

English language learning strategies of students in University of Chemical Technology and Metallurgy

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Received 15 March 2016, Accepted 05 September 2016

ABSTRACT

The main objective of this paper is to outline the importance of English language learning strategies of students in University of Chemical Technology and Metallurgy, the implementation of translation in applying these strategies and how the process can be improved to achieve better learning outcomes. The conducted and cited research, together with the processed data, state and provide possible solutions to the situation.

***Keywords:** strategies, learning outcomes, translation, cluster analysis.*

INTRODUCTION

English language has been taught and learnt as a foreign language in Bulgaria since the beginning of 20th century. Initially, the method used in teaching and learning was the grammar translation method (GTM), which focuses on developing fluency in grammar and translation of sentences and whole texts from and into English. This approach tries to bring, to a certain extent, the learners to the stage when they come as close as possible to the native speakers of the target-language in terms of pronunciation, intonation and correctness of expression. Nowadays this method is still in use to some degree, though not in its original version as other methods of language learning have been applied to practice through the years and they have greatly affected

the methodology system of language learning as a whole.

What has remained is translation as a learning activity which helps learners in their search of linkages between their native language and the foreign language, and in their acquisition of foreign language structures and vocabulary; as a means of practicing words and phrases and enhancing the process of reading comprehension. It is not a rare case, as well, translation to become a great stimulation for learners, especially grown-ups, as they can see the immediate results of their efforts to learn and they become motivated enough to continue with their studying: the feeling of understanding freely the instructions, the exercise, the text, etc. makes them more self-confident and proud, prepared enough to enter a conversation with foreign language speakers.

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CONCEPT

The number of expected learning outcomes, stated in the European Qualifications Framework and the National Qualifications Framework, in connection with communication skills constantly increases and this trend corresponds with business demands which makes it necessary to find effective strategies for acquiring good professional communication skills in English. This could be done by creating effective academic English courses for specific professional fields and by understanding the ways students learn, how the different learning components relate to communicative skills development – comprehension and creation of a text as well as verbal communicative skills. The present study shows the strategies students use when translating an academic text.

This translation activity can be done in several possible ways: translating sentences from and into English or translating a whole text; translating in class or as homework. Both native language and foreign language are involved in the process which is important for establishing similarities and differences between the two languages and, most of all, for the learning outcomes at the end of the course when learners are expected to be able to express themselves in a discourse with speakers of the target-language, to be able to read scientific literature and use it for their academic purposes, as is the case with most Bulgarian universities and colleges. With this particular reason in mind applying language learning strategies becomes a useful tool. Modern language learning focuses on the aspect of communicative competence – in foreign language communication participants often encounter and try to solve tasks related to language peculiarities and not only. Their solution involves the application of different skills, learning and communication strategies in order to achieve the desired outcome. Communicative problem solving tasks require cognitive, affective and language competences and strategies [1]. Linguistic communication is performed through speech activities, but unlike the well-known traditional scheme of receptive and productive

speech activities, the modern model of foreign language learning encompasses interactive (oral and written communication) and mediational (oral and written translation, summarizing and retelling) systems of speech activities [2]. Thus both the implicit and explicit use of translation could be implemented in the communication process, as well as the social aspect of the linguistic interaction.

Language learning strategies are defined and categorized by different authors, for instance, Manuel Raya describes them as a series of procedures used to facilitate learning. He also says that we use strategies every time we try to learn something new, for example new words. Strategies are also used to control the direction and amount of attention required by given task, as well as for self-motivation [3]. Raya describes learning strategies in three categories: metacognitive, cognitive and social.

“Metacognitive strategies are described to direct learning. These are skills we need to accomplish tasks of higher degree of difficulty, sometimes they are accompanied by planning, monitoring and/or evaluating the success of a learning activity. Selective attention and directed attention can also be included. These strategies help learners regulate their cognitive activity throughout the learning period by engaging them in the process of planning, checking, testing, monitoring, reviewing and considering their performance.

Cognitive strategies are described to manipulate the information to be learnt. These strategies apply directly to the incoming information manipulating it in a way that facilitates its learning. In this category are included procedures, such as specifying information, translation, drawing up conclusions, induction, deduction, creating mental images to enable memorizing and transferring of information. These strategies contribute to subject-matter development and creation of meaningful mental links.

Social strategies are described to control emotional reactions and to create co-operation among learners. These strategies include a wide variety of activities, such as co-operation with

other individuals, emotion and affection control by creating certain ideas, asking clarifying questions, etc. These strategies contribute to the higher level of self-motivation and self-encouragement, reduction in stress during the learning process and increase in the possibilities of co-operation with other individuals.”

Rebecca Oxford defines language learning strategies as “specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations” [4]. Her classification of language learning strategies is as follows:

Direct strategies

- Memory strategies: creating mental linkages, applying images and sounds, reviewing well, employing action;
- Cognitive strategies: practicing, receiving and sending messages, analyzing and reasoning, creating structure for input and output;
- Compensation strategies: guessing intelligently, overcoming limitations in speaking and writing.

Indirect strategies

- Metacognitive strategies: centering your learning, arranging and planning your learning, evaluating your learning;

Affective strategies: lowering your anxiety, encouraging yourself, taking your emotional temperature;

Social strategies: asking questions, cooperating with others, empathizing with others.”

According to Oxford, “a strategy is useful if the following conditions are present: (a) the relates well to the L2 task at hand, (b) the strategy fits the particular student’s learning style preferences to one degree or another, and (c) the student employs the strategy effectively and links it with other relevant strategies” [5]. She also points out that “In evaluating the success of any strategy instruction, teachers should look for individuals’ progress toward L2 proficiency and for signs of increased self-efficacy or motivation” [6].

Willing identifies four major styles of learners in relation to language learning styles and strategies:

“Communicative: These learners were defined by the following learning strategies: they like to learn by watching, listening to native speakers, talking to friends in English, watching television in English, using English out of class, learning new words by hearing them, and learning by conversation.

Analytical: These learners like studying grammar, studying English books and newspapers, studying alone, finding their own mistakes, and working on problems set by the teacher.

Authority-oriented: The learners prefer the teacher to explain everything, having their own textbook, writing everything in a notebook, studying grammar, learning by reading, and learning new words by seeing them.

Concrete: These learners tend to like games, pictures, film, video, using cassettes, talking in pairs, and practicing English outside class” [7].

Chamot defines learning strategies as “(...) the specific mental and communicative procedures that learners employ in order to learn and use language” [8].

Method

The strategies, which students use when translating, are revealed by means of a questionnaire with 9 multiple-choice questions, characteristic for students’ attitudes, expectations and motivation when translating a text. The total number of the students interviewed at the University of Chemical Technology and Metallurgy is 140. The learning strategies are considered to be cognitive (C), metacognitive (M) and social (S). Data visualization of numerical and categorical data can be performed via tables, graphs, maps and others [9].

The collected information has been processed by most popular statistical techniques for graphical representation and data mining, suitable for everyone with basic knowledge in statistics and available online.

Primary data processing

A line chart/plot is a graph that shows frequency of data along a line with objects. Da-

tapoints are connected with lines in cartesian coordinate system. It is a useful tool to organize and analyze data, see Figure 1.

A bar chart/plot is a graph that presents grouped categorical data with rectangular horizontal or vertical bars. In a column bar chart, the categories (years, sizes, objects, etc.) appear along the horizontal axis. The height of the bar corresponds to the relative frequency of each category. It is useful tool to compare categorical data, see Figure 2.

After data analysis of line and bar charts the answers with relative frequencies <0.015 are neglected. Thus the Questionnaire issues have been reduced from 58 to 28 answers, see Appendix 1.

Analysis

The cluster analysis groups students' and teachers' answers in a way that allows analysis of the strategies they apply to their teaching and learning processes, and which refer to the three types of strategies – cognitive, metacognitive and social (Appendix 1).

The most commonly used procedures are graph algorithms, such as hierarchical procedures. These procedures start with the number of clusters equal to the number of objects and after

successive mergers obtain one cluster. Finally a dendrogram (tree diagram) is built and a visual analysis of the groups is made.

Objects (answering questions) are considered as points of Euclidean space and the similarity between them is estimated by the distance between them. The distance is defined by the used metric (typically a Euclidean) [10]. There are different strategies for combining the elements in groups and clusters themselves. To determine which answer is not in similar groups, one will look dendrograms obtained with different strategies for merging clusters as Complete Linkage and Ward's method .

In Figs. 3 and 4 are shown tree-diagrams obtained by the mentioned clustering methods. Three clusters with 28 answers are clearly outlined in both dendrograms.

Cluster K1={2D+4C, 5F+8B, 6B+7A, 9D}

In this cluster are grouped the answers which characterize the metacognitive strategies applied for overcoming the difficulties in learning. Students' answers show the necessity of exercising some of the elements to a greater extent. Adequate to these acquisition problems is the necessity of repetition and students relate their efforts to the practical results from their learning. The fact that the students have difficulties in understanding

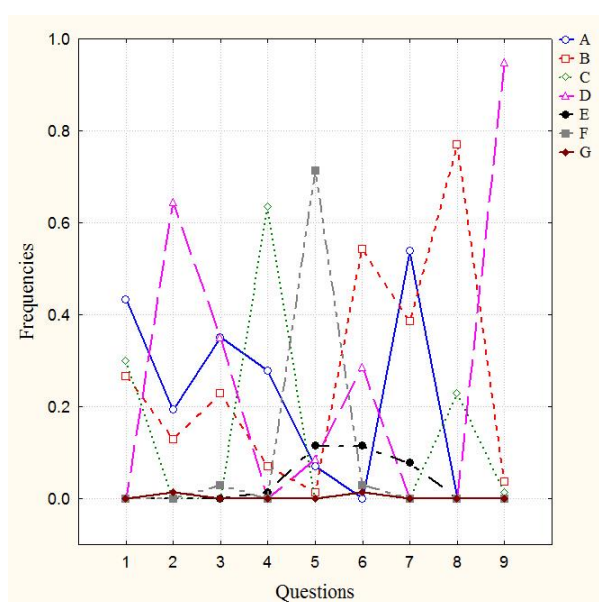


Fig. 1. Line chart of questions per type of answers.

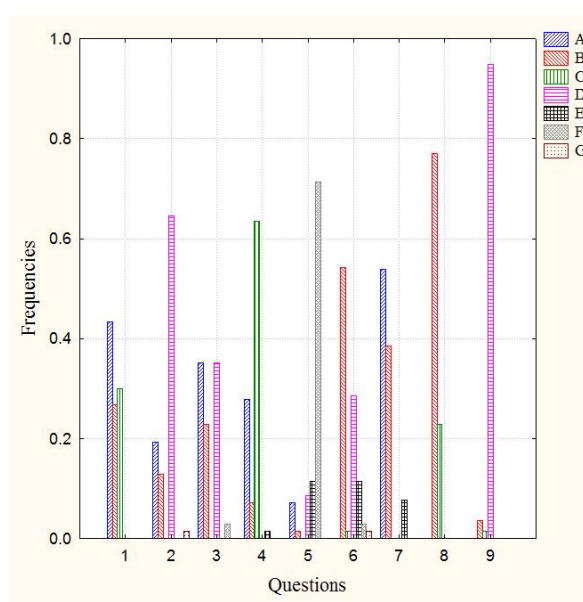


Fig. 2. Bar chart of questions per type of answers.

Appendix 1: Questionnaire.

No	Question	Strategy
1	Translating a text (from the Student's Book or Workbook):	
	A) Translating a text (from the Student's Book or Workbook) is necessary because it helps me to study words more easily.	C
	B) Translating a text (from the Student's Book or Workbook) is necessary because it helps me to learn the structure of the English sentence.	C
	C) Translating a text (from the Student's Book or Workbook) helps me to see my gaps and mistakes.	M
2	Translating an additional text, given as a task by the teacher:	
	A) Translating an additional text, given as a task by the teacher, is useful for practicing the words I have already learnt.	C
	B) Translating an additional text, given as a task by the teacher, is useful for practicing the grammar rules I have already learnt.	C
	D) Translating an additional text, given as a task by the teacher, stimulates and motivates me because I test in practice what I have learnt.	M
3	Translating a text in class (from the Student's Book or Workbook):	
	A) Translating a text in class (from the Student's Book or Workbook) helps me to practice and improve my reading in English.	M
	B) Translating a text in class (from the Student's Book or Workbook) helps me to practice the new words and facilitates their learning.	C
	D) Translating a text in class (from the Student's Book or Workbook) motivates me to continue with my studying because I see the practical results from it.	M
	F) Translating a text in class (from the Student's Book or Workbook) doesn't appeal to me because I get embarrassed when reading aloud and I think I don't do it as well as my classmates.	S
4	Translating a text for homework (from the Student's Book and/or Workbook):	
	A) Translating a text for homework (from the Student's Book and/or Workbook) is better for me than translating in class because I can work in peace and quiet at my own rate.	S
	B) Translating a text for homework (from the Student's Book and/or Workbook) is better for me than translating in class because I can use a dictionary or any other help I need at home.	M
	C) Translating a text for homework (from the Student's Book and/or Workbook) is a useful exercise for practicing words and grammar rules from the lesson.	M
5	Translating a text from English into Bulgarian (from the Student's Book and/or Workbook):	
	A) Translating a text from English into Bulgarian (from the Student's Book and/or Workbook) is easy because I can express myself better and more easily in Bulgarian than in English.	M
	D) Translating a text from English into Bulgarian (from the Student's Book and/or Workbook) is difficult because I don't know some of the words in English.	C
	E) Translating a text from English into Bulgarian (from the Student's Book and/or Workbook) is a useful but difficult exercise if the words in English are not learnt well.	M
	F) Translating a text from English into Bulgarian (from the Student's Book and/or Workbook) is useful because I practice everything I have learnt and it will help me to read and understand even more complicated texts in the future.	M
6	Translating a text from Bulgarian into English:	

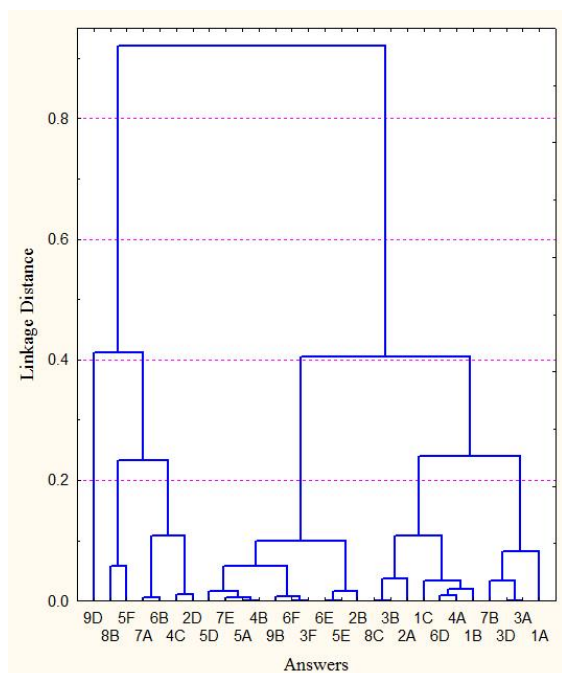


Fig. 3. Dendrogram of 28 answers, Complete linkage, Euclidian distances.

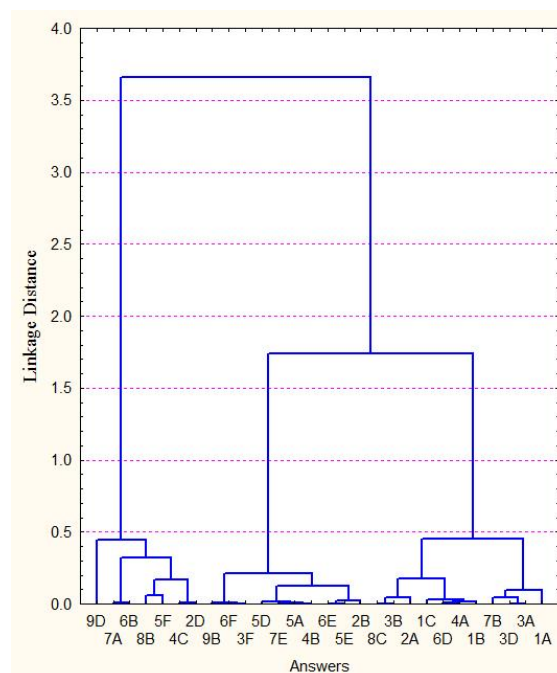


Fig. 4. Dendrogram of 28 answers, Ward's method, Euclidian distances.

the tasks outlines the necessity of redefining the instructions to facilitate self-studying and metacognitive learning control.

Cluster K2={2B, 5E+6E, 5A+4B, 5D, 7E, 3F+6F+9B}

The answers grouped in this cluster indicate that translation is useful as far as the knowledge component is concerned, such as language grammar, and at the same time is assessed as difficult due to lack of knowledge in the field of vocabulary in the target language. As a working method, translation facilitates learning by means of text materials and dictionaries. Lexical knowledge of scientific terminology in Bulgarian appears the most effective tool in translating from English and the lack of lexical knowledge in English breeds lack of confidence and motivation. In the opposite direction students are able to apply adequately metacognitive strategies thus evaluating the difficulties resulting from minimal basic knowledge in grammar and vocabulary. Nevertheless, they realize that this is a tool for achieving the desired outcomes and are ready for extra practice. It is interesting to notice in this group of answers the

presence of the barrier from being unsuccessful in front of the others, in the cases when the texts are read aloud in class.

Cluster K3={1A, 3A+3D, 7B, 1B, 4A+6D, 1C, 2A, 3B+8C}

On the one hand, this cluster groups strategies related to learning and that's why students include the benefit of instructions. This cluster gathers all activities related to self-assessment, methods of improvement and motivation from achieved outcomes in the process of learning. On the other hand, analytical approach to current possibilities, problems (gaps and difficulties) and pursue of results relate to social strategies for overcoming poor performance in front of the others.

CONCLUSIONS

Knowing the learning strategies students use is indicative for projection of useful learning methods and instructions. As the students questioned work with scientific texts in the field of chemistry and chemical technologies, it is relevant to use learning materials in accordance with

their professional profile and/or currently studied academic disciplines. This kind of approach presents a challenge itself before the foreign language teachers at engineering universities because teachers should use materials from a wide range of scientific fields. A solution could be found in establishing a cooperative between the Foreign Languages Department and a board of engineering specialists who could give a helping hand in the selection of proper texts for translation from and into English. Students' opinions undoubtedly show the difficulties they have to encounter because of lexical gaps, and this reflects upon grammar practice as well.

Considering the fact that the surveyed students all appear in Level A1 of English competence, improvement in the process of translation and use of scientific texts could be achieved by means of their knowledge in the field of specialized terminology in Bulgarian.

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