



## TECHNOLOGY OF DEVELOPING PROFESSIONAL COMPETENCES OF STUDENTS OF NATURAL SCIENCES IN ENGLISH LESSONS BASED ON AN INTEGRATIVE APPROACH

Tursunboyeva Mukhlisa Anvar kizi

Fergana State technical university

Assistant Email: mukhlisaturunboeva.19.12@gmail.com

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### ABSTRACT

*According to modern requirements, knowledge of English is not only a means of communication for students, but also important in professional activities. The need for an interdisciplinary approach to teaching English in the higher education system and its significant impact on the educational process are being studied in many studies. This article also focuses on the problems of developing professional competencies of students of the Faculty of Natural Sciences in teaching English based on an integrative approach. It presents solutions to be found on this issue, a number of proposals with examples. At the same time, the opinions of a number of researchers have been studied.*

Introduction . In the context of globalization and modern requirements, knowledge of English is not only a means of communication for students, but also an important factor in professional activities. The need for an interdisciplinary approach to teaching English in the higher education system and its significant impact on the learning process are being studied in many studies. The main goal of teaching professional English is not only to teach the language, but also to develop in students the terminology, communication styles and skills related to work processes necessary in their professional fields . Interdisciplinary relationship teaching in the process one how many fields of science between integration and mutual connections represents .

Higher non-philological education institutions in the directions of English language study is not only language knowledge , but various in the fields professional competencies It also provides development . For example, Natural sciences faculties of seeing if we are , education taking students for English language study , their research activity and professional in the field successful performance in providing important importance has . Integrative approach is various sciences and the language combine method students for many in terms of conditions creates . Especially , the student's professional competence in their classes integrative approach based on improvement his/her in the future not only own profession maybe English language perfect to know opportunity gives professional English is increasing. Today, globalization and the rapid development of technologies, as well as changing labor

market requirements, have increased the need for professional English. It is important not only to teach students English, but also to create opportunities for them to communicate freely in English in their professional sphere

#### A literature analysis

Modern trends and new outlooks on life have imposed certain requirements on qualified foreign language teachers in non-philological educational institutions, in particular, at the faculties of natural sciences. Many scientists have put forward ideas about the feasibility of using knowledge of a particular subject in the study of other subjects, since the integration of subjects helps to develop professional competencies and intellectual abilities of students.

Currently, the problem of developing interdisciplinary relations in the modern pedagogical educational process is widely discussed. According to many researchers, such as N.A. Menchinskaya, E.I. Monoszon, V. N. Maksimova, N.A. Churilin, N.A. Sorokin and V.N. Fedorova, it is customary to distinguish an integrative approach, that is, five main functions of interdisciplinary relations - methodological, educational, developmental, educational and functional. If the methodological function of interdisciplinary relations is to help students better master modern scientific concepts from the point of view of a systematic approach to knowledge, and in terms of the educational function of interdisciplinary relations, they help to form the qualities of coherence, depth, awareness and flexibility [1].

According to research by Russian scientists, the technology of developing professional competence in English lessons based on an integrative approach helps students develop not only language skills, but also scientific and professional knowledge. Through this approach, students acquire the knowledge, skills and competencies necessary for success in their professional activities. At the same time, integrative methods prepare students for scientific thinking, communication and making the right decisions in professional activities.

According to G.G. Belova: "Interactive methods allow students to apply their knowledge in practice, which helps to effectively develop their professional competencies." In her opinion, interactive methods help to develop communication and cooperation between students, which prepares them for the effective performance of professional tasks. Interactive methods also encourage students to actively participate in solving various professional tasks and synthesizing scientific materials in English [ 2].

#### Research methodology

In the article supreme education institutions natural sciences at the faculty English language education quality in evaluation their professional competencies in consideration to take necessity discussion will be done . Study during English language in their classes integrative from the approach use student's like competence increase the most effective from the methods one arrived found and this approach importance wider accent was given .

#### Results and their analysis

Before analyzing the improvement of a student's professional competence, it is necessary to clarify what competence and professional competence themselves are.

Competence is the sum of knowledge, skills, and abilities, as well as the individual's unique qualities, that help an individual act in various situations, including new ones. [3]

Professional competence is the set of knowledge, skills and qualifications that a person needs to perform his professional activities effectively and qualitatively. Professional competence is not limited to knowledge, but also includes practical skills, experience, professional ethics and

communication skills. In the modern labor market, professional competence is an important factor for the successful functioning of specialists.

There are specific key components of professional competence, which are:

- professional knowledge — to the field circle knowledge and theoretical concepts .
- professional skills — own profession in execution demand attainable practical skills .
- professional qualifications — correct decisions acceptance to do , effectively work methods find such as high level skills .
- professional experience — the real professional experience of a specialist in the environment studied experience and practice .

Professional competence teaching and education in the process learnable main concepts as seeing Modern education in the system students not only knowledge with to provide , but to them professional skills Education is also necessary . programs and training plans professional competencies to develop aimed at to be necessary.

R.B. Rubin and S.Savignon own in research competence knowledge , experience , values , aspirations based on education to take in the process achieved general qualification as describes . [4]

Competence in particular philology and psychology sciences doctor , academician A. A. Leontiev so writes : “ Competence concept of appearance to be expert preparation history with depends on . In this competence knowledge , skill and general qualifications work to the activity mobilized can to take qualification as understood .” [5]

Integrative approach different sciences or knowledge fields mutual tie through lessons in the process students further effective teaching and to them further wider knowledge and skills presented to grow method that and English in the language natural sciences in teaching integrative approach language and professional knowledge unite the students scientific in the field to work prepare to take as describing we gave .

Below we are naturally sciences faculty of students English language in their classes professional competencies integrative approach based on to develop aimed at this the table we have created .

This in the table presented done components English language in their classes professional competence integrative approach based on development effective methods shows .

Teaching English in science faculties based on an integrative approach can be an effective way to develop students' professional competencies. This approach integrates scientific and professional knowledge, improving students' thinking, writing, and communication skills. By studying scientific materials in English, students acquire the competencies necessary to succeed in their professional fields. As a result, come came out without natural sciences to the family belonging chemistry from science topic chosen without lesson development working We went out . Subject as "Acids and Bases" ( Acids and Bases) and Basics ) select received .

Lesson purpose to students acids and basics about scientific information English in the language presented acids and of the basics features , various reactions and pH role explanation sympathy to students chemistry according to professional in terms English in the language to speak and to write skills develop such as it has been .

Lesson tasks as the following by designating received :

1. To students acids and of the basics definitions , characteristics and examples presented to be
2. Acids and basics with related chemical reactions English in the language explanation .
3. Students with practical exercises through acids and basics about knowledge reinforcement .
4. pH measurements , acid and of the basics mutual the impact explanation .

Lesson at the beginning to students English in the language to the topic related questions given :

"What is an acid?" ( Acid definition what ?), "What is a base?" ( What is a base? ) definition what ?), "Can you give an example of an acid and a base?" ( Acid and of the basis examples bring it ?). Bring it passed questions students by professional to talk to prepare help gives and lesson during explainable important to concepts road opens .

Training during to the topic related chemical of terms explanation to students on the board writing explaining to give their in mind solid to be preserved support gives :

Description : "Acids are substances that donate protons ( $H^+$  ions) when dissolved in water" - ( Acids are in the water that gives off protons ( $H^+$  ions ) when dissolved substances ).

Examples : Hydrochloric acid ( HCl ); Sulfuric acid ( $H_2SO_4$ ) ; Citric acid ( $C_6H_8O_7$ ).

Definition : "Bases are substances that accept protons ( $H^+$  ions) or donate hydroxide ions ( $OH^-$ ) when dissolved in water." ( The basics are accepting protons ( $H^+$  ions ) in water to do or hydroxide which gives ions ( $OH^-$ ) substances ).

Examples : Sodium hydroxide ( NaOH ), Potassium hydroxide (KOH) , Ammonia ( $NH_3$ )

Definition : "When an acid reacts with a base, they neutralize each other and form water and a salt." ( Acid and basis to react when they enter , they each other neutralizes and water and salt harvest does ).

Reaction example :  $HCl + NaOH \rightarrow NaCl + H_2O$

Definition : "Hydrochloric acid reacts with sodium hydroxide to form sodium chloride and water." ( Salty acid sodium hydroxide with to react sodium chloride and water harvest does ). Lesson theoretical from the part after practical to part It will be passed . Practical in part interactive to training appeal was done . Assignments in execution group become work acceptable said to the conclusion bride :

Reactions bring : Students with following reactions English in the language discussion do : 1)  $HCl + NaOH \rightarrow ?$  ( Salty acid with sodium hydroxide reaction )

$H_2SO_4 + KOH \rightarrow ?$  ( Sulfate acid with potassium main reaction );

2) "What would happen if you mix hydrochloric acid with ammonia?" (If you salty acid with ammonia what if you mix it up will it be ?)

Answer : "A toxic gas, ammonia gas ( $NH_3$ ), may be produced." ( Harmless gas , ammonia ( $NH_3$ ) gas production to be possible .)

Our research during integrative approach based on natural sciences faculty of students professional competencies in development row to efficiencies achieve possible to the fact that

confidence harvest we did .

Scientific and professional results . Integrative approach application students professional competencies in development effective will be . English language to teach through students not only scientific , maybe general professional in activities to success they achieve . Students English in the language scientific information study and scientific thoughts in expression to success achievers

- Professional growth . Students English language to learn through own in the fields professional in terms of growth opportunities they increase . English in the language teaching to them not only scientific activity , maybe professional to success help in achieving gives .

### Conclusion

Natural sciences should develop not only theoretical knowledge, but also practical skills in the learning process. Developmental technologies allow students to form skills such as scientific thinking, analysis, and research. Through the use of these technologies, students also develop independent thinking, communication, and teamwork skills. ISKopylov (2011) emphasizes the importance of applying developmental technologies to the process of teaching natural sciences: "Developmental technologies in teaching natural sciences ensure students' independent work and the use of a scientific approach, which allows them to achieve scientific achievements."

Teaching natural sciences, including chemistry, biology, physics, mathematics, and English, based on an integrative approach, plays an important role in developing students' general outlook and scientific thinking. Today, the use of innovative technologies in the process of teaching natural sciences helps not only to consolidate students' knowledge, but also to develop their skills in applying them in practical life.

The use of an integrative approach in English lessons is a technology for developing professional competencies of students of the Faculty of Natural Sciences, which allows students to master not only theoretical knowledge, but also practical skills. Through the use of innovative methods and technologies, students develop scientific thinking, acquire analytical thinking, communication skills, and successful work in professional activities.

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