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**PROJECT-BASED LEARNING: OBJECTIVES AND CHALLENGES**

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**Abstract:** The utilization of new and modern technology tools has changed the ways of learning and obtaining knowledge. Project-based learning (PBL) is a type of learning that encourages students to apply their knowledge for solving interdisciplinary problems. It is used as an approach to build students' thinking competencies, as well as communication and collaboration skills. In addition, it can help teachers to create flexible teaching and learning environment based on applying technological tools for presenting materials, assessing quality of students' project work, planning and managing project tasks, activities, and deadlines. Content development tools and assessment tools are beneficial for students and should be used in an effective manner. On the other side, time management tools can help teachers to design and plan the successful execution of project activities, or efficient use of classroom time. Collaboration tools enable teachers to be close to students throughout the project, and enable students to collaborate with each other in the same organization and beyond, with professionals and experts from the field of task management. Different types of content can be used for transferring and acquiring knowledge, such as interactive presentations, movies, spreadsheets, diagrams and social media. PBL web platforms can be used to publish and share materials with students, and help them to improve their capacities in solving problems and facing challenges. Teachers can define multi-step projects and teach students how to use project management tools, including strategies and standards. Students learn how to assess the quality of their work from their projects. Students' projects and working on project tasks are presented, discussed and elaborated after their successful completion. Feedbacks can help both students and teachers to improve their future activities and the quality of their work, as well as their way of thinking about the problem. Public presentation of students' work can demonstrate what students know and what they can do. Past project-based learning performances can help teachers to manage project activities, design and plan project tasks, and assess students' attainments. Project-based learning allows students to develop creative freedom and innovative way of solving problems. Furthermore, students learn how to become effective team members and leaders that can complete complex project tasks. According to the results of this study, students are satisfied with project-based learning activities, and project-based tasks that can be integrated in study programmes.

**Keywords:** project-based learning, project-based tasks, critical thinking, skills

**УЧЕЊЕ ЗАСНОВАНО НА ПРОЈЕКТИМА: ЦИЉЕВИ И ИЗАЗОВИ****Маја Станојевић Гоцић**

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**Резиме:** Коришћење нових и модерних технолошких алата променило је начин студирања и постизања знања. Учење засновано на пројекту је тип учења који подстиче студенте да примењују знање ради решавања интердисциплинарних проблема. Користи се као приступ у изградњи размишљања студената и вештина комуникације и колаборације. Такође, може помоћи наставницима да креирају флексибилно окружење за извођење наставе и учења засновано на примени технолошких алата за презентацију материјала, оцењивање квалитета рада студента, управљање и планирање пројектним задацима, активностима и роковима. Алати за развој садржаја и процену су корисни за студенте и требају бити коришћени на ефикасан начин. С друге стране, алати попут алата за управљање временом могу помоћи наставницима да дизајнирају и успешно планирају извршење пројектних активности или ефикасно коришћење времена у учионици. Алати за колаборацију пружају наставницима могућност да буду уз студенте током читавог пројекта, а затим омогућавају и студентима да сарађују међусобно у истој организацији или изван ње, као и са професионалцима и стручњацима у области управљања задацима. Различите врсте садржаја могу се користити за пренос и стицање знања као што су интерактивне

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презентације, филмови, табеле, дијаграми и друштвени медији. Веб платформе се могу користити за објављивање и дељење материјала са студентима и помажу им да побољшају своје способности за решавању проблема и суочавање са изазовима. Наставници могу дефинисати вишестепене пројекте и научити студенте како да користе алате за управљање пројектима, укључујући стратегије и стандарде. Студенти уче да процењују квалитет свог рада из пројеката. Студентски пројекти и рад на пројекним задацима се приказују и образлажу након успешног завршетка. Повратне информације могу помоћи и студентима и наставницима да побољшају своје будуће активности, квалитет њиховог рада и начин размишљања о проблему. Јавна презентација рада студената може показати шта студенти знају и могу да раде. Претходно примењене праксе учења на основу пројекта могу помоћи наставницима да управљају пројектним активностима, пројектују и планирају пројектне задатке и процењују учење студената. Учење засновано на пројекту омогућава студентима да остваре креативну слободу и изграде иновативни начин решавања проблема. Поред тога, студенти ће научити како да постану ефикасни чланови тима и лидери који могу решити сложене пројектне задатке. Према добијеним резултатима, студенти су задовољни активностима изведеним из овог типа учења, а задаци засновани на пројектима могу бити интегрисани у будућим студијским програмима.

**Клучне речи:** Учење засновано на пројектима, пројектни задаци, критичко мишљење, вештине

## 1. INTRODUCTION

The vast expansion of English as a global language contributed to the development of English for Specific Purposes (ESP) as a specific language variety concerned with studying the language of different academic, scientific, technological, professional or vocational fields. ESP enables and facilitates the communication among experts from different fields, as well as their professional development pertaining to embracing current trends and contemporary innovations from their field of expertise. Accordingly, innovations in ESP education and training include project-based tasks as tools that could ameliorate ESP course by giving students opportunities to work independently and autonomously in developing their language skills through challenging learning activities within real-world projects. They provide students with unique opportunity to solve real problems and challenges.

Project-based learning (PBL) is an approach oriented to solving real tasks [1-4]. Students work in small groups to achieve a common objective. This is a student-centered type of learning where the tasks are not classroom-based but oriented to practice. Challenging students to solve different interdisciplinary problems, PBL allows integration of subjects [5] by means of helping students to build their thinking and critical competence [6].

PBL framework enables students to work in small and collaborative groups, as it is believed that such learning environment can drive and prompt students to develop their abilities and knowledge practice applicable to real-life situations and problems. Unlike traditional learning, the teacher involved in PBL is the facilitator, who motivates students to strengthen their skills, to be responsible for their own choices and their progress in resolving a specific problem, but not the leader. On the other hand, students are focused on understanding, rather than on mechanically memorizing the facts presented to them in advance [7, 8].

Duration of students' projects vary in length, ranging from a couple of days to several weeks. Sometimes, they can even take place through the whole semester. Generally, PBL can be applied to all study levels and subjects.

PBL can be easily integrated in the classroom by using modern information technology [9]. Therefore, a variety of technology tools have been developed. They can be classified as collaboration tools, assessment tools, knowledge transfer tools, content development tools, planning tools and PBL platforms. Different type of contents can be used to provide effective transfer of knowledge, and students can use them to fulfill their projects' activities, including drawings, diagrams, interactive slideshows, movies, presentations, spreadsheets, data analysis, blogs, social media, collages, or scrapbooks.

In this paper, the possibilities of implementation of project-based learning within ESP education are exploited. ESP students studying at College of Applied Professional Studies in Vranje participated in the research. They were assigned a project-based task, and were obliged to fill in the questionnaire on project-based learning afterwards.

## 2. CHARACTERISTICS OF PROJECT-BASED LEARNING

PBL displays numerous advantages over traditional learning. Firstly, students are encouraged to use knowledge acquired in the course of problem solving tasks in a real-life situations. Secondly, this type of learning helps students to increase their academic achievement in an effective manner. Students can make up their own means for reaching a solution. They can strengthen communication and collaboration skills, and develop critical thinking. Projects can also increase their motivation through their engagement in the given task. The participants are taught how to face challenges, solve problems, improve their skills, and respond to different situations. Additionally, students build organizational skills, time management skills, and research skills in the course of problem solving tasks.

Accordingly, they should acquire leadership skills. They should inevitably learn how to react in a group, how to make self-assessment, how to be critical of their progress, and monitor their success. Furthermore, PBL allows students to build creativity and innovative thinking that can be applied during a problem solving task.

In order to help students to solve the given problem, or retain new information, the teacher should be effective and pro-active. In addition, the teacher should be connected with the professionals from different fields of expertise (e.g., industry), involved in a particular problem solving task. In that sense, the teacher should assess students' individual work by taking into account the quality of the results provided. On the other hand, students should demonstrate understanding of the content, their involvement in the ongoing project, and the need for its successful realization.

PBL enables students to develop and present their own ideas, as well as to get involved in decision-make processes affecting the project outcomes. Students' final results, representing what they have learned during a problem solving task, should be tangible. Therefore, the quality should be evaluated by experienced external professionals. Finally, students should be taught how to present project results in an authentic way. For example, slideshows are utilized for efficient oral presentations, and tools, such as *Snapshot and Screencast-O-Matic*, can be used by both teachers and students throughout a project.

As students are usually organized in small groups, the teachers should create positive working environment that can help English learners to improve their skills, which is the environment in which students are stimulated and supported to make changes, and errors are tolerated. Also, teachers they should consider the fact that there may be students with disabilities, or struggling readers.

Teachers can define multi-step projects and teach students how to use management tools, including strategies and standards. They should also work with students to organize projects by setting tasks, deadlines or checkpoints, and provide learning resources. In that respect, web-based platforms can be used in managing project activities, such as *Project Foundry*, *Google Docs* or *Microsoft Office Online*. They can help teachers to create and archive projects, project activities, and students' work, including sharing some interesting documents to students' groups, which would serve as an aid to solving future problems.

### 3. QUESTIONNAIRE FINDINGS

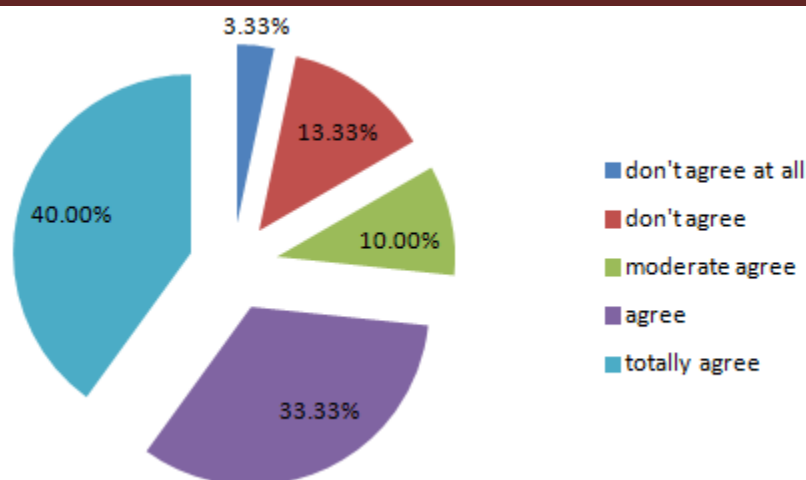
The participants in this study are ESP 40 students of Colleague of Applied Professional Studies in Vranje, Serbia. They participated in project were divided into 10 groups of 4 students each, and were given a project to solve the engineering problem. Afterwards, all groups discussed and compared their results, elaborating which solution is more efficient and more cost-effective. Finally, a questionnaire about PBL was administered to all the respondents in the research. The questionnaire is aimed at assessing students' attitudes towards PBL activities, while the questions are related to students' newly gained experience during PBL activities.

The findings are summarized in Table 1. Arithmetic mean and standard deviation are used as statistical operations to measure the frequency of students' attitudes. 5-point Likert scale was use to grade students' answers, ranging from 5 (totally agree) to 1 (don't agree at all).

*Table 1. Students' experience achieved during PBL activities*

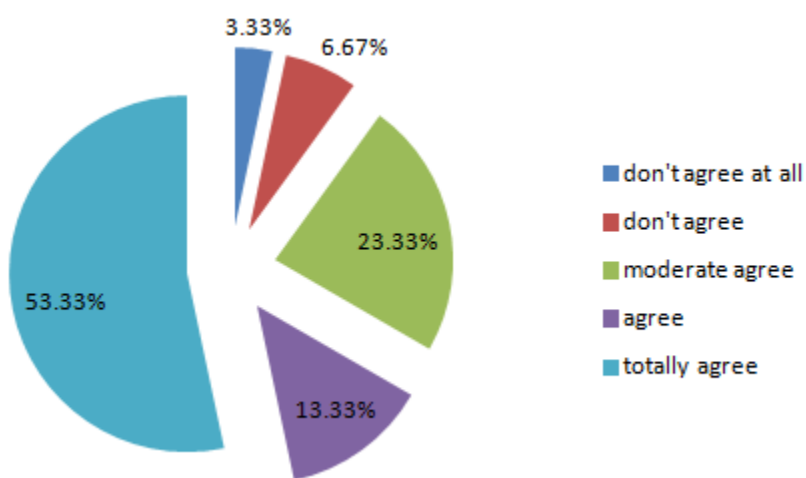
Attitudes	A. mean	Standard deviation
I find this type of learning interesting.	3.93	1.17
I improved my communication skills.	3.53	0.73
I improved my critical thinking.	4.07	0.87
I developed new skills.	3.97	1.10
I think PBL is better than traditional learning methods.	4.17	1.15
I intend to recommend this type of learning.	4.23	0.90
PBL tools improved my vocabulary.	4.07	1.17

Since students claim PBL helped them to improve their skills, they consider that this type of learning as more significant than traditional learning, and thus they are willing to recommend PBL to their colleagues. Hence, the results show that students are extremely satisfied with PBL as a new type of learning (Figure 1).



*Figure 1. I find this type of learning interesting*

Approximately 90% of students are satisfied with using PBL tools that contributed to the improvement of their vocabulary (Figure 2).



*Figure 2. PBL tools improved my vocabulary*

According to the findings, students are satisfied with the way they utilized PBL tools, and the way they improved their ESP knowledge. As a result, 4 out of 5 students will recommend the use of PBL in future study programmes.

#### 4. CONCLUSION

The importance of project-based learning and project-based tasks it comprises for the development of ESP course is enormous. PBL enables students to enlarge their vocabulary, and build up their skills, such as communication and collaboration skills in solving real problems. It also contributes to the development of their critical thinking. As a result, PBL should contribute to the development of deep content understanding and practical implementation of acquired knowledge. However, a number of activities should be done in preparing the class for adequate implementation of PBL in different subjects at all study levels.

The study demonstrated that project-based tasks could be integrated in ESP education, and used as a means to upgrade ESP learning and practice. Hence, its integration in ESP course emerges as practical implication of this paper.

Students involved in PBL develop different problem-solving strategies and tasks aimed not only at resolving a particular task, but also at improving and facilitating ESP learning process. As they can benefit from this type of

learning in numerous ways, students should be given project-based tasks on a regular basis, after being provided with adequate training about significance and practical aspects of PBL.

**REFERENCES**

- [1] M. H. Davis, R. M. Harden, Problem-based learning: A practical guide, *Medical Teacher*, 20(2), pp. 317-322, 1999.
- [2] J. A. Spencer, R. K. Jordan, Learner centered approaches in medical education. *British Medical Journal*, vol. 318, pp. 1280-1283, 1999.
- [3] Tiwari, S. Chan, E. Wong, D. Wong, C. Chui, A. Wong, N. Patil, The effect of problem-based learning on students' approaches to learning in the context of clinical nursing education. *Nurse Education Today*, 26(5), pp. 430-438, 2006.
- [4] H. I. Strømsø, P. Grøttum, K. H. ve Lycke, Changes in Student approaches to learning with the introduction of computer-supported problem-based learning, *Medical Education*, 38 (4), pp. 390-398, 2004.
- [5] Y. Doppelt, Implementation and assessment of project-based learning in a flexible environment, *International Journal of technology and Design Education*, vol. 13, pp. 255-272, 2003.
- [6] M. Barak, Learning Good Electronics or Coping with Challenging Tasks: The Priorities of Excellent Students, *Journal of Technology Education*, 14(1), pp. 20–34, 2002.
- [7] S. AK, The effects of computer supported problem based learning on students' approaches to learning. *Current Issues in Education*, 14(1), 2011. Retrieved from <http://cie.asu.edu/ojs/index.php/cieatasu/article/view/712>
- [8] M. Groves, Problem-based learning and learning approach: is there a relationship?, *Advances in Health Sciences Education*, 10(4), pp. 315–326, 2005.
- [9] S. M. Sage, A natural fit: Problem-based learning and technology standards. *Learning & Leading with Technology*, 28(1), pp. 6-12, 2000.

