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APPLICATION OF REFERENCE INTERNET RESOURCES IN THE TEACHING OF AVIATION ENGLISH TO REPRESENTATIVES OF THE DIGITAL NATIVE GENERATION

Abstract. The article deals with exploring the potential of IT in the process of English as a language of speciality (English for special purposes, ESP) teaching. The authors presented the results of the pedagogical research carried out at the National Aviation University, Ukraine. To increase the efficiency of teaching Aviation English, a new approach was applied, which was based on students' ability to be engaged in online activities and use digital tools naturally. The approach is characterized by the guided use of the machine translator Google Translate and Multitran online dictionary in the process of learning English as a language of speciality to develop students' skills in the correct application of online lexicographic materials. To test the effectiveness of the new approach, the research was conducted, in which students of the experimental group were taught with the use of the mentioned online reference tools under the teacher's guidance. The results of the research provide information about the positive influence of the approach on the development of the experimental group students' professional English competence compared with the students from the control group. It proves that properly designed and purposefully introduced complex language learning activities involving online reference tools (online machine translator and online dictionary) made a positive influence on the students' level of knowledge and can be employed in the process of language learning in non-linguistic universities. The conclusion was made that online dictionaries and translation machines are valid tools for improving the foreign language skills of students of non-linguistic universities. Benefits and disadvantages of using online dictionaries and machine translators in the ESP learning process were explored and it was concluded that online dictionaries (OD) and machine translation (MT) tools make it possible to check the meaning of a word, provide a wealth of important information about lexical elements, technical terms and idiomatic expressions. In the paper, some examples of students' educational activities in Aviation English teaching with the use of online reference tools are given.

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1. INTRODUCTION

In the context of global computerization and the development of electronic technologies, effective ways of presenting and acquiring information are being actively introduced into the learning process at different levels of education. The task of increasing the efficiency of the process of teaching foreign languages in non-linguistic universities is extremely urgent [1]. The search for ways to improve the process of educating competent professionals in the context of globalization and European integration, the need to develop young professionals' ability to communicate in English and other foreign languages, as well as their competence to use digital technologies development, necessitates revision and updating of approaches to learning in higher education [2], [3]. This process in Ukrainian non-linguistic universities is complicated by a rather heterogeneous level of students' English competence and motivation to study, besides the amount of time allocated for classwork is constantly decreasing with extending students' independent work. The extreme situation was caused by COVID-19 restrictions and online learning implementation which created the necessity to make online education more effective. Since free reference internet resources are ubiquitous among language learners and are widely used by university students but their usefulness and impact on the learning process is insufficiently studied. Therefore it is important to investigate the guided use of free reference internet resources in the process of learning English as a language of speciality (ESP) to develop students' skills in the correct application of online lexicographic materials.

The problem statement. Information technology in its wide variety is an important part of students' personal and social lives. Brazilian scholar P. Franco investigated the processes of modern students' life and study often called "net generation" or "digital natives" [4, p. 644]. The researcher is following M. Prensky who was the first to use this expression, defining the generation of youngsters as native speakers of the language of digital technology, who speak digital as a first language [5]. P. Franco asserts that these people are immersed in technology, and they use digital tools naturally, without contemplating how they work. The researcher claims that representatives of the young generation live in the world of computers and video games and are constantly connected to the online world; they have the capacity to use digital technology transparently and express themselves through it; they feel comfortable in online spaces and communicate in social networking sites including people who they have never met before; they are multitasking and make use of digital media as an integral part of their lives [4].

These characteristics apply to the students of non-linguistic universities in Ukraine. Despite they feeling comfortable in online spaces and easy communicating in social networking, they are not always able to use their digital ability for learning a foreign language. That is why our students often have significantly different levels of English competence (A1-B2+) and are not always interested in learning English because their school education was not good enough and they do not understand the importance of this language in their future career. Besides, the experience of teaching shows that our students often demonstrate a rather low level of ability to obtain information from monolingual dictionaries, they do not know how to use the potential of online translators, many of them have serious gaps in linguistic knowledge, such as a lack of understanding of the differences between parts of speech, transitivity and non-transitivity of verbs, phenomena of homonymy and polysemy and so on.

In the modern world information technology plays a major role in helping students to develop communicative skills in language learning. We believe that students' ability to engage in digital activities should be used in the university course of learning English as a

language of speciality. It is becoming a necessity to succeed in today's world. Besides, in today's globalized world, a specialist of any field of knowledge must be able not only to read and speak but also to translate working documents. Therefore, the aspect of translation must be present in a foreign language university course. There is a necessity in forming students' ability to use online reference tools and apply online lexicographic materials correctly for more effective learning.

Analysis of recent studies and publications. Translation as a language learning activity has always been a controversial issue. It was criticized in the past because of its association with the *traditional grammar-translation method* and today it is regarded as some kind of mechanical linguistic transfer of meaning from one language to another [6]. Our days' situation is characterized by certain ambiguity then scholars, foreign language teachers and university instructors are divided between supporters and opponents of the use of translation in the classroom. Supporters of the bilingual approach consider it useful to apply in the process of learning, whereas the monolingual approach defenders state that the sole use of the target language in the foreign language learning classroom facilitates the learning of the target language and stimulates the students' thinking as well as proficiency in the new language. Many specialists in the field of foreign language teaching assert that translation is a useful language learning tool, which is often avoided as a non-communicative activity that is not suited to the general needs of the language learner [6]. Here we should remind that *the communicative approach* has been dominant in the methodology of foreign language teaching for several decades. According to this approach, in the formation of skills in four basic types of foreign language proficiency, the use of the student's native language and therefore translation is undesirable. Undoubtedly, the communicative approach allows achieving effective results in mastering communicative skills in a foreign language. However, we believe that underestimating the role of translation and its complete ignorance in the course of foreign language study seems to be wrong. The communicative approach is developing in many aspects, the use of online reference tools is one of the new areas of its development.

The development of information technologies and the popularization of personal computers changed the way people communicate and learn languages. In the past online machine translators (OMT) were viewed as harmful and ill-advised for foreign language learners [7], [8], [9], while the majority of students surreptitiously consult online translators when doing their foreign language assignments [10], [11]. Given this, instructors explicitly dissuade students' use of such devices worrying about "academic honesty violation" and students' "dependency development" [11]. Though online translators still spark many debates among language educators in different countries [12] such characteristics as *advancement, pervasiveness* and *versatility* of online translation machines are irresistible and omnipresent nowadays [11]. Niño A. asserts that "online translators were not designed with the aim of language learning" [13] that is why the task of instructors is to use the positive aspects offered by technology and minimize possible counterproductive manifestations. Kučiš S. supports these ideas and states that "online translation is an easy and non-threatening activity, which can be used as pedagogical and translation tools", and believes that online translation contributes to students' ICT competencies and metalinguistic awareness, fosters critical reasoning and evaluation of resources [14].

The first component in our experimental work is the machine translator *Google Translate***,** which is a widely used free internet resource. It is worthy to be mentioned in our paper that the origin of machine translation is traced back to the work of Al-Kindy, a 9th century Arabic cryptographer who developed techniques for systemic language translation, including cryptanalysis, frequency analysis, probability and statistics, which are used in modern machine translation. British mathematician with a special interest in probability and statistics W. Weaver proposed the idea of "cryptographic machine translation development"

[15]. Being familiar with the development of electronic calculating machines, which were initially used for war-time cryptography techniques and statistical analysis, Weaver sent to some 30 acquaintances a document known as memorandum "Translation" (1949) on the possibilities of using the newly invented digital computers for the task of document translation. Numerous research groups were established in European countries as well as Japan and China since then and during the 1980s machine translation was rapidly advancing. In the 1990s the Internet has exerted an influence on machine translation development and the use of such machines was accelerated. Since 1994, free online machine translation systems became available to the general public [16]. As indicated in the Cambridge dictionary, *machine translation (MT)* is the process of translating text from one language into another using a computer [17], optionally with some human intervention (pre-editing and post-editing). Once MT has become an effective tool it has the potential to have a profound impact on the field of language teaching [22]. Automated translation systems now play a supporting role and can decode and translate simple syntactic and lexical constructions [18], which can be useful in the process of learning.

The second component in our experimental work is *Multitran online dictionary,* which is also a free reference internet resource but is more professionally oriented and requires certain skills and training for use. It is worthy to mention that the roots of electronic lexicography date back to the late 1950s/early 1960s, when it went under the names of *computer/computational lexicography* and the dictionaries were referred to as machine-readable rather than electronic [19]. The development was not easy and quick, because, in those days, neither lexicographers nor dictionary users had any contact with a computer [19], [20]. The first dictionary to move from the machine-readable dictionary to the lexical database was the Longman Dictionary of Contemporary English (1978) [19]. A few years later dictionaries began to appear on CD-ROM, and the process was accelerated in the 1990s. According to the site *Onelook* online dictionaries are very popular. Dictionary Search indexed the existence of 1,061 online dictionaries with 18,955,870 words in April 2021 [21].

Some scholars papers (Kopylova N.[24], Marus M.at all [26], Samardali M. [27]) analyse the experience of using online tools for translation in the process of language learning and report about some difficulties in working with the online dictionary Multitran due to the large volume of articles on different specialities and the number of translation options in which it is easy to make mistakes. Google Translate is simpler and more practical, but also contains a large number of terms related to different areas of knowledge.

The article is devoted to finding ways to increase the efficiency of foreign language teaching techniques during pandemic COVID-19 to students in non-linguistic universities. The article is presenting the results of the experiment in which a professionally-oriented English learning course in two students groups (experimental and control) was taking place. For teaching students of the experimental group special approach was used, which implied teaching using IT reference tools under the guidance of a teacher while the students of the control group did not. The approach is characterized by the guided use of the machine translator Google Translate and Multitran online dictionary in the process of learning English as a language of speciality (ESP) to develop students' skills in the correct application of online lexicographic materials. The novelty of this approach lies in forming students' ability to be engaged in online activities on translation with free reference internet resources as a part of the teaching and learning process; students are taught to compare suggested options and choose the most appropriate, learn to use them. The systematic application of the approach contributes to the formation of technical students' English communicative competence and practical skills in translation professionally-oriented texts.

Hypothesis: properly designed and purposefully introduced the approach to learning English which implies using the complex of language learning activities with application

online reference tools (machine translator Google Translate and Multitran online dictionary) can be employed in the process of language learning in non-linguistic universities for enhancing students' four language skills and translation and helping them to acquire and strengthen their ability to use English and expand their professional knowledge. The level of students' communicative competence in English will increase as a result of applying the suggested approach.

The research goal. The article is aimed *to prove* that free reference internet resources (machine translator Google Translate and Multitran online dictionary) are valid tools for improving student's four language skills and translation; *to explore* the possible benefits and disadvantages of using online dictionaries and machine translators in the ESP learning process; *to develop* guidelines for using online dictionaries and machine translators in the ESP learning process.

2. THE THEORETICAL BACKGROUND

Technological advances have always played a significant role in second language teaching and acquisition [22]. Expansion of the Internet and new media promoted the development and distribution of online dictionaries. Their strong sides were identified by Jin Li & Deifell E.(2013) as innovativeness, which includes their convenience, quick updates, interactivity, and potential for designer/user collaboration. Some studies were conducted to investigate the benefits of using online dictionaries in the process of foreign language learning from different perspectives [23]. It was stressed that online dictionaries are used for vocabulary acquisition in reading and writing tasks, they also assist learners in broadening their vocabulary knowledge and understanding common grammatical errors [23].

Williams L. (2006) suggested a *Pedagogical plan for presenting and explaining Web-based MT to students*. The author stressed the idea of the necessity to draw students' attention to some aspects of using digital tools and to teach them how to avoid misusing them. The most important among them: "if students can see that communication in another language is not simply a matter of plugging words into a formula that can be calculated by a machine, they will begin to understand language and communication as complex and multilayered" [28, p. 569].

In the new millennium, several studies focusing on online machine translation in foreign language learning have been conducted. The idea that online machine translation tools are are important and useful in the language education process has become increasingly common [5], [14]. The study carried out by I. Garcia & M. Pena paid attention to using MT at the beginners' and early intermediate levels of language learning [9], C. Ducar and D. Schocket explored pedagogical solutions to use machine translation in an educationally and interculturally respectful manner, they also highlighted the strengths and limitations of Google Translate technology [29].

Some scholars [23], [24], [25], [26], [27] prove that online dictionaries (OD) and machine translation (MT) are effective tools for developing competencies in the field of special texts translation, which is especially important in the process of ESP learning. Kopylova N. highlights some problems appearing when students are working with an online dictionary. Among them we distinguish the most significant: when reading, students tend to complete the task quickly choosing one of the first proposed translation options, ignoring the context. This leads to misinterpretation of the original text [24].

A. Nino draws attention to the necessity of fostering tutors and students' awareness of the potential and limitations of online machine translation. The scientist emphasized that it will help to better use this technology [30]. Zhu X. supported this idea and suggested developing this knowledge by including the course of using online machine translation tools in students' curriculum design, while learning how to use technology tools for instructors

should be a part of teachers' professional self-development [11]. Kol S. et all proposed guidelines for instructors based on the findings of the study and experience of teaching the use of digital tools in tertiary English for Academic Purposes. It is suggested in the article that lower-level students should use online machine translation as a dictionary (for words and short phrases) and be aware of the fact that entering the whole paragraph in the native language the output may require editing, which they are probably not equipped to do [31]. Besides, instructors should inform their students that when they input a word in their native language, they do not need to use the first word that comes up in the translation box. Instead, students need to choose the best translation for their specific context. Google translator facilitates the choice by providing a list of alternative translations with their meanings in the language entered [18], [22], [31]. In this context should be mentioned that the translation is one of the means of realizing the didactic goal of learning a foreign language, which unites such aspects as understanding the meaning of the expressed opinion, mastering the vocabulary, understanding the grammatical structure and so on. However, language learning cannot be based on translation alone, as it is a multifaceted and interconnected process. Therefore, translation should be a part of the process of mastering other necessary language skills. They are reading, speaking, listening and writing.

3. RESEARCH METHODS

To conduct our research a set of theoretical, empiric and statistical methods were applied: systematization and generalization methods of different aspects of the problem under research, interpretation of literature sources, methodological and methodical works connected with the research problem; analysis and synthesis; examination for identifying the effectiveness of the suggested approach, questioning (diagnostics of students' attitudes) and analysis of the results.

3.1. Participants

The participants of our study were 2 groups of students (control and experimental) of the first year of study at the National Aviation University, speciality '272 Aviation Transport'. At the time of research (the first semester of 2020-2021), English for Specific Purpose (ESP) lessons were part of their official university curriculum. According to the curriculum, two-hour classes were held online once a week. Out of 45 participants, 19 were females and 26 were males aged from 17 to 21.

At the beginning of the experiment and its end students' level of communicative competence in English was assessed in both groups by the course teacher. According to the results of the test the decision was made that students have a rather heterogeneous level of communicative competence in English. In the Experimental group, the Intermediate (marks A+B) level had 5 students, Pre-intermediate (C) – 15 and Elementary (D) – 3. In the Control group, the Intermediate level (A+B) demonstrated 7 students, 11 – Pre-intermediate (C) and 4 – Elementary (D).

In the process of the experiment, students' of both groups were taught using the same educational course and teaching materials through distant learning. The research was conducted by the same teacher who followed the same procedure and used the same materials for questioning and evaluating students' achievements in learning. Students took part in a survey to find out whether they use MT and online dictionary/ies in learning English, their attitude and motivation for using it.

Participants were provided with instructions on how to use the Online dictionary Multitran and Google translator for identifying the necessary meaning of polysemous words and correcting errors.

3.2. Methods of the study:

Preparing for the experiment we used the ideas expressed by the scientists, whose papers are analyzed in the chapter Literature review in our interpretation. In our work, we identified the steps:

Step 1. The overview of the theoretical background and the exploration of the concepts of machine translation and online dictionaries was made. Research questions were determined.

Step 2. Activities and situations in which Multitran online dictionary and online machine translator Google Translate to help students to make their ESP learning (Aviation English) more effective were analyzed, benefits and disadvantages were defined.

Step 3. Students' levels of communicative competence before and after the experiment were assessed.

Step 4. A questionnaire to know students' attitude to IT reference tools (machine translator Google Translate and Multitran online dictionary) in the process of ESP learning application was suggested to the students and the results were analyzed.

Step 5. Guidelines for students on machine translator Google Translate and Multitran online dictionary using in the ESP (Aviation English) learning process were developed.

4. THE RESULTS AND DISCUSSION

4.1. Machine translator *Google Translate* and *Multitran* online dictionary are the most commonly used IT reference and automatic translation tools, that is why we decided to focus our study on them. Multitran dictionary was chosen for several reasons. *Multitran* online dictionary is a free multilingual dictionary and a rich resource for hard-to-find translations of abbreviations and technical terms. Multitran.ru offers several useful features, including spelling and grammar checks. Search online in Russian or English or download the program for free. This dictionary is free to use and easily downloaded to any phone. Besides, the Law on Language in Ukraine obliges to communicate Ukrainian in educational institutions of all levels. The problem is complicated by several factors. The lack of an online Ukrainian-English / English-Ukrainian dictionary sufficient for ESP learning (Aviation English), which causes the need to translate from Russian when working with Multitran. At the same time, we usually have foreign students who can communicate in Russian as a foreign language better than in Ukrainian. Therefore, we are forced to use from time to time the Russian language in the learning process.

Machine translator *Google Translate* is a free web-based service that translates between a variety of languages, available on mobile devices as apps (for Android and iOS). It is a statistics-based translation tool, which means that the system calculates probabilities of various translations of a phrase being correct. It has a level of interactivity with the end-user, absorbing information into the database about corrections made [22]. One of the important tasks of the process of teaching English to non-linguistic university students is the development of skills to collect information about lexical items and apply it correctly in professional foreign language communication. Some modern papers dedicated to this problem [24], [25], [26], [27] confirm its relevance. Online machine translation is constantly improving in its ability to translate with grammatical and lexical accuracy. Used in tandem with a spellchecker and/or search engine they enable students to write English texts that are

less prone to errors. Though a consistent position on the place of online machine translation in the language classroom is absent, it has the potential to have a profound impact on the field of language teaching. Let us review some papers that examine how online reference tools (MT and OD) can be used in the foreign language classroom and what their possible benefits are suggested.

It is worthy to be mentioned that in teaching English to non-linguistic university students, the priority is commonly given to functionality and practicality, rather than a deep understanding of language features which is characteristic for language students. Most often dictionaries are used for reading and understanding texts in the speciality, as well as doing exercises. While doing this experimental work our task was to teach students dictionary culture, which implies using lexicographic materials correctly. That is how to use explanatory and translation online dictionaries as well as other tools for independent work. Besides, we taught our students how to use new professionally-oriented vocabulary. With a machine translator, *Google Translate* students could listen to the pronunciation of the words and phrases.

As it was outlined by our hypothesis, we assessed students' levels of communicative competence before and after the experiment. It showed that students can master new vocabulary on their own with or without online reference tools, but being trained on how to use machine translator *Google Translate* and *Multitran* online dictionary appropriately they demonstrate better results. This means that the applied approach is effective and expedient among students of aviation university. Significant gains among the students of the experimental group in contrast to the control group performance data showed a clear need for such training. Students' perception data indicated that participants found the instruction to be effective and relevant.

The tests were assessed using the ECTS grading scale which split into five segments ('A' – 100-90; 'B' – 89-82; 'C' – 81-75; 'D' – 74-67; 'E' – 66-60)

Table 1

Results of the testing students' competence before and after the training experiment

	Experimental					**Control**				
	Before the experiment		After the experiment		Difference	Before the experiment		After the experiment		Difference
	Students	%	Students	%	%	Students	%	Students	%	%
A	2	8.6	4	17.3	+8.7	3	13.6	4	18.1	+4.5
B	3	13.0	5	21.7	+8.7	4	18.11	5	22.7	+4.5
C	15	65.2	14	60.8	-4.4	11	50	10	45.5	-4.5
D	3	13.0	-	-	-13.0	4	18,1	3	13.6	- 4.5
Total	23	100	23	100		22	100	22	100	

As it is seen from the table experimental group after the experiment shows *t*, higher than critical values of the *t*-Student significance level. Also, all of the other combinations are much lower than the value for p=0,05. That all brings us to the conclusion that there are differences between the results of the experimental group, after the experiment and all other results so that there are not only random discrepancies between average indicators in the experimental and control groups.

According to the results of the students' tests in **the experimental group** with a sufficient level of language competence before the experiment put 21.6%. Consequently, 8.6% of students of the experimental group had 'A'-marks. After the experiment, the

percentage of students with 'A'-marks increased to 17.3 %. The difference reached +8.7 %. The percentage of students with 'B' marks equaled13.0 % before, and 21.7 % after the experiment, the increase constituting + 8.7 %. Consequently, the percentage of students in the experimental group with 'C' and 'D 'marks, which indicated an insufficient level of professional language competence development, decreased sufficiently 'C' from 65.2 % to 60.8 % with a difference of – 4.4%, and 'D' from 13.0 % to 0%. The total decrease of students with a low level of language competence is 17.4 %. While the total increase in students' success is 17.4 %.

In the **control group**, the sufficient level before the experiment put 31.7 %, which was 10% higher than the score in the experimental group (21.6%). But, according to the results of the experiment, the differences in the levels of students' language competence positive changes are not so significant – only 9 % (13.6 % vs 18.1 %). The decrease in the number of students with an insufficient level of language competence: 'C' – 50% before the experiment and 45.5 % after the experiment, was less significant compared to the experimental group. Besides, students with a mark 'D' score of 18.1% before vs 13.6 % after the experiment. The results of the testing are summarized in **Table 1.** Students from the experimental group have better results in professional language competence development (experimental +17,4 % vs control + 9 %). Results of the pedagogical experiment are presented in figure 1.

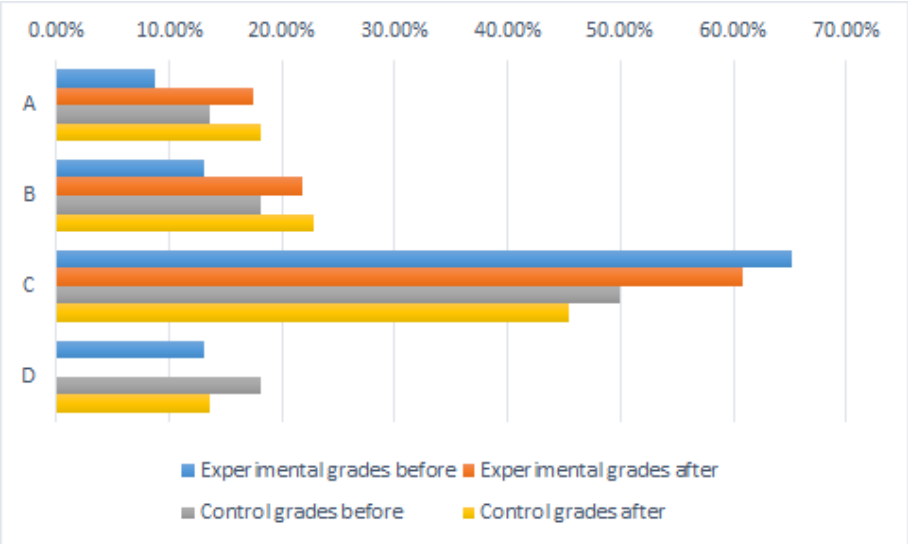

Fig. 1. Levels of the general effectiveness of students' learning in the experimental and control groups

The null hypothesis (H 0) states that there are only random discrepancies between average indicators of students' learning activity in the experimental and control groups. Alternative hypothesis (H 1) states that there are not only random discrepancies between average indicators of students' learning activity in the experimental and control groups.

Since the sample sizes (number of students) are different, the formula applied is:

$$t = \frac{|M_1 - M_2|}{\sqrt{\frac{((N_1-1)\sigma_1^2+(N_2-1)\sigma_2^2)(\frac{1}{N_1}+\frac{1}{N_2})}{N_1+N_2-2}}} \quad (1)$$

Where: M_1, M_2 are arithmetic means; σ_1,σ_2 are standard deviations; N_1, N_2 are sample sizes (number of students)

Then the number of degrees of freedom is calculated as:

$$df = N_1 + N_2 - 2$$

Table 2

Average students' score of experimental and control groups before and after the experiment

	Experimental		Control	
	Before the experiment	After the experiment	Before the experiment	After the experiment
Average score	79.2	84.4	78.8	79.4
Standard deviation	7.4	7.7	7.4	7.5
N	23	23	22	22

So that the number of degrees of freedom is (Table 3):

Table 3

Dependence of t for statistical significance p=0.05, on number of degrees of freedom for different combinations of the results

Number of degrees of freedom	Combination	*t*, for statistical significance p=0.05
42	Control group, before and after the experiment	2.018
43	Experimental and control groups, before the experiment Experimental and control groups, after the experiment	2.017
44	Experimental group, before and after the experiment	2.015

Regarding that calculated *t* for statistical significance is (Table 4):

Table 4

Comparison of calculated t for statistical significance [32; 33]

		Experimental		Control	
		Before the experiment	After the experiment	Before the experiment	After the experiment
Experimental	Before the experiment	-	2.35	0.2	0.09
	After the experiment	2.35	-	2.52	2.23
Control	Before the experiment	0.2	2.52	-	0.28
	After the experiment	0.09	2.23	0.28	-

4.2.According to the results of the questionnaire aimed to know students' attitude to IT reference tools (Google translator and online dictionary Multitran) in the process of ESP

learning application was suggested to the students and its results were analyzed we found out that:

- 86% (20 students) have a positive attitude to using MT and 73% (17 students) to using OD;
- 43% (10 students) used MT and 17 % (4 students) used OD before entering the university;
- 86% (20 students) use MT and 56% (13 students) OD very often - almost every day;
- 52 % (12 students) describe the quality of MT as 'good', 8% (2 students) as 'excellent'; 4% (1 student) as 'satisfactory' and 9 % (2 students) as 'poor';
- students find helpful online tools while doing home assignments - 86 % (20 students) MT and 69% (16 students) OD;
- students indicated that the most helpful while translating single words and groups of words (MT- 60% (14 students), OD – 54% (13 students), for whole sentences and paragraphs (MT- 26% (6 students); OD – 52% (12 students);
- MT is free and quick (82% -19 students), it helps to understand the meaning of unknown words (86% - 20 students);
- to edit MT raw output is not always easy (56% - 13 students), difficulties are usually connected with grammar and spelling (69% - 16 students);
- sometimes MT translations results are ridiculous and the meaning can be distorted (64% - 15 students).

Our students also suggested to add the next statements:

- it makes me more confident in ESP language speaking (MT- 52% (12 students); OD – 69% - 16 students) and writing (MT- 60% (14 students); OD – 73% (17 students);
- MT makes me more comfortable with English professional texts reading (MT- 86% (20 students); OD – 73% (17 students) and listening (MT - 56% (13 students); OD – 73% (17 students);
- I don't think I'm depending on MT (MT -69% (16 students); OD – 65% (15 students).

The results of the research demonstrated that the guided use of IT reference tools in ESP lessons (Aviation English) make a positive influence on students' professional English competence development increases their cognitive activity and broadens their horizons. Any harmful influence wasn't mentioned.

We have to recognize that this case study has some limitations: we analyzed the process of using online tools for translation in the process of ESP learning with Aviation University students 2020/2021 year.

Table 5

Comparison of characteristic features of online tools for translation in the process of ESP learning

notion	Google Machine translation	Multitran Online Dictionary
weaknesses	Inaccurate in grammar (verb tenses, prepositions, determiners, agreement, pronouns, number and sentence structure) Unable to provide discipline-specific terms and cultural equivalent. Errors in spelling are observed (letter omission or unnecessary letters appear) and orthography (punctuation and capitalization) Often structure-preserving	The user must be ready to find the necessary information (know how to do it) and understand it (have the appropriate level of communicative competence in a language learned).

strengths	Available online Immediate Multilingual Constantly improving	Mobile and can be easily applied and free; Interactive audible pronunciation is available Copy and paste facility present; Collocation, idioms and synonyms are provided Examples of the words used in the sentences are given, another practical illustrative material is evident; Dictionary corpus constantly updating; Hyperlinks allow finding information quickly Correction of spelling The suggestion of options for functioning in the text Information on grammatical features and phraseological features, the etymology of the terms, word structure, derivatives.

4.3.We developed some *guidelines for technical students' online dictionaries and machine translators using in the ESP learning process*. Here is a brief content of the guidelines.

Acquaintance with online reference tools their structure and capabilities, information about signs and abbreviations applied in the tools.

Demonstrate to students the ways the tools can be used and explain how specific information can be obtained. Working with machine translator Google Translate students should be informed that input needs simplification and transformation, while row output needs to be revised and edited. Classwork with translation options using Multitran Online Dictionary can be preceded and combined by grammatical and lexical exercises to practice and improve certain difficulties that students may have. Classwork on translation with online reference tools must be systematic with possible complications as well as some tasks can be flipped (students receive all necessary information and do the tasks before the lesson) and checked during the lesson. It will be good to explain and show students the examples of how words can be used in various professional fields or have several meanings, familiarise them with highly specialized and professional terms. e.g. To translate from English into Ukrainian. Translation into a students' native language (Ukrainian) contributes to the skills of understanding a foreign text development. Machine translation allows focusing on special terminology, lexical units and grammatical aspects which are new to the students.

Before translation: 'simplify and transform' (input).

1. Turn complex sentences into simple ones so that each sentence contains a complete thought.
2. Replace ambiguous statements, complex constructions and complex vocabulary with simple ones, use synonyms if possible, to clarify the terms.
3. Transform the sentences to replace the verbs in the passive voice and gerund forms with verbs in the active voice.

After translation: 'revise and edit' (raw output).

1. Compare English and Ukrainian texts and check the number of sentences and their components.
2. Check the correctness of the translated sentences construction and the consistency of presentation.

3. Check the adequacy of the terms used, as well as linking words and endings.

Translation from Ukrainian into English allows students to compare the meanings of different words and choose the necessary, expand their vocabulary, explore various means of expressing thoughts in their native and the language learned.

For teachers, we also recommend using some activities aimed at translation options comparing. Students have to translate the same text using the MT and without it. The results are compared and discussed in the group. Then the best variant can be compared with the model (reference) text. The next useful activity is translations editing. Students have to edit the text translated by a machine (from Ukrainian into English) and correct the mistakes (lexical, grammar and style) – a comparative study of native and foreign language systems help to improve the quality of teaching. Students need to have a sufficient level of language knowledge to notice the mistakes in raw translation and subject-specific knowledge to correct their mistakes. Such exercises develop students' skills of grammatical and lexical mistake finding and correction as well as contribute to improving the level of writing skills in both native language and English.

Practice-oriented goals of a foreign language mastering as a means of professional, business and everyday communication come out on top when teaching a foreign language at a non-linguistic university. The texts offered for translation should be interesting and informative for students, stimulating critical thinking and interest in foreign language skills development. They should vary in degree of difficulty and be selected taking into account the level of language competence of the whole group and individual students.

In the process of non-linguistic universities students' FL teaching the emphasis is usually made on writing. However, in real life, many students face the need for oral communication, as well as the need to translate (interpret) their utterances or help other people (colleagues or partners) to understand each other. Oral translation practice is appropriate for each lesson, starting with the individual words and expressions that we learn, and then moving on to more detailed utterances. Google Translate can help in developing students' pronunciation and listening skills. Based on the findings, pedagogical suggestions are provided in the form of exercises to help educators guide students' use of online dictionaries and online translators.

Example 1. We believe that it is necessary to develop students' skills in working with online dictionaries. For this purpose, it is expedient to carry out introductory and show examples of how it is possible to extract the information. It is not necessary to take for acquaintance a voluminous lexical unit. Let us take the word "***threat"*** (Table 6).

Table 6

Demonstration of using online tools for translation in the process of ESP learning. The word "threat"

Unit	Examples of suggestions provided
общ.	негативный фактор; повышенная опасность; бедствие; негативний чинник; підвищена небезпека; лихо;
авар.	опасное событие; небезпечна подія;

авиац.	угроза применения взрывчатого устройства в полёте; опасная цель ь; летательный аппарат противника; средство нападения; загроза застосування вибухового пристрою в польоті; небезпечна ціль; літальний апарат противника; засіб нападу. *For example:* *The terrorist said that he was ready to carry ou this **threat** to blow up the plane.- Терорист заявив, що готовий здійснити свою загрозу з використанням вибухового пристрою в польоті, щоб підірвати літак*

In the following sentence, the word "***injury***" is also used in various professional fields and can have several meanings.

Table 7

Demonstration of using online tools for translation in the process of ESP learning. The word "injury"

Unit	Examples of suggestions provided
авиац.	телесное повреждение; тілесне ушкодження;
юр.	нарушение права другого лица; причинение вреда; нанесение телесных; повреждений; причинение имущественного ущерба; порушення права іншої особи; заподіяння шкоди; нанесення тілесних; пошкоджень; заподіяння майнової шкоди.
	For example: The passengers escaped with only minor injuries-Пасажири врятувалися, отримавши лише незначні травми.

The dictionary contains not only commonly used words and expressions, but also highly specialized and professional terms. The Multitran translator is universal and perfect for "standard" and professional tasks. However, future aviation professionals should pay attention to the relevant professional context when translating technical literature. For example, the word "threat" has several meanings: "negative factor" in a common context and "threat of using an explosive device in flight" in an aviation context. To avoid mistakes during the translation, students choose the word translation in the appropriate professional (aviation) context.

Ex. 1. Use the words in the correct form to fill in the gaps

1. The terrorist said that he was ready to carry out his …….. to blow up
2. The passengers escaped with only minor ……..

When working on an aviation topic, future aviation professionals need to focus on the correct meaning of words within the study of the relevant professional topic. For example, working on the topic "Fires", students choose to translate words related to fire. The word "break out" has many different meanings in both professional and common contexts.

For example:

Table 8

Demonstration of using online tools for translation in the process of ESP learning. The phrasal verb "breakout".

Unit	Examples of suggestions provided
общ.	развёртывать; выход на оперативный простор; розгортати; вихід на оперативний простір;
мед.	покрываться; покриватися;
пож.	разразиться (о пожаре); вибухнути (пропожежу).

When opening the corresponding page on the screen, attention should be paid to the fact that some words can be both a noun and a verb. We suggest students listen to the pronunciation and demonstrate the transcription, and certainly pay attention to the emphasis. When studying definitions, it is necessary to pay attention to where the transitivity of the verb is indicated and to demonstrate examples of it using as transitive and as intransitive. It is necessary to demonstrate how derived words are formed, what are the synonyms and antonyms. It is useful to pay attention to the description of the origin of the word, give examples of its use from internet sources. It is advisable to allow students to listen to a podcast with this word.

Example 2. The development of skills to use lexicographic materials correctly is an integral part of the process of learning foreign languages at different levels of education/ That is why we believe that it is appropriate to have an introductory lesson and explain the common signs and abbreviations used in dictionaries (e.g. *V*- verb; *T*- transitive, *I* – intransitive; *N* – noun, *pl*. – plural, so on). In further work, it is worthy to demonstrate to students the ways the tools can be used and explain how specific information can be obtained. Students can check the correctness of certain parts of speech in working with the online dictionary Multitran by completing the next exercise, using the words in the previous exercise in the correct form to fill in the gaps.

Ex. 2. The words in the chart below are all related to hijacking. Use a dictionary to find the other parts of speech.

Following this task, students should use a dictionary to find out appropriate parts of speech (verb, noun, adjective, and adverb) from the derived words.

Table 9

Demonstration of using online tools for translation in the process of ESP learning. Parts of speech

Verb	Noun	Adjective	Adverb
Seize – з*ахватывать - захопити*	please fill in	-------	--------
	please fill in	explosive- *взрывающийся-вибуховий*	please fill in
Obey - *подчиняться-підкорятися*	please fill in	please fill in	please fill in
	Threat – *угроза - загроза*	please fill in	please fill in
arm – *вооружиться-озброїтися*	please fill in	please fill in	----------
Injure - *наносить повреждение-наносити пошкодження*	please fill in	please fill in	----------
Prevent - *не допустить - запобігати*	please fill in	please fill in	
demand - *требовать вимагати*	please fill in	please fill in	----------

During practical classes with future aviation specialists, we use the machine translator *Google Translate* and *Multitran* online dictionary. The English-Russian-English dictionary Multitran contains more than four million entries, while the general database contains about

eight million entries. We believe that the use of online dictionaries and translation programs during practical classes with future aviation professionals helps to form students' basic and, in part, special components of translation competence, which means a set of knowledge, skills and abilities that allow future aviation professionals to solve their problems and professional tasks successfully. Special components of translation competence are the elements necessary for the translation of the text of a particular genre and style: legal, economic, scientific and technical, etc. In our case: aviation; scientific and technical literature. Students are asked to translate a professionally-oriented fragment from the document using the Google translator. (Doc 9835– AN/453. (2004). The use of ICT in foreign language (FL) lessons increases the cognitive activity of students, broadens their horizons and allows the use of a personality-oriented technology of interactive learning.

5. CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH

The general availability of free machine translation programs, the creation of appropriate applications for mobile phones and tablets has led to the fact that every student uses these tools in the course of studying a foreign language (English) and other subjects as well as in everyday life. Representatives of the 'digital natives' generation can't be prohibited from using machine translation tools in daily life and the process of learning. It is impossible and does not make sense. This must be taken into account when organizing the learning process and teaching students effective and rational use of IT reference tools.

We consider the use of modern information resources in the process of teaching foreign languages is useful and timely. Online dictionaries and machine translators are effective tools for students' foreign language competence formation and development, especially in the field of special texts translation. The approach activates the cognitive ability of students and promotes the students' *autonomy formation*.

The results of the research proved that the guided use of IT reference tools in ESP lessons (Aviation English) make a positive influence on students' professional English competence development, increases their cognitive activity and broadens their horizons. The teacher, on the other hand, is an active assistant and a facilitator of the process, his main function is to organize, direct and stimulate the learning process. So, the above stated allows us to note, *that online dictionaries and translation machines are valid tools for students' of non-linguistic university foreign learning English as a language of speciality skills improvement.*

During the experiment, *we explored* the possible benefits and disadvantages of online dictionaries and machine translators using in the ESP learning process and concluded that online dictionaries (OD) and machine translation (MT) tools make it possible to check the meaning of a word when it is difficult to figure out from the context, besides they also provide a wealth of important information about the meaning and appropriateness of lexical elements, technical terms and idiomatic expressions using besides they help to build form-meaning connections. Due to their incomplete perfection these tools, supply learners with many details of language use, including examples of grammatical explanations and contextualized use of words, expressions and phrases.

We practised the application of modern reference tools such as online machine translation Google translate and combined work with a suitable Multitran online dictionary. This work implied students' researching the English vocabulary in a digital environment and developing their skills to use lexicographic materials correctly. As a result of the research, we *concluded* that attention should be paid to the fact that some words can be both a noun and a verb. We believe teaching students to work with online dictionaries and machine translation is a necessary condition at the present stage for ensuring the competitiveness of nonlinguistic

universities graduates. In our teaching ESP work, we used different types of language learning activities and combined them with the complex of exercises on translation. We assert that the development of skills to use lexicographic materials correctly *enhances* students' four language skills and translation and *helps* them to acquire and strengthen their ability to use English and rise their professional knowledge. It must be an integral part of the process of learning foreign languages at different levels of education. The electronic resource Multitran, which provides access to dictionaries in many languages, and Google translator are valuable sources of assistance in the work of teachers and students. Our students are also advised to refer to other dictionaries (e.g. English Oxford Living Dictionary and Merriam – Webster Dictionary and others), which interpret lexical units in English and provide examples of their use in writing, as well as provide access to games and video clips. We claim that instructional practices on integrating technology in the digital natives' classroom are a prospect for further research.

Guidelines for online dictionaries and machine translators used in the ESP learning process *were developed*. To form and develop students' skills in working with an online dictionary, it is appropriate to have an introductory lesson and explain the common signs and abbreviations. In further work, it is worthy to demonstrate to students the ways the tools can be used and explain how specific information can be obtained. Machine translation must be preceded and combined by grammatical and lexical exercises to practice and improve certain difficulties that students have. Input should be simplified and transformed, while row output needs to be revised and edited. To develop students' skills in working with the online dictionary is expedient to show examples and explain how words can be used in various professional fields or have several meanings, familiarise with highly specialized and professional terms.

The prospects of further development we consider in creating effective practices for teaching students of different specialities using reference internet resources for their cognitive abilities activation and their learning autonomy formation.

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ЗАСТОСУВАННЯ ДОВІДКОВИХ ІНТЕРНЕТ-РЕСУРСІВ У НАВЧАННІ АВІАЦІЙНОЇ АНГЛІЙСЬКОЇ МОВИ ПРЕДСТАВНИКІВ ЦИФРОВОГО ПОКОЛІННЯ

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Анотація. Стаття присвячена дослідженню потенційних можливостей застосування інформаційних технологій під час навчання англійської як мови спеціальності (англійська для спеціальних цілей, ESP). Автори представили результати педагогічного дослідження, проведеного в Національному авіаційному університеті (Україна). З метою підвищення ефективності викладання авіаційної англійської мови було застосовано новий підхід, який базувався на здатності сучасних студентів легко послуговуватися довідковими інтернет-ресурсами. Підхід характеризується керованим застосуванням машинного перекладача GoogleTranslate та онлайн словника Multitran під час вивчення англійської мови як мови спеціальності для розвитку у студентів навичок правильного застосування лексикографічних онлайн матеріалів. Для перевірки ефективності нового підходу було проведено дослідження навчання студентів експериментальної групи з використанням згаданих довідкових інтернет-ресурсів. Результати дослідження показали позитивний вплив підходу на розвиток англомовної професійної компетентності студентів експериментальної групи порівняно зі студентами контрольної групи. Це доводить, що правильно розроблена та цілеспрямовано запроваджена комплексна діяльність з вивчення мови із застосуванням довідкових інтернет-ресурсів під керівництвом викладача сприятливо впливає на рівень знань студентів, є доречною під час вивчення англійської як мови спеціальності. Було зроблено висновок, що довідкові інтернет-ресурси є корисними засобами підвищення рівня іншомовної компетентності студентів. Досліджено можливі переваги та недоліки машинного перекладача GoogleTranslate та онлайн словника Multitran для їх застосування під час навчання ESP, зроблено висновок, що ці засоби не лише дають можливість перевірити значення слова, а й надають важливу інформацію про доцільність лексичних елементів, технічних термінів та ідіоматичних виразів. У статті наведено кілька прикладів навчальної діяльності студентів з використанням довідкових інтернет-ресурсів.

Ключові слова: англійська для спеціальних цілей; авіаційна англійська; застосування довідкових інтернет-засобів у навчальному процесі; машинний переклад; онлайн словник.

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