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**Forming intellectual needs and intellectual activity of technical
university students on the example of studying the theme
"Environment Protection Must Be Global"**

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Abstract

The article deals with forming intellectual needs of technical university students using the example of studying the theme "Environment Protection Must Be Global" on the basis of materials taken from an English textbook for technical universities and higher institutions under the authorship of I.V. Orlovskaya. The relevance in forming the intellectual needs of students in modern Russian society is caused by the significant changes that have occurred in it during recent decades, namely, in its value-target orientations and the nature of the social order to the education system. The numerous sources of popular information can be distinguished: popular scientific literature; popular scientific TV and films; popular scientific radio programs; popular scientific exhibitions and expositions, the Internet. It is noted that the use of popular-scientific information from different sources and also the interaction of all aspects in students' training can influence the advance of their intellectual activity. It contributes to the forming all its components, including motivational ones. Successful solution of these problems can strengthen the students their belief in own capabilities and form future specialists as a whole.

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Keywords

Forming, need, higher educational institution, intellectual activity, information.

Introduction

The relevance in forming the intellectual needs of students in modern Russian society is caused by the significant changes that have occurred in it during recent decades, namely, in its value-target orientations and the nature of the social order to the education system. In the new conditions, higher education is required to train graduates who are able to act independently, have a general ability to learn, solve problems that determine the success of any activity, as well as universal adaptability to new life tasks, especially in the foreign language classes of technical university students. In this regard, forming intellectual needs of students is one of the conditions for the successful training of students in the higher education system. But the theoretical development of problems related to intelligence and intellectual activity is not being completed at present.

The development of human civilization has led to the fact that the volume of scientific knowledge about the world has rapidly increased. In this situation, the importance of popular science information increases dramatically, and the tasks solved with its use are multiplied and become more complex. Now there is an acute problem of popularizing the discoveries that are being made, since popular scientific information introduces the latest ideas into consciousness and practice much faster than monographs and special articles [Nozdrina, Vorontsova, Kuzobina, 2019].

The use of popular-scientific information allows us to rebuild the students intellectual activity in accordance with the challenges of the time, to optimize it. In the course of accessing various sources of popular science information, the intellectual abilities and needs of the individual are intensively formed.

All this makes it necessary to widely introduce popular scientific information into the educational process of modern higher education, which should help students to form motivational and instrumental components of their intellectual activity [Nozdrina, 2005].

Main part

The problem of needs is reflected in the works of many outstanding thinkers, including Heraclitus, Plato, Aristotle, Democritus, Socrates, F. Bacon, F. Hobbes, Montesquieu, Voltaire, Rousseau, Holbach, Helvetius, A. I. Kant, T. More, M.V. Lomonosov, A.I. Herzen, N.G. Chernyshevsky, and others.

Psychological and pedagogical aspects of forming needs were considered in the works of Z. Freud, G. Hall, E. Thorndike, W. McDougall, E. Tolman, K. Hull and B. Skinner, K. Levin, G. Murray, A. Maslow, Z. Fromm, A. Pierson, D. McClelland, D. Atkinson, G. Heckhausen, G. Kelly, K. Rotter, D.N. Uznadze, K.K. Platonov, A.N. Leontiev, D.A. Leontiev, E.P. Ilina, L.I. Bozhovich, B.F. Lomov, B.I. Dodonov, V.L. Ossovsky, V.N. Myasishchev, Sh. N. Chkhartishvili, V.S. Magun, P.V. Simonov, A.V. Petrovsky, G.S. Sukhobskaya and many other domestic and foreign researchers.

Intellectual needs, according to specialists, are not primary, because they arise on the basis of other needs. At the same time, different authors, speaking about the essence of intellectual needs, proceed from a different understanding of intelligence, which is a form of human cognition of reality [Nozdrina, Vorontsova, Kuzobina, 2019].

In the works of Russian psychologists B.G. Ananyev, S.L. Rubinstein, B.M. Teplov, O.K. Tikhomirov, M.A. Cholodnaya intelligence is considered as a general ability of adaptation to new environmental conditions through problem solving, carried out by actions with the mental equivalent of the object [Nozdrina, 2005].

The problem of environment protection is one of the most important today. On the one hand, urbanization, industrialization, transport bring mobility and make our life more comfortable. But on the other hand, the more human society is developing, the greater the ecological problems are becoming.

Air, water, soil pollution is becoming international problems nowadays. The first-year students of the groups "Material science and technologies", "Mechanical engineering", "Technosphere safety", "Heat and power engineering", "Power engineering", "Technological machines and equipment", "Designing technological machines and complexes" of Bryansk State Technical University, were offered to discuss the topic "Environment Protection Must Be Global".

So, when studying this theme, which is relevant today, in practical English lessons the students were asked the question what do the words "Environment" and "Protection" mean and to add some spidergrams (Picture 1).

Then new lexical words and word combinations were introduced on this theme, for example: to reach – достигать; success – успех; scale – масштаб, размер; similar – подобный. The verbs with certain prepositions were paid great attention, such as, to bring about – вызывать; to carry out – проводить, выполнять; to deal with – иметь дело.

After that the experimenters worked out reading and pronunciation of the most difficult words, such as, successfully [sək'sesf(ə)li], mankind ['mæn'kaɪnd], knowledge ['nɒlɪdʒ], therefore ['ðeəfɔ:] and international too: balance ['bæləns], social ['səʊʃ(ə)l], experiment [ɪk'sperɪment], climate ['klaɪmɪt].

Further the students should repeat the following grammar topics: "The Continuous tenses" and "Degrees of comparison of adjectives and adverbs".

Next the experimenters were suggested to read the text "Environment Protection Must be Global" [Orlovskaya, Samsonova, Skubrieva, 2006].

Then the students answered the questions about the information in the text, for example:

1. Has the problem of pollution and ecology become the most important one?
2. How does water become polluted?
3. What situation is developing in the atmosphere?

To develop monological skills, we suggested special exercise to the students. They were to answer the questions, which give detailed information about the environmental problems of the modern world, for example:

1. What factors are slowly changing the global climate? (the growth of population, industrialization and use of resources).

2. What makes it possible to eliminate air and water pollution? (scientific knowledge and technological advance, good will and large investments) [ibid., 35].

The students themselves can formulate their own standpoint and answer the questions or use the support offered by the teacher. To consolidate the monological speech, we offered an exercise [ibid.] where the experimenters were necessary to make a sentence of two parts:

- 1) At present one of the most important problems for mankind is/ that air and water pollution is reaching very large proportions.
- 2) Scientists expect that/it is possible to eliminate air and water pollution by planned actions of human society as a whole [ibid.].

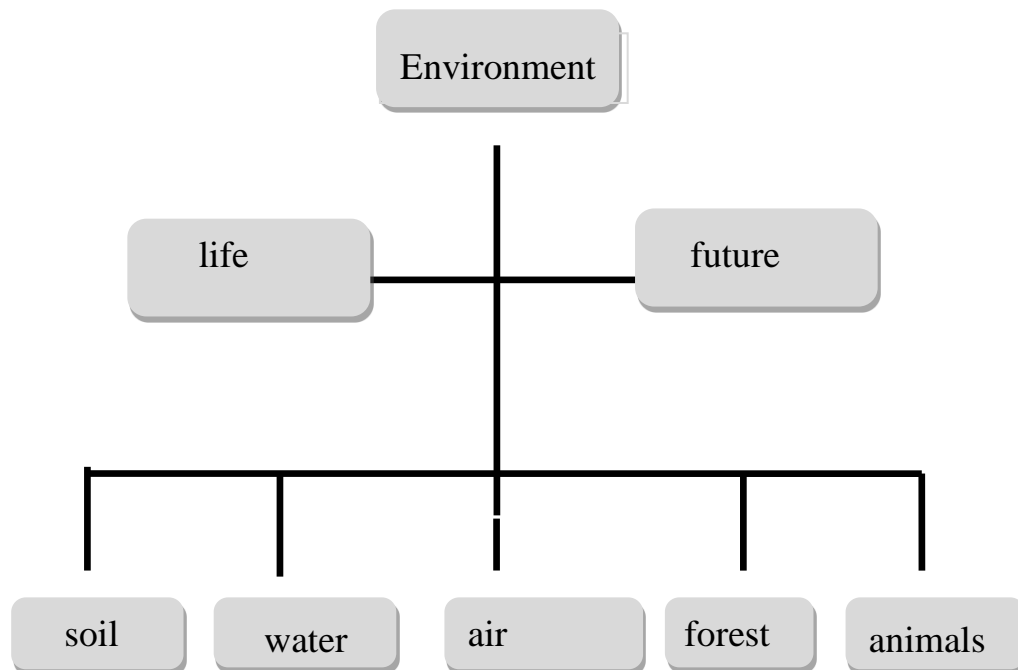
The students were also given the task to create a dialogue about the negative consequences of scientific and technological progress.

Then the students worked out the texts for viewing reading [ibid., 37].

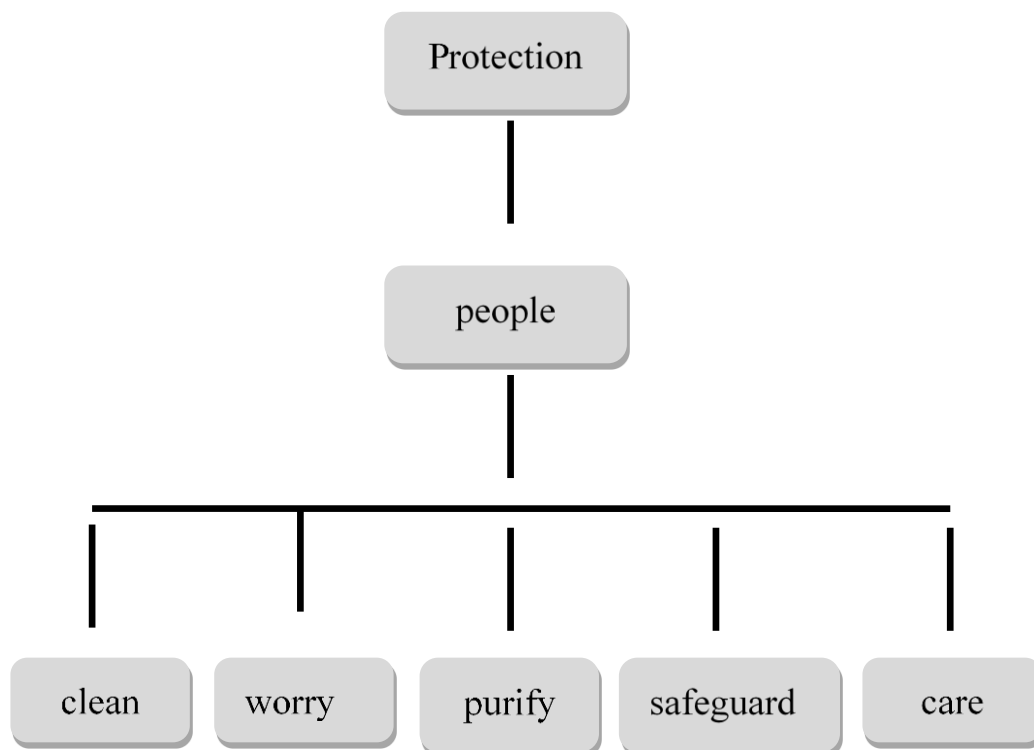
As the homework the students received the questionnaires. They were offered to answer the following questions. Sample questions:

A.

1. Are there ecological problems in your country?
2. What ecological problems are the main problems people are concerned about in your town or city?
3. Do you think what negative aspects of technological progress are there?



Spidergram 2



Picture 1 - Spidergrams

B.

4. Are becoming people in your home town more and more worried about ecological problems?

5. What actions are necessary to take to deal successfully with the problem of protecting the environment in your town or city?

6. How can we protect water from pollution?

We asked 100 students of the first year.

As a result of the survey, we made the following conclusions:

- 48 of students believe that the main cause of the environmental problems is the absence of treatment facilities;
- 30 of respondents see the reason in the irrational use of flora and fauna, namely forest cutting, destruction of animals and their habitats;
- 22 of students see the problem in the insignificant and irrational use of waste processing enterprises or in their complete absence.

The students see the solution to the environmental problems in:

- 52 of students believe that the solution to this problem depends primarily on themselves;
- 34 of respondents say that this problem should be addressed to the state and local authorities;
- 14 of students believe that special environmental organizations such as Greenpeace and others should work on this problem.

Studying the theme "Environment Protection Must be Global" we saw the positive changes in the forming intellectual needs at the first-year students of the groups "Material science and technologies", "Mechanical engineering", "Technosphere safety", "Heat and power engineering", "Power engineering", "Technological machines and equipment", "Designing technological machines and complexes" in popular scientific information which confirm the validity and feasibility of the conclusions.

Conclusion

Thus, the use of popular scientific information in the educational process can make students' cognitive activity interesting and exciting, especially in the first and second years of study, and contribute to the development and consolidation of their intellectual needs, which are updated while solving various tasks.

The numerous sources of popular information can be distinguished: popular scientific literature; popular scientific TV and films; popular scientific radio programs; popular scientific exhibitions and expositions, the Internet.

Using popular-scientific information from different sources and also the interaction of all aspects in students' training can influence the advance of their intellectual activity. It contributes to the forming all its components, including motivational ones. Successful solution of these problems can strengthen the students their belief in own capabilities and form future specialists as a whole.

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**Формирование интеллектуальных потребностей
и интеллектуальной деятельности студентов технических
вузов на примере изучения темы «Охрана окружающей
среды должна носить глобальный характер»**

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Аннотация

В статье рассматриваются принципы формирования интеллектуальных потребностей студентов технических вузов на примере изучения темы «Охрана окружающей среды должна носить глобальный характер» на основе материалов учебника английского языка для технических вузов и других высших учебных заведений И.В. Орловской. Актуальность формирования интеллектуальных потребностей студентов в современном российском обществе обусловлена существенными изменениями, произошедшими в нем за последние десятилетия, а именно его ценностно-целевыми ориентациями и характером социального заказа в системе образования. Отмечается, что существуют различные источники популярной информации: научно-популярная литература, научно-популярное телевидение и фильмы, научно-популярные радиoprogramмы; научно-популярные выставки и экспозиции, Интернет. Сделан вывод о том, что использование научно-популярной информации из разных источников способствует развитию интеллектуальной деятельности обучающихся, способствует формированию всех ее составляющих, в том числе мотивационной. Успешное решение этих задач позволит укрепить веру студентов в собственные возможности и тем самым обеспечит формирование необходимых навыков будущих специалистов.

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Ноздрина Н.А., Куцобина Н.В. Формирование интеллектуальных потребностей и интеллектуальной деятельности студентов технических вузов на примере изучения темы «Охрана окружающей среды должна носить глобальный характер» // Педагогический журнал. 2020. Т. 10. № 6А. С. 248-254. DOI: 10.34670/AR.2020.15.74.033

Ключевые слова

Формирование, потребность, высшее учебное заведение, интеллектуальная деятельность, информация.

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