

Міністерство освіти і науки України  
Одеська національна академія зв'язку (ОНАЗ) ім. О.С. Попова (Україна)  
Міжнародна асоціація випускників ОНАЗ (Україна)  
Технічний університет Кошице (Словаччина)  
Університет Гіперіон в Бухаресті (Румунія)

## **МАТЕРІАЛИ**

**VII Міжнародної науково-методичної конференції**

**ЛІНГВІСТИЧНА ПІДГОТОВКА СТУДЕНТІВ  
НЕФІЛОЛОГІЧНИХ СПЕЦІАЛЬНОСТЕЙ  
ВИЩИХ НАВЧАЛЬНИХ ЗАКЛАДІВ  
У КОНТЕКСТІ БОЛОНСЬКОГО ПРОЦЕСУ  
ТА ЗАГАЛЬНОЄВРОПЕЙСЬКИХ РЕКОМЕНДАЦІЙ  
З ВИВЧЕННЯ, ВИКЛАДАННЯ ТА ОЦІНЮВАННЯ МОВ**

**6-7 жовтня 2016 року**

## ЗМІСТ / СОДЕРЖАНИЕ / CONTENT

### АВСТРИЯ / АВСТРИЯ / AUSTRIA

<b>Живорад Жуйович.</b> Современные подходы к оцениванию в Европе на примере австрийских образовательных учреждений .....	11
---	----

### АЗЕРБАЙДЖАН / АЗЕРБАЙДЖАН / AZERBAIJAN

<b>Heydarova Shafiq.</b> Specific Characteristics of the Terms in the Modern Azerbaijan Language ..	15
---	----

### КАЗАХСТАН / КАЗАХСТАН / KAZAKHSTAN

<b>Алиярова Л.М., Махажанова Л.М.</b> Listening Comprehension as One of the Important Skills in Foreign Language Learning .....	19
<b>Бисингалиева И.В.</b> Развитие социально-коммуникативных навыков студентов нефилологических специальностей .....	23
<b>Ломаченко Н.Л., Сабырбаева Н.К.</b> Обучение переводу английских научно-технических текстов .....	26
<b>Kazmagambetova A.S., Kalieva A.Zh.</b> Formation of Students' Inter-Ethnic Tolerance .....	30
<b>Strautman L.E., Gumarova Sh.B.</b> Professionally-Oriented English as a Step to Teaching Physics in English .....	33

*Strautman L.E.,  
Senior Teacher,  
Gumarova Sh.B.,  
Senior Teacher,  
Al-Farabi Kazakh National University,  
Almaty, Kazakhstan*

### **PROFESSIONALLY-ORIENTED ENGLISH AS A STEP TO TEACHING PHYSICS IN ENGLISH**

*According to the new presidential program "100 concrete steps" Kazakhstan is planning a phased transition to teaching some subjects in the English language in high schools and universities. Integrated lessons are an important step to the transition to teaching school subjects in English. The task of universities is to train specialists who will be able to teach science in school in English.*

Kazakhstani students in the upper grades will soon be taught classes in English; this is provisioned by the new presidential program "100 concrete steps." "A phased transition to English language in the education system will be taking place in high schools and universities. The main objective is to improve the competitiveness of graduates and increase the export potential of the education sector," is said in the document [1].

Vice-president of Altynsarin National Academy of Education Mariam Mukatova informed about the development and approval of the 'Road map' of trilingual education for 2015-2020. It is planned to create the Academy trilingual education center, which will supervise the work on transition to the trilingual education in Kazakhstan. A uniform standard for teaching in three languages will be developed in order to ensure the continuity of trilingual education, and to prepare for a gradual transition to teaching of some subjects in the English language in high school, colleges and universities. To provide educational organizations with qualified personnel and English-speaking specialists it is planned to use the potential of Bolashak graduates. A uniform system of stimulation of teachers and a new improved form and content of the Unified National Test will be developed.

The program also notes the need for a phased introduction of a 12-year education system and upgrading of the schooling standards to facilitate functional literacy. Introduction of per capita state financing in high school and creation of a system of incentives for successful schools are also among the program's provisions.

In high school four subjects: informatics, physics, chemistry and biology will be taught in English. A schedule for transition to trilingual education and transition to teaching subjects in English in high school is developed. In the 2017-2018 school year the pupils, who began learning English from the first grade, will come to the fifth grade. It will be the preparatory period for transition to teaching some subjects in English in high school. In English lessons material from these four subjects will be used. From the fifth grade the terminology for these four subjects in English will be learnt. After the ninth grade an external evaluation of the level of pupils in languages will be made and extracurricular activities in English will be organized. Some elective courses will be taught in the basic school in the English language.

There will also be access to teaching materials in three languages of Nazarbayev Intellectual School. It is planned to organize summer language schools for pupils from 5-11 grades. Implementation of the program will be based on a joint decision of the pedagogical council and the parents' committee. 2450 teachers are planned to attend language courses before 2022. The issue of

studying the history of Kazakhstan in the Kazakh language and the World History in Russian in all schools and colleges, regardless of the language of instruction is developed.

The roadmap of planned implementation of the new program without straining pupils, parents and the public has been developed. Changes in the form and content of the UNT as the final certification are planned to be made only in 2019. By this time the results of monitoring, research and development will be ready. The road map will be confirmed not only by educational-methodological works but also by scientific research.

Integrated lessons are an important step to the transition to teaching school subjects in English. The implementation of integrated lessons with the presence of two teachers, for example, of physics and English, creates natural conditions for transition to the English language subject lessons. A need for such activities is seen in the appearance in the Russian-language Internet of a series of teachers' developments on integrated lessons including a variety of disciplines. The task of universities is to train specialists who will be able to teach science in school in English. Therefore, our universities have the course of professionally-oriented English instead of the course of general language. At the faculty of Physics & Technologies, at the lessons of English we introduce more and more physics in terms of translation of real scientific texts, making presentations and even student's conferences in English.

Recently, there have been numerous academic discussions of the problem of interdisciplinary. Interdisciplinary pedagogical practice allows the teacher to cross the traditional boundaries of discipline-centered teaching by using two or more academic disciplines.

Educators are seeking ways to help students make sense out of the variety of life experiences and bits and pieces of knowledge being taught in the curriculum typically divided into special subjects not interconnected with each other. Even when integration is not necessary, it is often desirable, and when content drawn from one subject is used, it enriches the teaching of another subject. It is especially important to use interdisciplinary teaching working with professionally-oriented language. The title of the subject itself tells us about the necessity of interdisciplinary approach.

Interdisciplinary teaching is a method, or a set of methods, used to teach a unit across different curricular disciplines. There are many different types, or levels, of interdisciplinary teaching. The most common method of implementing integrated, interdisciplinary instruction is the thematic unit, in which a common theme is studied in more than one content area. Scholars that advocate for curriculum integration argue that the topics studied should originate with students and their teachers, and not from imposed curriculum packages.

Thematic units can also fall short of teaching in-depth content to students. Often a theme is used to link unrelated subjects, with little deference to students' prior knowledge or interests. This superficial coverage of a topic can give students the wrong idea about school, perhaps missing the idea of curriculum integration in the first place. Thematic units can contain pointless busywork and activities created solely to create a link to a theme.

Barton [2] identifies ten models of integration that fall into three general categories:

- integration within single disciplines,
- integration across several disciplines, and
- integration within and across learners.

She defines the goal of integration as follows: "to help young minds discover roots running underground whereby contrary and remote things cohere and flower out from one stem."

Is interdisciplinary integration desirable? There are those who question whether it is, in fact, advisable to engage in interdisciplinary integration in our schools. Dr. Norman Lamm said, "Our job is to give the students the material; their job is to let the materials interact within their minds. Interdisciplinary synthesis is simply not feasible for most youngsters during the middle years of childhood, or for most of their teachers. I see most so-called interdisciplinary curricula as commonsense or proto-disciplinary activities."

Jacobs [3] indicates that the largest obstacle to curriculum integration is that people try to do too much. Successful implementation must take into account the various levels and phases of integration that might be possible in a school.

1) Integration does not have to be interdisciplinary. The first step toward integration is to foster integrated thinking with each discipline.

2) Teachers who are capable of drawing on information from other disciplines should be encouraged to do so when appropriate, but not at the expense of the mastery of their own discipline.

3) Interdisciplinary integration can be fostered, as well, without interdisciplinary instruction. Such integration involves the process defined by Fogarty as integration within and across learners. An example of this process would be a project that calls on the student to draw on a variety of disciplines in order to complete the work.

The most common example of interdisciplinary study in English teaching can be seen in the complex and interrelated relationship between history and literature. Understanding of history is fundamental to the analysis of literary texts.

We can state that not only history and literature can be used as an example of interrelation between subjects. The interrelation is in the title of the subject "Professionally-oriented foreign language".

To provide interrelation between subjects we use themes parallel to the course of physics. In the first semester the students study mechanics, therefore we choose interesting topics from mechanics: Newton's laws, the law of gravity, different types of energy. The same theme can be considered at the lessons of physics and English. For example, to study physics we must know units of measurement. Let us consider such an extract:

*The base unit of time, the second, is likely already familiar. Time can also be broken up into smaller units such as milliseconds ( $10^{-3}$  seconds), microseconds ( $10^{-6}$  seconds), and nanoseconds ( $10^{-9}$  seconds), or grouped into larger units such as minutes (60 seconds), hours (60 minutes), days (24 hours), and years (365.25 days).*

Here we solve two problems: we teach students how to pronounce powers of numbers (teachers of physics often do not know how to do it), and this is a contribution to studying physics, and we consider the grammar form *is likely*, which is often used in scientific texts.

In the course of physics students study Newton's laws and there are groups where physics is partially taught in English. Professors give students terms and definitions of the law, and to help the students we used as a self-study task the lessons of physics. We even tried to solve simple problems:

**Question:** *A ball thrown vertically upward reaches a maximum height of 30 meters above the surface of Earth. At its maximum height, the speed of the ball is:*

**Answer:** *0 m/s. The instantaneous speed of any projectile at its maximum height is zero. Because gravity provides the same acceleration to the ball on the way up (slowing it down) as on the way down (speeding it up), the time to reach maximum altitude is the same as the time to return to its launch position.*

**Question:** *A basketball player jumped straight up to grab a rebound. If she was in the air for 0.80 seconds, how high did she jump?*

**Answer:** *Define up as the positive y-direction. Note that if basketball player is in the air for 0.80 seconds, she reaches her maximum height at a time of 0.40 seconds, at which point her velocity is zero.*

Here we present another example from the course of molecular physics.

*It is collisions between molecules that lead to the randomness of their movement and thermodynamic equilibrium.*

*The basic equation of kinetic theory of gases establishes a relationship between the molecular quantities, i.e., quantities relating to a single molecule, and the amount of pressure that characterizes the gas as a whole – the macroscopic quantity directly measured in the experiment:*

$$p = \frac{2}{3} n \frac{m_o \langle v^2 \rangle}{2} = \frac{2}{3} n \langle \varepsilon_{\text{ном}} \rangle ,$$

where  $p$  is the gas pressure on the walls of the vessel.

We again study reading of scientific formulas and scientific terms, such as “quantity”, which students often translate incorrectly. From the language point of view, we consider the structure “It is collisions ... that”. At each lesson we work at scientific and language parts of texts, lectures and presentations.

Integration of Physics and English helps students in the formation of the following competencies:

- the ability and willingness to use physical terms in the English language;
- the ability and willingness to apply physical laws to solve problems and explain them in English;
- the ability and willingness to translate technical foreign language terms.

The choice of video material for the classroom was limited by the range of themes studied by the students and the level of their knowledge of English. In one of the articles on interdisciplinary approach to teaching master students of non-linguistic specialties [4] it was suggested to use lectures of the Nobel Prize laureates for the master course students. We tested the possibility of usage of the lectures, but it turned out to have too disadvantages. The first one is the complexity of the subjects discussed by the lecturers; the second one is the level of English. Therefore we came to the conclusion that it is more efficient to use the texts and video close to the studied subjects.

### **Literature**

1. Сто конкретных шагов президента Н. Назарбаева [www.zakon.kz%2F4713070-sto-konkretnykh-shagov-prezidenta.html](http://www.zakon.kz%2F4713070-sto-konkretnykh-shagov-prezidenta.html).
2. Barton, K.C. & Smith, L.A. (September 2000). Themes or motifs? Aiming for coherence through interdisciplinary outlines. *The Reading Teacher*, 54(1), 54 – 63.
3. Jacobs, H.H. (October 1991). Planning for curriculum integration. *Educational Leadership*, 49(2), 27 – 28.
4. Popova N.V., Stepanova M.M. An interdisciplinary approach to teaching a foreign language in non-linguistic master courses // *Proceedings of the Second International Scientific Conference "Actual problems of science and education."* Stavropol: NCSTU, 2010.