







REVIEW

Improving the practical competence of students through educational and market cooperation

Mejorar la competencia práctica de los estudiantes a través de la cooperación educativa y con el mercado

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ABSTRACT

Introduction: the relevance of cooperation between educational institutions and employers in developing students' practical competence has gained prominence, supported by theories such as the dual education model and competence-based approaches. However, a significant gap remains concerning the practical relevance of education provided to students.

Method: this study adopted a qualitative methodology, employing the PRISMA approach for systematic literature review. Literature selection adhered to five strict inclusion criteria, limiting the review to English-language publications dated between 2019 and 2024. Ultimately, 36 sources were identified and analyzed.

Results: the analysis revealed a persistent problem of insufficient practical training relevance within modern education systems. Commonly utilized practices included implementing dual education models and engaging employers in curriculum development and teaching roles. Conversely, the establishment and functioning of career centers were less frequently highlighted in existing literature, despite evidence demonstrating their significant role in developing specific practical skills.

Conclusions: the findings underscored the critical importance of collaboration between educational institutions and employers for enhancing students' practical competence. Dual education and employer involvement emerged as prevalent practices, yet career centers require greater attention due to their potential for skill development. The study was limited by its exclusive focus on English-language sources and the stringent criteria inherent to the PRISMA methodology. Nevertheless, the research contributes valuable insights by systematically addressing the diverse mechanisms through which educational-employer cooperation positively impacts student competence development.

Keywords: Practical Skills; Modern Education; Stakeholders; Cooperation; Practice; Business.

RESUMEN

Introducción: la cooperación entre instituciones educativas y empleadores adquirió relevancia en investigaciones recientes orientadas al desarrollo de competencias prácticas en estudiantes. Modelos teóricos como la educación dual y el enfoque por competencias respaldaron esta importancia; no obstante, la formación práctica continuó presentando limitaciones significativas en términos de pertinencia.

Método: se aplicó una metodología cualitativa mediante una revisión sistemática bajo el protocolo PRISMA. La búsqueda bibliográfica se restringió a publicaciones en inglés, aparecidas entre los años 2019 y 2024, empleando cinco criterios estrictos para su selección, lo que resultó finalmente en la revisión de 36 estudios.

Resultados: los hallazgos evidenciaron una persistente desconexión entre la formación académica brindada en las instituciones educativas y las demandas concretas del mercado laboral. Las estrategias más frecuentes identificadas fueron la implementación del modelo dual y la participación activa de los empleadores en la creación curricular y en tareas docentes. Sin embargo, la presencia y función de los centros de orientación profesional fueron menos abordadas en la literatura revisada, pese a su relevancia demostrada para la adquisición de competencias específicas.

Conclusiones: se confirmó que una efectiva cooperación institucional con empleadores es clave para fortalecer las competencias prácticas estudiantiles. Aunque predominan el modelo dual y la colaboración empresarial directa, los centros de orientación profesional requieren mayor atención debido a su potencial formativo. Las limitaciones del estudio estuvieron relacionadas con el uso exclusivo de fuentes en inglés y los estrictos criterios del método PRISMA; sin embargo, se aportaron contribuciones significativas sobre la relevancia de esta cooperación educativa.

Palabras clave: Competencias Prácticas; Educación Moderna; Partes Interesadas; Cooperación; Práctica; Empresa.

INTRODUCTION

Given the trends in the current labor market, new requirements for young professionals are emerging, especially in terms of their level of practical training and professional skills. Thus, in the context of active transformational changes and the emergence of new innovations, employers expect new employees to have not only solid theoretical knowledge but also the ability to apply it in practice. For this reason, close cooperation between educational institutions and employers is important. As proven in the current scientific literature, the ongoing interaction between these two parties should be aimed at adapting modern curricula to the new requirements of the labor market.⁽¹⁾ In addition, it should also be aimed at organizing various practical internships that aim to improve the level of practical training of students.^(2,3) Thus, an important problem that needs to be studied and analyzed is the clarification of the role of cooperation between educational institutions and employers with a special emphasis on studying the possibilities of such cooperation in the context of the formation of practical competence. Thus, the analysis of the effectiveness of cooperation between educational institutions and employers is extremely relevant in the modern context, as it is directly related to current trends in the labor market.

This research problem is of great importance in the framework of the UN Sustainable Development Goals, in particular, Goal 4 - "Quality Education" and Goal 8 - "Decent Work and Economic Growth". In addition, cooperation between educational institutions and employers helps to increase the involvement of students in practical training and thus contributes to improving the quality of education. It can also support economic growth by training personnel capable of adapting to different labor market requirements. This research problem is particularly important given the fact that cooperation between educational institutions and employers contributes to the actualization of educational programs and their adaptation to the real needs of the labor market. This allows graduates to acquire knowledge and skills that are in demand by employers, bridging the gap between theoretical knowledge and practical skills. At the same time, one of the key problems in the modern labor market is unemployment among young people, which arises due to insufficient work experience and practical skills. Cooperation between educational institutions and employers with the help of various practices and internships will allow applicants to gain the necessary experience, which significantly increases their chances of successful employment. This, in turn, contributes to the achievement of UN Goal 8, i.e. ensuring full employment for all. It should also be taken into account that the practical competence of graduates is an important factor in the innovative activity of enterprises. Cooperation with employers will make it possible to integrate real business tasks into the educational process, which corresponds to Goal 4 of the UN aimed at ensuring inclusive and fair quality education. All these aspects contribute to the fact that the research problem is particularly important in the modern scientific discourse.

Therefore, this paper is aimed at analyzing the effectiveness of cooperation between educational institutions and employers in the formation of students' practical competence, which is directly correlated with the UN Sustainable Development Goals. In particular, this work correlates with SDG 4 "Quality Education". The results of the study can be used to develop recommendations for updating curricula taking into account the needs of employers. Therefore, this will contribute to the implementation of practice-oriented learning, the integration of dual education and the expansion of students' opportunities to gain real experience during their

studies. The work also correlates with SDG 8 “Decent work and economic growth”, since the study involves identifying models of interaction that ensure that students gain professional experience before graduation. This, in turn, increases their competitiveness in the labor market and contributes to reducing the level of youth unemployment. The implementation of such models in educational processes contributes to the creation of conditions for productive employment, which directly corresponds to the tasks of SDG 8.

Thus, the findings of the research can be practically applied to improve policies in the field of education and employment, which makes its contribution to the achievement of the specified UN Goals quite concrete and measurable.

Relevant Scholarship

Modern theories and approaches that emphasize the importance of forming cooperation between educational institutions and employers for practical competence include the dual education model and the competency-based approach, which are widely represented in scientific thought. It combines theoretical training in educational institutions with practical training in the workplace. This approach is innovative and effectively promotes the acquisition of professional skills for students.⁽⁴⁾ Within the competency-based approach, modern authors emphasize the development of specific competencies that students need to work in the labor market.⁽⁵⁾

Modern scholars have characterized various issues related to the cooperation between education and business. According to recent research, this area is particularly promising for the transformation of education and the development of practical competence.⁽⁶⁾ Besides, V. Bobrytska identified the peculiarities of stakeholder involvement in the system of educational legislation based on the study of the Ukrainian education system and the reforms that are taking place in it.⁽⁷⁾ The study by I. Borysiuk et al.⁽⁸⁾ confirmed the importance of internships for the training of modern medical professionals. C. Bratianu et al.⁽²⁾ emphasized the paradigm shift in modern education, in particular, the authors proved the importance of practical compensation. M. Cheng et al.⁽⁹⁾ identified the main employment opportunities for a modern student and characterized the role of stakeholders in supporting them. E. Jenkins et al.⁽¹⁰⁾ critically reviewed the literature on the impact of outreach programs on student support. An important area in contemporary research is the study of the impact of digital technologies on students’ practical competence.^(11,12,13) S. Kaldygozova characterized the role of mobile technologies in optimizing learning.⁽¹²⁾ N. Hrechanyk et al.⁽¹⁴⁾ characterized the features of the transformation of modern higher education in the global context. The authors emphasized the importance of its transformation in the face of global challenges. A. Krap et al.⁽¹⁵⁾ characterized the main digital achievements and their impact on modern methods and approaches in the learning management system. The theoretical foundations for the inclusion of stakeholders in the education system are presented in a critical study by T. Langrafe et al.⁽¹⁶⁾ Thus, modern scientists have characterized various aspects of the formation of practical competence of students, however, with the help of the latest innovative technologies. Modern works also contain various aspects of stakeholder engagement. However, this problem has not been comprehensively addressed. The authors of this article will try to address this gap and characterize the role of cooperation between educational institutions and employers in the formation of practical competence.

State Hypotheses and Their Correspondence to Research Design

Thus, the purpose of this article is to determine the role of cooperation between educational institutions and employers in the context of practical competence development. To this end, the following research tasks have been formulated:

1. Analysis of the transformation in the educational system through the prism of digitalization;
2. Consideration of the effective formation of practical competence;
3. Analysis of problems in establishing educational cooperation between educational institutions and employers.

METHOD

Research design

The qualitative approach was chosen for this study, based on the analysis of various types of scientific sources: articles, monographs, conference materials, etc. Attention is paid to different types of scientific literature, given that they may contain different opinions on the role of cooperation between educational institutions and employers. In addition, this approach was chosen in order to formulate the main trends in the peculiarities of cooperation between educational institutions and stakeholders.

Sample and Participants

The sampling of this study involved the inclusion of a variety of scientific sources, including articles and monographs. Reports from international organizations are also included in the study. This is done in order to show the importance of cooperation between primary institutions and employers.

Date range: from 2019-2024.

Instruments and procedure

The PRISMA approach was used to collect data. From previous studies, the authors of the article knew about 11 works related to the development of modern education in accordance with the current UN goals (figure 1).

The following databases were used to select sources: Scopus, Web of Science, Google Scholar.

Keywords: education, practical skills, practical competence, internship, stakeholders, employer cooperation.

Types of included sources

Reviewed scientific articles (predominant in the sample)

Analytical reports of international organizations: OECD⁽³⁸⁾, UNESCO⁽³⁹⁾,

Monographies on the topic of dual education and the labor market

Inclusion of monographs and reports allowed to expand the context and enhance the applied value of the study. For example, OECD reports contain aggregated data on the effectiveness of business-education cooperation in different countries, which cannot be obtained from individual peer-reviewed articles.

The total number of sources found was 2740.

Selection algorithm (PRISMA)

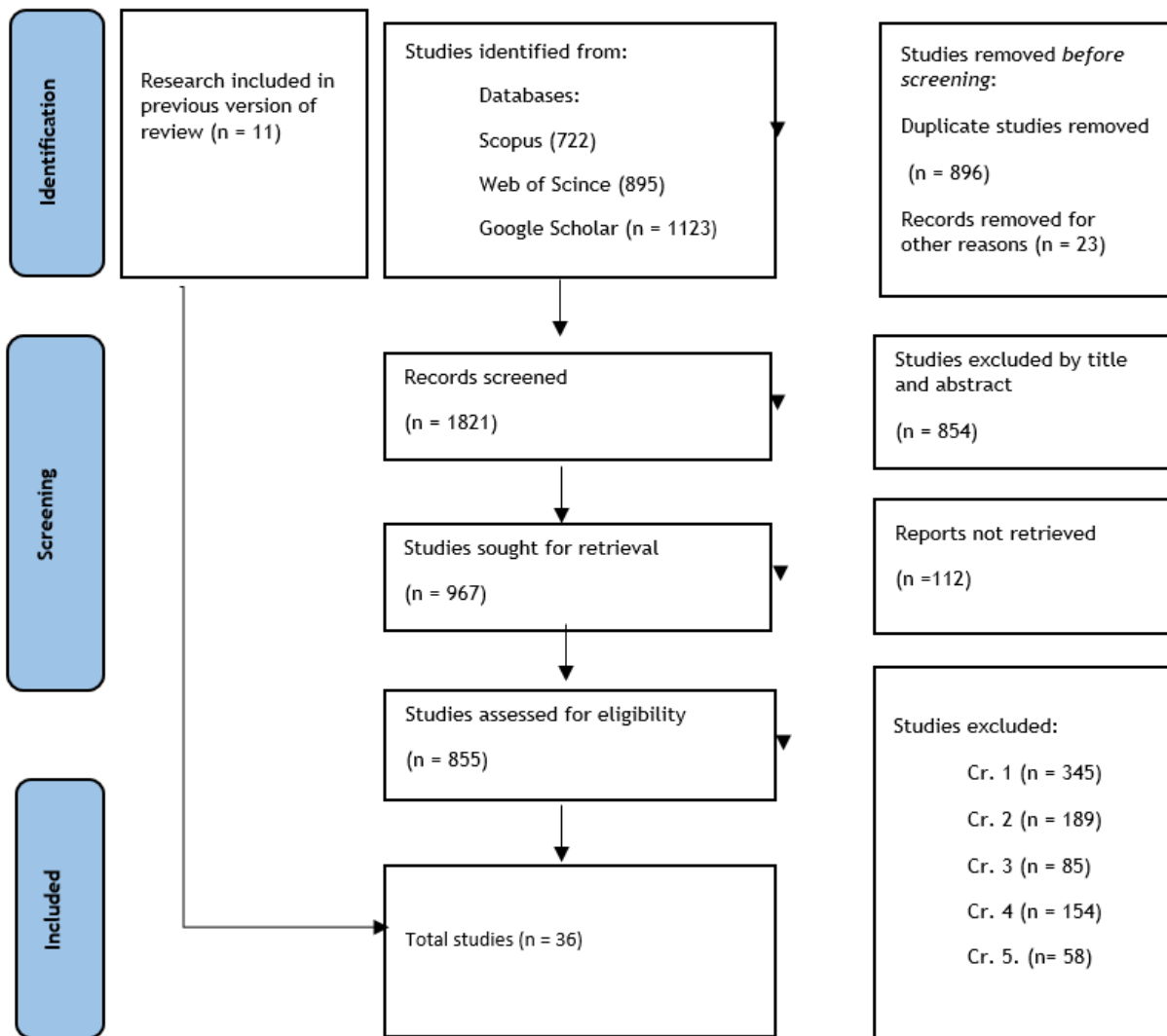


Figure 1. Data collection using the Prisma approach

1. Duplicate removal: -896
2. Preliminary screening of titles and abstracts: -854 (irrelevant topics)
3. Inclusion criteria:

Time range (2019-2024): -345

Rationale: this period reflects the most modern transformations in education caused by the COVID-19

pandemic, digitalization, and the intensification of international cooperation in education in accordance with the SDGs. Older works were not completely excluded – the most significant of them are considered in the review part, but the main emphasis is on the modern context.

Content focus (education-business cooperation, development of practical skills): -189

Topic (practical training, dual education, internship): -85

Language: only English-language sources or sources with English-language annotations: -154

Scientific novelty and practical significance: -58

Thus, the study includes 39 scientific sources of various types: scientific articles, monographs, reports from international organizations, etc.

Data Analysis

The method of thematic analysis was used to analyze the data. To do this, the following information was entered into a Microsoft Excel spreadsheet: Author, date of writing, method of cooperation with the educational institution, and results. This made it possible to understand the main trends of modern cooperation and its problems in a modern educational institution. The study also used a comparison method. This made it possible to compare the data obtained with the results of other scientists.

RESULTS

The formation of practical competence, which is formed thanks to the combination of theoretical training in institutions of education with the acquisition of the necessary practical skills, plays an increasingly important role in the world as an integral part of the training of specialists. In the context of taking into account the modern trends in education reform, which at the moment has been significantly affected by digitalization, the problem of practical competences contributes to the solution of several important scientific tasks. Researchers have repeatedly emphasized that the problem in the functioning of university education is insufficient compliance of specialist training with the needs of the labor market.⁽¹⁷⁾ Graduates of higher education institutions often face problems in employment, as they lack not only work experience, but also certain practical skills. This establishes the need to further develop new approaches in the organization of the educational process, which would enable students to not only acquire basic theoretical knowledge but also provide them with the practical skills necessary for further successful work.⁽¹⁸⁾

Separate models for overcoming such an unfortunate situation function quite successfully in many European countries: France, Germany, Poland, Austria and Switzerland. Summing up, such models provide a valuable interaction between higher education institutions and individual enterprises, which enables students to not only obtain the necessary theoretical knowledge in the field of their specialization, but also to use it practically, to develop professional skills under the conditions of involvement in real professional activities.⁽¹⁹⁾ Paying additional attention to the element of professional education will also improve the degree of training of specialists, as enterprises interested in the further employment of qualified employees will be more actively involved in the educational process. In turn, such decisions will contribute to the modernization of educational programs, will enable higher education institutions to modernize their equipment, consider the wishes of employers during the certification of teaching staff with high professional competences.⁽²⁰⁾ At the same time, additional professional competencies of education seekers may in the future turn into an effective tool for increasing competitiveness. A high level of professional training, therefore, will affect the implementation of innovative technologies, which will make it possible to improve the quality of products or services.

The European experience of effective formation of practical competence is quite diverse. A common practice is the formation of joint educational programs, which enables employers to cooperate at the stage of drawing up and modernizing training programs. This opens prospects for considering the current needs of the labor market. Such experiences are actively used in Germany, France, Scandinavian countries. Certain elements of such a system are also being introduced in post-Soviet countries. In Ukraine, for example, there is a practice of accreditation of educational programs by a special National Agency.⁽²¹⁾

Moreover, one of the important points for evaluating the work of a higher education institution is precisely the presence of cooperation with employers at the appropriate level. Among researchers, there is an opinion that such a system contributes to sustainable production, the formation of a closed-loop economy. It is practical to use dual education, which aims to combine studies at a higher education institution with direct work. For example, in Austria, this form of training organization is widespread and has a tangible impact on the formation of qualified specialists and middle-level managers.⁽²²⁾ It is characterized by a high level of institutional support and assistance from state authorities. A dual education system in Kazakhstan is also used to form practical competencies. This system is an essential element of the current modernization of the education system and its adaptation to the needs of the labour market.⁽²³⁾ The entire process is aimed at improving the professional skills of students. Kazakhstan's dual system is aimed at close cooperation between educational institutions and enterprises. Accordingly, the synthesis of theoretical learning with practical work at enterprises is realized

in this way. In addition, higher education institutions and colleges in Kazakhstan conclude agreements with employers for qualified personnel training according to specific market requests. In this way, employers also participate in the formation of training plans.

Among European and North American institutions of technological direction, the current practice is the involvement of employers in teaching work. First, we are talking about their performance as lecturers. This opens the possibility for students of education to gain practical knowledge from a certain type of activity. Employers can work with students and even attract the most talented to the implementation of projects.⁽²⁴⁾ Specific career centers that allow students to connect directly with business representatives are common ⁽²⁵⁾. Meetings and conferences organized by such centers make it possible to establish the necessary connections. Such forms of interaction are popular in the countries of Central and Eastern Europe and have demonstrated their effectiveness.^(26,27)

However, when characterizing models of cooperation between universities and employers, in particular examples from the European Union (Germany, France) and the post-Soviet space (Ukraine, Kazakhstan). However, it should be recognized that the direct transfer of European practices to the contexts of Ukraine or Kazakhstan requires caution due to significant contextual differences. In particular, it is clearly visible that differences in education management systems have a significant impact. In Germany or France, educational policy is clearly structured, with established mechanisms for cooperation between authorities, educational institutions and business. In particular, dual education in Germany is supported at the state level by law, and the participation of employers is systemic and institutional. In contrast, in Ukraine and Kazakhstan, such interaction is often fragmentary, project-based, depends on the initiative of individual universities or donor programs and is not part of the state strategy. There are also differences in the structure of the labor market that affect the applicability of the models. In Western European countries, most companies have a strong tradition of participation in the educational process (even small and medium-sized enterprises), which is supported by economic instruments (for example, tax breaks). In post-Soviet countries, there is distrust of graduates, stereotypes about the “impracticality” of studying at universities, and low interest of business in long-term educational investments. It is also worth paying attention to differences in financing education. This situation affects the creation of unequal conditions for the implementation of models. In most European countries, the financing of vocational education (in particular, internships, training) is partially covered by employers or the state. However, in Ukraine and Kazakhstan, underfinancing of innovative educational projects is noticeable. Therefore, certain aspects of cooperation between higher education institutions and stakeholders contain certain problems in establishing truly effective cooperation (see table 1).

Table 1. Problems in establishing educational cooperation between educational institutions and employers

Problem	Characteristics	Studies
Discrepancies between theoretical learning and practice	A common problem is that educational training programs may not consider the current requirements of the modern labor market. Such ignoring worsens the level of training of education graduates. However, in the conditions of the traditional educational process (even with the use of digital learning tools), improving practical skills is not always possible, even taking into account the wishes of employers.	K. Redko et al. ⁽³⁾ Y. Zhuravlova et al. ⁽⁴⁾ S. Kaldygozova ⁽¹²⁾ Y. Tsekhmister et al. ⁽²⁴⁾
Lack of communication between educational institutions and employers	Despite all the contributing factors, a lack of coordination between universities and employers exists, affecting training methods and their application. This situation also causes employers to be unaware of graduates' capabilities.	S. Kaldygozova ⁽¹²⁾ N. Sheila et al. ⁽²⁶⁾
Lack of financial resources	The process of using such tools as practices or internships require the infusion of stable financial resources. On the one hand, this can become an additional challenge for higher education institutions that may not have such opportunities. On the other hand, such a problem creates obstacles for businesses, for whom additional costs in post-Covid times may also be sensitive. In addition, many educational programs do not have opportunities to organize long-term internships, as this interrupts the educational process. Under such circumstances, the adaptation of graduates of higher education institutions in the professional environment may be delayed.	K. Redko et al. ⁽³⁾ Y. Tsekhmister ⁽²⁷⁾ N. Bobro ⁽²⁹⁾
The presence of stereotypes among employers	Prejudices primarily consist in the fact that some employers are skeptical about the possibility of updating educational programs and training specialists of the appropriate level. Accordingly, there is no particular interest in establishing cooperation. Competency assessment criteria are often opaque, due to which there are real discrepancies between the expectations of business structures and providers of educational services.	I. Parshyn ⁽²⁸⁾ Y. Tsekhmister et al. ⁽²⁴⁾

To overcome such problems, the researchers proposed establishing a permanent dialogue using tools aimed at implementing joint programs (perhaps state ones) considering the needs of the labor market.⁽²⁵⁾ An equally urgent task is the development of mechanisms for assessing the practical skills of students from the point of view of the needs of modern business. Consideration of such proposals will still require additional arguments and practical recommendations. Modern educational transformations are aimed at the development of the necessary practical skills in those seeking education.

DISCUSSION

The purpose of the article was to analyze the effectiveness of cooperation between educational institutions and employers in the context of the formation of practical competence. The implementation of the established goal involved consideration of transformations in the educational system, consideration of the experience of effective formation of practical competence in the world, review of problems in establishing educational cooperation between educational institutions and employers.

The results suggest consideration of the problem of considering modern trends in education reform in the formation of practical competencies. It has been observed that the problem in the functioning of university education is insufficient compliance of specialist training with the needs of the labor market. This confirms the views of scientists regarding the changes in the modern educational system, which, on the one hand, are caused by the digitalization of the educational process, and on the other hand, by considering the latest humanistic educational paradigms, which consist in the importance of the best preparation of education seekers for professional activities.^(26, 27) The combination of these factors opens new opportunities for further improvement of the system of training organization. The results also briefly drew attention to the role of digitalization in cooperation. However, modern authors have raised this issue more widely and proved the effectiveness of modern technologies in the educational process.^(28, 29)

In the proposed results, it is noted that the common practice is the joint involvement of employers and teams of education institutions in the creation of educational programs. This supports the scientists' conclusions that the creation of joint educational programs (with the possible involvement of employers as lecturers) is one of the most effective ways of forming the necessary practical skills.^(30, 31) True, some scientists prefer a dual form of education, which, in their opinion, better considers the practical foundations of the problem, while the educational program has a more theoretical value.⁽³²⁾ The proposed view has the right to exist, although dual-form education also requires specific programs, so the view on the theoretical nature of educational programs is too categorical. The proposed results consider existing problems that stand in the way of cooperation between business and educational institutions. At the same time, less researched are the remarks of those scientists who believe that changes in the labor market are too dynamic, therefore it is almost impossible to achieve the maximum level of efficiency when establishing cooperation between employers and institutions of higher education.^(33, 34, 35, 36) Changes can take place in a short time, which physically does not make it possible to consider all the requirements for the acquisition of practical competence. In addition, this process is additionally affected by digitalization, which actively changes the list of skills required in the work process. On the other hand, the views of scientists who believe that the task of higher education institutions is the formation of certain universal practical competencies that take into account the general state of the modern labor market and are able to adapt students to its basic requirements are relevant.^(35, 37, 1) It is worth adding that an important stage in this process is lifelong learning, which also involves a constant change of practical competence towards general improvement. Therefore, lifelong education will also be an important component in acquiring the necessary practical skills. The methodology has certain limitations. Scientific attention was paid primarily to English-language works devoted to the specified problem. It is possible that several relevant studies, which were written in other languages and contained relevant conclusion have passed the research attention. The selection of sources was limited to mainly English-language literature. This creates a potential geographical and cultural bias in the data presented, as a significant amount of research in non-English-speaking countries, such as Ukraine, Kazakhstan or other countries in Eastern Europe and Central Asia, may only be published in local languages. However, Ukrainian-language literature is also included if an English-language abstract is available. However, individual models of interaction between educational institutions and employers in Kazakhstan and other regions may not have been sufficiently represented in the analysis. This limitation indicates the need to involve more multilingual sources in the future or to translate relevant works to achieve a more inclusive and representative overview. In addition, the study focuses on the literature for the period 2019-2024, which allows us to focus on contemporary challenges and trends in the field of education. However, this also means that fundamental theoretical works from previous decades, which may be of key importance for building a conceptual framework, were left out of the analysis. However, these limitations do not diminish the significance of the results, but rather open up important avenues for future research. In particular, it would be appropriate to conduct a multilingual meta-analysis, include a broader historical range of sources, and expand the geographical coverage, which would allow for a deeper understanding of the

dynamics of cooperation between education and employers in a global context.

CONCLUSIONS

Hence, the development of practical competence is an important part of training specialists. In particular, the problem of insufficient compliance of the practical training of graduates of educational institutions with market requirements remains relevant. Certain models of overcoming this situation are actively used in European countries. They are aimed at creating effective cooperation between higher education institutions and individual enterprises. Paying additional attention to vocational education will also improve the level of training of specialists and, in the long run, will help to improve the quality of products or services. Besides, common difficulties in the interaction between employers and higher education institutions include discrepancies between theoretical training and practice, lack of financial resources, stereotypes among employers, and lack of communication between educational institutions and employers.

Thus, the conclusions made it possible to formulate a number of specific recommendations aimed at overcoming barriers in cooperation between educational institutions and employers.

Development of joint educational programs

It is necessary to formalize cooperation between higher educational institutions and employers through the formation of high-quality joint curricula. To this end, it is advisable to establish sectoral advisory councils at universities, which will include business representatives, educators and labor market analysts. Such an approach will help to align the content of education with the real needs of the economy.

Expanding the potential of dual education with state support

The implementation of elements of dual education requires financial and regulatory support. It is recommended to introduce tax incentive mechanisms for companies that participate in the training of students, provide places for practice or pay for mentoring. This will allow to qualitatively expand the scope of practical training without excessive burden on the budgets of educational institutions.

Institutional strengthening of career centers

To ensure effective interaction between students and employers, career centers should be integrated into the management structure of universities and provided with resources and personnel. The main functions of such centers should be: coordination of internships, holding job fairs, organizing consultations and trainings on employment.

Development of a national framework policy "Education-Business"

At the level of state policy, it is advisable to approve a strategic framework for cooperation between education and business with clearly defined goals, performance indicators and monitoring mechanisms. Such a policy should provide for interdepartmental coordination, involvement of employers in the development of education standards, as well as systematic financing of internship programs.

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