

# Features of teaching students of technical universities in the field of ecology and environmental health

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**Abstract.** This article discusses the possibilities of training in the field of ecology and environmental safety at a technical university. When learning a foreign language, environmental health students may encounter difficulties. Some of the psychological difficulties they may face are listed in detail. To overcome the difficulties that have arisen, methods of increasing motivation for learning are considered. When teaching, it is necessary to take into account the importance of environmental education of students. The article describes what difficulties a student and a teacher may encounter when studying the topic of ecology. The method of associations, which have recently begun to be seriously considered by teachers, is described in detail. Examples of vocabulary are given that make it possible to master this method of work when studying vocabulary in classes devoted to the conservation and management of natural resources. Keywords: environmental education, teaching method, association method, environmental health, natural resources management, students of technical universities.

## 1 Introduction

Humanization and humanitarization of the learning process in a technical university is of great importance at the present time. The study of ecology in the classroom of a foreign language helps to realize this task. But it is worth noting that when teaching a foreign language, the teacher always faces various problems, which, of course, he tries to solve in the course of his work. Especially often there are difficulties with memorizing new vocabulary.

To begin with, it is worth dwelling in more detail on the difficulties a teacher faces when teaching students a foreign language. Fundamental works on the methodology of teaching a foreign language are the works of I. L. Bim [1], I. A. Zimney [2], G. A. Kitaigorodskaya [3] and others.

We will pay attention to the age characteristics of the trainees. In developmental psychology, the age from 15 to 18 years is considered as early youth, and the period from 18 to 23 years as late youth (B. G. Ananiev [4], L. S. Vygotsky [5], D. B. Elkonin [6], etc.). The most studied in psychology is early youth. However, this period cannot be

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## 2 Psychological difficulties in learning

It is interesting that in foreign developmental psychology there is no division into adolescence and youth. And often the period of adolescence is extended to 25 years, which corresponds to the transition period from adolescence to early adulthood. It should be emphasized that each age period has its own physiological and mental or psychological characteristics. Which actually is one of the main criteria for dividing a person's life into age periods [8].

So, having found out that we can consider the age of students (18-23 years old) as a separate period of age development with its own psychological characteristics, it is worth highlighting the social tasks of growing up: building life plans; formation of personal identity; the need for self-education. This age is characterized by stable personality traits, stabilization of all mental processes, the presence of differentiated self-esteem, the individual's self-awareness occurs, high abilities for creativity, intellectual activity, etc. are noted. The leading activity at this age is professional self-determination. At the same time, young people strive, using their abilities and needs, to realize themselves in educational and professional activities [9]. Undoubtedly, for most students, this is the main task when studying at a university.

It should be noted that foreign language lessons have a communicative focus, which implies closer interaction between the teacher and the student, unlike other disciplines designed to work with a large audience. Based on this, the emerging psychological difficulties can interfere with the implementation of the tasks of the teacher.

Next, we will consider in more detail the psychological difficulties of students that a teacher may encounter when teaching a foreign language. Since in the implementation of educational activities, the possession of such a type of speech activity as speaking is of paramount importance. But it is the implementation of speaking in the conditions of the educational process or with direct participation in a real communicative situation that causes the greatest difficulties for students. At the same time, difficulties arise not due to the ignorance of students of some lexical units or grammatical forms within the framework of a communicative situation, but the presence of a psychological barrier, or it is also called a "language barrier", which prevents overcoming fear, whether it be the fear of making a mistake, seeming primitive, being misunderstood or fear of carrying out a new type of activity for oneself in the presence of an audience. This fear appears in connection with a student's low self-esteem or the presence of such a trait as perfectionism. It is he who leads to the fear of mistakes, which greatly slows down the learning process. A perfectionist needs to be sure to do everything perfectly right the first time and without mistakes, but when learning a language, this is simply not possible. Language is an activity and learning takes time and mistakes. But it is very difficult for a perfectionist to allow himself to be wrong. A possible "inadequate" reaction on the part of the teacher and other students is the strongest stress-forming factor for the student, who is oriented towards an external assessment of his abilities, and this often prevents overcoming the above-mentioned barrier. It should be noted that, of course, not all students are prone to this problem, but mostly people with low self-esteem and self-doubt.

The next psychological difficulty that arises when learning is the lack of motivation of students in learning a foreign language, or, as often happens, just an incorrectly formulated motivation [10]. For any kind of activity, motivation is needed, even in everyday life. And to learn a foreign language, you need a clearly articulated motivation. The student must clearly understand why he is learning a foreign language. But for each person, the motivation for learning a foreign language can be different. At the same time, the task of the teacher is to convey to students about the benefits of learning a foreign language, since any language opens up great prospects for professional activity and a successful career, for

working or studying in another country, for obtaining information that is not available in their native language, for increasing the intellectual level and for communication with native speakers [11].

To increase motivation, it is necessary to convey to students information about the language being studied. German learners should be aware that at present German has a special place among the studied foreign languages. Despite the fact that recently its popularity has declined significantly, as only English has become the leader, many still feel the need to learn German. This is due to the fact that, despite everything, the German language occupies an important position in the modern world. It is recognized as the official language in seven EU countries. But this language is studied in almost every country in the world [12].

The German language has penetrated many areas of our lives: science (soil sciences, hydrology, oceanography, climatology, geology, geography, energy engineering, natural resources management, environmental health), trade, industry and others, which are constantly and rapidly developing.

Factors such as Germany's important position in science, trade and manufacturing are obvious prerequisites for a positive answer to the question of whether German is currently required at a technical university.

In addition to this, there is the next factor that affects the increase in students' motivation, namely the pleasure that a person receives from learning a foreign language. Pleasure can be obtained either from the process of learning itself, or from the possibility of understanding a foreign language. The task of the teacher in this case is to be a source of inspiration to study the language, to find effective and suitable teaching methods for a particular audience, and to select interesting material.

The main ways of overcoming psychological difficulties in learning a foreign language should be clearly formulated. An experienced teacher should come to the aid of the student, who will be able to find his "tactics" of work: this is a general friendly, comfortable atmosphere in the lesson, praise, completing tasks in a playful way, skillfully formulating comments and correcting errors. It is necessary to ensure that the student can relax and just talk [13]. And when the student begins to understand that he can already realize the communicative task assigned to him, his self-esteem will increase significantly. At the same time, the main task of a foreign language teacher to form a high level of communicative competence will be fulfilled.

In order to overcome psychological difficulties and increase the motivation of a student of a technical university to learn German, the teacher is currently constantly in search of new forms, methods and teaching methods. When teaching a foreign language, a special place is occupied by forms of classes that ensure active participation in the lesson of each student, stimulate verbal communication, and contribute to the formation of interest and desire to learn a foreign language. It is known that the process of learning a foreign language consists of several components. One of the most important is the teaching of lexical skills, since it is impossible to know the language, to speak it without owning the very means of the language, namely the words.

### **3 Associative methods in teaching vocabulary to students of technical universities**

One of the non-traditional methods is the method of associations. It should be noted that in our time, the associative method, among other techniques and methods of teaching foreign languages, has not yet received sufficient distribution in the modern methodology and is only beginning to be introduced into the learning process. But interest in using the method of associations in a foreign language lesson when teaching vocabulary is gradually

growing. The associative method is also found under other names: the method of the chain of associations, the method of associative links, the chain method of memorization.

To begin with, it is worth considering the very concept of association. Association is such a linking of one element with another, in which the appearance in the mind of one of them entails the appearance of another. Associative links underlie thinking, memory, creativity and imagination [13].

Since we are talking about memorizing words, it is necessary to remember that at one time psychology divided human memory into three blocks: sensory register, short-term and long-term memory. It is important for us to consider in detail the concept of short-term memory. It is she who takes upon herself the blows that students are exposed to in foreign language classes. That is what a person loads, trying to memorize huge amounts of information mechanically.

But in order to effectively use the features of short-term memory, it is necessary to follow certain rules. For persuasiveness, let's turn to history: in 1954, Lloyd and Margaret Peterson conducted a very simple experiment, which, however, gave amazing results. They asked the subjects to remember just 3 letters, and after 18 seconds to reproduce them. To everyone's surprise, it turned out that the subjects could not remember these 3 letters. The question arose: what is the reason for this? Everything is very simple: during these 18 seconds, the subjects were engaged in mental work (they were given a calculation task). But even such simple work prevented them from remembering three letters. This simple experiment illustrates the main property of short-term memory: it has a very small capacity (from 2 to 26 units, according to other experiments) and a very short life (from 20 to 30 seconds). But at the same time, it is little sensitive to the length of unity. We can memorize 7 letters or even 7 phrases with equal ease [13].

So, thanks to this experiment, it was found that after memorizing the next portion of words, it is necessary to pause for at least 10 minutes, during which thoughts will not be occupied with serious mental work. And after 10 minutes the words can be repeated again, and after 24 hours the words must be repeated again. Otherwise, you will have to make twice as much effort to remember them again.

As practice shows, when entering active vocabulary on a topic, textbook authors often do not take into account the problem of memorizing vocabulary and phrases. Also, the teacher is often very limited in time when studying a particular topic. Sometimes, when introducing new material, a large amount of new lexical units is given that the student cannot learn. For the successful development of skills and abilities in the use of vocabulary, mnemonics can come to the rescue.

Mnemonics is the art of memorization, a set of techniques and methods that facilitate memorization and increase memory capacity by forming artificial associations. One of the components of innovative learning technologies is the associative method.

In order to create conditions for the favorable implementation of this method into practice, it is necessary to work together to enhance cognitive activity and cognitive interest among students and teachers. When working with associations, it is necessary to pay special attention to the systematic presentation of the studied material. One of the most important conditions for the application of the method is the emotionality of the teacher: facial expressions, gestures, expressiveness of speech. The associative method is realized through associative images. However, there are certain image requirements. An associative image must necessarily be connected by some common feature: color (schwarz-weiss, rot, grau), location (nah, ringsum), shape (quadrat), sound (Eine lange Schlange ringelt sich um eine lange Stange.) etc.

It is important to follow one rule. You can not impose your association on the student! The value of an idea is that each one has its own special associative image. The main thing in the formation of associations is the brightness of the image. The brighter the imagination,

the easier it is to create connections between them, respectively, more words can be remembered. Associations should be unusual, non-standard, funny, imaginative, unexpected, new. For example: the verb *besuchen* (visited the market and was left without an ear) [13].

It should be noted that the associative method of memorizing foreign words can be used especially in that situation - when a person is blindly sure that he will never remember anything in the world. The use of this method "liberates" the learner of a foreign language, allows him to understand the mechanisms of his memory and apply the acquired skills in the future not only in studies, but also in everyday life.

Work on this method is structured as follows: you need to select a list of words that you need to learn, then you need to prepare an associative picture for each word, and only then you need to learn the words. What is an associative picture? This is a picture that contains information about how to pronounce and translate a foreign word. Take, for example, the word *sonnig* - sunny. The picture shows a street, a baking sun and an umbrella. Showing this picture, we say the phrase: "It's so sunny outside and someone took out an umbrella." Thus, looking at this picture and remembering the phrase attached to it, a person will also remember that "*sonnig*" in German is "sunny".

To test the effectiveness of the associative method, students were asked to memorize vocabulary on the topic "Ecology. Environmental health". 80 students were involved, who were divided into 2 groups. The first group (40 people) memorized words in the traditional way, that is, by memorization, and the second group (40 people) used the associative memorization method. The purpose of the experiment was to find out which group of students will better remember the proposed vocabulary:

**Table 1.** Results of the experiment.

Vocabulary	1 group	2 group
die Natur	38	40
die Natur / the nature	25	34
der Klimawandel / the climate change	18	30
die Veränderung des Klimas / the change in climate	28	37
die Umwelt / the environment	28	37
das Umweltproblem / the environmental problem	26	35
der Umweltschutz / environmental Protection	24	37
die Umweltverschmutzung / the pollution	33	39
der Müll / the garbage	30	38
die Mülltrennung / waste separation	33	39
die Mülltonne / the dustbin		

Based on the results of the experiment, it can be concluded that the students of the second group, who memorized using the associative method, showed better results compared to the students of the first group, who simply memorized words.

It should be noted that the associative method is indeed an effective method of memorizing vocabulary in foreign language lessons. Following certain principles of using this method, you can achieve a good result in memorizing vocabulary and increasing motivation to learn a foreign language. When organizing work with special vocabulary, it is possible to successfully use multimedia technologies and visual aids that increase the visibility of learning, contribute to an increase in the share of independent work of each student [14].

## 4 Conclusion

Obviously, when training specialists in technical areas, great attention should be paid to teaching professional communication, both in native and foreign languages. Thus, a graduate of a technical university should not only be a professional in his field, but also be able to cooperate, work in a team, apply his communication skills, and also have a high level of language and culture.

It is no coincidence that at present in the university program of teaching foreign languages there is always the topic "Environmental Protection". The main purpose of which, obviously, is to prepare specialists not only to be able to carry out professional intercultural communication, but also to be sure to know the basics of environmental protection and safety. At the same time, teachers and students of a technical university face certain difficulties [15].

However, teaching a foreign language is not limited to a practical goal, educational and educational goals are no less important, which consist in familiarizing with a foreign language culture, which is a necessary condition for successful professional and personal contacts with representatives of this culture and in the formation of a respectful attitude towards the spiritual and material values of others. peoples and the improvement of the moral qualities of the student's personality.

So, all of the above irrefutably proves that the knowledge of a foreign language in a technical university in the modern scientific, political, economic and sociocultural context occupies an important position, as it is a necessary condition for the professional activity of many graduates of technical universities.

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