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PROJECT-BASED LEARNING FOR STUDENTS ENGAGEMENT

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ПРОЄКТНЕ НАВЧАННЯ ДЛЯ РОЗВИТКУ ПІЗНАВАЛЬНОЇ АКТИВНОСТІ СТУДЕНТІВ

The reality and circumstances under which the educational process takes place today encourage scientists and teachers to search for new effective ways of developing the cognitive activity of modern students, to attract new approaches, methods, technologies and tools. Innovative technologies play a crucial role in shaping the modern world, driving progress in education by enhancing students' engagement. The researchers throw the light upon the importance of usage of popular information and communication technologies in the classroom, namely project-based learning. Innovations lead pre-service teachers to the creation of entirely new opportunities for teaching and becoming well-prepared for providing high quality educational services for primary school students. The article shows the prospects of future primary school educators' training to perform their professional duties while applying project-based learning by means of digital tools. For this purpose, the authors analyze the concepts relevant for solving this problem, its coverage in the psychological and pedagogical literature, the essence of project-based learning itself, and its impact on increasing student activity in classes. It is noted, different types of projects are actively used by teachers in the classroom: research, creative, game, informational, practice-oriented. Various classifications of projects can be distinguished according to their duration, the kind of activity, the nature of project coordination and relationships as well as considering interdisciplinary approach. The benefits of using project-based learning for teachers and students are determined and appropriate conclusions are derived.

Key words: project-based learning, students, pre-service primary school teachers, students of primary education, engagement (cognitive activity), digital literacy.

Анотація. Реальність і обставини, за яких сьогодні відбувається освітній процес, спонукають науковців і вчи-телів практиків до пошуку нових ефективних шляхів розвитку пізна-вальної діяльності сучасного здобу-вача освіти, залучення новітніх підходів, методів, технологій та інструментів. Інноваційні технології відіграють вирішальну роль у фор-муванні сучасного світу, сприяючи прогресу в освітньому секторі шля-хом підвищення залученості (актив-ності) студентів на заняттях у ЗВО. Дослідники проливають світло на важливість використання популярних інноваційних технологій, а саме про-єктного навчання. Інновації часто призводять до створення абсолютно нових можливостей для навчання та

підготовки до надання високоякісних освітніх послуг для учнів початкової школи. У статті розкрито перспективи підготовки майбутніх учителів початкової школи до виконання професійних обов'язків із застосуванням проєктного навчання засобами цифрових інструментів. З цією метою автори аналізують поняття, актуальні для вирішення цієї проблеми, її висвітлення у психолого-педагогічній літературі, суть самого проєктного навчання, та його впливу на підвищення активності студентів на заняттях. Визначено, що на заняттях учителі активно використовуються різні види проєктів: дослідницькі, творчі, ігрові, інформаційні, практико-орієнтовані. Визначено переваги використання проєктного навчання для вчителя та учнів та зроблено відповідні висновки.

Ключові слова: проєктне навчання, студенти, майбутні учителі початкової школи, учні початкової школи, залучення (пізнавальна активність), цифрова грамотність.

General problem setting. Effective and productive training of contemporary students - future primary scool educators is impossible without active engagement, efforts and initiative, ability to analyze, interpret, evaluate information, innovative knowledge and soft skills. The concept of "activity" or "engagement" in psychology has a definition, the essence of which goes back to the general characteristics of living beings, their movement, that is, dynamics as a source of change, transformation, as well as interaction with the surrounding world *(Kravchuk, 2018)*. Psychologists claim students' engagement refers to the degree of attention, curiosity, interest, optimism, and passion that they show when they are learning or being taught. It is a measure of how interested they are in their education and how motivated they are to learn and succeed. Engagement is critical because it directly influences students' academic outcomes, their overall experience, and lifelong learning habits. After all, according to psychological dictionary, activity is movement, a source of

driving force, development, a condition for existence on Earth.

Importance of students' engagement in educational process can't be underestimated. It directly effects students' academic success as higher levels of engagement are associated with better academic performance, higher grades, and lower dropout rates. In addition, it is tightly connected with personal growth, since engaged students develop better social and emotional skills, including resilience, self-confidence, and empathy. Finally, ative students are more likely to develop love for learning that persists beyond their school and university years that is they possess a skill of lifelong learning.

Engagement, according to foreign psychologists, is activity. Therefore, these concepts are often used synonymously in various fields of knowledge. Cognitive interest is formed where the development of active thinking is supported, a positive attitude towards knowledge is formed. After all, activation of thinking is a prerequisite for conscious learning and cognitive activity. This is facilitated by didactic games, problem-based method and training, which are easy to use both during traditional and distance learning. Digital means of learning and IT technologies are a powerful factor of motivation for cognitive activity and students' engagement.

The purpose of the scientific-methodological study is to draw educators' attention to the issue how the project-based learning can make a difference in students' engagement in the classroom.

Analysis of researches and publications. There are numerous findings about advantages of using ICT in the educational process both for the teacher and the student. Many of them are used in combination with other new and relatively new methods which together have huge influence on students' learning outcomes. Project-Based Learning (PBL) is an educational approach that involves students working on projects over an extended period, which can range from a classroom activity, week to an academic term. These projects typically require

students to investigate and respond to a complex question, problem, or challenge. Its main goal is to ensure active acquisition of knowledge by students and intensive development of both their individual abilities and independence in cognitive activity. Problem-based activities within a project method is one of the priority directions in the formation of the personality of the 21st century. Many studies dealing with the implementation of project-based learning in improving students' skills and abilities have been conducted in the recent years. Its influence on improving creativity of the students was presented by N. Cahyani (2021). Syahril, Purwantono, Wulansari, R. Nabawi, D. Safitri, & T. Kiong investigated the effectiveness of PBL in improving the students' 4Cs skills (2022). The similar objective to ours had the researcher M. Almulla, who highlighted the educational potential of the PBL approach, as a way to motivate students in learning and analyze literature on this method (2020). Ukrainian scientists O. Blyznyuk (2024), T. Blyznyuk, B. Chaban (2023), N. Kosharna (2022) revealed in their works how ICT and innovative teaching methods benefit students in fostering their cognitive abilities. Yu. Lymareva, M. Tsymbal, V. Tsymbal have been looking for alternative ways of delivering input to students by means of PBL in the classroom (2017). B. Andriychuk, A. Baranova, S. Bondarenko, O. Kobernyk, O. Koliada, O. Onoprienko, N. Morse, R. Mykhailyshyn, E. Polat, V. Prokopenko and others also focused attention on various aspects of project-based learning.

Outline of the main research material. Informational means of learning and IT technologies are a powerful tool of motivation for cognitive activity and engagement of primary school students. Visualization of educational material, online quests and games, use of digital content in the process of assimilating new knowledge and practicing what is already known, independent search for information and preparation of creative projects in a digital format have a great impact on students. Due to the active use of

project-based learning in the educational process, younger schoolchildren develop all types of thinking, improve creativity, and most importantly, lift cognitive interests and the ability to independently solve various issues and situations.

The main conditions for the organization effective project-based learning are the problem or task setting to be solved by a student or a group; availability of options in choosing ways to find a problem situation; the clarity of the learning goal and self-evaluation of one's own activity and its results. Thus, the project method is an organization of the educational process oriented to the search, research and creative self-realization of a participant, which clearly contributes to the motivation for learning and the development of cognitive activity. This is a complex use of all the means analyzed above - digital tools and methods for the development of critical thinking. It is not for nothing that it is considered one of the most promising teaching methods in modern schools.

The basis of the project method is the position of student-centered pedagogy, child-oriented and activity-based approaches; development of cognitive interests and skills of children; independence in constructing one's own knowledge; the ability to navigate information and critically interpret it. Implementation of project-based learning provides individualization of the educational process, and at the same time actualizes group and / orteam forms of work, interaction.

Different types of projects can be actively used in the classroom: research, creative, game, informational, practice-oriented. The basis of the project method is the position of child-centered pedagogy, person-oriented and activity-based approaches; development of cognitive interests and skills of education seekers; independence in constructing one's own knowledge; the ability to navigate information and critically interpret it. This method is not new, because it arose in the first half of the 20th century in the USA, but it gained considerable popularity at the beginning of the 21st century in combination with other technologies and methods of learning. Scientists offer various classifications of projects in their studies. According to the kind of activity, projects can be diferentiated as:

• research projects,
• search projects,
• creative projects,
• role-play projects,
• practical-activating projects,
• informational projects,
• learning-telecommunicational projects.

In the context of interdisciplinary approach there can be:

• monoproject,
• interdisciplinary project,
• beyond subject project.

Direct and hidden projects are distinguished by the nature of project coordination, and by the nature of relationships – among students of the same class or with the involvement of students from other classes, schools; unification of people from different professions in work on the project.

According to the duration of the projects, there are short-term, long-term and medium-term projects. Elementary school is characterized by short-term, single-subject classes, from which teachers gradually move to medium-long classes, and those that integrate information from different subjects.
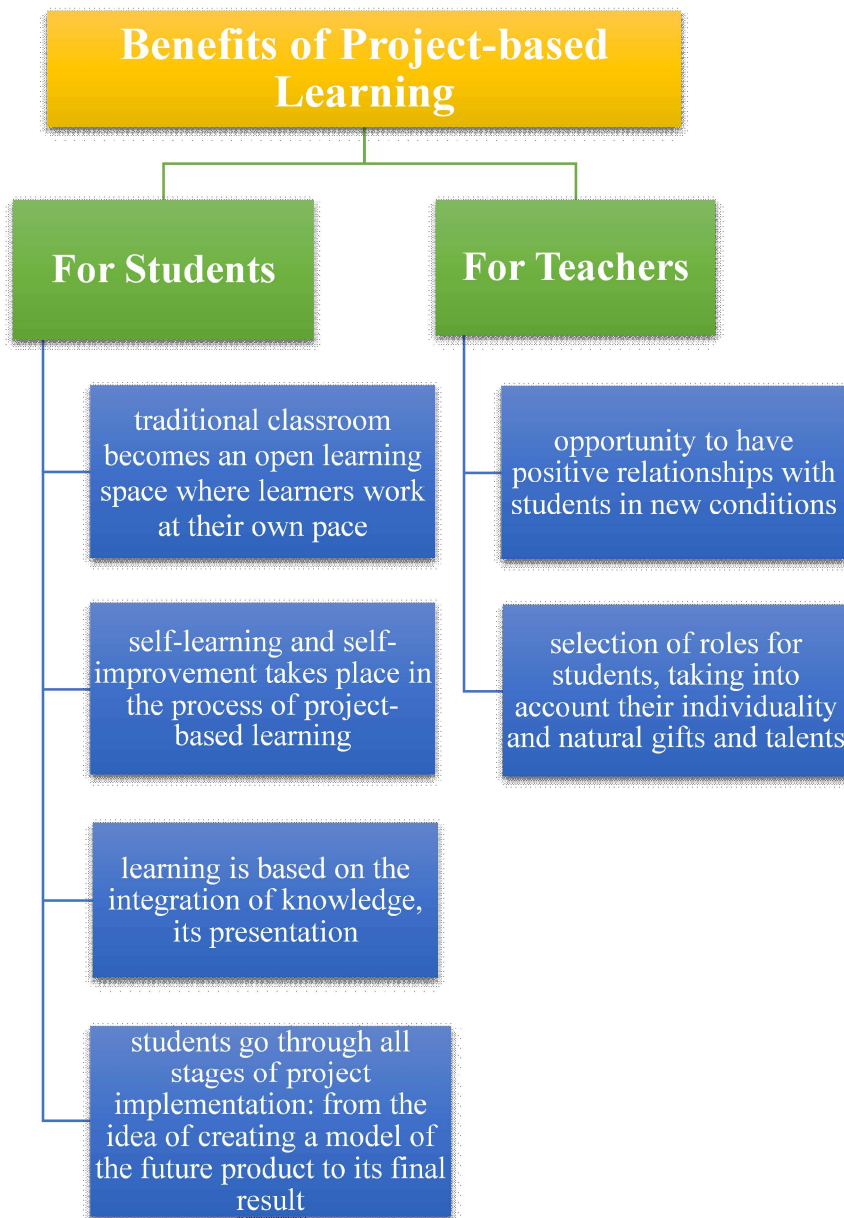
Project work, as a rule, consists of 5 main stages:

1) Research stage – definition of the topic and goal of the project, discussion of the hypothesis and research methods;

2) Analytical stage – collection and analysis of information, activity algorithm, project implementation planning;

3) Practical stage – implementation plan or a road map of the project;

4) Presentation stage – design and presentation or defense of the project result.

5) Control stage – analysis of results, assessment of the quality of the completed project.

There is no doubt that project-based learning benefits both students and teachers. The researcher Diomina, co-founder of the Science Gen school of modern sciences listed the advantages of implementing project activities in educational practice for both teachers and students (Diomina) *(see Drawing 1).*

In order to check the efficiency of the specified approach, its forms, techniques and means, we find out how often they are used by modern teachers and for what purpose. We also studied the state of the research problem in the practice of modern promary schools. The teacher K. Stepaniuk, who offers the author's course "Project technology in primary school" and sees in this technology the potential of a means of forming students' research skills *(Stepaniuk, 2020).* Analyzed findings of H. Pidluzhna introduced the exercises for the development of the students' ability to express assumptions and prove statements; created tasks and integrated tasks-complexes for the improvement of logical and critical thinking, attention, reaction speed; the implementation of which requires inter-subject integration of knowledge *(Pidluzhna, 2001).* The experience of teacher-practitioner T. Yarmosh was more focused on the implementation of project-based technologies in primary school. The teacher believes that "the project-based approach can be applied in primary classes to study any complex subject. It allows teachers to bring the educational process closer to life, to thestudents' needs, to adapt the educational material to real life situations, and most importantly, it makes the education of young students interesting and meaningful, and the process of acquiring knowledge simple and accessible" (Yarmosh). Another educator, G. Zhyla considers project-based activity to be deeply individual and emphasizes its dependence on cooperation between the teacher and students, taking into account the age characteristics of the latter and the ability of the teacher to choose the right methods, forms of work, tasks and organize control over the implementation of projects *(Zhyla).* As R. Mykhailyshyn sums up, "the correct use of the project-based method of learning in primary school makes it possible to define it as an effective didactic tool for activating students'

Benefits of Project-based Learning

For Students

- traditional classroom becomes an open learning space where learners work at their own pace
- self-learning and self-improvement takes place in the process of project-based learning
- learning is based on the integration of knowledge, its presentation
- students go through all stages of project implementation: from the idea of creating a model of the future product to its final result

For Teachers

- opportunity to have positive relationships with students in new conditions
- selection of roles for students, taking into account their individuality and natural gifts and talents

*Drawing 1. **Benefits of project-based learning (according to Inna Diomina)** Source: https://nus.org.ua/view/proektne-navchannya-korotko-pro-golovne/*

cognitive activity, developing their creative thinking and forming their personal traits, creating favorable engaging environment" *(Mykhailyshyn, 2016).*

As noted by researchers and practitioners, the effectiveness of the implementation of project-based learning consists in the development of the child's critical and creative thinking; the role of the teacher is changing; the elements of research activity are activated; students' personal qualities and the ability to work in a team, ect. are formed.

Currently, project-based learning is very well combined with traditional classroom activities in educational experience, practicing it both in the process of face-to-face and distance learning. The beginning of project activities with younger schoolchildren is possible on the condition that they can independently work with information, carry out certain types of activities, and fulfill the teacher's assignments provided for at each stage of the project. Unless this condition is observed, then as a result the teacher will have to become the doer of the

project.

Equally important are the control over the implementation of the project at each stage, constant supervision of the participants; selection of short-term (mainly informational, role-playing, or creative) projects that younger students are made to complete independently; organize search activity and activities of project participants; show examples and make sure that students understand the essence of the project work and imagine the results they should achieve. The content of the project activity is diverse, as are the topics of the projects depending on the subject learned.

The combination of the project-based learning and information and communication technologies in the education of younger schoolchildren proves to be productive. According to T. Blyznyuk and S. Yatsiv "digital tools have revolutionized the assessment process in education…" The researchers offered many interesting digital online resources which can be efficiently used with primary school students for different purposes like engaging students and assessing their outcomes: Kahoot!, Nearpod, Quizizz, Google Forms, Socrative, Edmodo, Padlet, Moodle, Google Classroom and others. As noted, "in selecting a tool, it's essential to consider factors such as ease of use, compatibility with existing technology infrastructure, data security and privacy, and alignment with assessment goals and objectives" *(Blyznyuk, 2024).*

During the implementation of project tasks, primary-school students not only acquire knowledge, but also gain practical skills, improve digital literacy, realize creative potential and demonstrate independence, the ability to take initiative and work in a team. The project-based approach stimulates the development of students' cognitive abilities and engagement, encourages them to solve problems independently, using different methods and choosing different types of activities.

Conclusions and prospects for further research. Project-Based Learning is a highly relevant educational approach in today's world.

It fosters engagement, skill development, deep understanding, and prepares students for future challenges. By making learning more motivating and connected to real-life situations, PBL has the potential to transform education and better equip students for their future endeavors. Working on projects, primary school students develop a whole range of project skills, the components of which are initial logical methods of thinking (intellectual and personal), methods of project activity (informational, creative, literary-linguistic, artistic, manipulative, mathematical) and general activities skills (organizational, research – search, communication).

To sum up the above-mentioned information, project-based learning involves the presence of a problem that students need to solve by demonstrating integrated knowledge and research skills, initiative and independence, the ability to work in a team, show creativity and present the results obtained, combining theoretical knowledge and practical experience. Project-based learning contributes to the intellectual, moral and ethical development of the primary school student, brings the educational process closer to real life needs and situations, makes it interesting, dynamic, accessible, and meaningful. The use of the project-based method in the process of implementing the content and tasks of all educational branches is an effective means of developing not only teachers' readiness to better perform professional duties, improbe own digital literacy, however, promote the cognitive activity and engagement of primary school students.

REFERENCES

Almulla, M. A. (2020). The Effectiveness of the Project-Based Learning (PBL) Approach as a Way to Engage Students in Learning. Sage Open, 10 (3). URL https://doi.org/10.1177/2158244020938702

Blyznyuk, T. (2024). Digital tools Flipgrid and Kahoot in teaching English in primary scool: glimpses of methodolody. *Educational Horizons*, 1(58), 50–56. URL https://www.ippo.if.ua/images/stories/Osvitjanske_slovo/obrii_1_24.pdf

Blyznyuk, O., Hotsaniuk, T. (2024). Digital Competence Among the Key Components of Future Masters of Primary Education Professional Training: Theoretical Interpretations. *Journal of Vasyl Stefanyk Precarpathian National University*, 11(1), 164–172. URL https://doi.org/10.15330/jpnu.11.1.164-172N

Cahyani, N. K. C. (2021). The Effectiveness of Project-Based Learning Models in Improving Students' Creativity (A Literature Review). *The Art of Teaching English As a Foreign Language* (TATEFL), 2(1), 73–77. URL https://doi.org/10.36663/tatefl.v2i1.107

Chaban, B., Blyznyuk, T. The use of innovative methods and techniques in working with a fairy tale in an English language lesson in primary school. Educational innovations. Ukrainian-Polish collection of student scientific works / by general ed. Prof. Budnyk O. B.; summer ed. Prof. Kachak T. B. Center for innovative educational technologies "PNU EcoSystem". Vol. 6. Ivano-Frankivsk: Publisher Kushnir G. M., 2023. C. 108–118.

Diomina, I. Project-based learning: a brief summary of the main points. URL https://nus.org.ua/view/proektne-navchannya-korotko-pro-golovne/

Kosharna, N. (2022). Development of cognitive activity of junior high school students in learning a foreign language using information and communication technologies. *Grail of Science,* 17, 338–344. URL https://doi.org/10.36074/grail-of-science.22.07.2022.058

Kravchuk, L. Development of cognitive activity of younger schoolchildren. URL http://elibrary.kubg.edu.ua/2421/1/Krravchuk_L_3.pdf

Lymarieva, Yu, Tsymbal, M., Tsymbal, V. (2017). Application of the project method for the formation of cognitive activity of primary school students. *Innovative Solutions In Modern Science,* 2(11). URL https://core.ac.uk/download/pdf/145611747.pdf

Mykhailyshyn, R. (2016). The method of projects in elementary school as a pedagogical technology. *Bulletin of Lviv University,* 30, 43–53.

Pidluzhna, H. V. Non-traditional methods of activation of cognitive activity in reading lessons. New learning technologies in primary school: Experience, problems, perspective. Materials of the regional scientific and practical conference on November 17–18, 2000. Zhytomyr, 2001. P. 125–129.

Psychological dictionary. Author's comp. V. V. Sinyavskyi, O. P. Sergeenkova. URL http://elibrary.kubg.edu.ua/5980/3/O_Serhieienkova_IL.pdf

Stepaniuk, K. (2020). Author's course "Project technology in primary school" as a means of forming research skills of students of the first level of higher education. *Pedagogy of creative personality formation in higher and secondary schools,* 4, 120–124. DOI https://doi.org/10.32840/1992-5786.2020.70-4.22

Syahril, Purwantono, Wulansari, R., Nabawi, R., Safitri, D., Kiong, T. (2022). The Effectiveness of Project-Based Learning On 4Cs Skills of Vocational Students in Higher Education. *Journal of Technical Education and Training,* 14 (3), 29–37. URL https://penerbit.uthm.edu.my/ojs/index.php/JTET/article/view/10322

Tsymbal, M., Tsymbal, V. (2017). Application of the project method for the formation of cognitive activity of primary school students. *Innovative Solutions In Modern Science,* 2 (11), 1–12.

Yarmosh, T. Project technologies in the process of learning subjects by primary school students. URL https://web.znu.edu.ua/herald/issues/2012/ped-2-2012/044-48.pdf

Yegorova, I. Practice of implementation of pedagogical projects: educational and methodological manual for the course. Ivano-Frankivsk, 2021. 112 p.

Zhyla G. Project activity in primary school. URL https://naurok.com.ua/proektna-diyalnist-u-pochatkoviy-shkoli-263109.html