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The effectiveness of the project method for the training of philology teachers

La eficacia del método de proyectos para la formación de profesores de filología

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Abstract

The evolution of technologies and the current dynamic development of the education system require the search for effective learning tools that will contribute to the acquisition of knowledge using technologies and the ability to use them for future teaching. The aim of the research is to study the impact of using project method for training future philology teachers. The study involved 398 third-year students. Students studied Ukrainian (native) language (n = 132), English (n = 129) and French (n = 137). A total of 15 teachers with a PhD degree and at least 7 years of teaching experience participated in the study to develop project topics used during training. The teachers developed 10 topics for projects that students who study their native (Ukrainian) and foreign languages (English and French) performed during the academic year. A questionnaire survey was used to determine the effectiveness of the project method. Eight hypotheses



were put forward regarding the effectiveness of the project method for language learning and the acquisition of skills for further teaching. The obtained results confirm the advanced hypotheses, thereby proving the effectiveness of the use of project method for teaching students — future (foreign and native) language teachers. Prospects for further research may be comparing the use of project method with other pedagogical practices, determining the influence of different contents of the curriculum using project method for students studying different academic subjects.

Key words: language teachers, students, training.

Resumen

La evolución de las tecnologías y el desarrollo dinámico actual del sistema educativo requieren la búsqueda de herramientas de aprendizaje efectivas que contribuyan a la adquisición de conocimientos utilizando las tecnologías y la capacidad de utilizarlas para la enseñanza futura. El objetivo de la investigación es estudiar el impacto del uso del método de proyectos en la formación de futuros profesores de filología. En el estudio participaron 398 estudiantes de tercer año. Los estudiantes estudiaron el idioma ucraniano ($n = 132$), inglés ($n = 129$) y francés ($n = 137$). Un total de 15 docentes con título de doctorado y al menos 7 años de experiencia docente participaron en el estudio para desarrollar temas de proyectos utilizados durante la formación. Los profesores desarrollaron 10 temas para los proyectos que los estudiantes que estudian su lengua materna (ucraniano) y extranjera (inglés y francés) realizaron durante el año académico. Se utilizó una encuesta por cuestionario para determinar la eficacia del método del proyecto. Se plantearon ocho hipótesis sobre la eficacia del método de proyectos para el aprendizaje de idiomas y la adquisición de habilidades para la enseñanza posterior. Los resultados obtenidos confirman las hipótesis avanzadas, demostrando así la eficacia del uso del método de proyectos para la enseñanza de los estudiantes, futuros profesores de lenguas (extranjeras y nativas). Las perspectivas para futuras investigaciones pueden ser comparar el uso del método de proyectos con otras prácticas pedagógicas, determinando la influencia de diferentes contenidos del plan de estudios utilizando el método de proyectos para estudiantes que estudian diferentes materias académicas.

Palabras clave: estudiantes, formación, profesores de idiomas.

1. Introduction

The dynamic system of modern education requires a combination of traditional learning approaches with new technologies. The availability of information on the network necessitates the development of students' critical thinking, information analysis, the ability to create personalized projects, and other skills. It is important for future philology teachers to learn specific skills and abilities, which leads to the rapid development of translation technologies using artificial intelligence (AI), which helps in learning languages, but does not replace the skills and influence of a teacher. Future teachers need to have the skills to navigate the technology-enabled language learning landscape. Philology, as a subject deeply rooted in linguistics, represents a unique field in which these technological innovations can be applied to improve the educational process for teachers and students. One of the directions for improving the pedagogical process of training future philology teachers is the use of project-based learning.

Project-based learning consists of student-centered learning that is organized on the basis of project implementation. The acquisition of new skills and the content of the educational material occurs through a project that students complete in groups (Guo et al., 2020). In other words, project-based learning is based on joint research, during which students apply their knowledge and skills, working together to solve complex problems (Markula & Aksela, 2022). Along with the influence on the knowledge of the language and the study of its features, professional teaching skills are formed in future philology teachers through the use of project method. This method allows students to actively interact with problems and challenges,

provides opportunities for a creative approach to learning. Future teachers need to develop organizational abilities to use different educational technologies with students of different ages, in schools of different levels. Therefore, the use of project method can transform future teacher training programmes, providing ideas for language learning in the modern world, including the use of information technology (Berkeshchuk et al., 2020; Valyukevych et al., 2021).

Many researchers from different subjects proved the effectiveness of the project method. However, the conducted research in the field of training future philology teachers is insufficient. Taking this into account, *the aim* of the research is to study the impact of using project method for training future philology teachers. It is planned to study the effectiveness of various tools and platforms of project method for philologists who will teach Ukrainian, French and English languages. It is planned to study pedagogical strategies that maximize the impact of using project method.

The following hypotheses were advanced in the study:

1. Project-based learning has a positive effect on student learning outcomes;
2. Project-based learning has a positive impact on the effect of training;
3. Project implementation of has a positive effect on the use of interactive technologies for education;
4. Project implementation has a positive effect on the students' involvement in learning;
5. Project implementation has a positive effect on the students' behaviour during their studies;
6. Joint learning during projects has a positive effect on teaching;
7. Project-based learning has a positive effect on future teachers; confidence in language skills;
8. Project-based learning has a positive effect on language teaching skills (in this study, on teaching preschool and primary school children);
9. Learning outcomes resulting from the use of project method have a positive effect on future teaching skills.

2. Literature review

An analysis of recent publications shows an increased interest in the implementation of project method as an effective means of developing the necessary skills in students (Liu et al., 2019). The use of project method allows enriching the educational process, developing students' creative and practical skills. At the same time, the authors emphasize the need to carefully study the impact of the use of project-based learning in each case, taking into account the sample of students, the field of study, and other factors. Previous studies show that the use of project method can contribute to the enhancement of students' learning motivation, the expansion of their worldview, and the development of critical thinking (Shpeizer, 2019). The integration of project method has the potential to increase the effectiveness of educational work in a group, provides an opportunity to gain practical experience that goes beyond the scope of traditional language learning. Project-based learning allows students to gain unique practical experience, to bridge the gap between theory and practice, using the acquired knowledge in real situations and contexts.

Conducted research on the use of project method for language learning shows that a proper selection of project topics, matching the interests of students and the support of teachers contribute to quality language learning, understanding of its aspects and the quality of education in general (Lushchik et al., 2022). The use of the author's approach to the creation of an educational course, the high-quality rather than chaotic use of technologies for learning contributes to the rapid completion of the tasks set before students, and they better learn to use new interactive tools (Biletska et al., 2021). The impact on the motivational sphere of students' learning through the creation of a pleasant, interactive and interesting environment facilitates the acquisition of knowledge and language skills. In particular, Zhyhadlo (2022) proved the effectiveness of using gamified resources for language learning.

Reshetnyak (2017) recommends using information and communication technologies for project implementation by students in order to optimize the learning process, make it interesting and creative. This encourages the development of students' cognitive abilities, the ability to find ways to solve problems with the help of various types of activities. At the same time, it is necessary to use digital technologies qualitatively so that they contribute to the development of the necessary skills and not hinder it as a distracting factor (Haleem et al., 2022). The use of project method in education also eliminates distractions and promotes focus on active student learning, as students need to develop, plan and execute an extended project (Yuliansyah & Ayu, 2021). The development of technologies and applications, artificial intelligence has affected all aspects of life. Learning in a virtual environment using digital applications significantly optimize the language learning process, encourages dialogue between students and teachers, and promotes the acquisition of new skills and abilities (Biletska et al., 2021). It is necessary to choose appropriate applications and interactive programmes for students for the quality use of technology taking into account their major, the subject for which the technology is used, and other aspects (García-Martínez et al., 2019).

Other specialists point to the use of project-based learning as one of the most influential methods in translation pedagogy, which promotes the development of students' translation skills and provides an opportunity to gain real practical experience. Hastürkoğlu & Bayraktar (2020) proved that the use of project-based learning had a positive effect on the development of students' metacognitive knowledge and skills, necessary for translators who are aware of their cognitive abilities. Zinchenko et al. (2021) also proved the effectiveness of using project method in the training of philology teachers for deepening their understanding of linguistic concepts and translation theory. This approach improves the students' research skills, promotes the development of communication skills in the training of philologists. Ivanova & Vinogradova (2020) proposed the trajectory of the integration of project method into various types of educational activities, as well as proposed the design of project implementation in the educational process of bachelor students' training.

The results of previous studies (Simonson et al., 2022) prove that project method is an effective tool for training philology teachers with the right approach and creation of the educational plan. This will contribute to the acquisition of appropriate teacher training qualifications, which is the task of higher education institutions. At the same time, it is necessary to further study aspects of the use of project method for teaching students of different majors, exclusion of negative effects and high-quality use of technology to improve the effectiveness of student learning. Therefore, the use of project method in the training of philology teachers is a relevant direction of research that needs further improvement and systematization.

3. Methods

Research design

This study was conducted using a quantitative method. The impact of the use of project-based learning in the training of philology teachers in the study of the Ukrainian (native), French and English languages was studied. The research participants will be divided into experimental groups that studied different languages using project method, and control groups that studied using traditional methods.

Participants

The study involved students of V.I. Vernadsky Taurida National University, Academician Stepan Demianchuk International University of Economics and Humanities, and Sumy State University. The study involved a total of 398 third-year students. Students who studied Ukrainian (native) language — $n = 132$, English — $n = 129$, French — $n = 137$. A total of 15 teachers with a PhD degree and teaching experience of more than 7 years were involved to develop the topics of the projects used during training.

Experimental factor

The experimental groups studied during one semester using project method, which consisted in the joint use of language learning applications, execution of joint online projects, participation in online conferences, offline meetings and project discussions. The project topics are presented in more detail in the results. The control groups studied using traditional teaching methods.

Research methods

To check the effectiveness of the use of project method in the training of philology teachers, a questionnaire was used to assess the effectiveness of the use of learning technologies, adapted from the one proposed by Lai et al. (2022). The questionnaire contained 28 items rated on a five-point Likert scale from 1 - completely disagree to 5 - completely agree. The questionnaire is used to evaluate 8 dimensions of the impact of the use of a certain technology on the educational process. A subsection called Further Teaching Skills was also added to the adapted questionnaire, the questions of which make it possible to assess the impact of the use of project method on the development of relevant students' skills. All questions were presented randomly to prevent biased answers. The survey was conducted using the Qualtrics online platform.

Data processing

The data were processed using SPSS Statistics. The statistical values of the average indicators of the evaluation of the quality of the use of project method for students - future philology teachers, the relationships between aspects of learning were calculated, and the Cronbach's alpha consistency coefficient was calculated to assess the validity of the questionnaire.

Ethics

The research was conducted in compliance with ethical standards, ensuring informed consent for participation in the experiment, confidentiality of survey data and publication of survey results with observance of data anonymity. Ethical approval from the Institutional Supervisory Board was obtained to conduct the experiment.

The limitations are the choice of specific topics for the creation of projects, the selection of participants from one country (Ukraine), the evaluation of the impact of the use of project method on the study of three languages — native Ukrainian, foreign French and English. Further research could examine the longer-term impact of using project-based learning for other languages, over a longer or shorter period of time, and take into account additional variables such as students' learning motivation.

4. Results and discussion

The discussion between teachers regarding the choice of topics for project implementation, the specifics of the use of technologies for their implementation, the deadlines and the number of participants in the groups, gave grounds to determine the following project topics:

1. Literary project "Creating an overview of literary works". Students choose certain literary works, reread and make a short review from this work (minimum 1 - maximum 2 pages of A4 format, single-spaced, 12 font).
2. Linguistic project "Etymology and modern language"

Students are tasked with researching the origins and development of words to understand linguistic aspects. Each student studies the etymology of selected words, researches their use in modern language, developing a team presentation or publication.

3. Theatrical evening "Classical works on stage".

The students choose an episode from a classic work written in the language they are studying and create a theatrical scene with actors. Results are presented to teachers and other students.

4. Research "The influence of speech features on the perception of the speaker". The students analyse language-specific presentations on the TED platform, including native and non-native (accented) speakers, studying specific pronunciation features and audience impact. The research results are presented in the form of an analytical article.
5. Creation of a digital textbook for preschool and primary school students. Students jointly create a digital textbook for preschool and primary school children taking into account the specifics of children's development at this age, the specifics of presenting educational material, using game exercises, video lessons, songs for listening, drawing in the textbook for teaching writing, transcription of words and others features.
6. Literary club

Students choose a certain work in the language they are studying, choose different chapters and read them, then discuss together and complement each other according to the chapters they read.

7. Speech trainer of a philology teacher. Students prepare short lessons for use in preschool and elementary school aimed at learning the basics of language (alphabet, basic words, phrases, and sentences). Lessons should include elements of game, activation of attention and memorization. Lessons are presented with other groups of students.
8. Grammar guide. Students choose a grammar topic (such as tenses or constructions with prepositions) and create a step-by-step guide to explain that topic with exercises and practical examples. Then a group of students presents their designed guides to other groups.
9. Film review. Students watch a film or series in the language they are studying and write a short review identifying new interesting constructions and grammatical concepts.
10. Grammatical challenge. Groups of students develop tasks to learn the grammar of the language through a game, which is then played in another group of students. The tasks of the game can be to create more sentences using different tenses within a certain time limit, or to find the largest number of synonyms for a certain word (pre-selected words with a large number of synonyms).

Descriptive statistics

After two academic semesters with the use of project method, that is, the implementation of 10 projects, students evaluated the impact of the use of projects on various aspects of language learning, and on the development of teaching skills. The results of the survey allow us to state that the vast majority of students who completed a language learning course using project-based learning highly rated the positive impact on various aspects of learning, in particular, on the results of language learning (Figure 1):

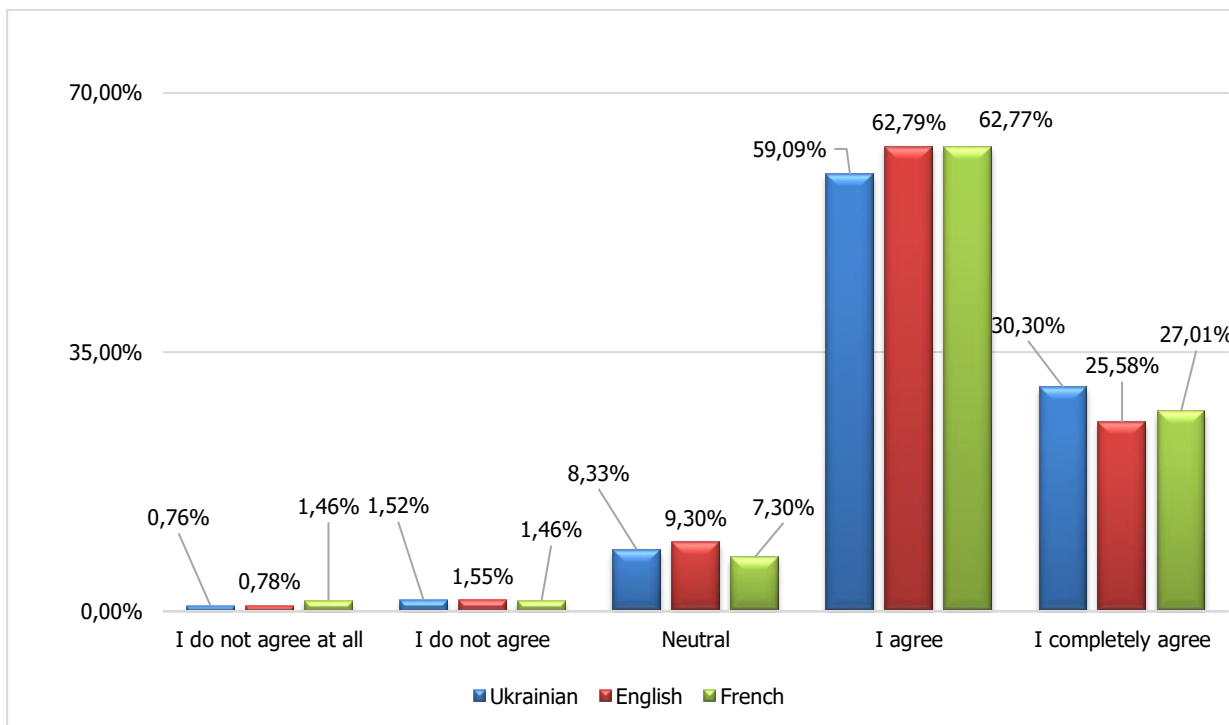


Figure 1. Results of a survey of the impact of project-based learning on students' learning outcomes.

Similar results were obtained from the analysis of the assessment of other scales that characterized aspects of language learning. In particular, the impact of project implementation on the learning effect, active learning of students, the design of the educational process, and the use of information and communication technologies were highly rated (Figure 2).

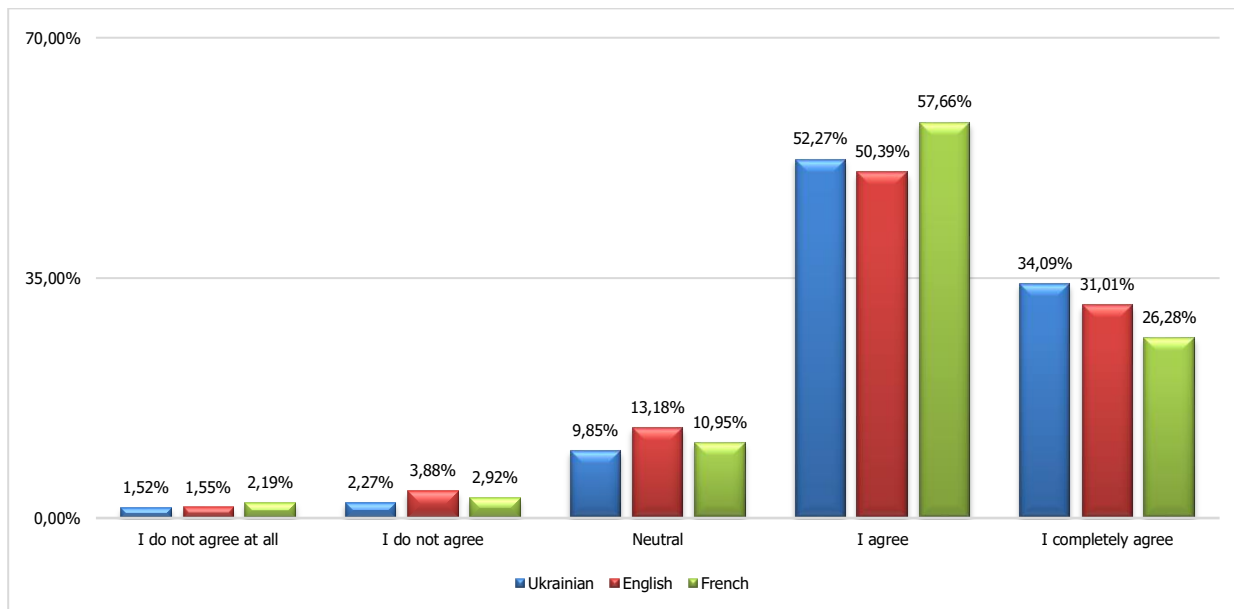


Figure 2. Results of a survey of the impact of project-based learning on the ability to use information and communication technologies for language learning.

Students also positively assessed the impact of project implementation on such aspects as the quality of teaching during study, their own involvement and participation in joint learning, and what is especially important for future language teachers – on Further Teaching Skills.

A corresponding check was carried out to confirm the invalidity of the questionnaire after the introduction of the author's sub-scale Further Teaching Skills. The results are presented in Table 1.

Table 1.
Checking the reliability of the model

Dimensions	Average obtained variance	Reliability of the composite	Cronbach's alpha
Learning outcomes	.601	.912	.875
Learning effect	.632	.922	.869
Behaviour	.611	.921	.893
Design	.638	.911	.901
Technology	.641	.899	.826
Teaching/pedagogy	.642	.932	.873
Presence/community	.652	.903	.903
Skills for future teaching	.676	.935	.887

The Cronbach's alpha exceeds 0.700, meaning that the developed questionnaire for evaluating the effectiveness of the project method for training future philology teachers is a reliable and valid tool.

The advanced hypotheses regarding the positive impact of the use of project method on students' learning outcomes were tested. The obtained results are presented in Table 2.

Table 2.
Testing of the advanced hypotheses

Independent dimensions	Dependent	Rate	SE	t value	p	Result
Project-based learning	Learning outcomes	.325	.029	8.232	<.0.05	Confirmed
	Learning effect	.426	.032	6.589	<.0.05	Confirmed
	Behaviour	.361	.036	7.365	<.0.05	Confirmed
	Technology	.415	.034	6.586	<.0.05	Confirmed
	Teaching/pedagogy	.358	.325	7.235	<.0.05	Confirmed
	Presence/community	.326	.360	6.965	<.0.05	Confirmed
	Further teaching skills	.422	.312	7.326	<.0.05	Confirmed
Learning outcomes	Further teaching skills	.431	.320	6.325	<.0.05	Confirmed

Table 2 shows that the obtained results demonstrate a significant relationship between the use of project method and learning outcomes ($\beta=.325$, $t=8.232$, $p<.0.05$), which confirms a strong and significant correlation for the proposed first research hypothesis. In other words, all respondents who took part in the implementation of projects assessed its positive impact on the results of language learning as a whole. The next result, the impact of project-based learning on efficiency, also shows a positive and significant correlation ($\beta=.426$, $t=6.589$, $p<.0.05$). This means that project-based learning has a positive effect on the effectiveness of foreign (French, English) and native language learning.

The next hypothesis was also confirmed: the positive impact of project method on student behaviour during studies ($\beta=.361$, $t=7.365$, $p<.0.05$). Design technology has a positive effect on the study of the features of using technologies for language learning ($\beta=.415$, $t=6.586$, $p<.0.05$). Students highly rated the impact of using project method during language learning on the overall teaching process ($\beta=.358$, $t=7.235$,

$p < .05$), involvement in learning, and cooperation in the community ($\beta = .326$, $t = 6.965$, $p < .05$). And a special effect of using project method in the training of future philology teachers is that, in addition to learning the language, they believe that it helped them to better understand and improve their ability to teach language to children in future pedagogical activities ($\beta = .422$, $t = 7.326$, $p < .05$). A positive significant correlation was also found between how students evaluated their language learning and acquired skills for teaching children using project method ($\beta = .431$, $t = 6.325$, $p < .05$).

The obtained results give grounds to assert that the use of project method has a positive effect on the results of language learning by students, provides them with valuable practical experience of spoken language and the analysis of its various aspects (dialects, origins and different meanings of words, etc.). The use of project method has a positive effect on relations with teachers and students, because students are active participants in learning, searching for the necessary information, and not just simply learning it from the teacher. The results show that the implementation of projects makes the educational process more dynamic, interactive, and interesting for students.

A positive impact on students' learning motivation is caused by the opportunity to freely express their opinion and study certain phenomena. Participants expressed increased enthusiasm during learning, the use of interactive technologies and active participation in learning contributes to a better understanding of linguistic aspects.

The conducted research shows an unambiguously positive effect of the use of project method for the formation of the necessary skills for future language teachers. The significance of the use of project method is in the improvement of students' language training, as well as in the acquisition of the necessary skills for teaching in the future. Project method is one of the optimal approaches to the preparation of highly qualified philology teachers. Training of teachers with appropriate qualifications is currently one of the main tasks of higher educational institutions. Educators must know digital applications at a high level, and teach to use them not as a substitute for language knowledge, but as a supplement and optimization of language learning. Future teachers should develop this skills both to improve their own skills and those of their future students. The main goal of this research is to study the impact of using project method for training future philology teachers. For this purpose, the impact of the use of project method on various aspects of education was investigated, in particular, the impact on improving joint learning and collaboration, improving digital skills, information literacy, and future teaching skills. It is expected that students highly rated the impact of project implementation on the development of relevant skills.

The proposed approach — namely the developed topics of the projects and the conditions for their implementation, helped to enhance philology students' learning motivation, and to confirm the relationships between the hypotheses advanced in the research. So, the implementation of projects contributes to increasing involvement in learning, deepening the study of the subject, excluding the superficiality of learning. This is one of the indicators of the effectiveness of the proposed methods in the educational process, which, according to the results obtained by Granado-Alcon et al. (2020), positively correlates with students' educational performance. The project-based learning promotes involvement in learning, thereby contributing to a tendency to improve one's academic performance.

Knowledge of the features of certain methods, language and the ability to use these technologies is one of the predictors of success in future professional activities (Fallucchi et al., 2020). Mobile technologies for education need to be rationally used to engage students and enhance their learning opportunities (Bernacki et al., 2020). The main focus of this research is to study the impact of the proposed approach of project-based learning in the development of various aspects of learning, which increases student engagement in learning (Granado-Alcon et al., 2020). According to the obtained results, project-based learning helps students to navigate the challenges and complex situations of the daily work of future teachers, which

corresponds to the goal set in the work. Al-Busaidi & Al-Seyabi, (2021), Puspitasari (2020) drew conclusions about the same consequences of using project method in education.

The obtained results show that implementation of the projects contributes to the improvement of teachers' understanding, and has a potentially positive effect on the relationship between students and teachers. So, teachers can use project-based learning to improve educational content and promote learning by increasing active learning, independent information search, its systematization and generalization. The approach of project-oriented learning has a positive effect on the cooperation between the participants of the educational process, the training of digital skills, and increases the information literacy of philology students. This emphasizes the positive results associated with an organizational approach to the training of students — future language teachers — based on the implementation of project-based learning, which was previously noted by experts (Rodríguez-Peñarroja, 2022), and also contributes to the acquisition of skills necessary for future work (Musa et al., 2011; Konotop et al., 2022). Therefore, this study continues the previously obtained positive results of using project-based learning in school Chen & Yang (2019) to further use this technology with appropriate educational content and cognitive load on students. According to Žerovnik & Nančovska Šerbec (2021) for the successful implementation of project-based learning, teachers must adhere to the basic elements of project design – description of the problem or issue, allocating time to search for information, critique and revision through student-to-student feedback and teachers, and the publication of the results of the project implementation. By using these approaches, students benefit from a project-based learning by sharing information and thereby increasing their general awareness and proficiency in the language and related skills.

Moreover, the obtained results emphasize the integral role of project-based learning for students and teachers in the current conditions. This approach improves the learning environment and provides effective learning management. The interactive nature of the implementation of projects on different topics allows for the achievement of many academic goals and the improvement of relations between students (Belwal et al., 2020). According to the data obtained in the research, the implementation of the projects contributed to the improvement of the attitude of students — future language teachers — to pedagogical activities. Students better understand the sequence of presentation of educational material for themselves and for future students, understand the nuances of the necessary instructions for studying certain topics related to language knowledge. Furthermore, it contributes to the expansion of their abilities and skills for future pedagogical activities, the search for rational approaches to students with different levels of performance, and the explanation of educational topics of different complexity.

Students are highly encouraged to find innovative solutions, perform authentic tasks and projects, which promotes knowledge sharing, collaboration, and increasing the socio-emotional aspect of learning and acquiring a quality learning experience (Ghosheh et al., 2021; Venn-Wycherley et al., 2023). At the same time, further research into the long-term rather than one-time use of innovations in the education of philology teachers is needed (Potvin et al., 2021).

The conducted study found no reliable differences between the indicators of the impact assessment of the use of project method for the study and future teaching of the native (Ukrainian) and foreign languages — French and English. So, the implementation of the projects caused an increased effectiveness of learning native and foreign languages, and a deepening of the ability to teach these languages to preschool and primary school children in the future. All the advanced hypotheses of this study were confirmed with the help of statistical analysis, which proves the numerous advantages of using project method for learning native and foreign languages, acquiring relevant competencies with its use (Tseng & Yeh, 2019). The obtained results show the importance of using project method for educational institutions that prepare future philologists, using the previous high-quality training of teachers, developing the curriculum in accordance with the students' level of knowledge and skills. The use of project method during the study of native and foreign languages plays an important supporting role in acquiring the necessary competencies

for future language teachers, and teachers should use project-based learning, recognizing its effectiveness for enhancing learning motivation.

Prospects for further research

Further studies of the effectiveness of project method for language learning and the acquisition of professional competence skills for future philology teachers may focus on different project plans on learning outcomes, the features of communication with students during the implementation of projects, including online communication and traditional communication in the classroom, a comparison of the use of project technologies with other pedagogical approaches.

5. Conclusion

The use of project technology in the training of future philology teachers has great potential for acquiring a high level of language proficiency and forming the necessary skills for teaching in the future. The use of student-centered learning and the use of digital tools allows for the creation of an interactive and interesting learning environment that enables students to actively participate in language learning. The use of project technology effectively complements the curriculum of future philology teachers, as it provides an opportunity to develop critical and analytical thinking when creating projects, improve communication and collaboration skills between students, and improves communication between students and teachers.

The results of the analysis and testing of hypotheses indicate that the impact of the application of project method has a statistically significant impact on such aspects of learning as Learning Outcomes, Learning Effect, Behaviour, Technology, Teaching/Pedagogy, Presence/Community, and what is especially important — on the development further teaching skills. The majority of students who took part in the study fully agree with the statements that indicate the effectiveness of projects on these aspects of learning. Students showed greater interest in learning using project method, increased their activity and independence in the implementation of projects, and were active participants in the creation of projects.

Future research can be aimed at studying the use of project method by senior students, the implementation of projects that are even more aimed at the development of teaching skills in future philology teachers (creating educational materials or exercises for schoolchildren of different ages, studying certain aspects of educational material).

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