DEFENCE SCIENCE REVIEW

Developing an aviation-based syllabus for PAFU officer-cadets

Sylwia Filipczuk-Rosińska[1], A-D

ORCID 🄳 0000-0003-4936-0544

A – Research concept and design, B – Collection and/or assembly of data, C – Data analysis and interpretation, D – Writing the article, E – Critical revision of the article, F – Final approval of article

[1] Polish Air Force University, Poland

Abstract

Objectives: The main objective of the following paper is to present the teaching rationale and premises underlying the development of materials and an aviation-based syllabus designed for officer-cadets of the Polish Air Force University. Additionally, as a practical illustration of implementing content-based instruction in the PAFU classroom, the gradual process underlying the personally developed tasks integrating not only contextualised grammar and vocabulary, but also receptive and productive skills was meticulously described.

Methods: Synthesis of theoretical concepts encompassing elements of aviation safety studies – the SHELL model, English teaching methods and approaches and psychology – the theory of Multiple Intelligence was made to outline the authoress's interdisciplinary approach to teaching English. Comparison was applied to link the process of developing materials to officer-cadets' flight training. Literature pertaining to syllabus design was analysed to determine the type of the designed aviation-based syllabus. Findings from applying diagnostic surveys were presented to describe officer-cadets' reception of the aviation-based lesson and syllabus.

Results: The analysis of both the designed aviation-based syllabus including sample teaching materials and positive feedback obtained from surveys conducted among officer-cadets prove the advisability and necessity for adopting an interdisciplinary approach to teaching officer-cadets at the Polish Air Force University.

Conclusions: The proposed aviation-based syllabus including well-designed materials reflecting an interdisciplinary teaching approach is a comprehensive teaching solution adjusted to officer-cadets' learning needs and tailored to their military milieu The implementation and further improvement of such an innovative solution is feasible provided more teaching staff is involved in the outlined process.

Corresponding author: M.Sc., Sylwia Filipczuk-Rosińska – Foreign Languages Center, Polish Air Force University, Dywizjonu 303 35, 08-521 Dęblin, Poland; email: s.filipczuk@law.mil.pl

Introduction

Considering our country's membership in NATO, the advanced command of the English language has become a prerequisite for an effective service in all the branches of the Polish army. Obtaining an appropriate Standardized Language Profile[1] is a determinant of a soldier's professionalism and interoperability. Having become the crucial requirement for promotion or designation for a particular post specified by the post's description, it facilitates domestic career. It also allows for an international career in NATO institutions such as SHAPE, participation in peacekeeping missions or joint allied exercises. In view of those factors, emphasis on learning English is already laid at the higher education stage, which exerts pressure on English teaching centers functioning within military universities. It is illustrated by point 34 of the Regulation No. 251/MON stating that prior to graduation and the officer's exam, officer-cadets are obliged to obtain the SLP 3232 in accordance with the NATO Standardization Agreement STANAG 6001. Additional language requirements are imposed in terms of teaching specialized terminology as part of English for Specific Purposes.

In view of the above requirements, the Foreign Languages Centre based within the Polish Air Force University (PAFU) offers language training through two in-house language delivery functions: English Language Training for General Purposes and English Language Training for Specific Purposes. As for the former delivery function, civilian teachers responsible for military and plain English are tasked with developing syllabi and resources consistent with the general curriculum[2] establishing standards and regulating the process of teaching English in the Polish Armed Forces. Their main objective is preparing officer-cadets for ministerial STANAG 6001 exams developed by the Central Examination Board for Foreign Languages of the Ministry of National Defense (CEBFL). Passing these exams ensures the fulfilment of the SLP 3232 graduation requirement. The latter delivery function is performed by both civilian teachers and former military pilots, whose syllabi are dedicated to teaching Aviation English in accordance with descriptors constituting the ICAO English Proficiency test stipulated by the International Civil Aviation Organisation. Yet passing the test in not obligatory for officer-cadets.

Upon closer scrutiny, it becomes apparent that as a result of undergoing those two distinguished types of teaching with their separate objectives and exams, officer-cadets have a sense of fragmented learning. The materials and syllabus[3] developed by the authoress are an attempt at filling this ensuing teaching gap by joining both delivery functions within a personally established interdisciplinary theoretical and methodology framework. Within this framework, personally developed materials constitute "the content of lessons, the balance of skills taught, and the kinds of language practice students take part in" (Richards 2014, p. 19). The traditional textbook referred to by McGrath (2002, p.8) as a recipe, holy book, survival kit,

---

[1] The Standardized Language Profile abbreviated to SLP indicates a soldier's knowledge of English on each particular level as regards the four skills of: listening, speaking, reading and writing in the respective order.

[2] The Polish name of the document is *Ramowy Program Nauczania Języka Angielskiego w Siłach Zbrojnych RP.*

[3] The teaching approach, materials and syllabus presented in the following paper constitute a significant part of distinctive teaching solutions to be included in a doctoral dissertation dedicated to the process of teaching English to officer-cadets at the Polish Air Force University, which is being written by the authoress.

or crutch, which metaphorically reflect either its positive or detrimental function in the teaching process was completely withdrawn from the academic classroom.

The subsequent stages of the syllabus design process are described in the following parts.

1. Preliminary Stage

Considering the profile of a prototypical graduate of military second degree studies at the PAFU, seeking the theoretical basis in the aviation safety studies seemed fully justified. While performing their professional duties in the aviation environment, future pilots and air traffic controllers are exposed to stress and risk. Thereby, they constitute the human factor in aviation defined by Makarowski (2012, p. 314) as a person's inadequate action or negligence, which may result in a crash, accident or aviation incident. The complex causes of such actions can be better understood by means of employing the SHELL model developed by Hawkins (1987)[4], which is "a conceptual tool used to analyse the interaction of multiple system components" (ICAO Doc. 9859, Chapter 2, point 2.4.2). Humans being at the front line of aviation operations are the central component of the model, whose interaction with other blocks merits consideration.

From the English teacher's standpoint, the Liveware-Liveware interaction proved most relevant for establishing her interdisciplinary theoretical framework since it is conducted by means of the primary tool of communication, which is the language itself. Misunderstanding between pilots, controllers or maintenance personnel can lead to communication breakdown and, in the worst case scenario, aviation incidents.
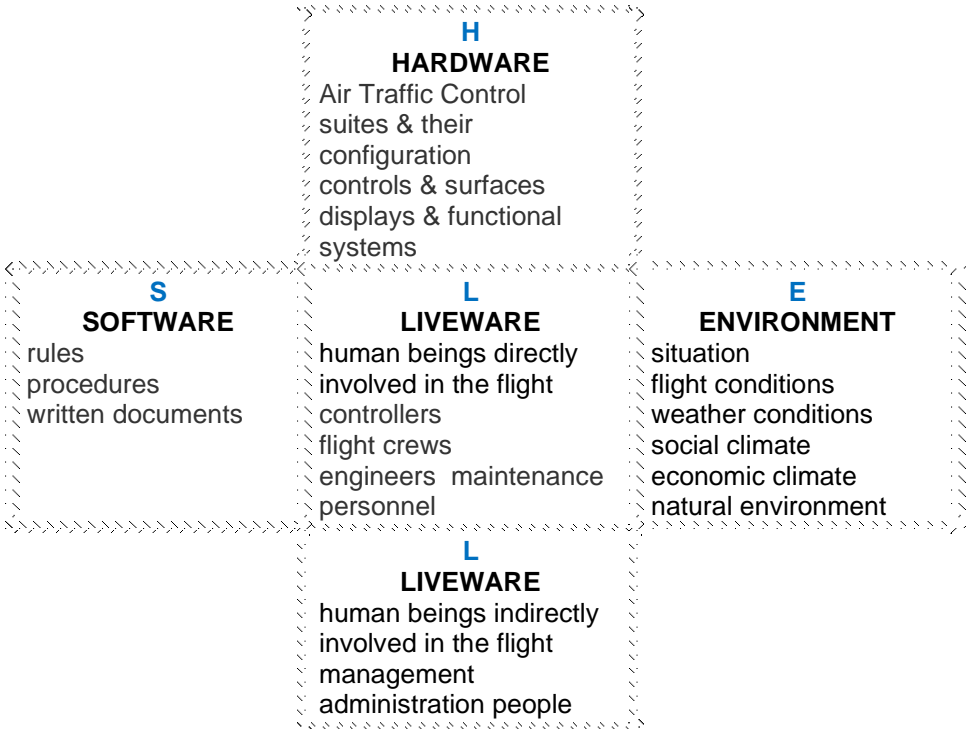

H
HARDWARE
Air Traffic Control
suites & their
configuration
controls & surfaces
displays & functional
systems

S
SOFTWARE
rules
procedures
written documents

L
LIVEWARE
human beings directly
involved in the flight
controllers
flight crews
engineers maintenance
personnel

E
ENVIRONMENT
situation
flight conditions
weather conditions
social climate
economic climate
natural environment

L
LIVEWARE
human beings indirectly
involved in the flight
management
administration people

Fig. 1: The SHELL model based on Lasota (2018: 82) and ICAO Doc. 9859
Source: Chapter 2. Safety Management Fundamentals 2-7

---

[4] Hawkins extended the already existing SHEL model developed in 1972 by Elwyn Edwards by adding the second L component.

In view of the crucial Liveware-Liveware interface, designing a syllabus basedon properly developed teaching materials is of primary importance. Yet, this process must not be a random and arbitrary one. It should take into account the particular needs and mindset of its target learners. Their determination was facilitated by referring to the psychological theory of Multiple Intelligences proposed by Gardner (1983). Considering the nature of military studies characterised by the prevalence of scientific subjects and the mission centred military culture, it is apparent that "military student success in the academic classroom thus is enhanced by providing a structured format, clear and specific goals, with class activities mapped to those goals" (Smucny and Stover 2013, p. 8). Therefore, it seems justified to assume that a prototypical officer-cadet capitalizes on the logical-mathematical intelligence[5].

This type of intelligence, in turn, is distinguished by the reliance on "logical patterns and relationships, statements, and propositions (if-then, cause-effect), functions and other related abstractions" (Armstrong 2009, p. 7). In practical terms, this assumption is reflected in the types of designed tasks which include "categorization, classification, inference, generalization, (…) and hypothesis testing" (ibid.) Therefore, speaking and writing tasks are based on the exam format established by the CEBFL, whereas vocabulary and grammar tasks lay emphasis on reworking various grammar patterns complemented with developing cohesion and coherence. Those tasks also reflect teaching strategies proposed for logical-mathematical intelligence by Armstrong (2009, p. 78-79) such as scientific thinking by relying on officer-cadets' science background in discussing scientific ideas and heuristics by capitalizing on their logical problem skills in speaking and writing tasks which require proposing possible solutions and justifying their choice.

As far as the officer-cadets' flight training is concerned, the logical-mathematical intelligence is employed as they fill in a pre-flight checklist, which is *a comprehensive list of actions to be completed by pilots on every flight prior to take-off*. Bearing this realisation in mind, the authoress translated this concept into the process of designing materials by devising a materials evaluation checklist at the initial development stage, prior to introducing tasks in the classroom.[6] By deciding if tasks included in a given lesson handout accord with categories pertaining to language teaching theories, exam descriptors and broadly understood methodology, their adherence to the proposed teaching framework is ascertained. More specifically, the proposed comprehensive materials evaluation checklist which allows for materials unification and standardisation determines if:

- the military and aviation content is integrated with the adopted teaching methodology,
- the chosen content is consistent with topics taught at PAFU faculties,

---

[5] The remaining types of intelligences considered as scarcely relevant to the authoress's target learners are: musical-rhythmic, visual-spatial, verbal-linguistic, bodily-kinaesthetic, interpersonal, intrapersonal and naturalistic.

[6] Originally, English teachers rely on the so-called *coursebook evaluation checklists* which help practitioners accurately and objectively evaluate already published coursebooks to determine their usefulness by applying a list of developed criteria and conditions. By extension, the authoress applied this solution to personally developed materials and created a *materials evaluation checklist*.

- there is a connection in terms of content between the listening and reading component,
- the developed reading and listening components follow the three-stage lesson scenario proposed by Komorowska,
- the developed tasks integrate productive and receptive skills,
- vocabulary is provided as collocations or chunks consistent with the Lexical Approach,
- grammar is integrated with vocabulary,
- grammar structures accord with the general curriculum developed for the Polish armed forces by the CEBFL,
- the developed tasks accord with STANAG and ICAO descriptors,
- the developed tasks accord with the STANAG level 3 Model Exam developed by the CEBFL,
- the developed tasks engage officer-cadets in a meaningful academic interaction,
- each lesson module is structured within suitable patterns to engage officer-cadets' logical-mathematical intelligence.

In terms of English teaching approaches, the framework was primarily based on Content and Language Integrated Learning defined by Coyle, Holmes and King (2009, p. 6) as "a pedagogical approach in which language and subject area content are learnt in combination". It is consistent with the so-called 4Cs presented in Figure 2. During English lessons, officer-cadets process aviation and military content. Their cognitive skills are activated while they perform communicative tasks consistent with task-based learning. The cultural dimension is ensured by the topic itself which focuses on a given aspect of military culture such as technological advancements, training, health, tactics, operations or procedures. It is also reflected in the military language provided as chunks of language and routines not isolated lexemes in accordance with the Lexical Approach proposed by Lewis (1993).

CONTENT	Integrating content from across the curriculum through high quality language interaction
COGNITION	Engaging learners through creativity, higher order thinking and knowledge processing
COMMUNICATION	Using language to learn and mediate ideas, thoughts and values
CULTURE	Interpreting and understanding the significance of content and language and their contribution to identity and citizenship

Fig. 2. CLIL dimensions proposed by Coyle et al.
Source: Coyle et al. (2009, p. 12)

2. Intermediate Stage

This stage was dedicated to developing topic-specific ten-hour lesson modules comprised of two topic-related components: the receptive listening and reading ones integrated with productive speaking and writing. A lesson scenario developed for each component includes tasks with a specified time limit and officer-cadets' work configuration which follow the three-

stage model developed by Komorowska (2002) . The pre-stage meaning the preliminary one is aimed at activating officer-cadets' background knowledge by involving them in formulating definitions of concepts constituting the foundation of a given lesson, deciphering military acronyms, creating collocations and explaining crucial vocabulary. In the listening component, the while-stage is dedicated to developing the skills of listening for specific information. In the reading component, in turn, during this stage, cadets are to employ the skimming technique to answer detailed questions related to the journal article's subject matter. Finally, the productive post-stage integrating both components includes speaking and writing tasks partially following the STANAG level 3 examination model devised by the CEBFL. They are aimed at recycling and assimilating topic-specific vocabulary acquired during the lesson, while performing specific language functions in the context established by a given topic.

3. Listening Component

The listening component is based on an authentic video selected by the teacher from the YouTube website. Since the selection is not random, a potential prototypical video has to meet a number of detailed criteria established by the teacher herself. Firstly, the video's subject should be fully consistent with the intended lesson's topic, include military topic-specific vocabulary and be saturated with specialized information to a high degree. Additionally, it should be dynamic in nature to ensure the proper level of distractors typical for authentic daily communication. More specifically, instead of a video presenting a monotonous lecture in the classroom or PowerPoint presentation, officer-cadets should be exposed to watching videos resembling action films, documentaries or real-life interviews complemented with changing images, background noises or music. Speakers featured in chosen videos should be native speakers of English distinguished either by Received Pronunciation or General American English or non-native ones of various origin speaking with a distinct accent. In this way, officer-cadets' intercultural awareness can be boosted, which will facilitate performing future duties in the multinational and multi-accent NATO environment.

Nevertheless, choosing a video whose level of difficulty or saturation with information is too high is counterproductive as cadets may fall prey to informationnoise, become frustrated and thus their comprehension will be adversely affected or in the worst case, even stifled.

As for the second criterion, bearing in mind officer-cadets' need to watch a video twice, the optimal length to ensure their satisfactory concentration sufficient for the successful task completion is approximately ten minutes. If a video exceeds the optimal time limit, it can be cut provided its abrupt ending is logical and does not disturb its subject matter.

Once the optimal video is selected, the process of developing tasks starts. The pre-listening stage includes two tasks which focus on explaining, processing and productively using topic-specific vocabulary provided as collocations. The first one includes expressions pertaining to the main topic of the lesson (e.g. Skyborg) which are to be grammatically and logically combined into a formal complex definition of the given topic. The second task divided into two parts features key advanced vocabulary selected from the video necessary for its comprehension. In Part A, a table including expressions with ten missing words provided above is completed. Afterwards, all officer-cadets are allocated a number of expressions to be

explained by providing brief definitions, synonyms and creating sample sentences in the context of the lesson's topic. A similar procedure follows with Part B.

Owing to the pre-listening stage, officer-cadets' background knowledge acquired during other academic subjects such as national security, tactics or aviation history is activated and integrated with learning English.

The while-listening stage which involves watching the video twice includes about 10-12 questions to which detailed answers have to be provided. The teacher's assumption underlying this seemingly overwhelming number of questions is maximizing officer-cadets' concentration. On the other hand, the multiple-choice solution is never adopted so as to eliminate random decisions.

The majority of the lesson time is dedicated to the post-listening stage aimed at developing officer-cadets' competence and performance. More specifically, it involves the productive contextualized use and recycling of the acquired vocabulary within advanced grammar structures as well as the lesson's subject matter while engaging in speaking and writing tasks. The first speaking task includes 8-10 sentences contradicting statements made in the video. Officer-cadets are required to explain why those sentences are false by referring to the video's content analysed in the while-listening stage and employing collocations from the pre-listening stage. The three subsequent grammar tasks are based on advanced structures consistent with the list stipulated by the general curriculum (2009: 29-34). Therefore, tasks focus on developing cohesion and coherence by practicing rewriting topic-related sentences by means of advanced linking words, complex sentences such as clauses of purpose, concession, infinitives, participle clauses, conditionals or impersonal passive voice. Another type of task is completing topic-related sentences with officer-cadets' own ideas within the grammatical and lexical framework established by the teacher.

The tasks contributing to developing grammatical and lexical competence are followed by those dedicated to improving cadets' performance. They are created within the framework of the Model Level 3 STANAG exam developed by the CEBFL. Speaking tasks include discussions and briefings based on the lesson's military topic and related video content analysed during the while-listening stage. The former are conducted in pairs. Similarly to the STANAG level 3 exam, during 6 minutes, cadets are supposed to discuss three factors including their advantages and disadvantages in order to ultimately reach some agreement as for choosing the most and least important one. The latter are individual presentations lasting approximately 3-4 minutes during which a cadet discusses two options to solve a given issue by pointing out their advantages and disadvantages and recommending one. After listening to the briefing, another cadet is supposed to ask a detailed question, which requires either explaining or elaborating a statement included in the presented briefing.

Adopting the exam tasks and adjusting them to the military topic-related lessons on a regular teaching basis is beneficial. As for the prospective STANAG level 3 exam, its validity and reliability for officer-cadets are considerably increased since the connection between the actual teaching syllabus and exam becomes more tangible throughout their learning process. The familiar structure boosts their self-confidence and lowers inhibitions. Additionally, the

wrong yet well-entrenched presupposition that dealing with military topics is only reduced to learning vocabulary, while the subject matter cannot be discussed is successfully undermined.

SKYBORG

INTRODUCTION

Choose as many expressions as possible from those below. Create a formal definition of Skyborg.
- developed by Air Force Research Laboratory
- part of AAAx (Autonomous Attritable Aircraft Experimentation)
- operating in swarms or autonomously
- unmanned combat aerial vehicle
- to accompany manned aircraft
- to accomplish tasks
- capable of SEAD (Suppression of Enemy Air Defence)
- to reach desirable cost-effectiveness
- to provide support
- to award contracts to Boeing, General Atomics, Kratos Unmanned Aerial Systems and Northrop Grumman
- to act as a force multiplier
- to create an AI-enabled fleet

TASK ONE

PART A *Complete the following expressions with missing words provided below. Explain them briefly and create sentences.*

address	trigger	complement	stealth	adoption
due	enabled	multiplier	adversary	accountable

AI- 1. …………… fleet	to acquire target
per hour cost of flying	to pull the 6. ……………
to 2. …………… cost risk	to perform counter manoeuvres
to replace fighters	civilian site
air power	to be held 7. ……………
force 3. ……………	staffing chain
to get a capability boost	instinct for 8. ……………
relatively quick time frame	inevitable disruption
near-peer 4. ……………	*to 9. …………… existing and proven use of manned
telemetry	fighters*
imminent 5. …………… of autonomous systems	to be 10. …………… for upgrade
	to accomplish tasks

PART B *Provide two synonyms to the following words in Part A.*

1. capability	………………………………………………………………
2. adversary	………………………………………………………………
3. relatively	………………………………………………………………
4. imminent	………………………………………………………………
5. acquire	………………………………………………………………
6. accountable	………………………………………………………………
7. stealth	………………………………………………………………
8. disruption	………………………………………………………………
9. to complement	………………………………………………………………
10. upgrade	………………………………………………………………

TASK TWO *Watch the video and answer the following questions.*
https://www.youtube.com/watch?v=q0ehb0QPyxA
1. How is Skyborg referred to?
2. What is finger-four?
3. What was F-35 built as?
4. What do hostile nations invest in?
5. What will the autonomous wingman read?
6. What will armed forces need to confront?
7. What might a pilot not be able to do?
8. According to Dr Roper, how will pilots have to be trained?
9. What is Skyborg's scope of mission?

TASK THREE

Having watched the video, explain why the following sentences are false.
1. Already at this point, a Skyborg swarm can replace manned fighters.
2. F-35 has limited capabilities.
3. Skyborg will not affect the traditional finger-four formation.
4. Near-peer adversaries pose no technological threats.
5. Skyborg evokes no ethical concerns.
6. No change in pilots' training will be required.
7. Skyborg cannot process data on its own.
8. Skyborg's scope of mission is severely limited.

TASK FOUR
Choose 8 words/expressions from TASK ONE and write a short advertisement
for Skyborg.

TASK FIVE
Combine the following sentences by means of linking words provided below. Make all the necessary changes.
1. The air power demand is increasing. It is reasonable to invest in autonomous systems. Skyborg is such a system.
   CONSIDERING…………………….INVESTING…………………SUCH AS
2. Skyborg is capable of performing increasingly complex mission sets. It can replace fighters in the future.
   BEING
3. Technological advances made by near-peer adversaries are enormous. NATO allies have to accelerate the development of the MUM-T.
   SO …………………………. THAT
4. Pilots develop an instinct for autonomous technology just like for stealth. They will be capable of cooperating with Skyborg.
   ON CONDITION THAT
5. Skyborg is likely to cause inevitable disruption in the fleet. It will be introduced shortly.
   DESPITE BEING
6. Air power can be boosted. The Skyborg Vanguard program has to be implemented.
   PROVIDED THAT
7. The Skyborg Vanguard program integrates full-mission autonomy with low-cost, attritable unmanned air vehicle technology. It enables manned-unmanned teaming.
   WITH THE AIM OF
8. The Skyborg program is bound to be developed. It has a favourable cost-effectiveness ratio.
   IN VIEW OF

TASK SIX
Rewrite the following sentences in Passive Voice.
1. Pundits predict that the Skyborg program will be fully operational next year.
2. The company's spokesman confirmed that the air force will conduct the next operational exercise with Skyborg this autumn.
3. It is highly unlikely that Skyborg will replace fighters soon.
4. Pundits maintain that Skyborg can accomplish 30% of tasks which air force dedicates to 4th generation fighters.
5. Owing to Skyborg, the air force can halve the per hour cost of flying which fighters generate.
6. The manufacturer held the operator accountable for Skyborg's botched test flight.
7. UAVs which engineers will develop for Skyborg can integrate the full spectrum of autonomous capabilities.
8. Developers announced that Skyborg can read telemetry and flight plans.

TASK SEVEN
Complete the following sentences with your own ideas.
1. If …………………………………………, a capability boost ………………………………… .
2. Owing to ……………………………………, Skyborg is likely to …………………………… .
3. The adoptions of autonomous systems is air force seems …………… due to …………………………………… .
4. Near-peer adversaries are developing ………………………………………… which
   …… .
5. …………… is due for upgrade ……………………… . Afterwards, it ……………………………………… .
6. A relatively quick time frame enables ………………………… to ……………………
   ………………………………………………………………………………………………… .
7. While performing counter maneuvers, pilots may …………………………………….. ……………………… .
8. It is believed that Skyborg …………………………………….. accomplish tasks which ………………………………… .

TASK EIGHT   MEMO
You are a Tactical Fighter Wing Commander. You have just taken part in a meeting with the CEO of a company participating in the Skyborg program. Write a memo to your superior in which you:
1. inform him about the state of development
2. point out some problems connected with Skyborg's implementation and their reasons
3. suggest some solutions

Fig. 3. The teacher's own work. The Skyborg handout: listening integrated with grammar, vocabulary and writing

```
TASK NINE          DISCUSSION
DISCUSSION 1
There are some objections connected with the implementation of Skyborg. Discuss the following objections and decide
which of them is the most and least important one. Justify your choice.

COST/EFFECT          RELIABILITY          ETHICAL CONCERNS
DISCUSSION 2
There are some objections connected with the implementation of Skyborg. Discuss the following objections and decide
which of them is the most and least important one. Justify your choice.

DISMISSING PILOTS          COMMAND & CONTROL          NETWORK LIMITATIONS


TASK TEN               BRIEFING
BRIEFING 1
The Air Force budget for the next FY (fiscal year) has been radically cut. Give a briefing on acquisition priorities. Justify
your opinion.
     •    developing the Skyborg program
     •    purchasing F-35 Lightning II
BRIEFING 2
You are the Minister of Defence. In view of the current situation of the Eastern flank, give a briefing on acquisition priorities.
Justify your opinion.
     •    used Abrams tanks
     •    new combat UAVs


SHORT TEST A          SKYBORG
Pilots who have a natural instinct for 1. s…………………. (secrecy) technology claim that implementing Skyborg might cause
an 2. i…………………… (imminent) fleet 3. …………………… (imbalance), which might make it difficult for them to 4.
a…………………… (complete) 5. t…………………… (duties). Pundits reassure them that 6. a…………………… (independent)
systems will 7. c…………………… (accompany) the 8. e………………… (current) and 9. …………………… (checked) use
of 10. …………………… (with crew) fighters and not 11. r…………………… (phase out) them. Some fighters are 12.
…………………… (planned) for an upgrade anyway.


SHORT TEST B          SKYBORG
1. A…………………… (implementing) of 2. a…………………… (sovereign) systems seems 3. i…………………… (inevitable)
in view of threats posed by near-4. …………………… (friends) 5. a…………………… (opponents). An AI-6. ……………………
(empowered) fleet will get an unprecedented 7. c……………… (potential) 8. b……………… (increase) which will guarantee air
supremacy. 9. ………………… (objectives) will be 10. a………………… (taken) in a 11. r……………… (comparably) quick time
12. f………………… (space).
```

Fig. 4: The teacher's own work. The Skyborg handout: speaking integrated with the topic's subject matter and vocabulary including a short vocabulary test

4. Reading Component

The reading component should either be fully consistent with or loosely elaborate the subject matter presented in the preceding listening component to give officer-cadets' a sense of continuity, which is further ensured by the source and choice of authentic journal articles.

The primary source[7] was the Safety and Defense Magazine ISSN 2450-55IX, whose editorial board originates from the PAFU. Consequently, its main contributors are academic teachers including civilian employees and former soldiers actively involved in teaching specialized military subjects at the PAFU. Discussing their articles during English lessons yields numerous benefits for officer-cadets. This interdisciplinary approach to teaching English enables cadets to integrate the specialized knowledge acquired from the authors themselves at their respective faculties in the Polish language with learning English. Attending lessons or

---

[7] Secondary sources are other international and domestic journals, whose main language is English and, preferably, to whom academic teachers affiliated with the PAFU contribute.

lectures with the authors of chosen articles gives cadets the possibility of approaching them in order to gain additional explanations regarding articles' subject matter. Therefore, there is no need to provide cadets with a Polish translation of articles. On the contrary, their background knowledge of military concepts allows them for a successful reversal of roles during the English lesson. In other words, cadets as experts in military topics assume the teacher's role by explaining and elaborating military concepts to the English teacher – their learner. This advantage over the English teacher boosts their motivation. This shift of balance contributes to the dynamics of the lesson. As for developing academic skills, reading authentic journal articles chosen from a legitimate source accompanied by their analysis introduces cadets into performing academic research, which may prove beneficial for their own future analysis of references while writing their master's thesis.

Obtaining the benefits described above is ensured by the combination of reading, vocabulary, grammar, speaking and writing tasks developed by the teacher on the basis of a chosen journal article. As in the case of the listening component, tasks dedicated to a given article follow the three-stage lesson scenario. The pre-reading stage allowing cadets to assume the teacher's role comprises vocabulary exercises aimed at deciphering and explaining military acronyms as well as matching and explaining collocations within the context established by the article itself. The while-reading stage focuses on finding answers to detailed questions or deciding why a given sentence is true or false by referring to the article itself. Similarly to the listening component, the post-reading stage is dedicated to both receptive and productive skills. As for the former, it deals with developing cohesion and coherence by practicing rewriting topic-related sentences by means of advanced linking words or creating complex sentences. As for the latter, cadets engage in a class discussion aimed at assessing the suitability, advisability, limitations or threats connected with solutions or concepts presented in the article. They are expected to capitalise on their background knowledge referring to the Polish army and its capabilities. The class discussion is intended to provide a source of ideas for the subsequent individual productive task aimed at developing writing skills within the STANAG level 3 report framework proposed by the CEFBL. To be more precise, in an essay-like report based on the article's topic, cadets are supposed to provide factual information related to a given concept or solution, analyse its advantages or disadvantages, point out its limitations and discuss its future application.

READING HANDOUT
WARFARE USE OF UAVs

TASK ONE
Decipher and explain the following abbreviations included in the article
- SEAD
- AI
- ISTAR
- HALE
- TBM
- TMD
- CAP
- SA
- DEAD
- EW

TASK TWO
Match the following verbs (1–10) and nouns (a – j) to create collocations. Explain their meaning within the topic of the article. Create sample sentences.

1.	to overcome	a.	material resources
2.	to hit	b.	weapons of mass destruction
3.	to cover	c.	objects
4.	to conduct	d.	in high risk environment
5.	to detect	e.	air defence countermeasures
6.	to disrupt	f.	surface targets
7.	to eliminate	g.	communications
8.	to operate	h.	manned aviation missions
9.	to far-detect	i.	isolation of combat operations
10.	to neutralise	j.	the fatigue factor

TASK THREE
Match the following words (1 – 10) and (a – j) to create collocations. Explain their meaning within the topic of the article. Create sample sentences.

1.	kinetic	a.	supremacy
2.	air	b.	angle
3.	flight	c.	endurance
4.	tactical	d.	confusion
5.	operational	e.	detection
6.	image	f.	capabilities
7.	ongoing	g.	supervision
8.	contaminated	h.	environment
9.	reliability	i.	weapons
10.	viewing	j.	factor

TASK FOUR
Read the journal article. Decide if the following sentences are true or false. Justify your answer by referring to the particular passages of the article.
1. UAVs equipped with precision weapons can take over tasks of destroying detected targets from manned aircraft.
2. Using precision penetrating weapons does not require performing combat damage assessment
3. High-altitude armed UAVs may compensate for the lack of manned systems which counteract ballistic missiles.
4. UAVs cannot be used to eliminate hostile leaders.
5. The Force Flow option relies on engaging a single fully autonomous tactical group.
6. The COMAO combat group will be reduced provided strike aircraft receive information directly from the UAV boards.
7. Attack from high altitude with guided weapons depends neither on special targeting equipment nor weather.
8. Objects subject to aerial observation are selected in advance.
9. ESM and ECM can be carried by UAVs.
10. Land forces need UAV retranslation due to being out of reach of VHF communication.

TASK FIVE
Rewrite the following sentences into Passive Voice.
11. Pundits claim that we can engage UAVs in defensive and offensive air supremacy combat.
12. The UAV's payload was increased, so it can carry ESM.
13. After the UAV recognised the enemy's air defense, it incapacitated this defense.
14. Engineers are testing UAVs as a swarm of subordinate wingmen.
15. Military pundits believe that we must extend combat tasks assigned to UAVs.
16. The UAV marked command posts.
17. UAVs performed aerial observation.
18. HALE reconnaissance UAVs provided information about impact objects to the air command station.

TASK SIX
Join the following sentences by means of linking words provided below. Make all the necessary changes.
1. UAVs were used. Enemy air defences were suppressed.   OWING TO

2. You employ precision penetrating weapons. A combat damage assessment must be performed. PRIOR TO	
3. The UAV remained outside the firing zone. It was downed. DESPITE	
4. The payload was huge. The UAV couldn't carry ESM. IRRESPECTIVE OF	
5. UAVs are distinguished by high operational endurance. They can perform long-time observation. IN VIEW OF	

Fig. 5. The teacher's own work. Reading handout: Warfare use of UAVs

5. Final Stage

Having performed the role of materials developer, a proactive teacher should undergo a progressive transformation from a "consumer of other people's syllabuses" (Bell 1983) to an independent syllabus designer. As Nunan (1993: 159) proposes, syllabus design is the selection and grading of content, which entails the application of proper methodology which is the selection of learning tasks and activities as opposed to the curriculum defined as "planning, implementation, evaluation, management and administration of education programmes" (ibid. 8). Nunan (ibid. 12) also states that "a given syllabus will specify all or some of the following: grammatical structures, functions, notions, topics, themes, situations, activities, and tasks."

Prior to the commencement of the actual development process, classifying the syllabus posed a challenge for the authoress. The four-type classification proposed by Krahnke (1987, p. 10) was discarded as the developed syllabus combines elements typical for several syllabi since it can be partially regarded as:

- a structural syllabus because it includes advanced grammatical elements – passive voice, linking words;
- a notional/functional syllabus because it includes functions, e.g. disagreeing, persuading;
- a skill-based syllabus because it includes tasks dedicated to integrating all four skills: listening, reading, writing and speaking;
- a task-based syllabus because it includes complex speaking tasks;

The teacher's objective was to develop a syllabus reflecting the CLIL approach by focusing on particular military and aviation-related topics. Nevertheless, this objective is undermined by Krahnke's (ibid.) claim that a content-based syllabus cannot be considered a language teaching syllabus as its primary purpose is to teach some content using the language taught to students. Ultimately, since the primary framework for developing the syllabus were topics themselves, the term analytic syllabus defined by Nunan (1993: 159) as "based on non-linguistic units such as topics, themes, settings and situations" was chosen as the most appropriate one.

Developing materials for 15 selected military and aviation-related topics ranging from air operations and procedures (e.g. refuelling, belly landing, CAS), military technology and solutions (e.g. UAV, USV, F-35, AWACS, Loyal Wingman, Skyborg) to medical conditions (e.g. PTSD, hypoxia) resulted in creating an analytic syllabus consisting of 15 ten-hour lesson modules based on those 15 non-linguistic units. Each lesson module is divided into a listening component based on an authentic YouTube video and reading one based on an authentic journal article. Each component includes a detailed description of grammar, vocabulary, listening and

reading activities as well as speaking and writing skills developed within the framework of a given topic. The syllabus also specifies formal objectives meaning statements "describing what learners will be able to do as a result of instruction" (ibid. 38).

Number of topic	LESSON MODULE NUMBER OF TEACHING HOURS: 10
11	SKYBORG PART 1: LISTENING COMPONENT - Defining Skyborg and MUM-T - Vocabulary 1: completing and explaining expressions - Vocabulary 2: providing synonyms - Watching a video: answering detailed questions - Watching a video: explaining why sentences are false - Grammar integrated with vocabulary 1: using linking words to formulate complex sentences - Grammar integrated with vocabulary 2: rewriting sentences into Passive Voice - Grammar integrated with vocabulary 3: completing sentences with one's own ideas - Writing1: advertisement for Skyborg - Writing 2: memo connected with Skyborg - Speaking 1: a STANAG level 3 discussion - objections and reasons connected with implementing Skyborg - Speaking 2: a STANAG level 3 briefing connected with acquisition priorities - Short test: completing a short text concerning Skyborg PART 2: READING COMPONENT A. Deciphering and explaining military abbreviations B. Vocabulary 1: matching and explaining expressions C. Vocabulary 2: matching and explaining collocations D. Reading : deciding if sentences are true or false E. Speaking: evaluating flight screening in PAFU and suggesting improvements F. Grammar integrated with vocabulary 1: rewriting sentences into Passive Voice G. Grammar integrated with vocabulary 2: using linking words to formulate complex sentences H. Speaking: discussing the advisability of acquisition and potential warfare use of UAVs by the Polish army I. Writing: STANAG level 3 report – warfare use of UAVs FORMAL OBJECTIVES: - Processing acquired vocabulary and using it in a given context - Expressing opinions and supporting them with arguments - Developing interactive and negotiating skills by conducting discussions - Evaluating and critically analysing a journal article - Capitalizing on one's background knowledge concerning Skyborg and MUM-T - Reading and watching for specific information - Writing a formal memo and report consistent with STANAG level 3 exam format - Hypothesizing about the possibility of acquiring and applying new technology - Integrating topic-specific vocabulary with advanced grammar structures

Fig. 6. The teacher's own work. Syllabus entry for the Skyborg lesson module

6. Survey Results and Discussion[8]

Two surveys aimed at assessing the listening and reading component, respectively, and consisting of two parts: 1. assessing the current idea and 2. recommendations for the future implementation were conducted after 6 lesson modules (60 teaching hours) among two groups of officer-cadets: Unmanned Aerial Vehicles operators (9 officer-cadets, 10th term) and jet pilots (12 officer-cadets, 8th term).

As for the first part of the survey, 85% of the respondents were satisfied with the current comprehensive lesson scenarios based on authentic videos and journal articles integrating reading and speaking complemented with vocabulary and grammar exercises developed by the teacher. The same percentage claimed that such lessons help integrate the knowledge acquired while learning specialized military subjects at the Faculty of Aviation with learning English.

---

[8] Due to the limited scope of the following paper, only general conclusions drawn from the survey without a division into officer-cadets' respective specialisations have been presented.

The majority stressed that a meaningful academic discussion concerning the article subject matter (66%) and video content (85%) with a civilian English teacher takes place. It is worth reporting that 90% of the respondents declared that the listening component can contribute to increasing interoperability. In case of the reading component, 76% expressed such a belief. As for improving academic skills essential for writing one's master's thesis, 85% of the respondents emphasised the usefulness of the listening component, while 66% appreciated the reading one.

As for the second part of the survey, 90% of the respondents concluded that such lessons should be permanently included in the curriculum developed for 5 years of study. The same percentage declared that a comprehensive syllabus based only on the teachers' materials could replace traditional coursebooks. 100% of respondents also recommended adjusting the designed syllabus to a given specialisation (e.g. jet pilot, helicopter pilot, UAV operator).

Conclusion and implications

The distinctive interdisciplinary theoretical and methodology framework combining elements of aviation safety studies and psychology with English teaching is an attempt at introducing the Content and Integrated Learning approach into English teaching delivered to officer-cadets at the Polish Air Force University. It promotes a proactive English teacher, who effectively transforms from a provider of printable exercise copies available in coursebooks and consumer of other people's syllabi to an autonomous materials developer providing his learners with carefully devised tasks based on authentic resources. In addition, the designed syllabus allows for the integration of military and aviation-related subjects with a simultaneous development of all four English skills. Owing to this, English instruction goes beyond the sheer preparation for STANAG or ICAO exams and acquires a meaningful academic dimension. From the practical standpoint, the developed materials evaluation checklist allows for materials unification and standardisation reflecting essential NATO principles, which considerably contribute to enhancing staff interoperability.

The advisability of such a teaching approach is reflected in positive feedback provided by officer-cadets. Nevertheless, its implementation remains at the preliminary stage since Tomlinson ([1998] (2011, p. 1) advises "joint endeavours to develop quality materials". Thus, its development requires further comprehensive long-term research and classroom trials in which the majority of English teachers employed at the PAFU Foreign Languages Centre should be involved. Future improvements and modifications should be conducted in cooperation with academic teachers of other PAFU faculties to ensure the validity, reliability and accuracy of developed materials.

References

Armstrong, T. (2009) Multiple Intelligences in the Classroom 3rd Edition. Association for Supervision and Curriculum Development.

Bell, R. (1983) An Introduction to Applied Linguistics. London: Batsford.

Coyle, D., et. al. (2009) Towards an integrated curriculum – CLIL National Statement and Guidelines. The Languages Company.

Gardner, H. E. (2011) Frames of Mind: The Theory of Multiple Intelligences. Basic Books.

Hawkins, F. H. (1987) Human Factors in Flight. Ashgate: Gower Technical Press.

Karpowicz, J. (2021) 'Warfare Use of Unmanned Aerial Vehicles', Safety and Defense. Vol. 7 Nr. 2, pp.51 – 64. Available at: https://doi.org/10.37105/sd.135 on 20 Jan. 2022.

Komorowska, H. (2002) Metodyka Nauczania Języków Obcych. Warszawa: Fraszka Edukacyjna.

Krahnke, K. (1987) Approaches to syllabus design for foreign language learning. Englewood Cliff, NJ: Prentice Hall Regents.

Lasota, M. (2018) 'Czynnik ludzki w wybranych modelach powstawania wypadków lotniczych', Obronność. Zeszyty Naukowe 3 (27), pp.72 – 97.

Lewis, M. (1993) The Lexical Approach: The State of ELT and a Way Forward. Language Teaching Publications: Hove.

Makarowski, R. (2012) 'Czynnik ludzki w lotnictwie', Przegląd Psychologiczny vol. 55, No. 3; pp. 305–326.

McGrath, Ian (2002). Materials Evaluation and Design for Language Teaching. Edinburgh: Edinburgh University Press.

Nunan, D. (1993) Syllabus design. Oxford: Oxford University Press.

Richards, J. C. (2014) "The ELT textbook." [In:] Sue Garton, Kathleen Graves (eds.) International Perspectives on Materials in ELT; London: Palgrave Macmillan; 19 – 36 Available at: https://doi.org/10.1057/9781137023315_2 on 14 Nov. 2022.

Smucny, D., et. al. (2013) 'Enhancing Teaching and Learning for Active-Duty Military Students', American Sociological Association Vol. 41, no. 3 (March/April) Available at: http://www.asanet.org/footnotes/marchapril13/military_0313.html on 14 Nov. 2022.

Tomlinson, B. (2011) (ed.) Materials Development in English Teaching Second Edition. Cambridge: Cambridge University Press.

Other sources

Decyzja nr 251/MON Ministra Obrony Narodowej z dnia 26 czerwca 2015 w sprawie kształcenia i egzaminowania ze znajomości języków obcych w resorcie obrony narodowej. Dziennik Urzędowy Ministra Obrony Narodowej Departament Nauki i Szkolnictwa Wojskowego Poz. 193 Warszawa: 29 czerwca 2015.

Model Egzaminu z Języka Angielskiego Poziom 3, Centralna Komisja Egzaminacyjna Języków Obcych Ministerstwa Obrony Narodowej. Available at: https://wsnjo.wp.mil.pl/pl/pages/modele-egzaminacyjne-2020-05-12-z/ on 14 Nov. 2022.

ICAO Doc. 9859 (Chapter 2. Safety Management Fundamentals 2-7). Available at: https://www.icao.int › Documents › 2017-SSP-GUY *on* 14 Nov. 2022.

NATO Standardization Agreement STANAG 6001 NTG (EDITION 4) LANGUAGE PROFICIENCY LEVELS (2010) Available at: http:// www.natobilc.org/stanag/index-eng.asp on 14 Nov. 2022.

Ramowy Program Nauczania Języka Angielskiego w Siłach Zbrojnych RP Edycja III, Ministerstwo Obrony Narodowej Departament Nauki i Szkolnictwa Wojskowego, Warszawa, 2009. Available at: http://wsnjo.wp.mil.pl/plik/file/Do_pobrania__Dokumenty_i_Programy/ramowy_program_nauczania_jezyka_angielskiego_2009.pdf on 14 Nov. 2022.