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Development of organisational knowledge system in the structure of vocational education

Abstract. *Introduction.* The conceptual basis of development of the system organisational knowledge in the structure of vocational education has been considered in the article. *Purpose.* The purpose of the article is the justification of the constituent elements of the concept of development of the system of organisational knowledge in the structure of vocational education of employees on the basis of a comparative analysis of the experience of the United Kingdom and Ukraine. *Results.* The authors of the article have described key principles of development of the system of organisational knowledge such as adaptability, continuity, focus on the goal, resonance effects, nonlinearity, innovation, complexity, maximisation of synergies and self-organisation. The contradictions that lead to development of the system of organisational knowledge in the structure of vocational education at the macro-, meso- and microlevels have been determined. The main contradiction is a mismatch of the necessary and available skills of employees in the United Kingdom and Ukraine. A hierarchy of hypotheses of the concept of development of the system of organisational knowledge in the structure of vocational education is presented. The main hypothesis concerns development of the system of organisational knowledge as an integrated component of vocational education contributing to the institutional changes at the three economic levels. This hypothesis is supplemented by a number of specifying hypotheses. The existing and proposed by the authors interpretations of the constituent elements of the concept in the structure of vocational education have been compared and analysed. *Conclusions.* The concept of development of the system of organisational knowledge (SOK) in the structure of vocational education of employees is based on a new scientific approach to the search of ways of improving the vocational education and includes theoretical principles directed at the solution of problems and contradictions at the macro, meso and microeconomic levels in the United Kingdom and Ukraine.

Keywords: Organizational Knowledge; Vocational Education; United Kingdom; Ukraine; Macro-, Meso- and Microeconomic Levels; Development

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Розвиток системи організаційних знань у структурі професійної освіти

Анотація. У статті розглянуто концептуальні основи розвитку системи організаційних знань у структурі професійної освіти на макро-, мезо- та мікроекономічному рівнях. Мета статті полягає в обґрунтуванні положень та складових елементів концепції розвитку системи організаційних знань у структурі професійної освіти працівників на основі порівняльного аналізу досвіду України та Великої Британії. Визначено передумови розвитку системи організаційних знань у зазначених країнах. Наведено ієрархію гіпотез та ключових положень, а також складові елементи концепції розвитку системи організаційних знань. Обґрунтовано принципи та основні напрями розвитку системи організаційних знань у структурі професійної освіти працівників.

Ключові слова: організаційні знання; професійна освіта Великої Британії та України; макро-, мезо- та мікроекономічний рівні; розвиток.

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Развитие системы организационных знаний в структуре профессионального образования

Аннотация. В статье рассмотрены концептуальные основы развития системы организационных знаний в структуре профессионального образования на макро-, мезо- и микроэкономическом уровнях. Цель статьи заключается в обосновании положений и составляющих элементов концепции развития системы организационных знаний в структуре профессионального образования на основе сравнительного анализа опыта Украины и Великобритании. Определены предпосылки развития системы организационных знаний в этих двух странах, приведены иерархия гипотез и ключевых положений, а также составных элементов концепции развития системы организационных знаний. Обоснованы принципы и основные направления развития системы организационных знаний в структуре профессионального образования работников.

Ключевые слова: организационные знания; профессиональное образование Великобритании и Украины; макро-, мезо- и микроэкономический уровни; развитие.

1. Introduction

Dynamic changes in the socio-economic environment of the leading countries, innovation focus of their development, high rate of updating of many kinds of knowledge have created the basis for the introduction of new concepts and approaches to creating competitive advantages both at the international level and at the level of individual countries, industries and companies. The United Nations adopted the Sustainable Development Goals including the separately highlighted need to «ensure inclusive and equitable quality education and promote lifelong learning opportunities for all» [1, 14]. An important role is given to the formation of a new knowledge-oriented economy. It actualises the problem of intellectualisation of labour and makes it necessary to shift the main emphasis on the development of employees, their continuous training, formation of intangible intellectual assets. This is based on different types of knowledge, change of the principles of interaction between the system of vocational education and business confirmed by the Strategy for smart, sustainable and inclusive growth «Europe-2020». Among the flagship initiatives of this strategy, there is an agenda for new skills and jobs to modernise labour markets and empower people by developing their skills throughout the lifecycle with a view to increase labour participation and better match labour supply and demand, including through labour mobility [2].

It is appropriate to deepen the interaction mechanisms of the system of vocational education and business to provide lifelong learning taking into account the choice of the European vector of development made by Ukraine, as well as the signed Association Agreement between Ukraine and the European Union [3]. The development of the system of organisational knowledge (SOK) in the structure of vocational education of employees at macro, meso and microeconomic levels is one of the ways to improve such mechanisms.

2. Brief Literature Review

The works of Ukrainian scientists such as O. Grishnova [4], E. Libanova [5], N. Nychkalo [6], V. Radkevich [7], V. Savchenko [8], L. Shaulska [9] et al are dedicated to the study of the problems of improvement of vocational education. Ways and directions of improvement of vocational education on the basis of organisational education and formation of organisations, which are in the process of self-learning, are covered in the works of foreign scientists, namely C. Argyris [10], F. Blakler [11], J. Garvin [12], J. March [13], I. Nonaka [14], M. Pedler [15], P. Senge [16], J. Spender [17], E. Tsang [18], S. Wood [19] et al. A combination of efforts of enterprises, state and educational institutions forms the basis of institutional reforms in the field of vocational education, which will help to solve the existing problems of development of the system of organisational knowledge. Various aspects of development of knowledge in organisations, as well as peculiarities of educational activities under conditions of knowledge economy, were covered by modern scholars such as O. Iastremska [20], I. Kaleniuk [21], I. Otenko [22], L. Yankovska [23], H. Mishchuk, Y. Bilan and L. Pavlushenko [24].

However, many issues associated with the development of theoretical and methodological principles of interaction and integration of vocational education and enterprises in the conditions of the knowledge economy have not been sufficiently researched, which justifies the topicality of the article.

3. The purpose of the article is the substantiation of provisions and constituent elements of the concept of development of the system of organisational knowledge in the structure of vocational education of employees on the basis of a comparative analysis of the experience of the United Kingdom (UK) and Ukraine.

4. Results

The basic preconditions of the development of the system of organisational knowledge in the structure of vocational education relate to current changes in the labour market, the necessity to restructure traditional approaches to vocational education with a focus on continuous vocational education throughout working life, the demographic situation in the world and many other factors.

One of the main indicators showing the efficiency of functioning of the system of vocational education is the level of conformity of the skills of the employees to the demands of the labour market. According to the research data of the UK Commission for Employment and Skills and the World Bank Group (due to the latest surveys of 2015 issued in 2016 and 2017 respectively), in the UK, as well as in Ukraine, there is a common problem - a mismatch of the necessary and available skills of employees [25, 26]. Figure 1 shows the data reflecting the opinions of employers as to the gaps in the necessary skills for work of employees by occupation types.

The comparative analysis of data for the UK and Ukraine shows that the mismatch of the required and available skills in these countries is practically the same by occupation types such as «Professionals» and «Service and sales workers». At the same time, the maximum mismatch in the UK is in the type «Skilled trades occupations» (43%) and in the type «Technicians» (34%) in Ukraine [25;26]. The comparison of mismatch of skills of employees can't be conducted by all sectors of economy, because in Ukraine there are data only by four sectors, such as agriculture, food processing, renewable energy and information, and communication technology. The data for the UK are presented by a larger number of sectors. Figure 2 presents the available data for the UK and Ukraine.

It is necessary to note that a lack of data on Ukraine does not allow us to conduct an overall comparative analysis of all sectors of the country's economy. However, the comparison of the available data allows us to conclude that, on average, skills gaps in the UK economy are less than in the Ukrainian economy. The skills mismatch is a serious obstacle for the economic development of any country, because it stipulates the appearance of serious problems at enterprises and restrictions in work given in Table 1.

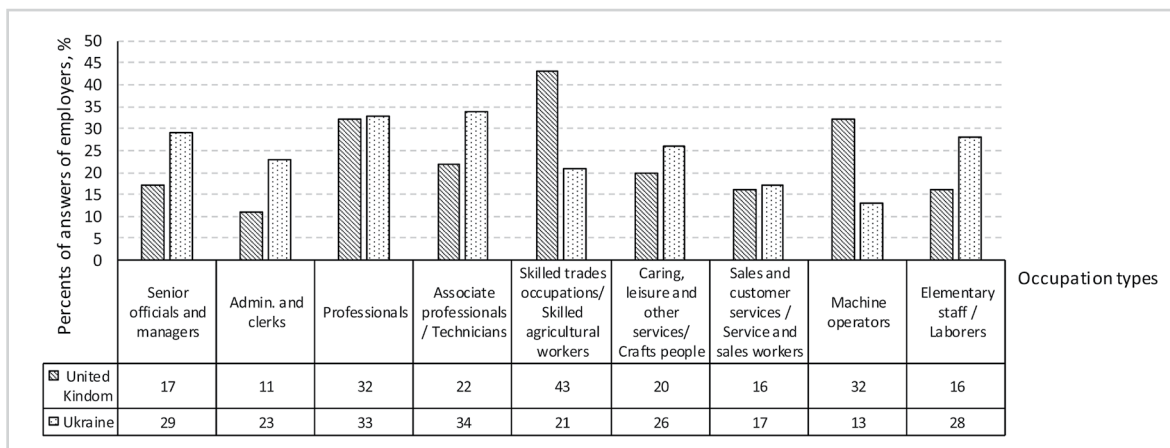


Fig. 1: Gaps in professional skills by occupation types in the United Kingdom and Ukraine (due to the latest surveys of 2015)

Source: Compiled by the authors based on [25-26]

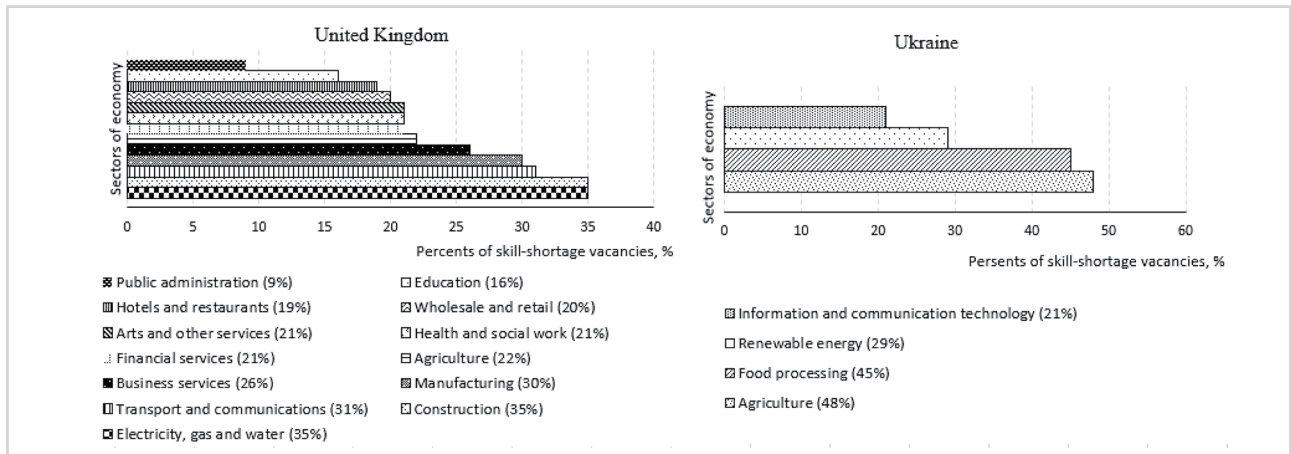


Fig. 2: Density of skill-shortage vacancies by sectors of economy in the United Kingdom and Ukraine (due to the latest surveys of 2015)

Source: Compiled by the authors based on [25-26]

The data shown in Table 1 substantiate the necessity of conformation of vocational education to the demands of employers. It is possible only if there is an integration of enterprises (their systems of organisational knowledge) into the system of vocational education.

One of the indicators of the degree of involvement of employers in the solution of the problem of integration in vocational education is participation in financing of this sphere.

Figure 3 shows expenditures on education by sources of financing in the UK and Ukraine.

Figure 3 shows that participation of employers in financing of education in Ukraine is characterised by a higher percentage than in the UK at first sight. However, when analysing the structure of expenses on labour force, one can notice that only 0.2% of the total expenses on labour force is allocated at Ukrainian enterprises relating to vocational education and training in the given structure, whereas the relevant indicator in the UK is 1.1% [27; 28].

Thus, it is expedient to suppose that cost-efficiency along with the amount of expenses are most significant for the economic development of the country. Thus, in the process of vocational education and formation of the skills which are in demand in the market, on-the-job training is of great importance. We shall make correlation analysis of indicators such as expenditures on education as a percent of GDP (EE), on-the-job training (OJT), reflecting the organisation of education process in the country and indicators reflecting the level of economic development of the country. The latter are the Knowledge Economy Index (KEI), the Global Competitiveness Index (GCI) and Gross Domestic Product per capita (GDP p.c.). Dynamics of values of indicators is shown in Figure 4.

As a result of the correlation analysis significant correlations were found between indicators such as OJT and GCI (0.87), OJT and GDP p.c. (0.67). Such results prove the leading role of training, oriented at forming the skills which are to the maximum extent approximate to working tasks.

This can be done with the help of development of the system of organisational knowledge of enterprises in the structure of vocational education, the conceptual basis of which is considered in the paper.

Figure 5 graphically depicts the constituent elements of the concept of development of SOK in the structure of vocational education of employees, which is a relevant issue for the UK and Ukraine. The significance of such elements was described in detail in the works [31-33].

The main requirements for the hypotheses formulated during the research are considered to be as follows: possibility of checking, certain predictability, logical consistency [34, 46]. The creation of the hypothesis is done by formulating certain assumptions that need further proof. Formulated within the concept of development of SOK in the structure of vocational education of employees, the hypotheses are presented as a three-stage hierarchy of assumptions. The basic hypothesis is about the development of SOK as an integrated component of vocational education of employees contributing to the institutional changes of the latter at three economic levels. Specifying hypotheses show the possibility of integration at the macro, meso, microeconomic levels and peculiarities of the system of organisational knowledge and its development.

Tab. 1: Problems related to skills gaps, mentioned by enterprises (employers) in the UK and Ukraine (due to the latest surveys of 2015)

Problems of enterprises in the UK	Problems of enterprises in Ukraine
Increased workload for other staff	Loss of efficiency
Difficulties meeting customer services objectives	Loss of service quality
Lose business or orders to competitors	Loss of existing clients or markets
Experience increased operating costs	Loss of new clients or markets
Delay developing new products or services	Increased recruitment costs
Have difficulties introducing new working products	Loss of innovation opportunities
Have difficulties meeting quality standards	
Outsource work	
Withdraw from offering certain products/services	
Difficulties introducing technological change	

Source: Compiled by the authors based on [25-26]

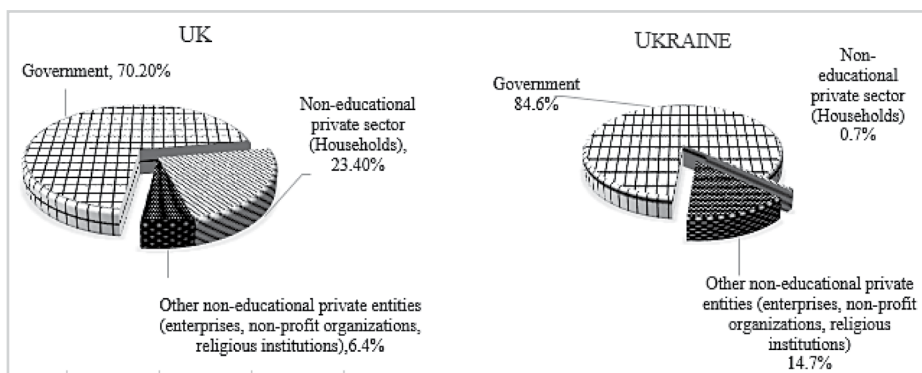


Fig. 3: Educational expenditure by sources in UK and Ukraine (due to the latest data issued in 2015)

Source: Compiled by the authors based on [27-28]

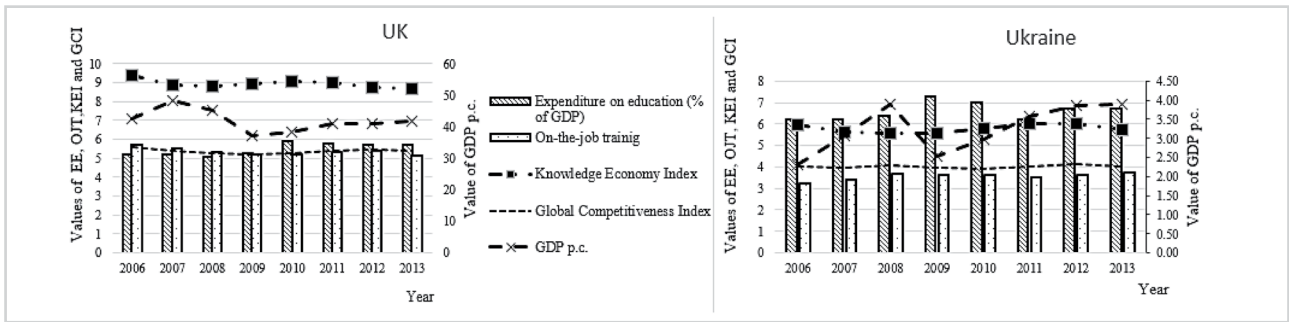


Fig. 4: Dynamics of values of indicators, reflecting organisation, expenditure on education and level of economic development of the UK and Ukraine (due to the latest data fully available for comparison)
Source: Calculated and compiled by the authors based on [29-30]

The given set of hypotheses, in its turn, stipulates the key provisions of the concept of development of SOK in the structure of vocational education of employees, which are presented below:

Provision 1: the necessity of integration of SOK and vocational education under conditions of formation of knowledge economy.

Provision 2: the institutional changes in the vocational education of employees as a result of its integration into the structure of SOK at the macro, meso and microlevels. Integration of SOK in the structure of vocational education at all levels will contribute to the improvement of the vocational education and increase of its efficiency. This statement was substantiated by the author in the work [32].

Provision 3: the feasibility of creating professional standards on the basis of organisational knowledge. The operation and development of SOK ensures the systematisation of knowledge flows in the organisation, putting in good order key information used in industrial processes and transforming the

hidden knowledge of employees into explicit and formalised organisational knowledge.

Provision 4: the integration of SOK into the structure of vocational training on the basis of social partnership of enterprises and other partners in the field of vocational education. Integration of SOK into the structure of vocational education can take place through the mechanism of social partnership.

Provision 5: the formation of organisational competencies based on different types of organisational knowledge. According to the considered above concepts of dynamic capabilities and key organisational competencies, they provide enterprises with a leading position in the industry, giving them a unique and competitive advantage. Conducting vocational education of employees with regard to their needs in various types of professional knowledge will facilitate the application of such education for the development of key organisational competencies.

Provision 6: the basic properties of organisational knowledge as a system. The combination of organisational knowledge can be considered as a system, because it has such

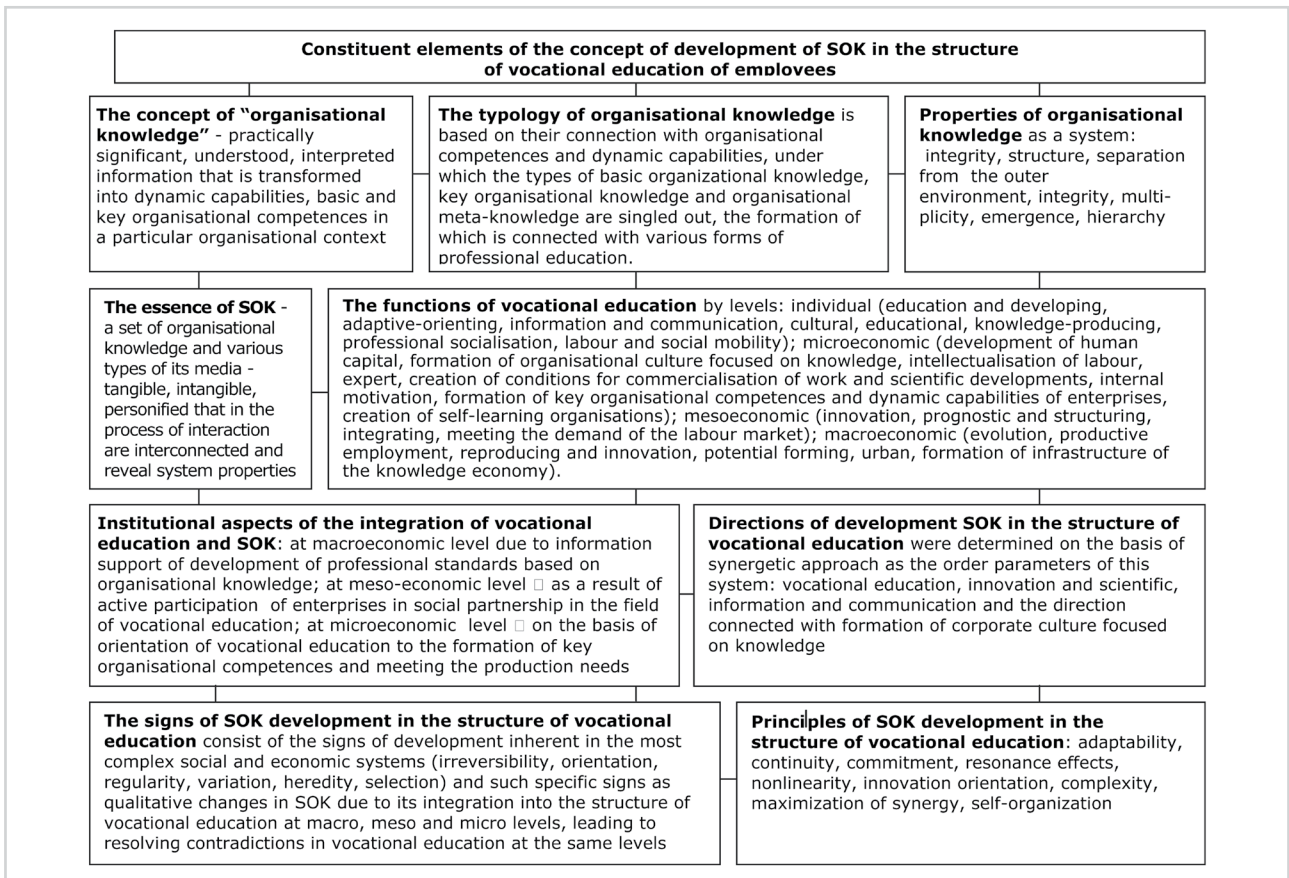


Fig. 5: Constituent elements of the concept of development of SOK in the structure of vocational education of employees in the UK and Ukraine
Source: Compiled by the authors

general system properties: integrity, structure, separation from the outer environment, integrity, plurality and hierarchy.

Provision 7: the main directions of development of SOK to ensure continuous vocational education of employees. The work [32] substantiates the list of the main factors influencing the development of SOK, which was developed on the basis of an expert survey and cluster analysis. As a result of this analysis, it was proved that the main directions of development of SOK are as follows: professional educational, innovative and scientific, informational and communicative, along with the direction connected with the corporate culture.

Provision 8: the basic signs of SOK in the structure of vocational education of employees. The peculiarities of the development of SOK lie in the fact that its qualitative changes in the process of development take place due to its integration into the structure of vocational education of industrial employees at three economic levels. This resolves the contradictions that exist in professional education at the same levels.

Provision 9: the development of SOK based on a methodological approach which provides for the assessment of the state of SOK, modeling and forecasting of SOK, as well as practical recommendations on the development of SOK in the structure of vocational education of employees at macro, meso and microlevels. The assessment must be the first stage of the methodological approach to the development of SOK in the structure of vocational education. Such assessment should be conducted according to the basic directions and characteristics of the development of SOK in the structure of vocational education. The assessment results can be

used to realise the next stage of the given methodological approach, i.e. for modeling and forecasting of the development of SOK. Practical recommendations for the development of this system in the structure of vocational education of employees at three economic levels are a logical continuation of the assessment, modeling and forecasting of SOK.

5. Conclusions

The concept of development of SOK in the structure of vocational education of employees is based on the new scientific approach to the search of ways to improve vocational education and includes theoretical principles directed at the solution of the relevant problems and contradictions at macro-, meso- and microlevels. The main elements of the proposed concept are the provisions, scientifically substantiated by the authors and confirming the basic and specifying hypotheses. When substantiating the concept, emphasis was on components such as the essence and typology of organisational knowledge, properties of organisational knowledge as a system, the essence of SOK, functions of vocational education, institutional aspects of the interaction of vocational education and SOK, signs, principles and directions of development of SOK in the structure of vocational education. The novelty of the approach is in substantiation of the topicality and expediency of application of the suggested conceptual provisions of development of the system of organisational knowledge in the structure of vocational education not only in Ukraine but also in the UK taking into account the results of the conducted comparative analysis of the problems of contemporary enterprises of these countries.

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