

SCIENTIFIC AND PSYCHOLOGICAL APPROACH IN FOREIGN LANGUAGE TEACHING AT TECHNICAL UNIVERSITIES

Perihan Yusein

University of Mining and Geology “St. Ivan Rilski” - Sofia, Kardzhali Branch; 6600 Kardzhali, perihan.yusein@abv.bg

ABSTRACT: Teaching English in technical universities has peculiarities in terms of vocabulary, grammar, needed and developed skills due to the originality of the goals, tasks, content, forms, and methods of the learning process. Studying English for specific purposes and mastering skills for professional communication exert influence on the content of the studied matter and the structure of the teaching process. The purpose of this article is to outline the specific features of scientific and psychological approach of teaching English to technical students. This publication refers to the psychological aspect in foreign language teaching for students in engineering courses of studies and aims to describe the procedure of teaching English using scientific approach. Considering the characteristics of students, we can effectively develop their cognitive activity.

Keywords: scientific and psychological approach, language skills, English for specific purposes

НАУЧЕН И ПСИХОЛОГИЧЕСКИ ПОДХОД В ПРЕПОДАВАНЕТО НА ЧУЖД ЕЗИК В ТЕХНИЧЕСКИТЕ УНИВЕРСИТЕТИ

Перихан Юсеин

Минно-геоложки университет “Св. Иван Рилски” - София, Филиал Кърджали, 6600 Кърджали

РЕЗЮМЕ. Обучението по английски език в техническите университети има особености по отношение на лексиката, граматиката и необходимите умения поради оригиналността на целите, задачите, съдържанието, формите и методите на учебния процес. Изучаването на английски език за специални цели и овладяването на умения за професионална комуникация оказват влияние върху съдържанието на изучавания материал и структурата на учебния процес. Целта на тази статия е да изтъкне спецификите на научно-психологическия подход при преподаването на английски език на студенти по технически науки. Тази публикация се отнася до психологическия аспект в обучението по чужд език за студенти от инженерни специалности и има за цел да опише методите на преподаване на английски език с помощта на научен подход. Отчитайки особеностите на студентите, можем ефективно да развиваме тяхната познавателна дейност.

Ключови думи: научен и психологически подход, езикови умения, английски за специални цели

Introduction

The role of English in the field of mining engineering, science, business, and information technology is ever increasing. The English language performs the function of education, self-education and communication. Students are interested mainly in the practical use of language as an efficient tool for becoming competent in view of the modern labour market. In this respect, university education should prepare students capable of working in a real professional environment. Socio-economic conditions require future engineer qualities as sociability, willingness to adapt to change working area, and entrepreneurship.

The scientific approach (Creswell, 2003) in foreign language teaching is based on the selection of authentic readings that are interesting and relevant at the right level for students. They must be related to activities and materials that highlight specific discourse features to facilitate comprehension of the specialised texts. These supporting materials and activities build on students' existing language and content knowledge.

Another approach very suitable for developing students' ability to speak English in specific business and professional field is the psychological approach. This approach to English language teaching must be closely connected with the culture-oriented method (Halskov, 2000), taking into account the characteristics of professional thinking in different situations. The learners need to know what is appropriate for the target environment. Their attention should be drawn to switching, high level of concentration, visual memory, high speed, and accuracy of operations (Winter, 2016). Strengthening of cognition motivation, responsibility, awareness, independence, and critical attitude are also necessary for them. The development of mental abilities – the ability to abstract, to make generalisations, theoretical thinking, and decision making are important for the students of engineering specialties. In the teaching process, a teacher acts not only as a foreign language specialist, but also as an expert in the possibilities and technologies of intercultural learning.

Research Methods

This research is a descriptive qualitative research. It is aimed to describe the implementation of scientific and

psychological approach in English language teaching in technical universities. The current study used techniques for collecting data obtained through the observation of teaching-learning process and lesson plan and it consists of information concerning the mode and difficulties on teaching-learning process, and the perception of an English teacher in applying the scientific and psychological approach, based on curriculum 2021/2022.

A description of the personality of a university lecturer includes initiativeness and creativity. An English language teacher should have knowledge of their speciality, love their job and students, and solve professional tasks quickly and with excellent results. A teacher must also be competent from a psychological point of view in order to properly organise the educational process, and must have the necessary personal and professional qualities. There are a lot of approaches (Hutchinson and Waters, 1986): classical, like the transfer of knowledge and skills, and innovative – implementing a comfortable, creatively organised environment for training.

Findings and Discussion

Research findings include the information found during observation of teaching-learning process. The procedures in applying a scientific approach are observing, questioning, experimenting, associating and communicating. They are core concepts of the scientific approach. These procedures are possibly influenced by attended professional development and teaching competence. They consist of:

Observing: Making conversation with students related to the recent studied material and writing some dialogues or sentences;

Questioning: Asking the students to make questions related with the studied lesson;

Experimenting: Dividing students into two groups and each group has to find out the rules for changing active voice to passive voice;

Associating: Asking the students to work in groups to analyse passive voice expressions;

Communicating: Asking students to present their result of discussion.

In point of view and perceptions of the teachers, the scientific approach is an approach that integrates students' skills, attitude, and knowledge by implementing observing, questioning, experimenting, associating, and communicating in the teaching-learning process. This means that teachers have good understanding of what the scientific approach is.

It was observed that in the first phase – questioning, the teachers had difficulty in asking students to create questions. In the second phase – experimenting, the teachers had difficulty in motivating the students to work independently. In the next phase-associating, the teachers found it hard to invite the students to analyse the studied matter. In the motivating phase the students present their work in English. The students are shy, quiet and passive. There are several factors posing difficulties to the teacher in implementing a scientific approach: the students' inability in analysing the material, the students' difficulty in finding the answers, the students' lack of vocabulary mastery and the students' lack of critical thinking. It is not easy to understand the reason for these difficulties. It is possible that the students' previous education was still influenced by the teacher-centred method. Also, maybe

students are still influenced by the English teaching method (Rogova et al., 2017) focusing on reading comprehension and structure aspects. It is true that environment surrounding does not allow students to practice English and they do not have friends to talk to in English.

The solutions which can be used to solve the problem in applying scientific approach in teaching English are:

In the observing step: Asking the students to observe and identify the objects of observation.

In the questioning step: Giving opportunities to ask and promoting the motivation of the students to make them more active. Giving time and facilitating students to find the information related to the lesson.

During experimenting: Giving the students some stimulating questions and examples related to the recent material.

In associating: Asking the students to compare the materials related to the recent material.

In communicating: Translating the students' missing word or sentences and giving them the correct words or sentences while they speak out the wrong words. Asking the students to discuss the information that was received in the group discussion and designing the discussion result.

The factors influencing teachers' perception can be due to the situation, the students' ability, personal experience, experience with formal knowledge of both school subjects and pedagogical experience with schooling and instruction.

The teacher's perception shows an approach to teaching process using affective, cognitive, and psychomotor abilities with strategy used is contextual learning-problem based learning, project-based learning, inquiry learning, and discovery learning. The expectations are that the teaching process will produce the creative, innovative, effective, and productive students by strengthening integrated knowledge, skills, and attitude.

The scientific approach is based on the selection of authentic readings that are relevant, interesting, and at the right level for the student, in connection with activities and material that highlight specific rhetorical and discourse features in order to facilitate comprehension of the specialised texts.

Before designing a course, producing a syllabus, and starting teaching, it is important to conduct a needs analysis – determining to what extent, in what ways, and for what purposes students will use English in their university program and later in their jobs. Data for need analysis can be collected from current students, university faculty, graduates, and survey in the discourse of the specific course units. Assessment of the needs of students also can be derived from common sense and experience acquired in the classroom. My colleagues in technical disciplines informed me that students need to use English specifically for reading research in their final year (when they prepare their diploma thesis) and for using technical documentation. Potential employers of our students are interested in their English ability to read and understand technical instructions. The special way is the information to be selected, organised, and presented in writing for communication and understanding among engineers and scientists. These rhetorical elements permit the students to read and understand the content of texts specific to various subjects. Specialised terminology and vocabulary are also connected with the scientific approach. My mode of teaching entails comprehension of the text content through interactive learning tasks and responses to comprehension questions. I

make instructional objectives clear through the reading assignment. The reading topics must be highly interesting, important, and up-to-date, including cutting-edge research that does not yet appear in students' engineering coursework. The aim of the engineering English course is to develop students' reading skills for comprehension of science, technology, and engineering materials. My goal is to help students as we work together and advance their knowledge and proficiency in English as it relates to reading comprehension. For a successful engagement with students, ESP teachers should be interested in the subject area and actively seek to learn more about it. They should consult specialists on the subject matter and their confidence will grow as they understand their role, learn more about the subject matter, and work with experts in the field.

At the first class meeting of the semester, students are asked to complete a questionnaire entirely in English about their engineering studies:

- Explain briefly what mining engineering is.
- What are some of the things that mining engineers do?
- What are your particular interests in this field of engineering?
- In what ways is English important to you in your field of engineering?

Students' responses allow the teacher to acquire information about student needs as well as an initial assessment of their level of written English proficiency. Teachers might choose to have the students discuss the questionnaire items and the theme of the lectures in pairs or small groups. The comprehension questions have a strategic purpose, at so early a stage, to convince students of the relevance and value of the course.

Scientific approach emphasises on several elements in English teaching – classification, comparison, cause and effect, exemplification, definition, description, hypothesising, reasoning (deductive, inductive), the statement of research problems, prediction, and reporting (Littlewood, 2017). The students must complete exercise to demonstrate they can identify, understand, and analyse the use of key words. Students can collaborate with a partner and the teacher monitors and facilitates their work.

The core of the English course is the content-specific readings related to mining engineering and the assigned work for those readings. Each week, a simple systematic worksheet exercise connected to a new reading enables students to concentrate on reading the texts while deriving essential meaning from them. One reading in the semester is given as an exercise, in which about 15 important concept words are deleted from a text of about 400 words. Students read the text and fill in the blanks with the most appropriate words. While considering words to fill in the space, students focus their attention on reading strategies and use their general knowledge of engineering to complete the task.

Studying terminological units plays a great role in studying technical English and translating specialised texts. Professional vocabulary mainly occurs in the process of reading specialised texts. These include descriptions of machines, equipment, tools, or technological processes. The lexical material includes multi-word terms consisting of groups of attributes denoting properties and characteristics of objects and phenomena.

We should not forget the diversity of interests and individual needs, objectivity of self-esteem, patience,

professional self-improvement, and culture of behaviour. The most important task of the teacher is to develop students' need for self-analysis, self-assessment and self-development. The successful solution requires replacing the abstract learning process with the practical experience of student in real life. The work must be accompanied by computer presentations for the formation of socio-cultural competences. This process is more interesting when the students participate in role-playing games demonstrating and modelling real-life situations (interview, negotiations in business relations) of professional orientation as an integrated feature of the occupation.

Conclusion

University education should train technical students capable of working in the real circumstances of a professional environment. The dominating target of teaching English as a foreign language is the communicative competence. Students advance their scientific literacy when they develop a critical awareness of the specific linguistic conventions that govern their specific fields of study.

The procedures used in teaching English were: observing, questioning, experimenting, associating, and communicating. These five steps are concluded in the scientific approach that strives to raise three domains (cognitive, affective, and psychomotor) and is willing to create productive, innovative, and creative students. The main task is to teach them to cope with the problem of translating simple and compound terms in a professional discourse and choosing language means to make abstracts of special texts. Students are expected to get knowledge of the scientific language style and corresponding language skills.

The main difficulty faced by the teacher in implementing a scientific approach was the students' lack of vocabulary mastery. The basic solution proposed and used by the teacher to overcome the problems in applying a scientific approach was motivating the students to be more active in learning.

The next research can employ a survey using a questionnaire to receive a general pattern from the wider teacher's group.

References

- Creswell, J. W. 2003. *Research design qualitative, quantitative and mixed method approaches* (2nd edition) Thousand Oaks, CA: Sage publication.
- Halskov, N. D. 2000. *Modern methods of foreign language teaching: a guide for teachers*, Moscow.
- Hutchinson, T. A. Waters. 1986. *English for specific purposes: A learning centered approach*. New York, Cambridge University Press.
- Littlewood, W. T. 2017. *Foreign and second language learning. Language acquisition research and its implications for the classroom*, Cambridge University Press.
- Rogova, G. V., F. M. Rabinovich, T. E. Sakharova. 2017. *Methods of teaching foreign languages in high School*, Moscow.
- Winter, I. A. 2016. *Psychology of teaching foreign languages at school*, N.Y.