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# USE OF VIDEO MATERIALS FOR TEACHING CRITICAL THINKING THE STUDENTS OF TECHNICAL UNIVERSITIES

*The content of the paper was determined by the problem of teaching critical thinking within the course of English for Specific Purposes. Critical thinking is one of the main principles of successful professional work. The necessity of critical thinking integration into educational process to improve thinking abilities and practices of technical university students has been highlighted. A critically thinking person should be capable of calling into question fundamental goals and ideals even if they are supposed 'sacred' in the society of superstitions and misbelieves. Application of wide variety of advanced methods and techniques has been pointed out. The focus is made on what competences and skills the students get at the educational establishment to become competitive in global realities. The importance for engineering students to be able to search for necessary information independently, sort it out, analyze and process in order to make rational conclusions, generate new ideas and solve problems has been considered. The history of the notion and concept of critical thinking has been described. The works of foreign language teachers and world famous foreign and Ukrainian scientists who studied the role of critical thinking in building a thinking-based classroom and advocated its importance for education, personal and professional development have been mentioned. The fact that the main task for ESP teachers is to create the comfortable environment at the lesson to facilitate the development of communicative and thinking activities covering the fields of students' professional interest has been distinguished. The role of authentic video materials as the most valuable tools in formation of foreign language communicative competence is analyzed. Requirements to video materials have been stated. Preparatory work for video demonstration is observed. The stages and ways of work with video materials to enhance the teaching process are described. Recommendations on how to summarize the topic and consolidate the students' skills are given. Examples of possible tasks and activities are presented.*

***Key words:*** *critical thinking**,** educational process, authentic video materials, language activities, processing information, methods of teaching.*

***Чмель В.В., Ахмад И.М. Использование видеоматериалов для обучения критическому мышлению студентов технических университетов.*** *В статье рассматриваются вопросы использования видеоматериалов для обучения критическому мышлению на занятиях по иностранному языку в технических университетах. Дан анализ предыдущих исследований о критическом мышлении и его особенностях, а также предоставлена информация об исследователях и их основных идеях по использованию видеоматериалов в учебном процессе. Проанализировано понятие «критическое мышление» и его специфика с точки зрения необходимых качеств и умений человека для развития критического мышления на высоком уровне. Описаны подходы, виды работы и приведены примеры заданий для развития критического мышления на занятиях по иностранному языку с использованием видеоматериалов.*

***Ключевые слова:*** *критическое мышление, образовательный процесс, аутентичные видеоматериалы, речевые виды деятельности, методы обучения.*

***Чмель В.В., Ахмад І.М. Використання відеоматеріалів для навчання критичному мисленню студентів технічних університетів.*** *У статті розглядаються питання використання відеоматеріалів для навчання критичного мислення на заняттях з іноземної мови у технічних університетах. Проаналізовоно ряд попередніх досліджень і*

*поняття ,,критичного мислення" та його особливості. Зазначена необхідність навчання студентів самостійно шукати, аналізувати та обробляти інформацію для вирішення сучасних проблем, генерування нових ідей та можливості робити правильні висновки. Запропоновані види роботи для розвитку критичного мислення у студентів технічних спеціальностей та наведені приклади завдань для використання на заняттях з іноземної мови із застосуванням відео матеріалів.*
***Ключові слова**: критичне мислення, навчальний процес, аутентичні відео матеріали, види мовленнєвої діяльності, методи навчання.*

Drastic changes of modern world are swiftly penetrating into all fields of our life including education. Consequently, the challenges both students and teachers face today require new way of thinking, lateral and critical. To improve thinking abilities and practices of university students, educators have to apply wide variety of methods and techniques integrating them into educational process. The focus is made on what competences and skills the students get at the educational establishment to become competitive in global realities. Having profound knowledge is not enough today. Graduates of higher educational establishments must be able to search for necessary information independently, sort it out, analyze and process in order to make rational conclusions, generate new ideas and solve problems. It is especially important for engineering students as they should fit in the upcoming future with 'thinking aimed at forming a judgment, where the thinking itself meets standards of adequacy and accuracy' [1, p. 287]. A great deal of information is bombarding us from everywhere: mass media, social networks, books, friends and relatives, etc, but can we trust everything we hear, watch or read about? A critically thinking person should be capable of calling into question fundamental goals and ideals even if they are supposed 'sacred' in the society of superstitions and misbelieves.

The notion and concept of critical thinking is not new. It appeared in the time of Socrates, Platoons, Aristotle. However, promotion of essential change in education through cultivation of fair-minded critical thinking started some decades ago. Such scientists as Dewey J. and Maiorana V.P. studied the role of critical thinking in building a thinking-based classroom. Pithers R. T., Norris S.P., Soden R., Siegel H. advocated its importance for education, personal and professional development. Dr. Richard Paul and Dr. Linda Elder summarized critical thinking concepts and tools in the miniature guide, which can 'serve faculty, students and the educational program simultaneously' [4, p. 2].

University teachers of foreign languages meet with double problem: combination of teaching English for Specific Purposes and critical thinking. The field of English for Specific Purposes includes intensive, efficient, scientifically grounded subject oriented on the development of professional communicative competence of engineering students [2, p. 56]. Adolescents usually soak up all the accessible information but they do not know how to sift it, ask the right questions, search for arguments and draw a conclusion. Thus, the main task for ESP

teachers is to create the comfortable environment at the lesson to facilitate the development of communicative and thinking activities covering the fields of students' professional interest.

The most valuable tools to fulfill this task are authentic video materials. The role of authentic videos in formation of foreign language communicative competence is analyzed in the works of Ukrainian researchers (E.V. Hlushak, I.A. Gonchar, M.I. Dubrovin, Y.A. Komarova, S.V. Nedyelina, V.L.) and foreign scholars (B. Bliss, C. Kanninhhem, D. Cotton, R. Cooper, M. Lever, S.J. Molinski, P. Moore, John. Rose, J. Sherman, S. Ellsworth). In our article we want to focus on video aids application for teaching critical thinking at the ESP lessons.

Engineering students usually do not completely realize why they have to study English at technical university. Therefore, only 'the right combination of the knack, forms and methods of teaching and the most expedient technical aids' can motivate students and arouse their interest by creation of English-speaking environment closely connected with their future profession at the lesson [2, p. 57].

Video is almost a perfect tool for teaching, but it should correspond to certain requirements: be informative, have clear sound, high quality picture and logical plot and be in line with the curriculum. It should not be long and may have subtitles. However, selection of the right video files is not enough for enhancement of teaching process. Long and hard work precedes video demonstration. The teacher should work out a set of tasks and exercises to stimulate students' thinking and language activities. Vocabulary revision and highlighting of the most interesting and important facts from the text read at the previous lesson might be helpful to facilitate students and minimize difficulties that can arise while watching the video. To warm up the group we recommend discussion of the questions closely connected with the topic under consideration and based on the text. To develop critical thinking skills the students are suggested to draw a table subdivided into three columns: What do we know? What do we want to know? What did we learn? The first two columns they fill in before the video demonstration, the last one they will do afterwards. As any authentic material contains special terms and collocations, translation and definition matching tasks should be done before watching. The students also make assumptions about what the video is about on the basis of its title. Then the ESP teacher gives direct instructions on what sort of information the students need to do the tasks (true/false, filling in the gaps, finishing the sentences, etc).

To summarize the topic and consolidate the skills students discuss the video file, compare and analyze the facts, apply the knowledge obtained to the real-life situations and give examples. Problem-solving tasks and writing for and against essay are usually recommended at the final comprehensive stage.

The topic ‘Concept of the Electric Drive’ is studied by the 5th year electrical engineering students at National Technical University of Ukraine ‘Ihor Sykorsky Kyiv Polytechnic Institute’. We have selected the relevant authentic video called ‘Electric Drive System Overview’ [3] and worked out the following tasks for classroom activities.

Task 1. Before watching the video:

A. Answer the following questions:

1. What is electric drive?
2. Where are electric drives used?
3. What parts do they comprise?

B. Match terms with their translation.

| # | Terms | Translation |
|---|---|---|
| 1. | Electric drive | Двигун змінного струму |
| 2. | Insert | Коробка передач |
| 3. | Controller | Двигун, рушійна сила |
| 4. | AC motor | З’єднання, муфта |
| 5. | Gear box | Поштовх, тяга |
| 6. | Propeller | Акумулятор |
| 7. | Coupling | Втулка |
| 8. | Alignment | Електричний привід |
| 9. | Battery | Вирівнювання |
| 10. | Thrust | Контролер |

Task 2. Match words and collocations and their meanings.

| | | | |
|---|---|---|---|
| 1 | Rotor | a | The device which shows the arrangement in a straight line |
| 2. | Stator | b | A solution or molten substance that conducts electricity. |
| 3. | Propeller shaft | c | A narrow piece of leather, clothes or other material used to carry things or fasten things together. |
| 4. | Alignment indicator | d | Revolutions per minute. |
| 5. | Axle | e | The shaft that transmits power from the gearbox to the different gear in a motor vehicle or from an engine to a propeller. |
| 6. | Electrolyte | f | The armature of an electric motor. |
| 7. | Strap | g | A rod or spindle (either fixed or rotating) passing through the centre of a wheel. |
| 8. | RPM | h | Rotation |
| 9 | Ballast | i | The stationary part of a rotary machine or device |
| 10. | Gyration | j | Any substance that is used in ships or hot-air balloons to make them heavier and more stable. |

Task 3. State whether the statements are true or false.

1. The main drawback of this controller is that it alters efficiently at very low power outputs to very high power outputs.
2. It converts 3-phase AC into DC.
3. The motor acts efficiently because it has a stator on either side of a rotor in the middle.

4. The motor is mounted on 2 gear boxes.
5. One of the advantages of this motor is that it has 5 different gyrations.
6. The thrust is observed at the back of the gear box.
7. The alignment indicator shows that the motor is perfectly aligned.
8. The battery is fixed with 5 straps.
9. The electrolyte can be spilt out of the battery and it is dangerous.
10. It's really important that battery is strapped down very well.

Task 4. Fill in the gaps with the choices given below. There are two extra choices.

It's a 3-phase AC motor … because it has stator on either side of a rotor in the middle. It's mounted onto a gear box and … that we are using. One of the best parts in our system is … to enable us to turn any propeller from an 18-inch propeller to a 12-inch propeller and still get the same kind of power output out of it.

The thrust is observed … and the thrust bearing is capable of observing almost 300 pounds of force. Then it flows … which has a flexible insert. The idea of this flexible insert is that … and protects the thrust bearing. It also has alignment indicator which allows us to make sure that ….

The motor is set … which is leveled off. This allows us … the propeller shaft.

a. at the back of the gear box
b. there is no axle
c. a gear box allows us to turn the motor to the propeller
d. to have perfect alignment with
e. which runs very efficiently
f. that we have 10 different gyrations
g. on a stainless steel plate
h. 4 different loads
i. the motor is perfectly aligned
j. through a coupling
k. it takes any improper forces off the thrust bearing

Task 5. Complete the sentences about the battery.

| | | |
|---|---|---|
| which flat battery can do | it doesn't act quite as well as ballast | within so that it can't be spilt from the battery |
| a battery is strapped down very well | 10 batteries on this boat | so it can't move along with the boat's movement |

1. This is one of ….
2. The electrolyte is contained ….
3. This battery can't vent out vapors of any kind of explosives ….
4. The battery should be fixed properly ….
5. If the battery moves,
6. It's really important that ….

Task 6. Make the sentences with these words and phrases according to the video:

1. Stator
2. Gear box

3. Thrust
4. Flexible insert
5. Alignment indicator
6. Battery

Task 7. Use the words and expressions to speak about:

1. 3-phase AC motor.

*To alter, to convert, rotor, stator, to mount on, gear box, gyrations, to align.*

2. One of the batteries.

*Battery, 3 straps, electrolyte, to spill, to vent out vapors, to fix, to move, ballast.*

To sum up we can infer that integration of authentic video materials into the process of teaching ESP facilitates engineering students to get profound knowledge, develop professional communicative competence and get critical thinking skills in order to search for necessary information independently, sort it out, analyze and process, to make rational conclusions, generate new ideas and solve problems to become competitive specialists in global world.

**ЛІТЕРАТУРА**


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