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Soft Skills Development of Prospective Educators by Means of Problem-Based ESP Learning

DOI: 10.15804/tner.2020.60.2.10

Abstract

The article deals with the implementation of problem-based ESP learning in the educational process of prospective educators and shows its impact on development of soft skills. The purpose of the study is to make theoretical hypotheses about the effectiveness of problem-based ESP learning for prospective educators and to test their level of soft skills development empirically following its implementation. The article represents an overview of the main goals, principles and stages of problem-based ESP learning. The results of the study show that problem-based ESP learning empowers prospective educators with valuable soft skills (critical thinking; independent search for information; analysis of information; cooperation with groupmates; emotional intelligence; solution of complex tasks; partner relationship with tutor) and motivates students to improve their ability to achieve good results in the educational process.

Key words: problem-based learning (PBL); stages of problem-based ESP learning; model of problem-based ESP learning; soft skills

Introduction

Nowadays teachers face very intelligent students who are able to accumulate information but they do not know how to use it properly to achieve the best results.

The fact is that a student with a good memory and command of facts is not necessarily good at critical thinking. A critical thinker is able to deduce consequences from what he or she knows, and he/she knows how to make use of information to solve problems and to seek relevant sources to find out the information. Working on a problem, the student should be able to identify it, to infer why the problem exists and how it can be solved, to collect information or data, and organize it, to develop solutions and to analyse whether they work or not, and to find proper ways to improve the solution.

Problem-based learning (PBL), as an inductive learning and a team-based approach, helps students to focus on enhancing their soft skills. This approach places particular emphasis on learning through questioning, and through autonomous and peer-directed learning. As a result, students develop communication skills, critical thinking skills and problem-solving abilities, as well as skills for working in a team. This approach can also help students to pave ways to enhance their personal development, increase their level of self-confidence and empower them to be active learners, excel in team working, as well as be able to accept challenges (Idrus, & Abdullah, 2018).

Thus, PBL occupies the main position among the newest methods of organization in the educational process which are applied to formation and development of the skills that have been outlined. It is a good way to improve the process of mastering material, in teaching students how to think and put knowledge into practice. It allows students to generate their own position based on available multidimensional information, to correlate their point of view with the opinions of others. Students learn to analyse different sources of information and to develop their own attitude towards different views. Thus, PBL is a learning approach that seeks to create a link between theoretical knowledge and practical implementation (Cockrell & Caplow, 2000).

Research Problem

The process of learning foreign languages can become more effective with the help of input of problem situations in the educational process. PBL is considered as a principle and as a new type of educational process, as a method of study and as a new didactic system. Using a problem-based approach as the priority direction for a personal-guided approach in the process of learning foreign languages can be implemented at all levels in the organization of teaching materials and the educational process itself. Problem-based oriented material promotes the increase of efficiency of the process of education as it stimulates mental activity, encourages independent search for information, and provides impetus for analysis and gen-

eralization. The application of problem-solving principle gives variety of teaching material that helps to conduct teaching with regard to the educational contents, enhances forms of the organization of the educational process, and improves the level of students' knowledge and their readiness for autonomous work.

Theoretically, this approach enables students to become more effective collaborators, to develop self-directed learning and problem-solving skills, to construct extensive flexible knowledge which goes beyond the learning of facts and it also raises intrinsic motivation (Dmitrenko, 2016).

Problem-based learning involves projects focused on solving complex and real-world problems by using a case study approach. Students work in small groups to investigate, research, and create solutions to problems that could be solved in multiple ways solutions and with many different methods. Problem-based methods far outshine traditional methods in developing 21st century skills such as flexible problem solving and applying knowledge to real-world situations, as well as critical thinking skills such as generating testable hypotheses and communicating more coherent explanations (Trilling, & Fadel, 2009).

Research Focus

The purpose of the study is to theoretically demonstrate the effectiveness of problem-based ESP learning for prospective educators and to test their level of soft skills development empirically on the basis of problem-based ESP learning method.

The objectives of the study are to verify the theoretical positions on the possibility of using problem-based ESP teaching with prospective educators for the development of soft skills and to carry out a diagnostic study which is aimed at identifying students' soft skills: for example, how students express themselves, cooperate with each other, investigate problems and analyse data, find solutions to simple and complex tasks and to see whether they are able to build partnership relationships with their tutor or not.

Methodology of Research

General Background to the Research

The purpose of problem-based ESP teaching consists in facilitating deep and all-around understanding of the learning material, and development of analytical and creative thinking. This is a means for development of motivation, and stimulation of student's cognitive activity. PBL promotes the integration of the educational

process across the curriculum, with real-life problems and with students' personal experience. Application of problem-based ESP teaching allows the students to reveal a level of their knowledge and abilities, and helps the teacher to improve understanding of the learners' psychology. In the process of PBL students have the opportunity for self-realization and to develop team-work skills.

Implementation of problem-based ESP teaching comprises several stages:

1. *Planning*: statement of the problem; revealing student's styles of learning; defining the study results and potential failures; selection of necessary material, predicting students' questions.
2. *Process*: subdivision of students into groups (according to their interests, style of study, skills or combining different factors) in order to improve the process of problem decision; allocation of the most effective ways for regulation of work in small groups; effective integration of technological tools and resources in the educational process; development of strategic tools to support students' learning, for example, creation of a website with direct references to the necessary resources, use of titles that precisely represent the essence of each stage of learning for students; preparation for optimum use of technology, especially, tools for creation and application in practice of all the necessary skills.

The model of the process of problem-based ESP teaching contains: introduction to the problem, supervision, and discussion of the information obtained; formulation of questions, ideas, and hypotheses; gathering information for a problem solution; plan of action; reflection.

3. *valuation*: creation of the opportunity for introspection, evaluation by the teacher and group-mates; development of effective evaluation techniques, combining the study process, the subject content and the outcomes of the program; implementation of effective tools for evaluation, with the accent on the constant evaluation of course tasks; continuous evaluation of input as an integral part of the process of teaching and study (Schmidt, Vermeulen, & Van der Molen, 2006).

The key question in problem-based ESP teaching is "the problem situation" which is created by the teacher with a certain purpose. It contains a challenging theoretical and practical question which demands studying, expansion, and research in certain conditions and circumstances.

There are different ways to create problem situations that offer students opportunities to find decisions. It can be done, for example, by creating collisions with contradictions of practical activities, giving statements, showing different points of view on the same question, prompting them to make their own comparisons,

generalizations, and conclusions. The problem situation requires a successful solution, promotes students to conduct independent search activities, stimulates their cognitive interest, and provides the development of critical thinking and creative abilities of the participants involved in the discussion.

Research Sample

While teaching foreign languages, the most effective is the development of professional communicative competence in another language. Thus, tasks in PBL are strongly professional in character, and statement of the problem, substantiation of the topic, description of methods and the research procedure, representation of conclusions and results are designed to activate the lexicon and phraseology in the foreign language. Role-playing various situations in foreign language lessons in oral and written forms of dialogues helps students to be integrated into the process of speaking another language professionally, and to adapt and to be ready for the realities of a future professional career.

In the context of studying foreign languages, special attention is paid to such groups of problem tasks as: searching and game tasks, communicative and searching tasks, communicatively guided tasks, cognitive and searching tasks, and cultural tasks. The basic properties of problem-based tasks are to promote authentic dialogues in the lesson; the topic of the task should be relevant for the participants; the complexity of the task should be appropriate; the information must be suitable for inequality in the partners (for participants who have different interests and additional hobbies); and tasks should be creative in character.

To develop students' communicative skills outside the language environment, it is not enough to fill lessons with communicative exercises which allow students to solve communicative problems. It is important to suggest students different strategies to resolve problems by generating ideas, finding out the most adequate ways to solve these problems using ESP language to form and formulate their ideas and solutions.

Instrument and Procedures

In order to reveal the level of soft skills development, based on the problem-based ESP teaching of prospective educators, the teacher-tutors evaluated the students' soft skills twice: at the beginning and at the end of an experimental study. The study was held in two faculties: the Faculty of History, Law and Public Administration and the Faculty of Mathematics, Physics and IT Technologies at Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University. Teachers were asked to grade not only how the students learned the material, but also how they

expressed themselves, cooperated with each other, investigated the problems and analysed the data, found the solutions to simple and complex tasks and whether they were able or not to build partnership relationships with their teacher-tutor.

In general, 8 groups, 160 students of the second year of study, took part in the research study. At each faculty 2 groups were taught according to generally accepted methods (GM) and the other 2 were taught using a PBL method during ESP classes (PBL groups). The participants were heterogeneous in terms of their foreign language proficiency, age, and gender. The study took place during the 2018–2019 academic year. The students had been learning English as a foreign language (“Foreign Language for Specific Purposes”) for one year in this particular university. Lessons were conducted once a week (this was the second year of study) for 2 terms. Each group consisted of 20 students, who were randomly assigned. The participants of the study were informed about the purpose and the structure of research and assured that their names would not be used in the study reports.

In the study preliminary and final English tests were given to the students to measure the initial and final level of students’ communicative skills. The total maximum practice test score is 170 (170–160 – very high level, 159–153 – high level, 152–140 – average level, 139–120 – low level, 119–102 – very low level).

Simultaneously, the teachers assessed the level of development of soft skills. Among these were: critical thinking; independent search for information; analysis of information; cooperation with groupmates; emotional intelligence; finding solution to complex tasks; partner relationship with tutor. Teachers assessed them on a five-point Likert scale from one to five points, where 5 means that the level of soft skills development is very high, 4 – high, 3 – moderate, 2 – low, 1 – very low.

Research Results

Comparison of the preliminary and final English test (PET) showed that at the beginning of the year the results of the PBL and GM groups differed insignificantly, but at the end of the year the students of the PBL group obtained higher scores (Table 1). At the beginning of the year, students of both groups demonstrated a moderate level of knowledge. At the end of the year, the students of the PBL group acquired higher scores in comparison with the results of the GM group and their own results at the beginning of the year. The students of the PBL group achieved a high level ($M=154.65$) of communicative skills.

Table 1. Results of Preliminary and Final English Tests

	GM Group		PBL Group	
	N (80)		N (80)	
Preliminary English Test	M=142.69	SD=5.44	M=141.58	SD=5.35
Final English Test	M=145.47	SD=5.59	M=154.65	SD=6.02

Table 2 presents the results of teachers' assessment of the soft skills of the prospective educators from both faculties, which was carried out while students were doing the English test (PET) at the beginning and at the end of the academic year. The best results were obtained in the PBL group. The highest average increase in results (%) for development of soft skills were shown in the following items: partner relationship with tutor (+ 51 %); solution of complex tasks (+ 43.5 %); critical thinking (+ 41 %).

Table 2. Soft skills developed by PBL

Soft skills	Students of the Faculty of History (N=80)				Students of the Faculty of Mathematics (N=80)			
	PBL (N=40) %		General Methods (N=40) %		PBL (N=40) %		General Methods (N=40) %	
	Beginning of the year	End of the year	Beginning of the year	End of the year	Beginning of the year	End of the year	Beginning of the year	End of the year
1. Critical thinking	42	87	43	50	38	75	41	50
2. Independent search for information	50	90	45	55	60	95	60	65
3. Analysis of information	38	88	40	50	70	96	70	73
4. Cooperation with groupmates	60	95	60	63	57	93	48	60
5. Emotional intelligence	40	66	35	50	35	50	38	43
6. Solution of Complex tasks	43	84	40	45	50	96	50	60
7. Partner relationship with tutor	30	90	33	45	40	82	37	50

Table 3 shows the mean scores, standard deviation and interpretation of results assessment of soft skills development at the end of the academic year.

Table 3. Mean Scores and Standard Deviation of Soft Skills Development Assessment

Group	N	M	SD
GM group	80	3.05	0.49
PBL group	80	4.42	0.38

The students of the PBL group demonstrated more developed soft skills and obtained a high level of soft skills in comparison with a moderate level of the students in the GM group. In the PBL group, the smaller standard deviation shows that the values are more concentrated around the mean.

To ascertain whether the difference in results obtained in the PBL group are significant statistically and how variables (scores on the English test and level of soft skills development) are correlated, we applied Pearson's correlation coefficient: $r = 0.9850$. The positive correlation shows a strong relationship between the two variables. The p -value is 0.02378 that signifies a significant correlation between the variables. The results suggest that problem-based ESP learning could be very helpful in the development of soft skills.

Discussion

According to Table 1, all students graduated the course English for Specific Purposes with progress. Their results were much better at the end of the year than they were at the beginning. At the end of the year, the students of the PBL group achieved a high level of communicative skills (according to PET scales) in comparison with the moderate level of the GM group.

The results of the study showed evidentially that those students who were taught by problem-based ESP learning developed their soft skills and were evaluated much higher than their mates who were taught with general methods. The students of the PBL group were able to cope with their exam tasks more quickly. Their answers were based not only on general knowledge of the material but also on their thoughts, their own point of view and what is more important they managed to find the most effective and suitable answers to the questions.

Similar results for the positive impact of problem-based ESP learning on language and soft skills were found in other studies (Barrows, 1996; Beringer, 2007; Hmelo-Silver, 2004; Schmidt, Vermeulen, & Van der Molen, 2006). A positive impact of the process of problem-based learning on developing thinking and learning skills of students is described in current research as well (Aleem, & Jamaludin, 2007; Radišić, & Nedeljković, 2012; Garcia, & Garza, 2015; Idrus, & Abdullah, 2018; Othman, 2017). The effectiveness of PBL in promoting strong critical thinking, knowledge construction, independent learning, and problem-solving has also been shown in some studies (Tan, 2009; Trilling, & Fadel, 2009). Examples of soft skills integration into problem-based learning are described in several articles (Walters, & Sirotiak, 2011; Woodward, Sendall, & Ceccuci, 2009; Bergh, & Van Staden 2006).

The current study supports the opinion of scholars that problem-based ESP teaching involves the use of new methods and techniques in the language learning process, activates critical thinking and cooperation with groupmates, stimulates independent search for information and its analysis, develops emotional intelligence and the ability to solve complex tasks, and fosters partner relationships with tutor.

Conclusions

The results of the study demonstrate that using problem-based ESP teaching had a sufficient impact on the development of soft skills. In the process of problem-based ESP teaching the student becomes an expert at a new level, characterized by creative abilities, critical thinking, professional competence, and with the ability to produce and make decisions in changeable situations. The PBL method allows prospective educators to enhance their soft skills for professional activities; to form certain models for scientific research; to test themselves for professional eligibility; to search for the most effective ways of solving a problem; to predict the results of their decisions by communicating in the foreign language communicative competence.

The implementation of problem-based ESP teaching stimulates students' individual and group work forms and encourages them to study materials, to develop the main idea in a competitive forum, to find key statements, and to do project work on the basis of the information obtained.

The following advantages of problem-based ESP learning can be highlighted: independent mastering of knowledge through students engaging in creative

activities; development of productive critical thinking; a rise of interest in the educational process; motivation for independent search for information and its analysis; stimulation of cooperation with group-mates and solution of complex tasks; improvement of emotional intelligence; enforcement of a partner relationship with tutor, which allow the students to be competitive not only in education, but in any sphere of life.

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