candidate cadets are much better in flight related issues and they have difficulty in answering content specific questions. Thus, we can conclude that subject matter expertise is a real obstacle for TurAFA instructors. So, in order to become ESP teachers, general English teachers are supposed to get further training (Stevens 1988). Furthermore, ESP teaching not only entails teachers to go beyond their potentials and expertise but also it forces them to become researchers as well as teachers (Hall 2013:5537). Actually ESP instructors assume five different roles as teacher, course designer, materials provider, collaborator (with subject specialists), researcher and evaluator of courses, materials and student learning (Dudley-Evans and St John 1998). Teachers of ESP can get practical experience in the target content area by working in collaboration with subject matter experts (Ewer 1983).

Demanding curricula entails devoted staff and students. As for aviation English instructors, they need to act like field experts rather than English instructors. Hence, they are supposed to study the specific content before attending the class and acquire the technical terms as if they are field experts. Furthermore, as the program is constantly revised and updated in accordance with the current feedbacks, the English instructors are expected to act as syllabus designers, materials developers and, testing specialists. So, they push their limits for the benefits of the program and the institution. As far as the learners are concerned, earning their engineering degree they are supposed to master not only the general English but also they are required

Table 3 Courses and seminars for TurAFA ELT instructors (Er et al. 2013)

Course/seminar	Expertise stage
Methodology seminar	Novice
Basic language skills	Apprentice
Testing English language proficiency	Professional and expert
Material development seminar	Professional and expert
Curriculum design and evaluation	Professional and expert
English language training managing skills	Distinguished

to have expertise in flight related issues and the content pertaining to their prospective work place environments. Training activities are essential in overcoming the barriers pertaining to staff proficiency. As the literature suggests any curriculum renovation aiming at an effective ESP teaching requires teachers proficient in target content and skilled in curriculum design. So, teachers' potentials and readiness for such an innovation have been a challenge for launching an ESP program for TurAFA cadets. TurAFA as a unique organization has overcome this obstacle by carrying out ongoing educational activities that enable the teachers to become continuous learners. As members of the academy, English language instructors are subject to continuous teacher education programs. Teacher development model for TurAFA teachers is an in-service training program and it is a continuing education designed in accordance with the needs of the individual teachers and institution. Stages of this model are shown in Table 3.

TurAFA teacher development model offers opportunities of cooperation between content specialists and English language teachers. Furthermore, the academy's teacher training program is a bottom-up process favoring the institutional needs and individual teachers' needs equally.

7 Conclusion

This chapter has discussed the ESP curriculum of Turkish Air Force Academy with a special focus on aviation English teaching practices in a military context. The study explored aviation English curriculum design and the challenges faced in Turkish Air Force Academy context. The study is based on the relevant academic literature and the first author's professional experience in the curriculum development process. This study can provide some insights into the ESP curriculum designers in their efforts in the curriculum development process and in solving the problems that they may face during this challenging process.

Turkish Air Force Academy aviation English curriculum development process pointed out the fact that aviation English instructors need specialist content knowledge. Therefore, educational institutions designing aviation English curricula are to provide the ESP instructors with training programs in order to increase their potentials pertaining to the aviation curriculum content. Furthermore, since the English

language teachers can hardly give this training, as teacher trainers, professional aviators are needed and teachers of aviation English can get practical experience in the target content area by collaborating with subject matter experts i.e. pilots and ATC staff.

Furthermore, aviation English curricula need to be constantly revised and updated in accordance with the current changes in aviation industry's rules and regulations. Hence, the English instructors are expected to act as researchers, syllabus designers and, materials developers.

Aviation English instructors are also the evaluator of courses, materials and student learning. They should keep in mind the fact that aviation English learners are required to master not only the aviation English but also they are required to have expertise in flight related issues and the content pertaining to their prospective work place environments. So, taking this fact into consideration, ESP instructors are expected to monitor their students' learning process and help them to overcome the difficulties they face in this process.

The TurAFA case is especially valuable for ELT instructors acting as ESP curriculum developers. As the study suggests, in developing ESP curricula teacher proficiency in the target content area is essential for the success of the program. But it is the organization's responsibility to provide the staff with proper career development opportunities. Applying a continuous education model for English language instructors is the way TurAFA followed and based on the needs of the institution all organizations can develop such career development plans for their instructors in accordance with their current level of expertise.

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