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# Application of ICT tools in teaching American English for computer science students in the context of global challenges

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**Abstract.** The article deals with the urgent issue of American English learning for IT-professionals under challenging conditions of the changeable economic situation in the world. Some statistical data on global education trends and its analysis are given to confirm the topicality of the problem. State-of-the-art trends in foreign language teaching in the context of global challenges are presented. It is stated that informal education environments, distant learning platforms, virtual reality environments, artificial intelligence applications and collaboration platforms are to be mastered by Ukrainian undergraduates. Certain peculiarities of choosing and studying British and American English course by students of IT-specialities at three Ukrainian universities are given: the course choice procedure, the reasons for course preference, and the syllabus content. The best technologies, applications and tools for classroom activities and independent learning are substantiated, specific examples of their application for British and American English course learning are presented. The transferability of the skills inculcated in the course participants through implementation of the certain tools is founded.

## 1. Introduction

The interdependency of global changes and education advance has always been the reason for scientific, social and economic progression: educational level of population ensures its citizen awareness and determination; on the other hand, shifts in collective consciousness caused by any wide-ranging triggers (both positive and negative events) influence education vectors and methods. Nowadays, namely this congruence globally determines the headway in most public spheres.

In Ukraine which had the reputation of a rather conservative country in the field of teaching and training, education (and higher education specifically) had had a stable paradigm of its functioning for decades. Nowadays, dramatic changes have been introduced in accordance with European tendencies of the student-oriented approach, the choice of a student training trajectory, skill transferability and the lifelong learning concept. The Osvita Nova educational portal presents the most relevant concepts which have come to the fore due to current social challenges.

The key concept is lifelong learning since “speed and diversity of changes increase” [2]. The other important notions included into the list are the equal access to learning for everyone, personalization



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of the learning process, dissolution of the border between learning and work, appearance of new educational environments.

The National Institute of Strategic Research [12] emphasizes development of the lifelong learning system along with further export capacity building of Ukrainian higher education as crucial factors of obtaining economic outcomes and accelerating education modernization and empowerment of the positive image of the country globally.

According to the Organisation for Economic Cooperation and Development [22] to develop individuals as persons, citizens and professionals is the ultimate goal of education in order to continue to deliver on its mission. That is why education itself must continuously evolve on the ground of economic, social and technology changes. This “requires the reorganization of formal and informal learning environments, and reimagining education content and delivery”. The mentioned above concept correlates both with compulsory education and lifelong learning.

Tom Vander Ark in [3] has considered trends in education in terms of aims, strategies, measures and supports. The author has outlined four mega trends, four emerging trends and four adjacent trends impacting education. The mega trends include new goals, active learning, competency and integrated services. The emerging trends list interrelated items are: contribution, immersive learning, success skills, and thoughtful guidance. The adjacent trends comprise inclusion and equity, lifelong learning, quantified life and mindfulness.

Lynda Gratton and Andrew Scott, professors at the London Business School, insist that the traditional model of education (education-work-retirement) has not been relevant, and the multistage model consisting of education, exploration, transition, employment in an organization, self-employment, portfolio in the sense of mixing paid and unpaid work, and retirement is to be more applicable [10]. The stages in the multistage model can be carried in different orders; they can overlap and be repeated.

The Valamis consumer-grade learning platform designed to provide digitalization of learning outlines numerous long-term benefits of lifelong learning for adults: renewed self-motivation, recognition of personal interests and goals, improvement in other personal and professional skills, and improved self-confidence [37]. The listed above benefits include only those connected to personal learner advantages without taking into account business, industrial and even national and international aspects.

The Government Office for Science, UK provides the list of possible returns of lifelong learning concerning individuals, employers and society [9]: benefits to the individual (increases in incomes, career promotion, physical and mental health and independence, etc.); benefits to the employer (performance of higher-level tasks, increasing productivity, acquiring occupational- or sectoral-specific new skills); health benefits (improvements in life satisfaction, slowing cognitive decline); welfare and exchequer benefits; social and civic benefits (reducing racism, and increasing civic participation and voting, greater participation in sport).

In their turn, businesses and organizations are to encourage their employees who “(1) anticipate learning requirements, by, for instance, identifying areas for future job requirements and implications for needed skill updates, (2) set development goals that reflect needed knowledge and skill structures, (3) participate in learning activities, (4) ask for feedback to test goal relevance, and (5) track progress” [17] to make it possible to continue their learning.

In spite of the overall tendency of the last decade to prolong seniors’ professional engagement, the implementation of lifelong learning is not uniform across the countries of the world. As Anja P. Jakobi stated in 2012 the implementation was based on similar principles and values “without sufficiently taking into account the specifics of the national context” [13]. The current trend in lifelong learning in some countries is replacing of integrated approaches with disintegrated ones “focusing on certain life phases, modalities of learning and topics”, while other countries develop lifelong learning systems which integrate all levels of education, ages and learning modalities [35]. The advantage of the disintegrated approach has been explained by Mohanbir Sawhney on the example of IT-specialist training. He proposes to organize lifelong learning using “learning objects” instead of courses. These

learning modules can be sequenced and combined, the range of modules for every student can be chosen by the AI-algorithm according to their learning objectives [24].

TeachThought (a brand dedicated to innovation in education) has made an attempt to determine the most popular trends in education [33]. To identify them the organization has applied four objective aspects and one subjective one. The objective aspects have been popular search engine data, TeachThought search data, traffic and search trends within and across popular education websites, and social media metrics. The subjective aspect of identification has been TeachThought editorial impression. As a result of the research the list of 30 most popular education trends has been obtained with growth mindset, maker learning, Bloom's taxonomy, digital citizenship/literacy and personalized learning as the top-5 trends with the highest scores.

Brain-based learning, adaptive learning algorithms [23], game-based learning [34] and mobile learning [14] are surprisingly found at the bottom of the list. Rustam Shadiey, Taoying Liu and Wu-Yuin Hwang [13] also reveal in their research that in the field of task-based learning and communicative language teaching (pedagogical approaches) mobile-assisted language learning (MALL) is nowadays of great demand especially in terms of language learning and cognitive load (as to affordances of authentic environments). For instance, there has been a significant switch from desktop learning to mobile learning within ICT application in undergraduate training due to recent overcoming lags in technology in Ukraine (introduction of 3G and 4G, tablet and smartphone availability to young users) [19]. On the other hand, ICT literacy of Ukrainian educators has been increased and resulted in their abilities to create and operate mobile versions of websites, distant courses and applications [15].

## **2. State-of-the-art trends in foreign language teaching in the context of global challenges**

Language teaching is nowadays exposed to challenges on the part of global educational trends of switching to ICT on a large scale; on the other hand, it is impossible to ensure training live communication and spontaneity in verbal reaction without taking into consideration the human factor (like confused articulation, humour, sarcasm, the set of language varieties which is native to certain territory, for instance, American English). As the result, two prospects have occurred: 1) developing software and 2) tools for exclusively teaching languages and accommodating the available ICT projects for teaching foreign languages. In practice, adapting the cutting edge technology and tools has been quite resulting globally: in their study, Ruofei Zhang and Di Zou [40] emphasize the benefits of the state-of-the-art technologies integrated into various aspects of language teaching and learning through "promoting practices, delivering instructional content, facilitating interactions, and restructuring teaching approaches". The specifically designed tools are of great assistance for foreign language teachers, they ensure student pronunciation correctness, unprejudiced assessment and language learner motivation increase. Nevertheless, high-priced ICT achievements are rarely affordable for public educational establishments. Oleg Tarnopolsky, Nataliia Volkova and Svitlana Kozhushko [32] accentuate the lack of adequate modern equipment (such as computer laboratories specifically designed for language teaching) in Ukrainian non-linguistic higher schools. Especially for this reason only free and the most efficient ICT products are implemented into foreign language courses at Ukrainian universities: they are previously scrutinized by language instructors, then implemented into learning programs as a minor part of experimental activities with study groups and after the necessary volume and timing modification of application prospects are introduced to students as a compulsory course aspect.

The future and implementation prospects of the mentioned above educational trends are still uncertain because modern large-scale challenges like the Covid-19 pandemic demand lots from professionals all over the world, but in the first line flexibility is wanted ([11], [26]). In crisis situations education is one of the most well-founded spheres, since teachers are predictably loyal to their students and persistent enough to educate under most unusual circumstances. Teaching and managing staff is the most valuable asset, the source of sensible crisis solutions and unexpected ideas. With reference to what has been noted above the survey among the training staff of Dmytro Motorny

Tavria State Agrotechnological University, Bogdan Khmelnytsky Melitopol State Pedagogical University and Classic Private University has been conducted. 50 teachers who educate future computer science specialists have been asked about the most influential educational concepts of the next decade for Ukrainian universities.

The opinion poll has revealed that to majoring in ICT students the inevitability of inculcation in their educational background the following concepts for their competitiveness (ranging from the crucial to important) should be explained:

- 1) lifelong learning (competitive capacity, knowledge update ability, transferable skills);
- 2) collaboration ability (professional adaptability, fast forming new skills, extensive professional engagement);
- 3) personal adaptability (communication competence, multiculturalism);
- 4) academic globalization receptiveness (exchange programs and academic grant application);
- 5) professional globalization receptiveness (claiming to job overseas, freelance working for international employers);
- 6) intellectual flexibility (broad mental outlook, progressiveness);
- 7) personal globalization receptiveness (tolerance, ethical and sustainable thinking).

Within English courses a collaboration ability, intellectual flexibility, personal adaptability and globalization receptiveness are developed since they underlie both the communicative approach and educational resources of prominent publishers whose English and Business English coursebooks (and sets with video and resource bank materials, with links to interactive tasks and mobile course duplicates) are used to teach future IT-specialists. Lifelong learning concept is, on the contrary, new to most undergraduates and needs to be introduced through appropriate resource usage and appealing toolkits.

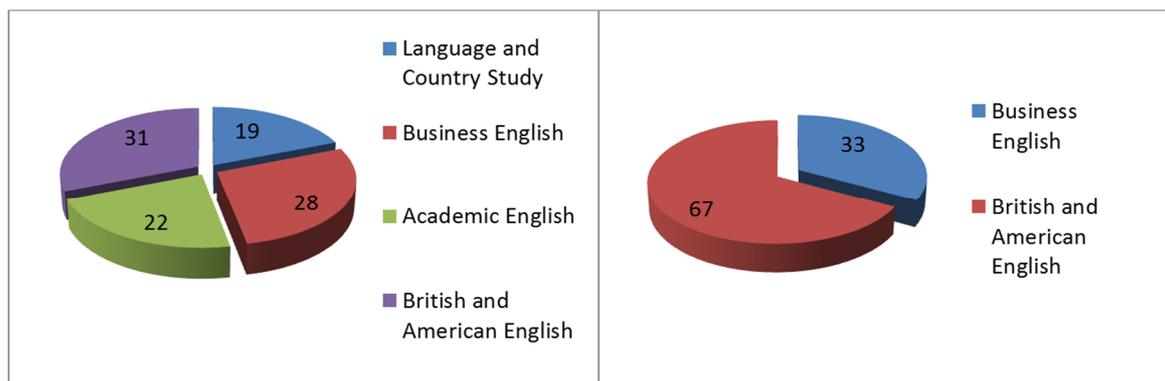
In order to inculcate the mentioned above key concepts in Ukrainian undergraduates within the university study they should be undoubtedly engaged in mastering the following learning resources:

- 1) informal educational environments (like communicating with course participants and instructors via social networks, messengers and chatbots, using cloud-based video conferencing services for distant communication);
- 2) distant learning platforms (like Moodle, Canvas LMS or LearnDash used by both universities and corporate professional coaching for training and controlling student educational activity);
- 3) virtual reality environments (like Mondly, Jigspace VR, Samsung VR);
- 4) artificial intelligence applications (like ELSA (the English language proficiency app), Socratic by Google, Glossika);
- 5) collaboration platforms (Confluence, Podio, Common Data Environment, Unified Communications, GoSoapBox, Ryver) and more sophisticated project management tools (Bitrix24, Planfix Worksection).

Foreign language knowledge and competence are of the utmost importance for successful careers of specialists in different fields ([4], [20], [29], [31]). Lifelong learning is crucial in language acquisition since languages change and evolve enormously [30]. English has expanded as a global language and at the same time it has undergone the great influence of American culture and as the result American English is nowadays as much demanded by learners as British English. Verbal communication principles, intercultural communication etiquette and netiquette rules have been exposed to the focus shift from averaged depersonalized behaviour to personal space, needs and choices. Therefore it is important to teach students not only to make the most of ICT tools for actual communication [16], but to familiarize them with strategies of independent learning, to improve their command of language themselves, to adapt their skills for changing professional environment and rising labour market demands, to employ wide application ICT tools for a specific goal.

Supporting the concept of person-oriented and student-oriented approaches to training undergraduates at Dmytro Motornyi Tavria State Agrotechnological University, Bogdan Khmelnytsky Melitopol State Pedagogical University and Classic Private University, the teachers of the department of foreign languages have developed for future computer science specialists a range of thematic study

groups, which could be chosen by students to be implemented into extra curricula activities in the academic year 2019-2020. All the topics are relevant for students whose aim is enhancing their English proficiency and who are determined to collaborate on international projects in the nearest future. The results of student choice (at the first stage two most demanded leads of study were selected, among them the one was opted for in the second stage of the survey) are represented in figure 1.



**Figure1.** Results of student choice

85 students participated in the survey and their reasons for choosing or rejecting the study groups are the following:

1) Language and country study – most students referred to the current ESP and general English courses, present in their curriculum and considered the knowledge gained within the courses sufficient for their current academic study and prospective professional situation.

2) Business English – the students expect having this discipline to be included into their Master course curricula, and nowadays they already have basic skills in Business communication – writing a CV, an application letter and an inquiry letter.

3) Academic English – the students, deeply interested in scientific researches and further study have already been active participants of study groups which goal is maintaining and enhancing undergraduate academic proficiency and are managed by their regular teachers, providing them with assistance in reporting and presenting, narrative writing, supervising them writing theses, and applying for study and internship abroad.

4) British and American English – the aspects of differentiation between two languages have not at once been perceived by the majority of the surveyed students as important or beneficial for their personal and professional development. Still, the students having professional experience in collaborating with foreign employers have noted the prevalence of American English in verbal and especially written communication. These students have convinced their groupmates of advantage of an ability to correspond in American English and to produce American English content for the websites they could possibly create and administrate.

The necessity of being proficient in American English is also founded by the tempo of its expansion combined with globalization tendency. It is stated, that estimating the speed at which Americanisms have been assimilated in British English, by 2120 American English will have absorbed the British version entirely [1]. It has recently been the mass media, tourism and sales spheres that have demonstrated the massive usage of double forms – for example, the ESP textbooks have purposefully introduced both lexemes in American and in British English for the same concept or action. Nowadays, it is difficult to highlight the spheres not influenced by American English. As to IT-sphere, the USA has been the leader in its development for years. The country has still maintained this position: American products and services are in good request around the world, the giant IT-companies are concentrated in its territory, and main IT-startups are originated. The demand for

experienced and highly-qualified computer specialists in the USA is being increased nowadays; moreover, there is a lack of IT-specialists in the country. Thus, there are apparent opportunities for individuals with good professional and communication skills from all over the world to be employed.

Therefore, it is sensible to teach undergraduates, who are oriented for international cooperation abroad or within Ukraine American English in spite of minor academic load of the 'Foreign language' discipline in the curricula. The solution to provide a study group on American English chosen by students this year is going to be carefully considered and in case of successful training and increased motivation a selective discipline 'American English' is going to be offered for students' opting for the academic year 2020-2021.

The current study group syllabus includes the following aspects:

1) differences in vocabulary between American and British English (*elevator / lift, railroad / railway*);

2) grammar topics: affixation – *advisor / adviser*; irregular verb forms – the verb *to get* has past participle form *gotten* in American English and past participle form *got* in British English; tense usage – *I just wrote* vs. *I have just written*; word order – *Hudson River* (AE) vs. *River Thames* (BE); the usage of prepositions – *live on a street / live in a street, chat with / chat to*; data indicating: *the year begins January 1st. / the year begins on January 1st., March the Fourteenth, 2021* (AE) / *the Fourteenth of March, 2021* (BE); *Monday, September 6, 2020 / Monday the 6th of September, 2020*; simplified grammar constructions in American English – *Do you have a pencil?* (in AE) *Have you (got) a pencil?* (in BE);

3) spelling – *organize / organise, center / centre, color / colour*;

4) pronunciation, accents and intonation: differences in stress in such words as advertisement, brochure; differences in pronouncing words ending in -ile like mobile, hostile; some letters are pronounced differently – 'a' in such commonly used words as class, chance, ask, after, can't, example or 'r' in the words hard, were, pure, more, the letter 'i' in the -ization ending in words like organization, authorization, globalization and many others. Moreover, the letter 't' in the middle of a word (better, writing, bottom, native, artificial, notice) can be pronounced in American English like a fast sound 'd'.

The British intonation tendency is to use high falling intonation, hitting the main stress high and then dropping down. In American English rising tones are more common. A speaker usually goes up from the main stress demonstrating the rising intonation on statements.

All of the mentioned above aspects are to be introduced to students using the most effective techniques and tools, successive rigorous training is demanded and various control forms are to be applied in order to exclude the possibility of students' confusion between forms and rules of British and American English. This is the obvious reason for creating a learning environment providing both training and controlling resources.

### **3. ICT application for development of American English language skills of computer science students**

According to the aspect (vocabulary, spelling etc.) it is important to select the most appropriate tool both for class activities and independent learning. It is essential to take into account personal demands and individual language proficiency in order to create suitable course average with relation to and prospect of each participant proactive involvement. The chosen tool should be captivating and improvable in accordance with education and information technology advance in order to ensure that students will not quit as soon as they do the entire study group course but will gain strategies and skills for lifelong self-development.

The example of such a tool is the Moodle open source platform widely used at universities all over the world [18]. It was launched in 2001 and since then has been developed: more than 1700 plugins are offered for downloading and maintained, new capabilities, controls and integrations have been added, improvements and support enhanced, communication and collaboration options as well as privacy settings modified [21]. Moodle is the most productive tool for training and successive control

of spelling, word-building, word order and vocabulary usage skills [36]. Moreover, it is going to expand, since it becomes gradually more learner oriented and offers focus on vertical and horizontal interaction within any educational process and collaborative construction of content, and it is in continual evolution.

The most productive instruments for developing verbal communication skills and training such aspects as pronunciation, intonation and word order in spontaneous speech are virtual reality applications. They provide individual approach, self-determined tempo of progressing within an opted course and they also support comfortable virtual environment formed by situation, scenery and interlocutor on your choice [31]. The innovative Virtual Reality application Mondly [25] offers its users American English as one of 30 available languages. The American English course is equally meticulously designed as British English and is as captivating.

Mondly is the application using augmented reality with the chatbot technology and speech recognition. Mondly comprises listening, reading, writing and speaking activities providing verbal communication with virtual characters on the given topic in real-life situations and giving feedback on their pronunciation. The study group participants from Dmytro Motornyi Tavria State Agrotechnological University cooperated with computer science students from Bogdan Khmelnytsky Melitopol State Pedagogical University using the facilities of the informatics and cybernetics department. At the Pedagogical University computer science students hosted their colleagues at the virtual laboratory where they shared their impressions on differences in American and British English presented in Mondly and trained their ability to distinguish between accents. The study group participants noted the colourfulness and vividness of the virtual environment. They are provided by the characters who are young adults with corresponding national and geographical background which is relevant for improving command of American English. The study group participants have also appreciated the conversational chatbot replying with a human voice. The instructors have noted the specified motivating students to self-reliant error correction. In case of the incorrect pronunciation or spelling a student is politely asked to correct the mistake without pointing it out. The skills of confident VR use are crucial for IT-professionals in the 21 century [27], therefore presenting well-founded analysis of VR environment abilities and faults should be trained in university study.

The prospective way for a teacher to most congenially be included into the communication process which is habitual for students is to create groups in social networks. The attractiveness of social networks for young adults as personal communication means is nowadays transformed into the professional related communication tool. This statement is confirmed by including different types of accounts/profiles on social networks and in messengers into cloud based managing systems. Social networks are effective means of fostering communication for professionals, including foreign language learners, as they bring together people of different ages and social backgrounds located in different parts of the world, but united by common motives and interests (mastering a foreign language or improving their professional level). Students, as members of virtual communities, have access to a wide range of resources and distribute self-created materials. Interaction and communication within virtual communities help students develop all the necessary communication skills (reading, speaking, listening, writing) and professional skills, because community members use knowledge and participate in the formation of new knowledge and new products. Successful functioning of virtual communities requires a modern content, a constant increase of interest and motivation of participants, and their active interaction. On the other hand, English speaking social network communities always reflect the most innovative language trends, use loan words, and introduce abbreviations and professional expressions which often confuse Ukrainian undergraduates and need to be studied.

Some of the social networks preferred by Ukrainian students are Facebook and Instagram. Within next decades their necessity tends to grow, since face to face socialization (both personal and professional) has receded in the 21 century because of the global communication principle alteration. Facebook allows its members to look through numerous pages, share audio, video, and text information with other members, participate in industry-related groups. To provide opportunities for communication with IT-professionals and software engineering professionals about their academic

issues and work routine in English we have created a “Communication for IT Specialists & Software Engineers” group on Facebook. Some interesting news about the industry, videos, infographic are posted, different surveys and polls are organized, problematic questions requiring helpful tips are put (figure 2). The mentioned above positive aspects of participating in the Facebook group are reinforced by American English speakers who can be appealed to via Facebook with questions on linguistics (most students inquire about IT abbreviations and slang lexemes), on country study, on current events and professional issues.

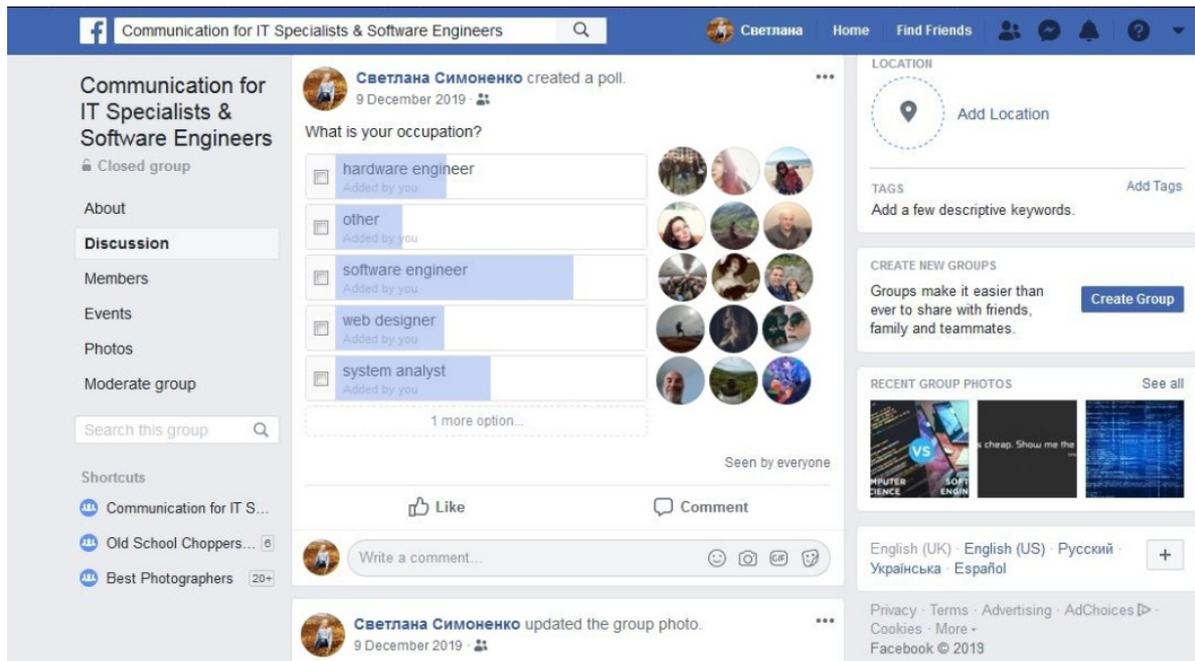


Figure 2. Example of the survey in the Facebook group

Artificial intelligence implementation is one of the most prospective trends in foreign language learning [38]. Self-study applications achieve popularity because of learner-tailored proficiency level and tasks promised by their designers. Glossika [7] is the AI-guided language study application. AI within this technology helps the user to estimate their own proficiency level and to focus on building basic ‘fluency’ which means manipulating sentence structures learned through listening, reading and typing ready-made phrases. The benefits of Glossika are tailored learning material, choosing the material volume and pace, the access from both desktops or smartphones. Using the application reveals that Glossika is intended for individual self-learning and paired with traditional learning methods (like collaboration in a class and the communicative approach) can ensure a fast foreign language vocabulary increase.

The ELSA application has been introduced as a Personal Virtual Pronunciation Coach, it uses the AI speech recognition technology ranked third in the Top 5 artificial intelligence apps of 2019 composed by the influential Analytics Insight platform [6]. ELSA is positively assessed by more than 6 mln learners eager to improve their American English accent. The application offers 1,600 lessons covering all English sounds and over 40 topics aiming at helping to gain proficiency in American English language pronunciation and presents user advancement reports. The learning progress in real-time is accessible from the organization dashboard.

Extra curricula activities can also be organised for a study group with focus on individual attention towards needs and preferences of every participant. A cloud based suite of communication, social collaboration and management tools for a team of business people or individual workgroups aimed at

a particular project, including CRM, file sharing, project management, calendars, and more can be equally applicable for student groups.

One of the most demanded collaboration platforms is Google Suite for Education [8]: it includes an expansive suite of tools and apps which let teachers collaborate one-on-one with a student or instruct the whole class. G suite allows to create classes with Google Classroom, co-edit documents and presentations within Google Docs and Google Slides, distribute assignments and send feedback in real time [5]. As a suite part, Google Meet enables for online learning and teaching with video capabilities supporting virtual classrooms and meetings. Its rivals in educational sphere are Zoom (a video-conferencing product) and GoSoapBox (a web-based classroom response system), created at the beginning of the 2010's but both having their raising due to Covid-19 lockdowns.

The examples of more complex project and activity managing services are Bitrix24, Planfix and Ukrainian Worksection service which operate under the similar principle of task division and control having been typical for most professional structures for decades. Still, taking into consideration changes in fair employment practices law, communication rules modification and novelties in Business etiquette, Worksection [39] is a system of accounting and control of project management which systemizes the data about tasks and time frames along with discussions and provides a complete suite of communication, social collaboration and management tools including file sharing, project management and more. It is sought-after by entrepreneurs and IT sphere CEOs, but this system is also applicable to learning facilitating. In the Worksection application a language instructor can split the affairs into projects, tasks and subtasks, it is easy to create timelines and define priorities. Through prioritizing and deadline setting for the study group members American English vocabulary is learned simultaneously with spelling rules, which is the most effective strategy, the grammar content is split into units and proficiency levels linked to the B1 / B2 / C1 level verbal communication tasks, and American English pronunciation is trained in selected pairs and mini-groups that coordinate their training timing on their own directly through Worksection facilities. The learning pace of each subtask is person-oriented and the time amounts for every task performed are recorded and can be corrected accordingly to the group average. Tasks and sub-tasks contain statuses, terms, priorities, tags, files and a communication panel where 12 different correspondence reactions are provided to save executives' time. The calendar and Gantt chart are of great assistance for planning through visual control.

Cloud based suites are indispensable in organising creative activities and involving individual participants in creative competitions, writing and essay contests, calls for papers etc. Writing in American English, composing short stories and making up lines for dialogues using American English vocabulary can be examples of creative tasks for the mentioned above study groups and appealing to each student individually.

Managing and supervising the study group member activities and submitted by them documents and papers is time effective and beneficial: undergraduates get used to operate cloud based services and to correctly communicate within while being students, not employees. The mentioned above services are also prospective in the view of lifelong learning because managing professional and personal activities (both group and individual projects) is highly demanded assistance and one of preconditions for highly qualified specialist accuracy.

Study group participants have been given a task to present a SWOT analysis of the Worksection services wide-ranging implementation into the educational process (table 1).

The results have demonstrated numerous prospects and appreciation of motivated students but also have reflected their concern about teachers' unwillingness to get involved into learning how to manage this management tool as an educational means and about unmotivated student failure.

Most of the analysed above ICT tools are applicable to all academic disciplines. ELSA and VR Mondly applications are the most preferred tools highly estimated by study group participants for their unusualness and direct accordance with the student learning goal – to master American English. Nevertheless, all the items (Worksection, Google Meet, Moodle, and social network options) have been appreciated for their English interface and facilities: on the one hand, the students have enhanced their American English communication skills and have improved definite foreign language aspects, on

the other hand, the undergraduates have developed their profession-related skills of applying ICT tools in their future employment.

**Table 1.** SWOT analysis of Worksection implementation into the educational process.

<p><b>Strengths</b> Appeal Unusualness Effectiveness Collaboration encouragement Communication enhancing</p>	<p><b>Weaknesses</b> Account and role setting inflexibility High level complexity for average users Demand for intense concentration and accuracy (especially from administrators)</p>
<p><b>Opportunities</b> Involving large number of participants with various educational background Shifting a part of educational assignments into the Worksection service Developing separate projects for specific academic spheres</p>	<p><b>Threats</b> Time consuming setting and routine administrating Unmotivated students' disregard ruining planned activities of the whole group Price rising</p>

The skills inculcated in the students and participants of the study group within training operating and using Mondly, Moodle, AI, Worksection and social networks with English and American English interface are transferable and will definitely be of great value in the future when more sophisticated and advanced derivatives of the learning environments, communication tools and management platforms occur. The lifelong and collaboration concepts will underlie every new ability of the young people who are currently capable to master the broad spectrum of the mentioned above ICT applications and training tools.

**4. Conclusions**

Education development trends are nowadays important for every specialist in order to match the rising labour market requirements, but it is urgent for IT-professionals (whose skill and competence half-life continually shortens), especially for the ones determined to collaborate internationally. Since most employees need periodic or even urgent retraining in response to global economic, environmental and social changes, reskilling and upskilling postgraduate holders should demonstrate the independent learning habit which must be fostered in undergraduates within curricula or study groups. ICT tools for learning English like online courses, AI, virtual reality applications, systems of project management control and social network facilities are popular with students since using them provides the individual approach, a self-determined pace and combines foreign language acquisition and mastering software application facilities and settings, both applicable in IT-professionals future employment. The use of the mentioned above technologies and tools for study and further on for work ensures forming transferrable skills underlying for the life ability to withstand the challenges of the future.

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