

Integration of Subjects Based on Educational Technopark

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Abstract. The Leading Techno parks should play a leading role in the creation, testing and implementation of innovative teaching methods and technical tools in terms of their foci and key features. Many organizational and technical problems that are essential for the teaching of subjects such as foreign languages and computer sciences can be optimized and efficiently enhanced through the education technology park. The constraints of these subjects, overlapping problems in engineering and characteristic difficulties make them integral. Mutual lexical enrichment and similar logic methods require that these subjects be used together with the technical means of the TP, the combination of methodological means and teacher effort.

Keywords: Techno Park, foreign language, teaching aids, methodology, integration

Introduction

The demands of the modern specialist expanding and becoming more complex are increasingly covering knowledge and skills from related branches of science and technology. The newest tool in the matter of diversifying training of technical personnel is the educational techno park (TP) with its wide and mobile possibilities of experimentation and attraction of the newest methods and technical means in solving all sorts of problems. With increasing requirements for education, such opportunities are increasingly in demand in the learning process. One of the main problems facing the modern university is the expansion of opportunities for further employment of its graduates. The collected experience at the University of OYU shows that students and graduates trying to enhance their attractiveness for a potential employer turn to paid course services outside the University. In 85-90% of cases, this is a course in computer science and English. Without considering the quality and effectiveness of such "post-production" courses in this material, one should point out the need to analyze the situation from the point of view of

university education itself. Undoubtedly, this situation casts a shadow on the university programs, lowers the prestige of universities, which in turn makes them less attractive for students. The solution of the problem lies in the field of raising the level of teaching of the above disciplines, including using methodological and technical innovations. Observations provide grounds for asserting that increasing the level of knowledge in English leads to a marked improvement in the level of knowledge in technical fields. For example, on the Internet you can find many English-language teaching free courses, which computer science teachers recommend as additional training material. At the same time, the corresponding paid online courses provide an opportunity to receive an international diploma - a solid application to CV. Proceeding from the well-known thesis that the computer is technical, and English is the communication vector of globalization, the idea of the necessity of uniting the efforts of the university in these directions naturally arises [1]. In pedagogical science, the fact that the learning process of a foreign language is much more effective in an environment close to the real conditions of professional activity is considered proven. As noted in the National Report of the Russian Federation "On the policy in the field of education and BAT", the rate of mastering grammatical structures and the accumulation of vocabulary when learning a foreign language by computer increases by 2-3 times. Hence, for the successful perception of knowledge of a foreign language, it is necessary to simulate a situation in which the language from the object of study becomes a necessary tool in the preparation, implementation and presentation of the results of technical tasks. And such a model exists - the technopark, with its multi-faceted possibilities, suggests itself as a platform for the integration of various subjects. One of the important tasks of the educational TP, the creation of new technical and methodological teaching aids. Here, naturally, new ideas, technical developments, software products flock [6]. In the conditions of TP, the artificial "learning" of the language is completely excluded, replacing it with the natural, including its subconscious perception. The chosen criteria successfully fit the situation of joint training to a computer and English on a single territorial and organizational space, where the language is an indispensable tool for mastering computer knowledge. And accordingly, the perception of the English language occurs in a familiar, spiritually close environment for future techies. Necessity of English for students of technical specialties is caused both by specificity of used text materials, and by needs of communication in adjacent educational and creative groups. According to statistics, more than 75% of orders in the field of software come to specialists of the post-Soviet space from foreigners, and almost all customers prefer to communicate in English. [2] In fact, it is very difficult to navigate in IT without the ability to read English texts. Advanced IT information should be sought on English resources. With modern development speeds, timely, high-quality translations and

publications of advanced scientific and technical literature in national languages are extremely difficult. The situation is complicated by the existing confusion in the issues of terminology in the national languages. It is enough to point to the ongoing discussions on the use of some basic computer terms in the Azerbaijani language (select, mouse, prognosis, access, etc.). The disputes between supporters of the enrichment of the language by neologisms and supporters of the creation of new words-terms based on their own vocabulary of language do not subside. The use of English in teaching basic definitions and concepts also facilitates the process of teaching the basics of computer science, excluding interlanguage problems. Training of specialists with a good knowledge of the language on which computer terms are created should change the situation in favor of correctly included neologisms in the language.

Result and Discussion

You can list several factors reflected in the literature, making it necessary for a serious study of English for future IT professionals:

- **Reading technical documentation:** With the TP example it can be argued that it is often necessary to order equipment (less often software products) from abroad. In this case, all reference materials, equipment description and technical specifications are written in English.
- **Understanding terminology:** All widely used modern programming languages are based on keywords in English.
- **Selection of development tools:** Although in some of them there is a Russified interface, at the current level of education in schools with a national language, English becomes preferable.
- **Communication with clients:** Many foreign companies use the services of local specialists. And without a good command of the language to understand the needs of customers is impossible.
- **Study of professional literature:** The newest books and articles in the IT field are published in English. To constantly be aware of all news and updates professionals need to get acquainted with foreign publications.
- **Visiting international online courses and webinars.**
- **Finding solutions on the World Wide Web:** Engineers, periodically encountering complex tasks and non-standard problems, find solution hints in the English-speaking part of the Internet.
- **Chance to get a job abroad:** It's no secret that almost all IT giants are in the US. But even in techno-cities that are rapidly developing in the "third"

countries, the language of science and communication is English. Such firms constantly require competent specialists, certainly with good English [4].

There is a double benefit from the integration of English and computer science subjects, which is also conditioned by the efforts of teachers of different specialties. For an English teacher, the conditions of the TA create favorable opportunities like - to study a new teaching methodology, get acquainted with innovative, technical teaching aids, including robotics and independently pass the qualification upgrade, without detaching from work and without purchasing expensive equipment. This raises many questions of the type,

- how to use the potential of information and communication technologies for the development of the communicative competence of learners in another language;

-how to introduce in the lesson of the English language the new technological means optimally and organically, giving the occupation entertainment, emotional coloring and without breaking its logical structure [8]?

We should point out the need for some additional efforts for such joint work:

- Creation of essentially new teaching methods qualitatively different from traditional.
- It is necessary to distinguish a set of IT-themed verbs, as well as other frequently used words related to the Internet, hardware and software, which must be studied first.
- One should proceed from the fact that the strengths of techies are logical thinking: grammar should be presented as a logical structure. It will be easier for tech students to learn English for IT, since they already have some vocabulary base. When studying words, one must pay attention to the fact that many familiar "technical" words have other meanings in common-spoken English.
- Special selection of teaching staff. Teachers with a hackneyed, traditional teaching method do not easily adapt to a new situation that is not characteristic of them. Hence, a choice of more plastic, mobile, innovative teachers is needed, ready to teach new, sometimes, fundamentally unfamiliar material.
- Additional preparatory work on program subjects, tests, etc., adaptation and integration of existing teaching tools.
- Creation of new, bi-directional training materials. In this case, training manuals should be prepared anew. This is due both to new tasks in the new environment and to the well-known speed of innovation in computer science.

- Preparation of visual aids reflecting, on the one hand, the current state of computer areas and, on the other hand, parallel to computer, consistently more complicated language material.

At the same time combining computer lessons with fastening of conversational English skills is also effective because training a computer involves:

- mastering of technical terms included in the university course of programs
- The Internet makes necessary language knowledge in such sections as:
 - Mastering program languages and tools for generating websites
 - information search
 - social networks
 - E-mail
 - professional slang
 - Skype, etc.

The vocabulary of English used in such occupations should be wide enough, therefore, the student receives not only the necessary computer knowledge, but also a useful versatile language practice. Simultaneously, in English lessons texts, winged phrases, proverbs and other similar educational materials are built with the expectation of students of technical specialties, selected from the corresponding near-scientific literature and technical environment.

The literature considers such factors, which should be borne in mind as additional advantages of teaching computer literacy in conjunction with a foreign language:

- comprehensive development of the student: a young person does not become isolated in the technical tasks of the technopark. Together with a foreign language, tasks of a new type are received, and against the background of a common problem, elements of a foreign culture are more easily perceived.
- Additional stimulation for language learning: working with technical documentation and communicating with foreign students entering creative groups makes the knowledge of a foreign language necessary
- fascination: lessons in the educational technopark are more interesting, simultaneously different directions for the student open at the same time: information technologies, including hardware and software on the one hand and the most popular foreign language on the other;
- Saving time: the student simultaneously receives both computer and language knowledge, passing from one subject to another, without leaving the natural environment;

- Efficiency: as is known, the homeland of personal computers, operating systems and most programs studied in the university are English-speaking countries. Accordingly, most of the terms are borrowed from English and it is logical to study them in the original language;
- Practicality: most programs, and especially the manuals for working with them, are not translated into national languages and therefore you can work with them only in the English interface;
- Profitability: there is no need to hire expensive tutors for students who are not able to independently understand the difficulties of the echoing objects.

One should also bear in mind the weaknesses of representatives of technical specialties: Uncertain knowledge of grammar - in technical texts, as a rule, complex terminology is used, but very simple grammatical constructions, therefore, grammar is not given due attention. The task is solved by studying language constructions and performing practical exercises on professional topics. The language barrier is the limited or total absence of conversational practice. The practice of speaking in class must solve this problem. Hearing barrier: programmers rarely must perceive information in English by ear, so there are problems with understanding the speech of the interlocutor. [5] The work with audio materials, in the creation of which the students themselves take part in practical classes in TP, can get rid of this. It is possible to point out the problems that are typical for our republic now: As most specialists (Prof. Ramin Mahmudzade and others) point out, there are problems in computer training in schools, caused by organizational shortcomings [7]. (when enrolling in a university, students are "traditionally" trained in chemistry, not in informatics, as a result of which, students come to computer skills not trained). The very conditions of educational TA and the integration of subjects are called upon to more actively eliminate the results of the backlog of students accumulated in the framework of similar problems.

Consider what was said on several practical examples used in English lessons. At the same time, one should proceed from the fact that it is not enough to saturate the lesson with conditional communicative or communicative exercises to create communicative competence, it is important to provide students with the opportunity to think, solve any problems, discuss possible ways of solving these problems, so that students focus on the content of his statement, that the focus was on thought, and the language acted in its direct function - the formation and formulation of thoughts. [10]

As you can see from the above example, in the picture, working with the theme of computer memory on both subjects, the characteristic abbreviations are considered

(also often found on the packaging of the equipment used). Performing an exercise in a foreign language, students should open the topic based on knowledge of previously learned words from previous lessons. Understanding the meaning of words helps, certainly and in the technical comprehension of the text. On the other hand, the student is sent to understand the connections and patterns of various computer nodes. Repeating words and expressions on both subjects, using a single visual material, students better master technical terms, their meaning and connections.

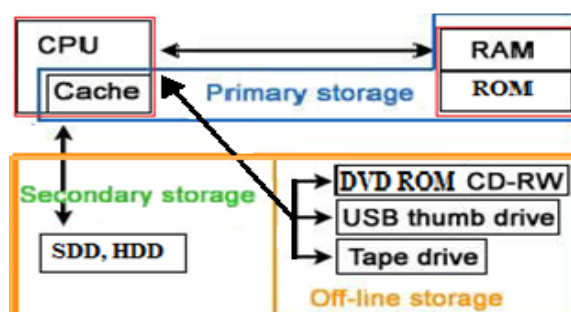


Figure 1. Types of Computer Storages

On the second picture the student is offered to choose, name and justify the correct name of the device from the abbreviations given on the picture:



Figure 2. Visual Test for Knowledge of the Device and the Name in English Ram

Remembering data from lessons on computer science in such tests becomes doubly useful. In turn, the teacher of computer science puts emphasis on new words, others, commonly used values of which are known to students from texts on the initial English.

The third figure shows, as it were, the traditional material for the description seen in the picture, with a further construction of the summary. This characteristic method in the study of foreign languages in this case is also like a student who is familiar with the presented device from a visual stand from the first days of classes in the technopark. Also, this device attracted attention when studying the computer output devices in the lessons on the basics of computer engineering.

By the time this booth is used in the English class, students know the type, basic characteristics, way of using, etc. represented device. This facilitates the student's task, making the presentation interesting, helps to eliminate the language barrier. It is noteworthy that the students themselves take an active part in creating such stands, which helps in memorizing the material, and stimulates the learning of the language. For students, it seems attractive to demonstrate additional knowledge on the material that is not required in a foreign language lesson.



Figure 3. Plotter. Graphic Material for the Construction of Text on the English Language.

Another characteristic example of the use of the possibilities of the conditions of the technopark is the inclusion in the lesson of a foreign language of technical means of sounding new words that are difficult from the point of view of phonetics. Hidden speakers are connected by the assisting subject when repeating the characteristic errors. In this case, scoring occurs with the recording of native speakers using different voices. In addition to audio, video means are also used - monitors, projectors for visual accompaniment of the material in a foreign language. Promising is the use of interactive whiteboard (smart board), mimeo equipment and document camera as a means of increasing the effectiveness of the educational process [11]. To provide such a concentration of technical means and consistently experiment with them is a very difficult task for the traditional class.

As the primary analysis of the students' survey shows, for most respondents such integration of the teaching of various subjects is perceived as useful and stimulating. 100% of respondents said that it is very convenient to learn English in TP. Of these, 60% believe that the big advantage of such classes is the participation of more than one teacher at the lesson. For 40% mastering new knowledge here is much easier compared to the traditional audience. 20% singled out a friendly, sincere atmosphere. 80% hope for a positive result from using computers in English classes. In the future, the collected survey material will also be processed on a computer with the participation of students and masters of the university.

Conclusion

To keep up with the changes in society, it is necessary to introduce new pedagogical methods. The use of TP for the integration of linguistic and computer subjects leads to a general increase in the level of training. TP conditions stimulate the introduction of technical innovations in the learning process of a foreign language. It also enhances the future employment opportunities for students. It is necessary to make efforts for the development of interactive instruction in foreign languages using a computer.

References:

- [1] Osmanzade R.M., Rzazadeh E.M. Computer Globalistics, Baku, 2005 p. 227 (in Russian)
- [2] <http://englex.ru/english-for-it-specialists>
- [3] Krupatkin Ya.B. "Read English scientific texts., Course for beginners". Moscow, Higher School, 1991.(in Russian)
- [4] Veliev A.A., Rzazadeh E.M.. Technopark in the university complex. Scientific and pedagogical news of Odlar Yurdu University, №46, Ст.772, Baku, 2017(in Russian)
- [5] IT & IT-təhsilxəbərləri. Facebook page
- [6] Information technology in English language lessons, Olga Zolotareva, open-class.rf / articles / 597058 /
- [7] Information technology in the teaching of English, O.V. Eremina, Omsk State Transport University, ict.edu.ru/vconf/files/3147.rtf(in Russian)
- [8] Modern pedagogical and information technologies in the education system, ES Polat, M. Yu. Bukharkina, MV Moiseeva, AE Petrov. - Moscow: Publishing Center "Academy", 2010. - 224 p.(in Russian)
- [9] Workshop "Using an interactive whiteboard, mimeo equipment and document camera to improve the effectiveness of the educational process". Teacher-psychologist Krylova A.V. ICDU 4, <http://www.myshared.ru/slide/1298755/>(in Russian)