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PROBLEM LEKSIKALNIH VRZELI PRI POUČEVANJU VOJAŠKE ANGLEŠČINE

THE PROBLEM OF LEXICAL GAPS IN TEACHING MILITARY ENGLISH

Povzetek   Ker anizomorfizem oziroma odsotnost natančnega ujemanja besed v dveh različnih jezikih pogosto ovira proces učenja tujega jezika, morajo učitelji tujega jezika najti učinkovite metode za njegovo obvladovanje. S poskusom, v katerem je sodelovalo 109 slušateljev, smo preizkusili več metod poučevanja vojaških slovničnih posebnosti angleškega jezika, za katere ni neposrednih ustreznic v poljskem jeziku. Rezultati so pokazali, da je pri leksikalnih vrzelih prevajanje v materni jezik manj učinkovito od enojezičnih razlag, predstavitev terminov znotraj konteksta in ponazoritev njihovega pomena s primeri. Rezultati kažejo tudi, da slušateljem pri anizomorfizmu pomaga uporaba kontrastivne analize v maternem jeziku.

Ključne besede   *Strokovna angleščina, vojaška terminologija, poučevanje besedišča, pomenska neprekrivnost, anizomorfizem.*

Abstract   Since anisomorphism, the absence of an exact correspondence between words in two different languages, often impedes the process of second language (L2) acquisition, L2 teachers need to recognize effective methods for dealing with it. In an experiment involving a total of 109 students, we tested several methods of teaching English language military vocabulary particulars which lack direct Polish language equivalents. The results suggest that L1 translation is less effective in dealing with lexical gaps than monolingual explanations, presentation of the terminology in context, and illustrating its meaning with examples. However, the results also indicate that the use of L1 for contrastive analysis may help students cope with anisomorphism.

Key words   *English for specific purposes, military terminology, vocabulary teaching, non-equivalence, anisomorphism.*

Introduction During the practice of institutional translation, officially published glossaries, dictionaries and document templates should give clear guidelines for dealing with problems arising from non-equivalence or partial equivalence between the vocabularies of different languages. However, there are few aids which address the same issues in less formalized environments. Since military second language (L2) classroom practice also aims to prepare students for the latter type of situations (translations of formal documents will often be provided by language professionals), military L2 students should be equipped with tools enabling them to deal with anisomorphism.

1 THE PROBLEM OF LEXICAL GAPS IN FOREIGN LANGUAGE TEACHING

Non-equivalence and partial equivalence between individual words in the first (L1) and second language lexicons hinder the process of L2 acquisition. According to Masrai and Milton, »learners tend to learn L2 words that have a direct translation equivalent in the learners' L1 rather than those with a non-direct translation equivalent« (2015, p 3). Analyzing the process of English vocabulary acquisition in Saudi students, the researchers measured the uptake of L2 vocabulary items which have a direct L1 equivalent against the uptake of those words which lack it, and concluded that »words with a non-direct translation equivalent are difficult to learn, even when they are more frequent than those with a direct translation equivalent (Ibid., p 6).« This relative importance of translation equivalence vis-à-vis frequency becomes even more significant given the fact that frequency not only facilitates learning a word, but also increases its usefulness in communication. As Nation has argued: »the high-frequency words make up a relatively small, very useful group of words that are important no matter what use is made of the language. Because each word in this group is frequent, [learners] will get a very good return on learning them« (in Augustyn, 2013, p 370).

Several reasons for this influence of anisomorphism on the L2 acquisition process can be identified. Translation of individual vocabulary items from and into the L1 is a very common way of explaining their meanings. Anecdotal evidence suggests that in the early stages of L2 acquisition pairing new words with their L1 equivalents is not only the most common, but also the most efficient way of both teaching new vocabulary and learning it. This view is supported by the results of an experiment conducted by Prince (1996, p 478), which as Boustani has put it »revealed the superiority of using translation in learning vocabulary in terms of quantity of words learned« (Boustani, 2019, p 4). Moreover, according to some scholars »learning a foreign language involves the occasional or systematic use of bilingual dictionaries at all levels of proficiency« (Augustyn, p 362), and even though some teachers may view the use of L1 to explain meanings of L2 vocabulary items with reluctance, »several studies confirm that what learners actually do inside and outside of the classroom definitely includes frequent use of translation« Augustyn, p 367).

The importance of correlation between L2 vocabulary items and their L1 equivalents is also emphasized by some psycholinguistic models of vocabulary storage. These models differ in their assessment of the role of the L1 equivalents, and usually indicate that this role will be influenced by several factors. Some researchers have suggested that words may be represented either in a single »store« common to both languages, or »in separate language-specific stores« depending on such factors as the type of word (e.g. abstract vs concrete) (Boustani, 2019, p 4). Both anecdotal evidence and research suggest that the role of a L1 equivalent in understanding the L2 vocabulary item differs in relation to the learner's fluency level. According to Navracsics: »As language proficiency increases the connection between the word and its meaning becomes more direct, relying less on a mediating connection through the L1 lexicon« (2016, p 2). However, even as learners' reliance on the L1 equivalents diminishes with their increased language competence, according to some scholars the meanings of L2 vocabulary items are still mediated by the meanings of the corresponding L1 words. In Jiang's view, while the link to the syntax of the L1 equivalent weakens with the learner's time of exposure to L2, the semantic link is retained:

With increased experience in L2 … L2 words are no longer mapped to L1 translations but to L1 meaning directly. … [Once] L1 semantic information has entered L2 lexical entries … it is very hard for new meanings to get in. The semantic information that is copied from the L1 translation stays in the L2 lexical entry and continues to mediate L2 word use with the continued exposure to the L2. As a result, even highly proficient L2 users will use L2 words on the basis of the semantic specifications of their L1 translations. (Jiang, 2002, p 619).

Therefore, it seems that the issue of limited and non-existent equivalence between L2 and L1 words is an important factor to be considered in syllabus development and in the educators' choice of teaching methods.

2   AREAS OF ANISOMORPHISM BETWEEN POLISH AND ENGLISH MILITARY LEXICONS

During the process of teaching English to personnel of the Polish Armed Forces (with the aid of commercially published dictionaries and textbooks, and glossaries provided by military institutions, as well as teaching materials based on original military documents), we have identified four areas of limited equivalence or lack of equivalence between Polish (L1) and English (L2) military terminology. The most notable one is the absence of an equivalent in one of the languages. This can be further divided into two subcategories: the absence of the referent in one of the armed forces (such as a military rank which has no equivalent in the armed forces of the other nation), and the absence of the term in one of the lexicons (such as a technique of tactical movement which is not defined in the manuals of a nation's armed forces even though it is normally executed as part of a wider tactic). The next area comprises referents differently categorized in each of the languages or in each of the armed forces (e.g. different typologies of weapons and equipment or tactical

concepts, differences in organization). A less tangible but very common problem is the partial overlapping of semantic fields covered by seemingly corresponding pairs of L1 and L2 words. Inconsistencies or changes taking place in one of the languages (from the unsurprising differences between the US and UK dialects of English to rather unexpected irregularities within the terminology used by one of the services of a single nation) comprise the fourth category.

2.1 Absence of an equivalent in one of the languages

2.1.1 Absence of the referent in one of the armed forces

Many elements of organization, culture, and doctrine differing one nation's armed forces from those of its allies and its potential enemies are sufficiently important, noticeable, or conceptually simple to be represented in the nation's language. For example, the lack of Space Forces in the Polish military organization will not produce any lexical gap, as the terms »*Wojska Kosmiczne*« or »*Siły Kosmiczne*« can be easily produced in Polish. Similarly, vocabularies of languages used by land-locked nations which have no need to maintain their own navies will nonetheless include a word referring to this branch of armed forces.

In some cases, however, the absence of the referent in the armed forces communicating in either of the languages in a pair will be reflected by the lack of an equivalent word in its lexicon. From the military English teacher's perspective, the most noticeable area including such lexical gaps is the military hierarchy and especially, the vocabulary of military ranks. Equivalents of the Polish Armed Forces' commissioned ranks can be found in all the militaries of the NATO English-speaking countries, but the differences between non-commissioned rank structures appear even between the services of the US Armed Forces, not to mention the differences between the British Commonwealth and the United States militaries (Table 1). This problem is particularly important in a military English language classroom because students' military ranks and appointments constitute part of »personal information«, and as such are expected to be described at early stages of L2 learning when the translation of individual vocabulary items is heavily relied upon. While the translation of Polish military ranks issued by the Polish MOD (Table 2) may remedy this problem, it is worth noting that the translations include some items which are non-existent in the armed forces of NATO English-speaking countries (e.g. *Master Corporal* and *Senior Corporal*); both Polish and British Warrant Officer ranks do not correspond to the ranks bearing the same name in the US Armed Forces; and *kapral*, traditionally translated as *Corporal,* corresponds to the rank of Private or Private First Class in the UK and US militaries. Likewise, some appointments, such as *Battalion Adjutant* in the British Army, do not have direct equivalents in the armed forces of other nations. Similar lack of equivalents also appears in some other areas. For example, the word *Marines* is present in the Polish military lexicon when it refers to the entire branch of the armed forces or of the navy, even though this branch does not exist in the Polish Armed Forces (it must be noted, however, that the Polish equivalent *piechota morska* literally means »marine infantry,« which actually is only one of the sub-branches of

the US Marine Corps); however, Polish has no word for individual servicemen and women of this branch, who usually are referred to as żołnierze *piechoty morskiej* (literally »soldiers of the Marines«).

Table 1:
Comparison of enlisted ranks in the Polish, UK and US Armies and the USMC
Source: NATO STANDARD APersP-01 NATO CODES FOR GRADES OF MILITARY PERSONNEL Edition A, Version 2 MARCH 2022.)

NATO code	Polish Army	British Army	US Army	US Marine Corps
OR-9	– Starszy Chorąży Sztabowy – Starszy Chorąży	Warrant Officer I (21)	– Sergeant Major of the Army – Command Sergeant Major – Sergeant Major – Master Gunnery Sergeant	– Sergeant Major of the Marine Corps – Command Sergeant Major – Sergeant Major – Master Gunnery Sergeant
OR-8	Chorąży	Warrant Officer II (22)	– First Sergeant – Master Sergeant (46)	– First Sergeant – Master Sergeant (46)
OR-7		Staff Sergeant (20) (23)	Sergeant First Class	Gunnery Sergeant (48)
OR-6	Młodszy Chorąży		Staff Sergeant	Staff Sergeant
OR-5	Starszy Sierżant		Sergeant	Sergeant
OR-4	Sierżant	Corporal (26)	– Corporal (47) – Specialist	Corporal (47)
OR-3	– Plutonowy – Starszy Kapral	Lance Corporal (27)	Private First Class	Lance Corporal (48)
OR-2	Kapral	Private (or equivalent) (Classes 1-3) (20) (28)	Private E-2	Private First Class (48)
OR-1	Starszy Szeregowy	Private (or equivalent) (Class 4) (20) (28)	Private E-1	Private
	Szeregowy			

NAZWA STOPNIA WOJSKOWEGO W JĘZYKU POLSKIM	TŁUMACZONA NA JĘZYK ANGIELSKI NAZWA STOPNIA WOJSKOWEGO
Starszy chorąży sztabowy	Senior Staff Warrant Officer
Starszy chorąży	Senior Warrant Officer
Chorąży	Warrant Officer
Młodszy chorąży	Junior Warrant Officer
Starszy sierżant	Senior Sergeant
Sierżant	Sergeant
Plutonowy	Master Corporal
Starszy kapral	Senior Corporal
Kapral	Corporal
Starszy szeregowy	Private 1st Class
Szeregowy	Private

2.1.2   Absence of the vocabulary item in one of the lexicons

Some referents of English language words which do exist in the reality of the Polish Armed Forces are nonetheless not denoted by any vocabulary item of the Polish military lexicon. One such term is *overwatch*: »a role in which troops or tanks observe and give covering fire if necessary« (Bowyer, 2004 p 172). The two following fragments of the Polish Land Forces' *Podręcznik walki* and the US Army *Training Curricular No. 3-21.8* depict riflemen's roles in clearing rooms:

> … number one and two Soldier of the clearing team may move deeper into the room while *overwatched* by the other team members. (*TC 3-21.8*, p 3-64, my emphasis)

> Pomieszczenia powinny oczyszczać zespoły w składzie minimum dwóch żołnierzy. …. jeden z żołnierzy …. prowadzi ogień … a następnie zajmuje miejsce, z którego *może obserwować* całe pomies zczenie. … Drugi żołnierz przed wejściem do środka krzyczy   „WCHODZĘ«….[Eng: Rooms should be cleared by teams consisting of at least two soldiers… one of them … provides fire … and then takes position *enabling observation* of the entire

room…. The other soldier calls »COMING IN« before entering].
(Dakudowicz, *Podręcznik walki,* p 233, my emphasis)

Although the recommended tactics seem to be fairly similar (while one element is maneuvering, another element is ready to engage the enemy if necessary), the Polish quote uses a word which does not denote the readiness or ability to return fire (and as such might be misleading to a learner if provided as a Polish equivalent of the word *overwatch*). At least from the language teacher's perspective, the word *cover* (»support for another person or unit,« »to provide fire support for another person or unit,« »to be able to observe or shoot into a specific area« (Bowyer, p 60)) may be treated as synonymous with *overwatch* and *provide overwatch*. This word does have direct Polish equivalents, which is illustrated by the fragment on room-clearing drills which directly follows the one quoted above.

W podobny sposób żołnierz wychodzący z pomieszczenia, które *ubezpiecza* inny żołnierz, powinien krzyknąć »WYCHODZĘ«. [Similarly, the soldier leaving the room *covered* by another soldier should call »GOING OUT«]« (Dakudowicz, p 233, my emphasis).

However, even with this assumption in mind, the limited number of Polish equivalents at the teacher's and lexicographer's disposal may at best lead to the problem of partial semantic overlap (further discussed in 3.3. below). For example, the same verb, *ubezpieczać*, is used to describe one of the three subgroups an infantry platoon should be divided into for an attack on a building: »atakująca, wspierająca, *ubezpieczająca* (skrzydła i tyły).« (Dakudowicz, p 230, my emphaisis). Now, the English instructions for the same type of operation call for dividing the platoon into »an assault element, a support element, and a security element« (Combat Leader's Field Guide: 12th Edition, p 159). *Assault* can be translated as *atakująca*, the Polish equivalent of *support* is *wspierająca*, but *ubezpieczająca (skrzydła i tyły)* is the group responsible for (rear and flank) *security*. Thus, the Polish noun *ubezpiecznie* and words related to it are also used in meanings which are not covered by the term *overwatch*.

Another lexical gap that can be included in this category is the lack of a term exclusively denoting *friendly* forces as opposed to *own* forces. The paragraph from a Polish Operation Order template describing friendly forces is entitled »*Wojska Własne*« (*Poradnik dowódcy plutonu*, 2011 p 47). Yet, the basic English equivalent of *własny* is the adjective *own*, which (unsurprisingly to a native speaker of Polish) is confirmed by the relevant entry in the bilingual dictionary *Wielki słownik słownik polsko-angielski PWN Oxford* (2014, p 1239). Since the *friendly forces* section of an Operation Order »[lists] higher, adjacent, supporting, and reinforcing units who are participating in this operation…« (Edwards, 2000, p 114) the use of the Polish equivalent of this term may be misleading as to its real meaning.

2.2 Differently categorized referents

According to the military manual *Poradnik dowódcy plutonu*, a platoon's soldiers can be divided into training groups including »*strzelcy karabinków*, [and] *celowniczowie karabinów maszynowych*« (p 80). While the obvious translation of the latter group is *machine gunners* (literally »machine-gun aimers«), translating the former as *riflemen* does not reflect the fact that bilingual Polish-English dictionaries usually put forward the word »*carbine*« as the equivalent of the word denoting their assigned weapon, »*karabinek*« (Grzebieniowski and Gałązka, 1996, p 565).[1] This diminutive form of *karabin* originally referred to short-barrelled rifles, but after the introduction of the intermediate cartridge it was adopted as the term for rifles using this type of ammunition, which are also standard personal weapons in most armies. Hence, the official website of the Polish Armed Forces uses the word *karabinek* to refer to standard Polish infantry weapons, the Beryl and the Grot rifles (Karabinek szturmowy wz. 96 Beryl). However, in English a carbine is a short rifle, which is illustrated by the Field Manual No. 3-22.9 on *Rifle Marksmanship M16-/M4-Series Weapons*, which refers to the M4 as a »carbine« while calling the M16A2/A3 a »rifle« (2008, pp 2-1, 2-2, 2-5). So, notwithstanding the contents of the Polish-English dictionary entries, *rifle* will normally be translated as *karabin* only in the case of weapons using a full-power cartridge or light fire-support weapons.

Another pair of equivalents suggested by dictionaries that must be approached with caution is *pododdział* and *sub-unit*. The Polish *Regulamin Działań Wojsk Lądowych* defines *pododdział* as »część oddziału lub związku taktycznego nie mająca zwykle samodzielności gospodarczej i administracyjnej« [a part of a unit or military grouping which usually is not administratively or financially independent] (2008, p 427). A sub-unit, on the other hand, is: »a grouping, which forms a part of a larger grouping« (Bowyer, Dictionary of Military Terms, p 229). The latter definition does not mention the administrative or financial status of a sub-unit. Additionally, a platoon may be seen as both a *sub-unit* of a company and as a *unit*, whereas the Polish term *oddział* is reserved for units included in tactical and operational formations or operating independently, such as brigades, regiments and separate battalions (»wchodzą w skład wyższych związków organizacyjnych (związków taktycznych, operacyjnych) lub występują samodzielnie; zalicza się do nich brygady, pułki i samodzielne bataliony«) (*Regulamin Działań Wojsk Lądowych*, p 423).

2.3 Partial semantic overlap

As »it is not frequent that the lexical meanings of the two lexical units are absolutely identical« (Xiaomei Yu, 2020, p 1), partial semantic overlaps are probably the most common type of lexical gap. Some gaps belonging to this category can easily be identified and as such are dealt with successfully by bilingual dictionaries and glossaries. For example, both military Polish equivalents of the word *support*,

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[1] *It must be noted, however, that some dictionaries provide the word rifle as the second choice of the English equivalent of karabinek, which is done e.g. by Wielki słownik PWN-Oxford, Wydawnictwo Naukowe PWN S.A. i Oxford University Press 2004.*

wsparcie and *zabezpieczenie*, are listed in the relevant entry of *Słownik terminów wojskowych angielsko-polski polsko angielski* (2000, p 71), and the *AAP6PL (2017) NATO Glossary* translates the term *combat service support* as »zabezpieczenie działań bojowych,« while translating *combat support* as »wsparcie bojowe« (p 108).

However, colloquial uses of some military vocabulary particulars evade the attention of lexicographers and do not find their way into dictionaries. *Jednostka*, another Polish equivalent of *unit*, is normally used in spoken and informal Polish to denote the place where a unit is permanently stationed. Hence, military English students often fail to achieve the intended meaning, producing such utterances as »Soldiers who spend all their professional lives in their units have no combat experience« instead of »Soldiers who spend all their professional lives in their barracks have no combat experience.« Similarly, the word *company* will often be used to denote the place where this unit is billeted, which leads to the production of such phrases as »cleaning the company« instead of the intended »cleaning the company's barrack rooms«.

2.4 Inconsistencies within one language

Since English is recognized as the official language or one of the official languages of several NATO and EU Member States and numerous other nations, many of which use their own distinctive dialects and follow their own traditions, it is no surprise that a single referent may be denoted by more than one item of »English« military lexicon. Another source of inconsistencies within a language is the changing nature of the reality described by it. A language often reflects technological advances, doctrinal changes and political developments by expanding or modifying the meanings of the existing words rather than adding new items to its lexicon. For example, juxtaposing the words *rocket* and *missile* used to be a very efficient way of explaining their meanings to Polish students, who otherwise would be influenced by the L1 collocations such as *rakieta balistyczna* or *rakieta ziemia-powietrze* (literally *ballistic »rocket«* or *surface to air »rocket«*). However, the prevalence of electronic systems has led to the development of munitions being called »guided rockets«. Although military authorities categorize this type of ordnance under such labels as »fixed-wing Advanced Precision Kill Weapon System II« (APKWS), the *Official Site of the US Air Force* has announced its introduction with the headline »A-10 fires its first laser-guided rocket« (King Jr., 2013).

NATO terminology adopted by the former Warsaw Pact Member States which joined NATO after the fall of the Iron Curtain sometimes replaced already existing terms referring to the same concepts or items. The fading of some Warsaw-Pact era acronyms and terms into oblivion may not have even been noticed by contemporary military English students and teachers. What is more, their replacement by acronyms and abbreviations commonly used in the armed forces of NATO Member States, such as »FEBA, FLOT, FSCL« (*Planowanie działań na szczeblu taktycznym w Wojskach Lądowych*, p 56), may actually facilitate military vocabulary teaching and learning. However, there are vocabulary items which still have different meanings

according to different sources. For example, the word *kombatant* has entered the Polish terminology of the law of armed conflict as the equivalent of the English term *combatant*, which is illustrated by the following quote from *Poradnik dowódcy plutonu*: »Należy zawsze rozróżniać między: a) kombatantami a osobami cywilnymi« [literally: »a distinction must always be made between: a) combatants and civilians«] (p 97). Yet, the online dictionary of the Polish language, *Słownik Języka Polskiego PWN,* does not reflect this use of *kombatant*, describing it traditionally as »1) były żołnierz regularnych formacji wojskowych, oddziałów partyzanckich lub uczestnik ruchu oporu; 2) weteran« [literally: 1) a former soldier of regular military formations, partisan units or a member of the resistance; 2) veteran] (accessed May 15, 2022) and the *Wielki słownik polsko angielski PWN-Oxford* translates this word exclusively as *veteran* (2014, p 373).

3 METHODS FOR DEALING WITH LEXICAL GAPS IN TEACHING MILITARY ENGLISH

We have conducted a series of experiments aimed at testing the following methods of teaching English military vocabulary particulars which lack Polish equivalents or have only partial L1 equivalents to Polish students: (1) illustrating the meaning of a vocabulary item with examples; (2) illustrating the meaning with a translation; (3) introducing a term in the context of a standardized NATO document; (4) presenting monolingual definitions; (5) presenting comprehensive bilingual definitions; and (6) involving students in contrastive analysis in order to raise their awareness of the problem of anisomorphism.

The other existing methods, such as helping »students choose and use the right bilingual dictionaries,« (Boustani, p 19), were not tested.

3.1 Method

3.1.1 Participants

The 75 Military University of Land Forces (MULF) students participating in the main part of the study were divided into eight groups. In the experiment, students from each group were paired with students from a group with a similar level of language skills and military experience: two groups of professional soldiers with English language skills at the B1 level of the Common European Framework of Reference for Languages (CEFR); two B1 groups of 3rd year cadets; two B2/C1 groups of 1st year cadets; and two C1 groups of 3rd year cadets. In order to further randomize the results, the tasks alternated in such a way that students relying on a translation or belonging to the control group in two of the tasks constituted the experimental group while doing the other tasks. Since some doubts could be raised as to the validity of the results used to describe the relative effectiveness of Method 1, another task for this method was conducted with a further 34 MULF students belonging to four 2nd year groups. The average level of English-language skills was different in each group, ranging from A2 to C1. For the experiment, each of

the groups was divided into two subgroups, so that each of the two methods of introducing vocabulary was tested by a separate subgroup.

3.1.2 Materials and Procedure

A test was designed comprising four separate sets of questions for measuring the effectiveness of individual methods. The relative effectiveness of *Illustrating the meaning of a word with examples* (Method 1) was measured against the effectiveness of *Illustrating the meaning with a translation* (Method 2). In the introductory task of this part, students testing the effectiveness of illustrating the meaning with a translation matched the words with their Polish equivalents, while students testing the effectiveness of providing examples matched the same set of generic terms with examples. In the main task of this part, both groups were instructed to fill in gaps in sentences, choosing a word from the previous task. Since the results of this experiment may be seen as inconclusive, another task was designed and run with another set of groups of students. Instead of the introductory task, each group was presented with a separate glossary, either explaining meanings of words by giving their L1 equivalents, or by providing examples of their referents. In the task below the glossary, the cadets were to fill in gaps in three sentences, using some of the words from the glossaries. For *Introducing a term in the context of a standardized NATO document* (Method 3), the control group and the experimental group saw the vocabulary item in the context of the same document (an operation order), but for the former group a simplistic translation of the item was added (the Polish term *wojska własne* was presented as the equivalent of the heading *friendly forces*). *Presenting monolingual definitions* (Method 4) was measured against *Presenting comprehensive bilingual definitions* (Method 5). Students in both groups were instructed to fill in the same missing words in identical sentences, but in one group the words to choose from were defined in L2, while in the other they were defined in L1. Both the English definitions and the Polish equivalents were extracted from dictionaries published or co-published by the Oxford University Press, albeit the English-Polish *Wielki Słownik Angielsko-Polski* was published in 2004 whereas the monolingual *Oxford Advanced Learner's Dictionary* was accessed in 2021. An attempt was made to reproduce the experience of using an actual dictionary, so entries from both dictionaries also included information which was irrelevant in the context of the experimental task. For *Involving students in contrastive analysis* (Method 6), the control and experimental groups had to work out the meanings of the same vocabulary items. However, in the case of the experimental group this task was introduced by an activity in which they were supposed to come up with nonsensical literal translations of English phrases, while the control group was deprived of any introduction which could have reminded them of the risks involved in literal, word by word translation.

The students participated in the experiment in a normal class setting. With the exception of the task checking the relative effectiveness of Method 6, they were told not to use any dictionaries or other aids. The teachers conducting the experiment in their classes were told to allow sufficient time to do all the tasks.

3.2   Results and Discussion

During the initial analysis, *Illustrating the meaning with a translation* seemed to yield better results than *Illustrating the meaning of a word with examples* (Figure 1). Overall, 84% of the participants testing the former method chose the correct word, while only 68% of those who had the vocabulary explained by means of examples accomplished the same task successfully. However, during further analysis it was discovered that most of the mistakes in the latter group were caused by the participants' misinterpretation of the instructions. Since they had been given a list of weapon names, they wrongly believed that they were expected to use one of these to fill in the gap in the test sentence. When all such mistakes were eliminated, and only the substitution of the wrong common noun came into focus, the results actually reversed, suggesting that providing students with examples was a more effective method, as only one out of the total of five students who made this type of mistake had the vocabulary explained to them in this way (Figure 2). Nonetheless, since the percentage of the participants who made this type of mistake was very low, the effectiveness of the method was measured again in another experiment, conducted with a new group of participants. Again this time the results initially seemed to indicate *Illustrating the meaning with a translation* as a more effective method: 83% of the answers given by participants testing it were correct in contrast to 69% taught in the other way (Table 3). However, in case of the sentence checking the ability to use the pair *rifle/carbine* the results again pointed to the presentation of examples as the more effective method (with the score at 94%, as opposed to 83% in the group relying on translations (Table 4)). In trying to explain this discrepancy it was noticed that the examples for this pair were more likely to be familiar to students than the examples for the other two pairs (rocket-missile and IFV-APC). The examples of the two categories of firearms included Polish weapons (Beryl vs Mini-Beryl) and the widely known US weapons (M16 and M4), whereas the acronym *MLRS* is not commonly used in Polish to denote a free rocket system, and the BMP-1 IFV is locally known as the B*W*P.

Figure 1:
The results of the experiment measuring the effectiveness of Illustrating the meaning with a translation against Illustrating the meaning of a word with examples (correct answers shown as a percentage of the total)
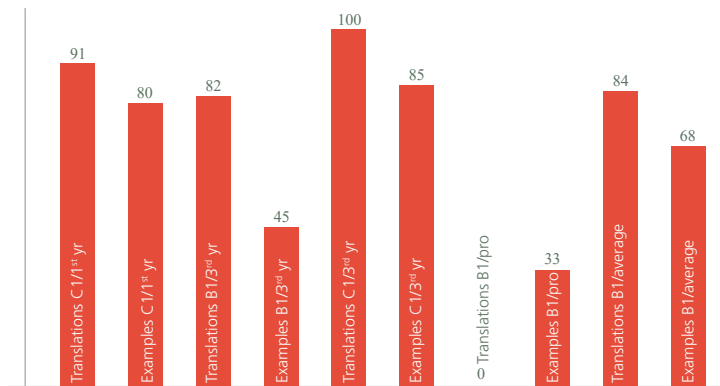
Figure 2:
The actual numbers of key mistakes made by students who tested Illustrating the meaning with a translation and those who tested Illustrating the meaning of a word with examples.

- ■ Translations C1/1st yr
- ■ Translations B1/3rd yr
- ■ Translations B1/pro
- ■ Examples B1/pro
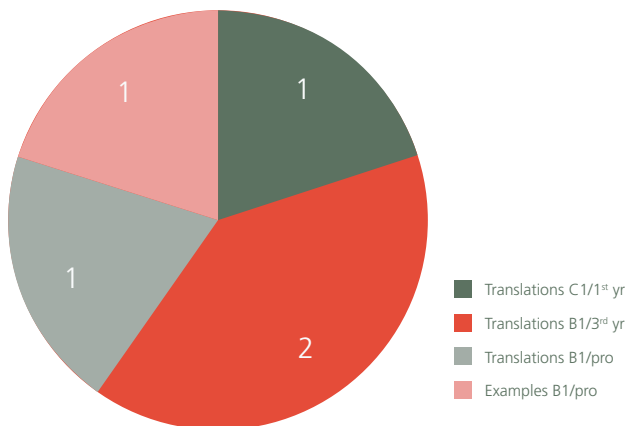
Table 3:
The results of the second experiment comparing 'Illustrating the meaning with a translation' to 'Illustrating the meaning of a word with examples'

	Correct answers as % of the total	Correct answers as % of the total	Correct answers as % of the total	Correct answers as % of the total	Correct answers as % of the total
	A2	**B1**	**B2**	**C1**	**Average**
TRANSLATIONS	73	80	100	87	83
EXAMPLES	33	50	93	83	69

Table 3:
Correct answers (shown as the percentage of the total) in the case of the pair rifle/carbine in the second experiment comparing Illustrating the meaning with a translation to Illustrating the meaning of a word with examples

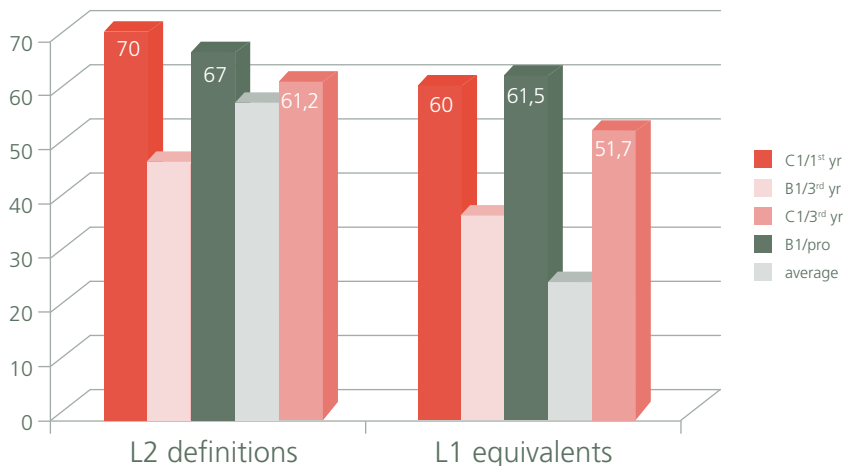|	Correct answers as % of the total	Correct answers as % of the total	Correct answers as % of the total	Correct answers as % of the total	Correct answers as % of the total
	A2	**B1**	**B2**	**C1**	**Average**
TRANSLATIONS	80	60	100	100	83
EXAMPLES	100	75	100	100	94

In the case of *Introducing a term in the context of a standardized NATO document*, the control group achieved much worse results (48.6%) than the experimental group (65.8% – Table 5), which is all the more significant given the fact that the Polish translation of the term *friendly forces* did not replace the operation order template, but in fact constituted *additional* information. The only subgroup apparently unhindered by this exposure to the Polish term bearing misleading connotations were the professional officers and NCOs (66% of those who saw the translated term accomplished the task successfully, as opposed to 33% of those who did not). This result is unsurprising in the light of the fact that, unlike cadets, members of this subgroup must have already been reading or writing real documents in this format in their professional lives, and had internalized the specialist, unintuitive meaning of the Polish term *wojska własne* in its context.

Table 5: Introducing a term in the context of a standardized NATO document. The percentage of the correct answers is shown for each group presented and not presented with the Polish translation of the term friendly forces

| C1/ 1st year		B1/ 3rd year		C1/ 3rd year		B1/ professional		Average	
NO translation	Translation of friendly forces as siły własne	NO translation	Translation of friendly forces as siły własne	NO translation	Translation of friendly forces as siły własne	NO translation	Translation of friendly forces as siły własne	NO translation	Translation of friendly forces as siły własne
54.5	50	54.5	36	92	54	33	50	58.5	47.5

The group completing sentences with words explained by means of monolingual L2 definitions did better (70%) than the group relying on comprehensive entries in the English-Polish dictionary (60%) (Figure 3). This result was to be expected in some cases: *Wielki słownik…* puts forward the same word, *przyczółek*, to translate both *bridgehead* and *beachhead* (unlike the *AAP-6PL (2017)* which differentiates between *przyczółek lądowy* and *przyczółek morski*, pp 77, 86). On the other hand, as a comprehensive dictionary, *Wielki słownik…* provides sample collocations, including »civil aviation« – precisely the same phrase that was needed to complete one of the test sentences. It seems that what should be expected of a comprehensive dictionary entry is not only the amount of information contained in it, but also its organization, improving the accessibility of the information being sought.

Figure 3:
The results of the experiment comparing the effectiveness of Presenting monolingual definitions (L2 Definitions) and Presenting comprehensive bilingual definitions (L1 equivalents) (correct answers shown as a percentage of the total)

Involving students in contrastive analysis prior to doing the vocabulary task seemed to slightly improve their results. On average, the correct answers constituted 48.2% of the total in the experimental group, as opposed to the average of 43.85% in the control group (Figure 4). It was noticed, however, that some answers in the experimental group seemed to be purposefully nonsensical, which suggests that their authors had misunderstood the instructions and continued employing the principles of the preparation phase (which was supposed to highlight the risks of literal translation), instead of trying to produce the best possible translation. Also, it is doubtful whether raising the general awareness of the limitations of literal translation is possible in a short-lived experimental setting, and it would be interesting to see the results achieved by a group involved in contrastive analysis for a longer period of classwork.

Figure 4:
The results of the experiment evaluating the effectiveness of Involving students in contrastive analysis prior to doing the vocabulary task (correct answers shown as a percentage of the total)
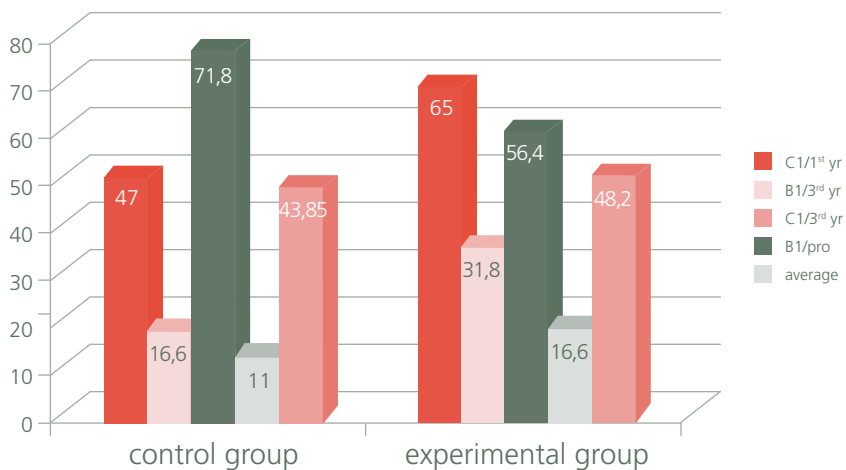
Conclusion Several methods can be used by military English teachers to help their students deal with anisomorphism. The results of our experiment suggest that translation (including comprehensive definitions) is a less effective way of presenting partially equivalent and non-equivalent L2 terminology than monolingual explanations and presentation of the terminology in context (including the context of standard document formats). Illustrating meanings with examples is probably also a very effective method, but caution must be taken to provide examples which the students will be familiar with. However, the experiment also showed that the use of L1 for contrastive analysis may help students cope with lexical gaps. Thus, when discussing the effectiveness of L1 in vocabulary learning, its conscious and careful use is called for, rather than its elimination.

The data gathered also provided experimental evidence for the founding thesis of this study, the observation that limited lexical equivalence between the L1 and L2 poses a serious problem which must be addressed in language teaching, confirming conclusions drawn from our previous classroom experience and findings of the authors quoted in this paper. During the experiment, even the most advanced groups seldom achieved 100% accuracy, despite the fact that in the case of each tested method the participants were provided with aids designed to help them come up with the correct answer. Therefore, further research into this problem, and especially into methods for dealing with it, is recommended both to corroborate the results of this study, and to explore the areas which have not been covered by it. It must be noted that some existing methods of dealing with lexical gaps (e.g. advising students as to the choice of a good bilingual dictionary) were not tested in this experiment. Moreover, the effectiveness of the methods tested here may need to be further verified for pairs of languages other than Polish/English. (For example, it cannot be ruled out that the results of comparing the effectiveness of using monolingual and bilingual dictionaries were influenced by the organization of dictionary entries typical to English-Polish dictionaries, or by some other factors which do not appear universally in bilingual dictionaries). Finally, the value of contrastive analysis could be further confirmed by an experiment involving systematic classroom use of this method.

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