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European experience of dual education for future teachers in Ukraine

Європейський досвід дуальної освіти в Україні для майбутніх педагогів

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Abstract

The aim of the research is to determine the effectiveness of the European experience of dual education in Ukraine for future teachers. The aim was achieved through the use of comparison, SWOT analysis, calculation of selectivity factor, effectiveness, correlation index. The comparison of dual education systems in Germany, Austria, Switzerland, Poland was used to determine their impact on the effectiveness of education and employment. It was established that the experience of Germany is the most effective for acquiring the necessary practical skills ($f_c=14.2$). The dual system of Switzerland is the most favourable for employment (14.5), as it is aimed at adopting the practical experience of the most competitive institutions. It was established that the experience of Germany can be the most positive dual system for Ukrainian education ($f_c=14.4$) and Poland ($f_c=14.2$). SWOT analysis was applied to establish that the dual education system has greater advantages compared to traditional education. The practical significance of the research is the possibility of providing a dual system during the teachers'

Анотація

Мета роботи полягає у визначенні ефективності європейського досвіду дуальної освіти в Україні для майбутніх педагогів. Мету роботи стало можливим досягнути внаслідок використання методів порівняння, SWOT-аналізу, розрахунку коефіцієнтів вибірковості, результативності, індексу кореляції. За допомогою порівняння дуальних систем освіти у Німеччині, Австрії, Швейцарії, Польщі було визначено їхній вплив на ефективність для навчання, працевлаштування. Встановлено, що досвід Німеччини є найбільш ефективним для здобуття необхідних практичних навичок ($f_c=14,2$). Дуальна система Швейцарії є ж найбільш сприятливою для працевлаштування (14,5), оскільки направлена на перейняття практичного досвіду найбільш конкурентоспроможних установ. Встановлено, що найбільш позитивною дуальною системою для української освіти може бути досвід Німеччини ($f_c=14,4$) та Польщі ($f_c=14,2$). За допомогою SWOT-аналізу встановлено, що дуальна система навчання має більші переваги в порівнянні з традиційним навчанням.

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training as a result of focusing on the favourable experience of Germany and Poland. The prospects for further research may be related to the comparison of dual education experience of European countries, America for Ukraine.

Keywords: educational standards, English language, practical skills, preschool education, professional level, SWOT analysis.

Introduction

Achieving a high professional level is one of the main tasks of modern education. The development of practical skills is given the greatest attention, as it allows to ensure all the necessary educational processes. A developed form of education is the interaction of students directly with employers, which motivates students to obtain a higher level of practical experience. Therefore, the relevance of the research is the increasing popularity of dual education.

Dual education is a type of education that provides for the study of theoretical information during classes, and the practical consolidation of knowledge in the classroom (Juan Rubio & García Conesa, 2018). It should be taken into account that practical classes do not only involve training practical skills in the dual system. And they are related to their real study as a result of the training of other students by students studying to become future teachers. The dual approach for future teachers helps to understand all educational approaches, methods of presenting material, assessment of students' knowledge, etc (Konotop et al., 2021). The dual approach allows for a higher rate of student employment than during the traditional education system (Hu et al., 2022; Varela-Losada et al., 2022). Dual education allows for the training of competitive specialists who are able to perform professional tasks (Salas-Velasco, 2022).

The dual form of education was first used in Germany in the 70's of the 20th century (Rustico et al., 2020). Later, dual education was spread in other European countries (Switzerland, France, Great Britain, Austria). The European experience of this education system involves the creation of specialized educational centres aimed at acquiring a high level of practical knowledge (Rustico et al., 2020). A common approach of dual education in Europe is to study theory during offline classes for three months. The

Практичне значення роботи полягає у можливості забезпечення дуальної системи під час підготовки викладачів внаслідок орієнтації на сприятливий досвід Німеччини, Польщі. Перспективи дослідження можуть бути пов'язані із порівнянням досвіду дуальної освіти європейських країн та Америки для України.

Ключові слова: англійська мова, дошкільна освіта, освітні стандарти, практичні навички, професійний рівень, SWOT-аналіз.

practical skills are acquired directly in the field, in the organization. The approach aims to earn wages by students together with employees (Wibowo et al., 2022). Another approach is also common, which involves taking the first course of training directly in organizations to acquire practical skills (Brankovic & Cantwell, 2022; Rott et al., 2022). After acquiring practical skills, the study of theory begins in classrooms. This approach contributes to better memorization of the necessary information, as there is already a visual example, understanding of specific professional processes. Focusing on the dual system of education of European countries in Ukraine allows to reduce the difference between theory and practice. This directly reflects in the professionalism of future specialists (Pastore et al., 2022).

The purpose of the work is to study and generalize the effectiveness of the European experience of dual education in Ukraine for future teachers. The aim was achieved through the fulfilment of the following research objectives:

- conduct a comparative analysis of the dual education system in Germany, Austria, Switzerland, Poland and determine the most effective approach for education and employment;
- identify the experience of European countries most favourable for Ukraine for the introduction of dual education and determine the elements that will contribute to this the most;
- determine the level of theoretical and practical knowledge among future preschool teachers and foreign language teachers who studied according to the dual system or the traditional one;
- determine the level of children's satisfaction (preschoolers and fifth-graders) with classes conducted by students;

- determine advantages and disadvantages, opportunities and threats from the introduction of a dual education system and a traditional one in educational institutions.

Literature Review

Studying in higher education institutions (HEIs) contributes to the provision of a new paradigm in the sustainable development of an individual country. First, it is connected with the possibility of training future teachers who have a high level of professional skills. This affects the improvement of the learning efficiency of other students. The dual education system promotes practical training of future teachers under the daily impact of professional tasks, which promotes thinking development. This affects the expansion of students' knowledge and values based on the skills developed by future teachers (Bugallo-Rodríguez & Vega-Marcote, 2020). The effectiveness of learning a second language was influenced by new pedagogical approaches, in particular, the dual education system. This made it possible to ensure the use of innovative principles of teaching foreign languages as a result of focusing on one's own experience. Dual education has become one of the most popular pedagogical approaches, allowing for a dual vision of teaching opportunities (Rubio, & Conesa, 2023). The dual education system enables meeting the employers' expectations, which contributes to the training of highly qualified personnel. It is necessary to ensure the preparation of theoretical materials that meet the needs of basic qualifications in accordance with the employers' expectations during the development of the dual education system (Juhasz et al., 2022).

Dual education facilitates a complex interpretation system for acquiring high practical skills. In Italy, this approach allows for greater flexibility in developing professional skills. This approach ensures the demand for specialists with appropriate qualifications and promotes students' learning motivation. However, theoretical and practical material must be interconnected and meet the requirements of highly qualified activities (Pastore, 2019). The reform of higher education contributes to the diversity of the educational process, which also affects academic mobility. One of the directions of such an approach can be a dual system of education, which should be connected with preparing the curriculum. Also, by understanding the specifics of the professional direction, including the cultural nature, Standardization of the educational process should consist in

understanding the educational load for students' most effective perception of information (Cheng, 2018).

Professional training of future specialists can be implemented as a result of orientation towards a dual education system. The task of the dual education system is to eliminate the shortcomings of the traditional education system. Bridging the gap between theory and practice should also be ensured. The educational process should be interconnected with the main professional processes. For this purpose, the development of professional and social opportunities, the interaction of the legislative framework must be ensured. At the same time, monitoring of the process of development of students' practical skills should be ensured, which corresponds to updated educational standards (Kalenskyi et al., 2023). Improvement of the education system can be achieved due to the use of innovativeness and orientation to market mechanisms. A high level of organization of the educational process should be ensured, which will be aimed at meeting the students' needs and will provide for their autonomy. This approach will allow developing the leadership qualities of future teachers, which will be reflected in the competence and acquisition of practical skills (Balasi et al., 2023).

Dual education is a clear correlate of high-quality professional training and adjustment of the professional career of education recipients (Findeisen et al., 2023). The use of a dual model of practical professional-pedagogical training of the future specialist makes it possible to achieve a high level of practical skills for education seekers, to attract the best experience, to establish a balance between the educational needs of young people, the requirements of the labour market and educational opportunities. (Turchyn et al., 2022).

Scientific studies emphasize the effectiveness of dual education. However, this efficiency is considered when training workers, specialists in the production sphere. The experience of using dual education in the context of training future teachers remains overlooked. This necessitates a thorough analysis of the effectiveness of dual education for training specialists in pedagogical specialties.

A review of the existing literature identified the advantages of the dual education system, which were considered either in a separate country or in general. Therefore, the limitations and gaps of these studies are related to the lack of comparison

of the experience of the dual education system between different countries.

Methods

Research design

The first stage of the research involved the determination of the most developed system of dual education in European countries. The most influential countries with a developed system of dual education were selected for the study, which were determined on the basis of academic materials (Miller et al., 2022; Fassbender, 2022; Barraza & Rodríguez, 2023; Fan, 2023; Jacobs & Perez, 2023). The authors selected efficiency for education and efficiency for employment among the countries selected for the study (Germany, Austria, Switzerland, Poland). At the first stage of the research, it was also determined which country's dual education system could be introduced in Ukraine. This contributed to the definition of specific elements of the dual system of European countries that can be used in Ukraine.

The second stage of the study included a comparison of the traditional and dual education systems. The results were obtained for four groups of students, which made it possible to determine the level of theoretical and practical skills. The groups were distributed as follows:

- students of Groups 1 (preschool education) and 2 (English language) studied according to the dual system;
- students of Groups 3 (preschool education) and 4 (English language) studied according to the traditional system.

The dual system provided a mixed type of education, combined with the acquisition of practical skills in preschool and school institutions. Theoretical knowledge was acquired by students directly during offline classes. During the dual education system, students studied theoretical materials for 2 days and spent 3 days in other educational institutions. Students of Group 1 provided preparation and organization of classes for preschool children. It was necessary to provide students with education and entertainment. Students of Group 2 had to develop a curriculum for learning English for fifth-graders. In accordance with the developed programme, classes were to be held in looking for approaches to students' assimilation of the necessary information, excluding the uniformity of presentation.

The traditional education system for students of Groups 3 and 4 provided for offline classes during the research period only. The training involved lectures and practical work with the completion of various assignments, the construction of situational models. During the traditional education system, practical classes in other educational institutions were excluded. It was intended to provide education for preschool children and fifth-graders to learn English.

The training took place during 3 months (March 2023 - May 2023), after which it was possible to determine the level of theoretical and practical skills.

The third stage of the study involved determining the schoolchildren's satisfaction with teaching by students of Groups 1 and 2. The schoolchildren who determined the level of satisfaction with the presentation of information by students were represented by preschoolers and fifth-graders who studied English. The education of preschoolers involved comprehensive development of personality. At the third stage of the research, the authors of the article identified strengths, weaknesses, as well as opportunities and threats of various education systems. A dual system and a traditional training system were selected for comparison by using a SWOT analysis (Li et al., 2022).

Sampling

The conditions of the study were to include several groups of respondents to understand the advantages of the dual education system. The research involved a total of 256 students who were studying to become future preschool teachers and English language teachers. The sample was formed based on the restrictions on the year of study of students. It was intended to involve first-year students for the study. Since they have already familiarized themselves with the system of education in educational institutions, but do not have sufficient professional knowledge to ensure teaching activities. Students studied at Kyiv National University of Technology and Design (the Department of Philology and Translation), Berdiansk State Pedagogical University (the Department of Preschool Education). The students were randomly divided into 4 groups. The students were distributed using the Random Number Generator application separately among future preschool teachers and English teachers. Group 1 included 64 students who were studying to be future preschool teachers, but acquired skills with the help of a dual education system.

Students of Group 3 (64 people) obtained the same specialization, but were trained using the traditional system. Students of Group 2 were trained as future English teachers using a dual education system. The students of Group 4 obtained the appropriate specialization but were trained according to the traditional system. The study also involved 150 preschoolers and 170 fifth-graders who were learning English. All participants studied for 5 days a week according to the approved training system.

Methodology

The study covered 256 students, 150 children of preschool age, 170 students in the fifth grade. Students are students of pedagogical specialties (preschool education, foreign language).

The authors first used a general theoretical comparison method to determine the advantages of dual education systems in European countries. The features of dual education in Germany, Austria, Switzerland, and Poland were studied for comparison. Understanding these features makes it possible to use the experience of European countries in the dual education system of Ukraine. The selection coefficient was calculated after establishing the features of the dual education system in five countries. The coefficient made it possible to assess the overall importance of the dual education system, as well as the possibilities of its use in the Ukrainian higher education system. The formula was proposed by the authors of the article.

$$f_c = \frac{p_t + x_p + h_{term}}{y_{max}} \times d \quad (1)$$

y_{max} – overall effectiveness of the dual education system of a particular country;

p_t – the efficiency of the dual education system for acquiring theoretical skills;

x_p – the efficiency of the dual education system for the development of practical skills;

h_{term} – an indicator of the possibility of achieving the required level of knowledge in the specified terms of study;

d – a coefficient that indicates the possibility of employment after dual education (it can be equal to 0.01 to 0.2, where 0.2 is the maximum value).

Determining the level of theoretical and practical skills of students of four groups involved calculations of the effectiveness ratio. The coefficient was developed by the authors of the article to determine the level of acquired knowledge of the corresponding group.

$$k_r = \frac{\sum u_{t/p} + \sum d_{t/p}}{m(m-1)}, \quad (2)$$

$u_{t/p}$ – a score for acquired theoretical/practical knowledge;

$d_{t/p}$ – assessment for the possibility of using the obtained theoretical/practical knowledge to solve non-standard problems;

m – the total number of participants in one group.

A high level was achieved if the calculated value ranged within 0.68 — 0.8; average level — 0.50 - 0.65; low level — below 0.49.

The level of schoolchildren's satisfaction in education was determined among preschoolers and fifth-graders. A questionnaire survey was conducted among them to determine the quality of classes held by students of Groups 1 and 2. The students of Groups 1 and 2 were selected for the study, who studied according to the dual education system and conducted practical classes. The survey was conducted in written form under the parents' supervision. The schoolchildren should have determined the level of satisfaction with learning as a result of the division into high, medium, and low levels. The use of e-mail enabled data collection, which eliminated errors in schoolchildren's responses. The survey took place for 4 hours and additionally included a brief description of the advantages and disadvantages of such training.

The SWOT analysis used to compare the dual and traditional education system provided for a well-founded determination of the strengths and weaknesses of different education systems. It was also intended to identify the threats and opportunities that could arise from providing such a training approach. SWOT analysis is a method that takes into account the opinion of one party, which is based on confirmed values, but excludes mathematical calculations. The SWOT analysis was focused on the established features of the experience of dual education in different European countries.

Data analysis

Data analysis included the possibility of conducting additional statistical calculations aimed at eliminating possible errors. The correlation index was calculated in the work (Juan Rubio & García Conesa, 2018). The correlation index indicates the degree of correspondence of established factors that have equivalent initial conditions. Calculating the correlation index allows for greater correctness of the presented calculation data due to the

availability of stable indicators for calculation. The correlation index was calculated to confirm the obtained data on the importance of dual education in different countries and also to compare the effectiveness of the traditional and dual education system between different student groups. The correlation index was also used to compare schoolchildren's satisfaction with learning.

$$J_r = \sqrt{1 - \frac{(y_i - \hat{y}_i)^2}{(y_i - \bar{y}_i)^2}}, \quad (3)$$

y_i – dynamic indicators for calculation;
 \hat{y}_i – the average value of indicators for comparison;
 \bar{y}_i – a theoretical estimate of the most significant indicators.

Ethical criteria

Ethical regulations were followed in accordance with the Guidelines for Research Ethics

Table 1.

Comparative analysis of the effectiveness of the dual system of European countries for education and for employment

Country	Effectiveness for learning	Effectiveness for employment	Correlation index
Germany	14.2	14.1	0.080
Austria	13.9	14.0	0.083
Switzerland	13.1	14.5	0.948
Poland	13.3	13.6	0.074

The experience of Germany in the dual education system involves the interaction of theoretical information with practical classes as a result of the preliminary study of theoretical information. This is confirmed directly and in the place of delivering practical classes during the training of other students. This approach is aimed at ensuring a high level of responsibility of institutions for carrying out the practical part of assignments. Dual education is aimed at the inseparable interaction of educational and practical spheres.

The Austrian system of dual education provides for giving preference to practical training directly in the institution for 4 years. This involves establishing an agreement between the educational institution and another institution in which the student will acquire practical skills. After the end of the agreement, it is planned to ensure admission to an educational institution or search for a new job. Education according to the dual system includes more than 200 areas of training. In Austria, individual, double, group training can be provided under the dual system.

(The Norwegian National Committee for Research Ethics in Science and Technology, 2016). Ethical regulations provided for equality of conditions for all research participants. The voluntary participation of respondents in the study was ensured. The authors confirm that they received written consent for the participation of students of Groups 1, 2, 3, 4. Permits to participate in the study of preschoolers and fifth-graders will also be obtained.

Results

The dual system in different European countries has its own features, which were introduced in it and contributed to the acquisition of professional knowledge. A comparison was made between Germany, Austria, Switzerland, and Poland to determine the country that promotes the most effective process of providing a dual education system. The results were obtained through the use of the selectivity factor (Table 1).

At the same time, 20% of training takes place directly in the educational institution and 80% is allocated to practical classes.

Switzerland adheres to three principles for the development of practical skills — knowledge, understanding, action. This is related to the combination of European aspects of the dual system and our own. During training, students are offered modern theoretical materials that correspond to the existing labour market. This approach enables providing serious professional training, which contributes to employment in different companies.

In Poland, practical training is provided, which was proposed by the employer based on the theoretical material that was studied in the education system. The Polish system of dual education provides for 3 years of study, which is aimed at the study of theoretical material and its further consolidation in the relevant organization. The most common system is the ratio of 3 days of practical classes with 2 days of training in educational institutions.

Further, the work provided for determining which country's experience is the most favourable for Ukrainian education. The results

were obtained through calculations of the selectivity factor (Figure 1).

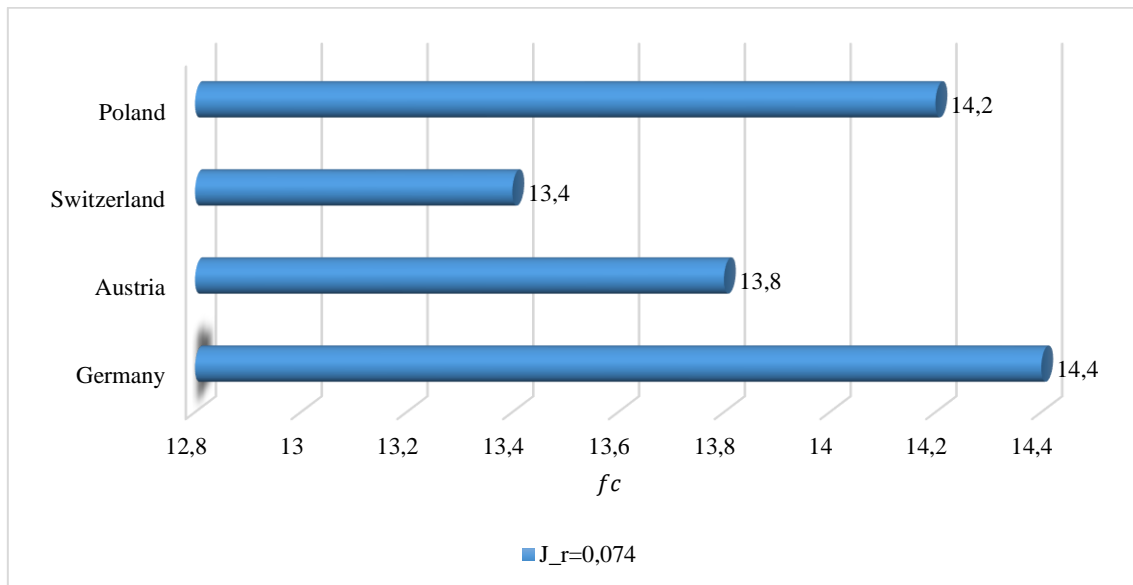


Figure 1. The experience of dual education in European countries which is the most favourable for Ukrainian education.

The results of the study revealed that the experience of Germany is the most favourable dual system for adaptation in Ukraine. This is due to the maximum combination of theoretical and practical material, which ensures training directly during the training of other students. Training can take several forms. The first provides an opportunity for training with partner companies, which helps to take into account the need to create additional training and laboratory classes. training can also take place under a contract, which involves the provision of necessary services for conducting practical classes outside the main educational institution. Based on the experience of Germany, it is possible to develop regulatory provisions aimed at the implementation of a dual education system.

The authors believe that the experience of Poland may be the second most important, as the learning process primarily consists in the study of theoretical material, which is the basis for understanding the specifics of educational qualifications. The Polish system also provides alternating studies at a university (academy) and conducting practical classes in the relevant organization. The experience of Austria will ensure the search for the most favourable conditions for the development of practical skills. Such an approach to dual education will ensure understanding of the processes of lesson organization, presentation of educational materials to students, etc.

The experience of Switzerland has the least importance of the dual world, which is connected with its high requirements. It is not always possible to provide the opportunity to teach in the most rated secondary education institutions. However, the advantage of the Swiss system is to ensure the study of the most up-to-date theoretical material that meets the needs of the labour market.

When focusing on the experience of European countries, the following elements can be included in the dual system of Ukraine (Figure 2).

Further, the dynamics of student learning will be determined using a comparison of the effectiveness of traditional and dual education. The results were obtained by calculating the effectiveness ratio (Table 2).

The results showed that students of Groups 1 and 2, who were taught using the dual system, gained a higher level of practical skills. This is related to the consolidation of theoretical material in practice. The results showed that Group 1 received a higher level of practical skills. This is related to the search for interesting approaches to delivering materials to students (using games, modern technologies). It was also related to the correctness of the material used and the approach to its presentation. The level of theoretical knowledge among the participants of Group 1 was lower than the acquired practical skills. This

is due to the understanding of the main educational processes, but the lack of a sufficient

number of offline classes aimed at understanding the theoretical material.

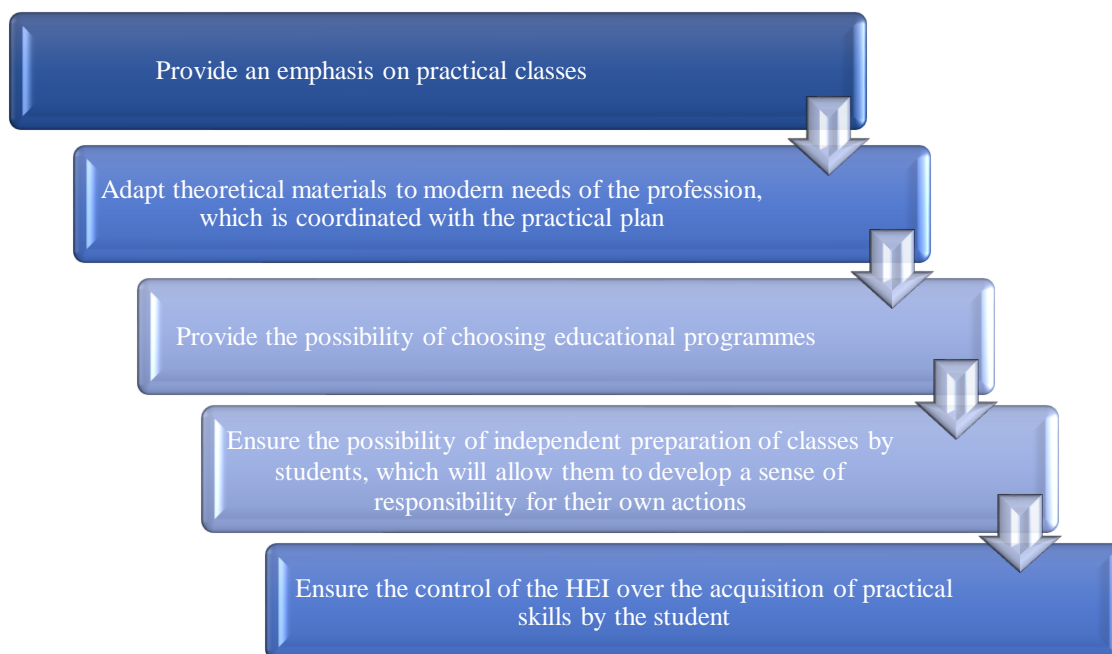


Figure 2. Elements of the dual system of European countries that can be used in Ukraine for future teachers.

Table 2.

Effectiveness of acquired theoretical and practical knowledge by different groups of students

Group number	Theoretical knowledge	Practical experience	Correlation index
Group 1	0.72	0.77	0.053
Group 2	0.74	0.73	0.067
Group 3	0.75	0.56	0.972
Group 4	0.71	0.61	0.085

It was established that the participants of Group 2, who studied to become English teachers, achieved almost the same level of theoretical and practical knowledge. The same results were associated with the consolidation of theoretical laws, which are applied in the English language, in practice. Students were able to achieve high results, because they followed the developed student training programme and systemically consolidated new words, rules and exceptions in practice.

Students of Group 3, who studied according to the traditional system to become future preschool teachers were able to achieve a high level of theoretical knowledge. Practical skills were achieved at a lower level. This is due to a detailed approach to the study of all theoretical aspects, knowledge testing, conducting seminars.

However, practical classes were connected with theoretical classes, which precluded the possibility of students conducting classes directly in educational institutions.

Equivalence of practical and theoretical skills was achieved in Group 4, which is associated with memorizing a large amount of information. However, during memorization, students did not always use a meaningful approach, which was reflected in the variation of the received information.

The quality of acquired practical skills in education was determined among the students of Group 1 and Group 2. For this purpose, the level of schoolchildren's satisfaction with education was determined by students of two groups (Figure 3).

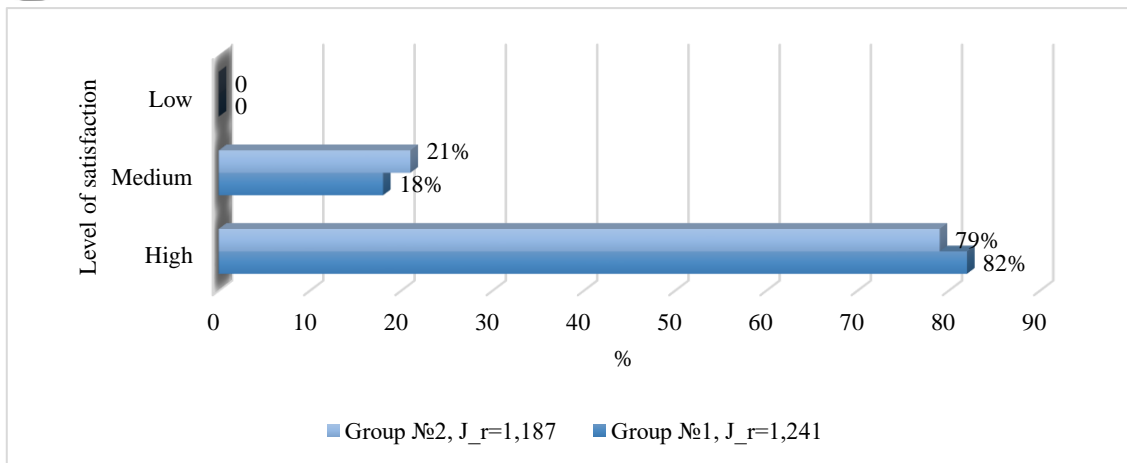


Figure 3. The level of schoolchildren's satisfaction with teaching by students of Groups 1 and 2

It was established that the highest level of schoolchildren's satisfaction is observed during teaching by students of Group 1. The teaching was game-based, which eliminated the difficulty in assimilating information. Students were able to provide a personal approach to the development of preschoolers during teaching. This ensured the development of spiritual values, to develop creative abilities. A slightly lower level of schoolchildren's satisfaction was observed during the teaching of English by

students of Group 2. The results are related to the difficulty of memorizing a large amount of information to master new words and language rules.

The final stage of the study provide for determining the advantages of the dual system and the traditional system of education. The comparison was made using SWOT analysis (Figures 4, 5).

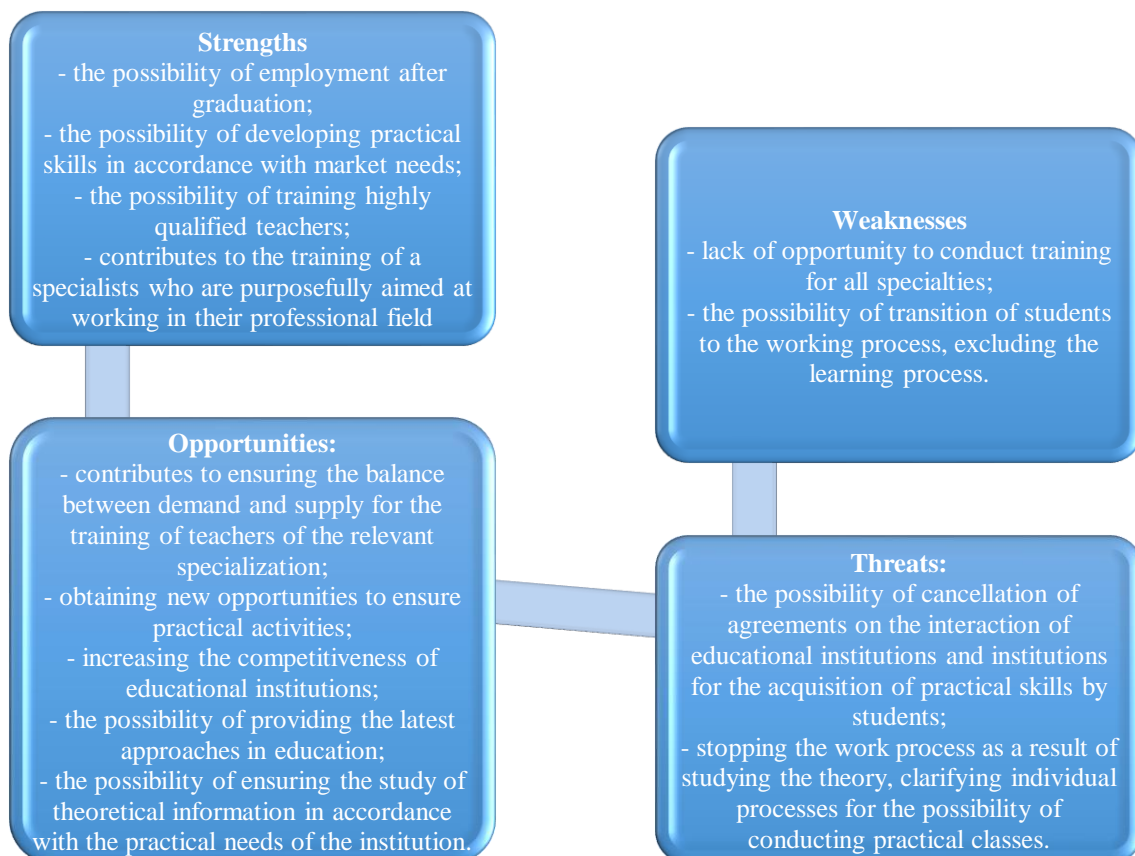


Figure 4. SWOT analysis of dual education systems

The SWOT analysis was followed by establishing that the dual system has more advantages and opportunities than the traditional system. The dual system helps to prepare a highly qualified specialist who is interested in

continuing to acquire professional skills after graduating from an educational institution. The dual system also allows training the necessary number of specialists for a particular institution.

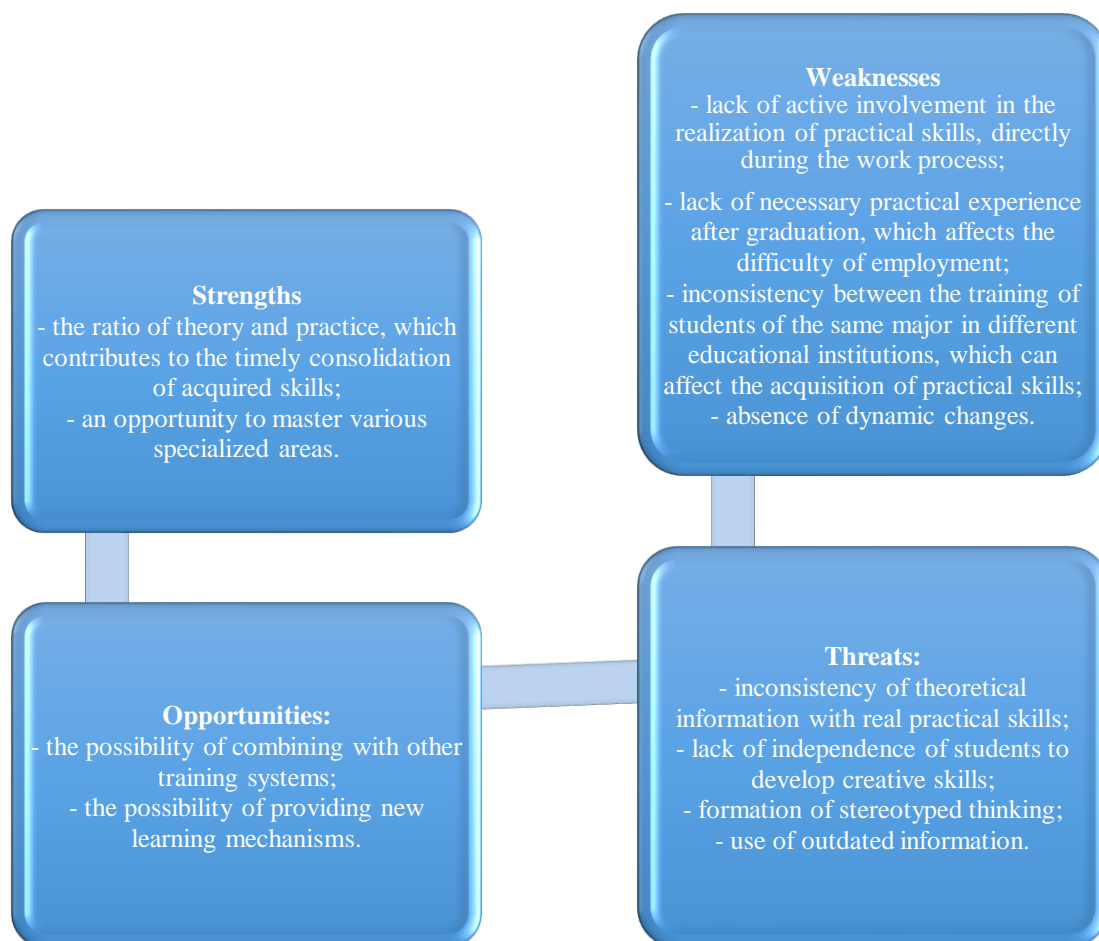


Figure 5. SWOT analysis of traditional education systems

Discussion

The dual education system should be based on theoretical, methodological, didactic principles. This will ensure the preparation of competitive specialists during the practical training of future preschool teachers. The experience of the EU countries reveals the opportunities for ensuring the innovation of education that meets social, pedagogical, and economic criteria. This approach affects the professional development of future teachers (Melnyk et al., 2019; Sheremet et al., 2021). Teaching in accordance with the dual system should include a reasonable examination of students' knowledge and providing feedback. During student training, the approach can be implemented by using special software. When writing works on the English language, the software will enable checking the correctness of the content and the sentences. This approach will

contribute to reducing the number of lexical errors and will facilitate the interaction of future teachers and computer technologies (Echitchi, 2019; Chacón-Beltrán, & Echitchi, 2022). The published works present the possibility of using innovative technologies for education. In this article, the emphasis is on determining the features of dual education in Germany, Austria, Switzerland, and Poland. The possibility of using their experience for training and employment is also determined.

Dual education makes it possible to meet the needs of students and ensure better success in higher education, as well as to develop practical skills according to the chosen specialization. Such an approach will also contribute to meeting market needs during graduate studies. The dual education system provides a mechanism of two-level attention. This is the result of the control of

teachers and managers allocated during the development of practical skills. At the same time, the organization of training should be thought out, pre-processed, which contributes to the improvement of professional activity. Dual education eliminates the gaps in the traditional education system and provides the relationship between theory and practice (Zhu, 2021). The reviewed studies omitted the aspects of the transformation of education using the dual system and teacher control. This study identified the level of effectiveness of dual education based on the practical and theoretical knowledge gained by students of different groups.

The dual education system promotes interaction between educational departments and professional institutions. Such a system of education provides real opportunities for professional activity and helps to identify problems to ensure students' learning, focusing on the acquired theoretical knowledge and the generation of creative skills. This affects the development of students' thinking and an in-depth approach to acquiring professional knowledge, which will be reflected in the avoidance of routine learning (Hu et al., 2020).

We determined the features of dual education in Germany, Austria, Switzerland, Poland, and considered the possibility of using their experience to train and employ Ukrainian students. The key research direction is the study of practical skills students acquire during dual education. We found that dual education improves the level of knowledge acquisition, acquisition of skills and abilities of future preschool education and foreign language teachers compared to traditional education.

The study's main limitation is that it covers students of only two specialties (preschool education, foreign language). In the future, it is expedient to study the influence of dual education on the quality of professional training of students of all pedagogical specialties.

Conclusions

The aim of the work was achieved, as a parallel was drawn between determining the effectiveness of dual and traditional education among students of different groups. The advantages of dual education were also determined using a SWOT analysis.

The comparison of dual education in European countries established that the experience of Germany (14.2) and Austria (13.9) have the

greatest importance for ensuring the educational process. In Germany, there is a strong interrelation between theoretical and practical knowledge, while in Austria there is an emphasis on practical skills, which provides 80% of training. For employment, the experience of the dual system of Switzerland has the greatest effectiveness (14.5), which ensures employment in the most developed companies. The study established that the experience of Germany (14.4) and Poland (14.2) is the most favourable for Ukraine to spread dual education. This is due to the correct distribution of theoretical and practical classes.

The authors found that the dual education system has higher opportunities for acquiring practical skills. These data were established as a result of comparing the acquired knowledge of students who studied according to the dual system of education and the traditional one. Therefore, the practical skills of students of Groups 1 (future preschool teachers) and 2 (future English teachers) were related to the direct conduct of classes in educational institutions. Theoretical knowledge was mastered the most by students of Group 3, who studied according to the traditional system to become future preschool teachers. It became possible to achieve this as a result of attending theoretical seminars.

It was established that schoolchildren for whom future teachers conducted classes were the most satisfied with students of Group 1. This is explained by the provision of a game-based approach to the education of preschool children. Conducting a SWOT analysis determined the possibilities of dual education, which consisted in increasing the competitiveness of educational institutions and future teachers during the job search.

The practical significance of the work is the possibility of determining the advantages of dual education in different European countries, which can be implemented in Ukrainian education as well. Prospects for research may be related to determining the effectiveness of the dual system of Europe and America.

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