

DEVELOPMENT OF THE DUAL HIGHER EDUCATIONAL MODEL BASED ON COMPANY NEEDS

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Abstract: *The adaptation of higher education in the Republic of Moldova and Ukraine to the changes taking place in modern society requires the implementation of innovative forms of education of the young generation. The integration of dual education at a higher level of education will allow to effectively combining the development of knowledge, skills and attitudes appropriate to each context by collaborating with the business environment, thus providing opportunities to capitalize on theoretical skills in the real sector. The article presents the results of a survey of companies needs for dual higher education in the Republic of Moldova and Ukraine. The study is carried out within the Erasmus + COOPERA project "Integrating Dual Higher Education in Moldova and Ukraine", ref. no. 617490-EPP-1-2020-1-MD-EPPKA2-CBHE-SP. The aim of the project is to integrate dual higher education in partner countries. The study was conducted in 2021 and shows the situation in Ukraine before the war, but we hope that once it is completed it will be possible to return to a normal way of life, and further efforts are needed to restore the devastated economy and educational system. Thus, the identification of the specific needs and requirements of economic agents, as basic partners in dual education in higher education institutions, allowed foreshadowing the opportunities and perspectives for universities and business in the Republic of Moldova and Ukraine. Based on the study, Dual Higher Education Model (DHEM) was developed, which will be used to pilot DHE within ASEM in the 2022 academic year.*

Keywords: *higher education; dual higher education model; needs from the employment sector; student; university.*

JEL Code: *I23, I25, L26*

Introduction

The phenomena, which mark the current social environment, as well as the high youth unemployment, imposed the need for essential changes in the education system, which would increase the level of employability of young generation. In such circumstances, it is worthwhile to pay attention to dual education at all levels of training and to accelerate policies and reforms for the development of this education system.

The priority goal of higher education is to train highly qualified specialists, necessary for the labour market in accordance with current and future needs, in close correlation with the

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technologies and business processes applied. Currently, the training process of specialists through higher education is mainly based on relatively weak connections with business representatives. This gap directly influences the quality of trained specialists and generate dissatisfaction on the part of economic agents, public institutions and other entities, being put in the situation of additional training, quite thorough of them from the first days after employment.

In order to rectify this situation, as well as to facilitate the training with competencies relevant to the business environment, it is necessary to rethink their training/preparation process. An alternative form in this sense is dual higher education (DHE), which places a significant emphasis on the training of practical skills in the real work environment, with a high degree involvement of business representatives in this process.

Dual education at the higher level is a novelty for the educational system of the Republic of Moldova and Ukraine. It is an untapped opportunity to combine the development of theoretical knowledge with the training of practical skills in real business environments.

This training model for specialists comes from the German education system, which has been quite successful for about 60 years and has been implemented in the field of technical vocational education with extension and in higher education. According to the Federal Institute for Vocational Education and Training (BIBB), the number of students involved in this study model in Germany has grown from just under 40,000 to about 100,000 over the course of ten years. An increasing number of employers appreciate the dual education system because it not only achieves a better balance between higher education and labour market needs, but also because it facilitates the recruitment and retention of students as potential top performers or management staff (Hesser, 2018).

Dual higher education has proven its effectiveness not only in Germany, but also in many other countries: France, Great Britain, Spain, etc. (Krüger, Molas and Jiménez, 2019). In each country where it is implemented, DHE is characterized by a specific model, which is influenced by the particularities of the educational, economic, cultural system.

The implementation of dual education in Ukraine has started at the level of vocational education. The Ministry of Education and Science of Ukraine reported that the government approved on September 19, 2018 the concept of dual education, which involves the integration of training in vocational and higher education. At the end of December 2020, the Governing Council of the Ministry of Education and Science of Ukraine approved a strategy for the development of vocational education by 2023. (Bondar, 2021)

In the Republic of Moldova, dual education has been implemented at the technical vocational level since 2014, at the initiative of the Ministry of Education and Research of the Republic of Moldova, with the involvement of the Chamber of Commerce and Industry of the Republic of Moldova. Regarding the higher education institutions in the Republic of Moldova, the use of the dual system in the training of future specialists is not attested.

Thus, it becomes necessary to identify a viable DHE (DHEM) model, adapted to the specific socio-economic context of the Republic of Moldova, which would ensure a viable dual higher education implementation process.

At the same time, DHEM, implemented in the Republic of Moldova, must meet the following requirements:

- The main objective of DHEM is to contribute to the organization of a training process for future specialists, to ensure the national economy with highly qualified staff, who possess not only theoretical knowledge but also practical skills;
- DHEM must correspond to the specifics of the existing economic and cultural context in the Republic of Moldova. It should be kept in mind that until today there have been no examples of close collaboration between universities and companies in the training of future specialists, each working in this direction independently. Thus, the second major objective of DHEM is to reflect the needs of all stakeholders and motivate them to be actively involved. Only through the joint effort of economic units and higher education institutions will it be possible to implement viable dual higher education in the Republic of Moldova;
- DHEM needs to take into account the interests of students, who will have more tasks to do compare to those who traditionally study at universities. Ongoing mentoring by both institutions and companies should be ensured for appropriate guidance at each stage of the study process;
- DHEM must comply with the requirements of the National Qualifications Framework and the Higher Bachelor's Degree Framework Plan (Cycle I) from 2020, which sets out the basic requirements for the development, revision and modification of the Curricula developed by higher education institutions in Republic of Moldova.

1. Literature review

The introduction of dual education at a higher level of training will allow effectively combining the development of knowledge, skills and attitudes appropriate to each context by collaborating with the business environment, thus providing opportunities to capitalize on theoretical skills in the real sector. Dual education is a form of training in which all parties have only to gain a unique understanding of how to achieve collaboration and delegate responsibilities if there is motivation.

Dual training in higher education institutions is an alternative form of education, which in the training of young specialists places a significant emphasis on practical skills' training in the real work environment, with a high degree of involvement in this process of business representatives. This implies an intense and complex collaboration between two basic partners: the educational institution and the economic units, offering multiple advantages for all the stakeholders involved: students, economic agents, universities, state.

CEDEFOP (2016) highlights that dual learning, in the strict sense of the term, implies that the apprentice has the status of employee and receives remuneration for this work, which generally implies a contractual relationship.

To a large extent, higher education institutions enter into cooperation agreements with companies. In addition, companies enter into training and learning arrangements during the course of study with students participating in the dual system. Şumacova, Mozjerina, Komarova and Gavrilova (2016) emphasizes that the basic principle in dual higher education

must be the sharing of responsibilities for the qualitative training of specialists between educational institutions and economic units.

Krüger et al. (2019) mentions that in Germany, France and the United Kingdom the common features of dual higher education are observed:

- a) Co-existence of two learning places: company and educational centre;
- b) The student has employee status;
- c) The programmes generally lead to an official qualification (bachelor or master). It is only in Germany that dual programmes can also be lifelong learning.

Krüger et al. (2019) highlights some differences in DHEM applied in these countries:

a) Universities and companies have different roles in curriculum design. In Germany the process is more led by universities while in England companies led the process. France is in an intermediate position.

b) In France and England, the theoretical training of undergraduate apprenticeship programmes is not necessarily done in the universities themselves, but these tasks could be delegated to professional apprenticeship centres or, in the case of England, to colleges. This is an informal institutional division based on cooperation between different HEIs and companies backed by the quality seal of the universities.

Thus, the dual form of training has become a more attractive one for young graduates, offering them the opportunity to embrace occupations / specialties required and sought after on the labour market.

In this context, it is necessary to analyse not only the advantages that universities from Republic of Moldova and Ukraine obtain from the implementation of dual education, but also the extent to which the business environment is ready to get involved in this new method of staff training. Thus, we consider it appropriate to study the current needs of employers in these countries and their attitude towards cooperation with academia.

2. Data and Methodology

In order to analyse the prospects for the development of dual education in higher education institutions in the Republic of Moldova and Ukraine, we set out to study the current needs of employers and their attitude towards cooperation with academia. The study is carried out within the Erasmus + COOPERA project "Integration of dual higher education in Moldova and Ukraine", ref. no. 617490-EPP-1-2020-1-MD-EPPKA2-CBHE-SP.¹

The empirical research was conducted through a questionnaire sent to respondents from both countries. The survey was conducted online between August and September 2021. The research was attended by top management representatives from 27 organizations in the Republic of Moldova and 32 companies in Ukraine. The selection of the organizations was made by the higher education institutions participating in the COOPERA project. From the Republic of Moldova: Academy of Economic Studies of Moldova (ASEM), Technical University of Moldova (TUM) and Free International University of Moldova (ULIM), and from Ukraine: State University "Uzhhorod National University" (UzhNU), KROK

¹ The Report of companies needs for Dual Higher Education in the Republic of Moldova and Ukraine is available on the COOPERA project webpage <https://coopera-project.ase.md/>

University (KROK), V.N. Karazin Kharkiv National University (KhNU) and Odessa National University of Economics (ONEU).

The choice of companies was made from the perspective of further cooperation and the existence of a link with the study programs, in which DHE is to be implemented. Also, as the important criterion in choosing the entities participating in the survey was their membership in various fields of activity, to be located in different areas of the Republic of Moldova and Ukraine, as well as the diversity of the size of enterprises.

In the case of the Republic of Moldova, the analysed companies refer to eight fields of activity, a larger number being from information and communication, public administration and defence, manufacturing, financial and insurance activities, etc. The diversity of the organizations participating in the survey is explained by the fact that the higher education institutions participating in the COOPERA project have identified the following programs for piloting DHE:

- ASEM - Business and Administration; Applied Informatics;
- TUM - Robotics and Mechatronics; Automatics and Informatics;
- ULIM - Diplomacy, Security, Business and Communication.

The companies that participated in the study in Ukraine also refer to eight fields of activity, several being in financial and insurance activities, manufacturing, information and communication, etc. When selecting the responding economic entities, the Ukrainian universities were guided by the specifics of the study programs, within which the DHE is to be implemented:

- UzhNU - Entrepreneurship, Trade and Exchange Activities;
- KROK - Journalism;
- KhNU - Business Administration;
- ONEU - Finance, Banking and Insurance; Entrepreneurship, Trade and Stock Exchanges.

In order to increase the level of representativeness of the study, the size of the entities was also taken into account. The grouping of companies was carried out according to the number of employees. SMEs are subdivided into micro enterprises (fewer than 10 employees), small enterprises (10 to 49 employees), medium-sized enterprises (50 to 249 employees) and large enterprises employ 250 or more people. The business environment in the Republic of Moldova was represented by micro companies, constituting 33% of the total, small companies - 26%, medium - 22% and large ones, accounting for 19%. The economic entities participating in the survey in Ukraine are predominantly large - 41% of the total, followed by medium - 25%, small - 15% and micro - 19%.

We can conclude that the selected companies in both countries belong to a multitude of fields of activity and are of different sizes.

3. Results and Findings

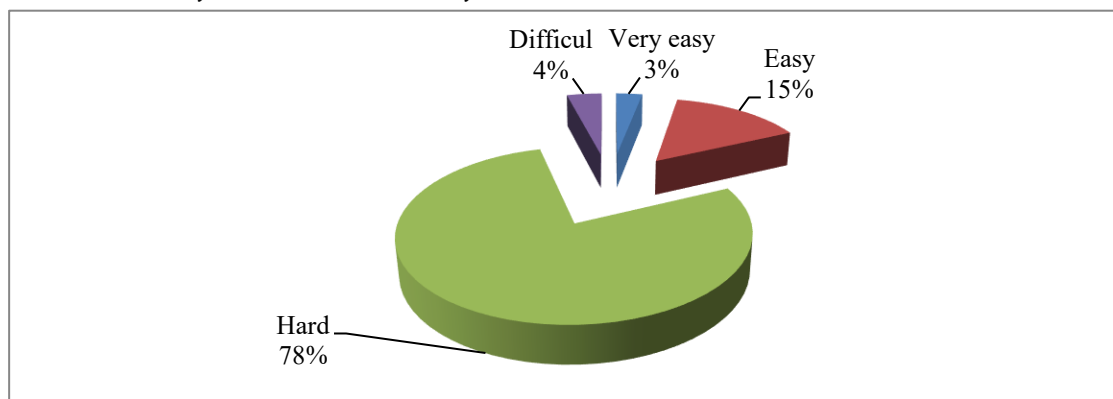
3.1. Needs and employment forecasts for higher education specialists

Based on the experiences of implementing dual education at the level of vocational education in the Republic of Moldova and Ukraine and being motivated to take this form of training of specialists at the level of higher education, we set out to conduct research among business representatives, which represent the main beneficiaries of this form of training, regarding their attitude and openness to participate in partnership with the educational institution in the training of specialists.

The organizations that participated in the study responded almost unanimously, 96.3% from the Republic of Moldova and 90.6% from Ukraine, with a positive answer, confirming that they need specialists with higher education. This reveals a peculiarity of the labour market at the moment: the desire of companies to evolve is met with a lack of skilled labour.

Figure 1. Difficulty in recruiting specialists in the analysed companies, Moldova

Source: Elaborated by authors based on survey results



At the same time, the companies attest to a certain level of difficulty in recruiting specialists with higher education (figure 1). The 78% of the companies participating in the survey in the Republic of Moldova mentioned that it is hard to recruit specialists with higher education, 4% consider it difficult, 15% do not feel that it will be difficult in this process, and 3% find it very easy to find specialists with higher education.

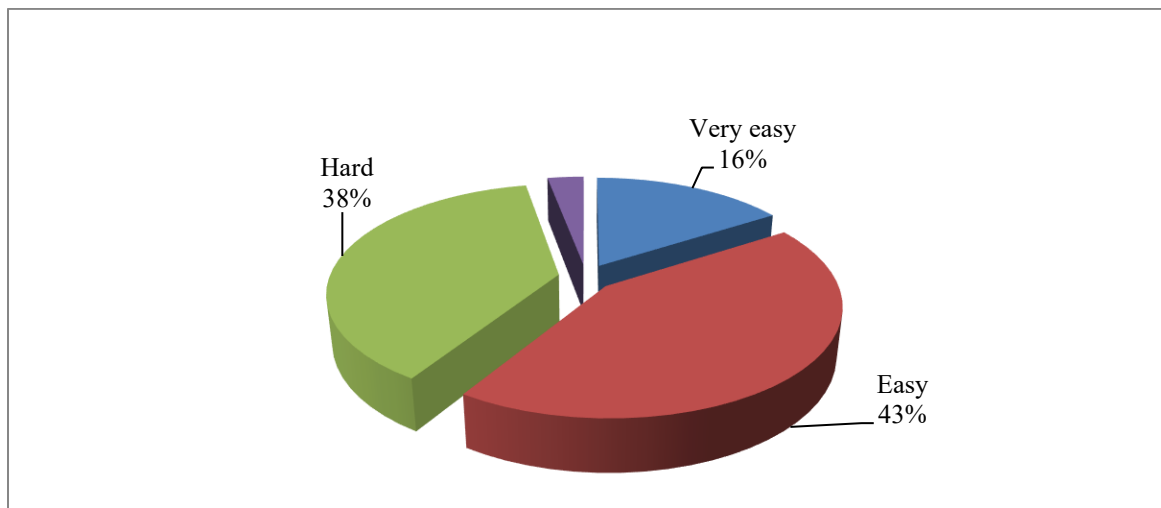


Figure 2. Difficulty in recruiting specialists in the analysed companies, Ukraine

Source: Elaborated by authors based on survey results

The analysed companies in Ukraine feel certain problems in recruiting specialists with higher education, but the comparative analysis allows us to conclude that they are not as acute as in the Republic of Moldova (figure 2). Thus, only 3% of companies indicated difficulties in finding specialists, 38% mentioned that the process is hard, while 43% of Ukrainian companies find it easy to recruit graduates, and 16% mentioned that it is very easy.

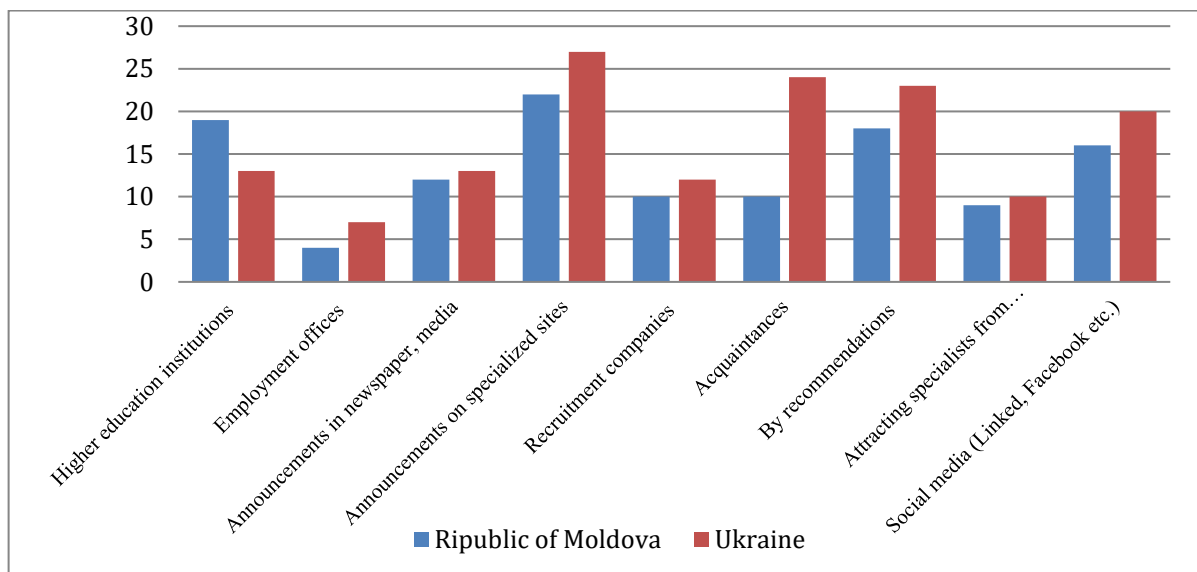


Figure 3. Sources used to recruit specialists with higher education in the analysed company, Republic of Moldova and Ukraine

Source: Elaborated by authors based on survey results

In the process of recruiting highly qualified staff, the organizations participating in the survey use various sources (figure 3). The comparative analysis of the sources of recruitment of specialists used by the entities from the Republic of Moldova and Ukraine shows distinctions compared to the way in which the higher education institutions are approached.

Thus, Moldovan organizations most often use announcements on specialized sites and collaborate with universities. An important share is the recruitment of specialists through recommendations, on social networks, announcements in newspaper, media. Recruitment companies, acquaintances, attracting specialists from competitors and employment offices are rarely used.

Ukrainian companies, in the process of recruiting qualified staff, rely mainly on announcements on specialized sites, finding candidates through acquaintances, through recommendations, on social networks. This is followed by collaboration with higher education institutions, media advertisements, recruitment companies, attracting specialists from competitors and employment offices.

In this way, it is observed that the business environment does not treat higher education institutions as the main source of recruitment of specialists and there is significant need for efforts in order to change this attitude.

3.2. Insurance with qualified specialists by the higher education system

In this regard, it is important to determine whether the share of specialists with higher education in the analysed companies is high and what are the main issues regarding the preparation of graduates of educational institutions for absorption in the business environment.

The organizations participated in the survey confirmed that a large number of highly educated specialists are currently working in companies. Thus, about 81% of the analysed companies in the Republic of Moldova have a share of more than 70% of employees with higher education, and in 57% of companies almost all employees are graduates of higher education institutions (Figure 4).

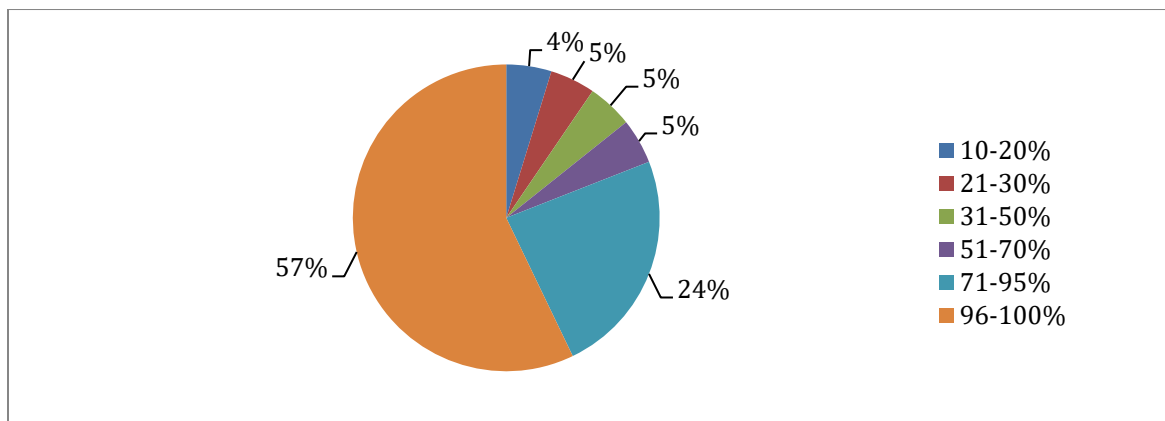


Figure 4. The share of specialists with higher education in the analysed companies, Republic of Moldova

Source: Elaborated by authors based on survey results

Ukrainian companies have shown that the share of specialists, graduates of higher education institutions, is higher than 70% of the total employees in 65% of enterprises and higher than 95% of the total employees in 26% of the economic units participating in the survey (figure 5).

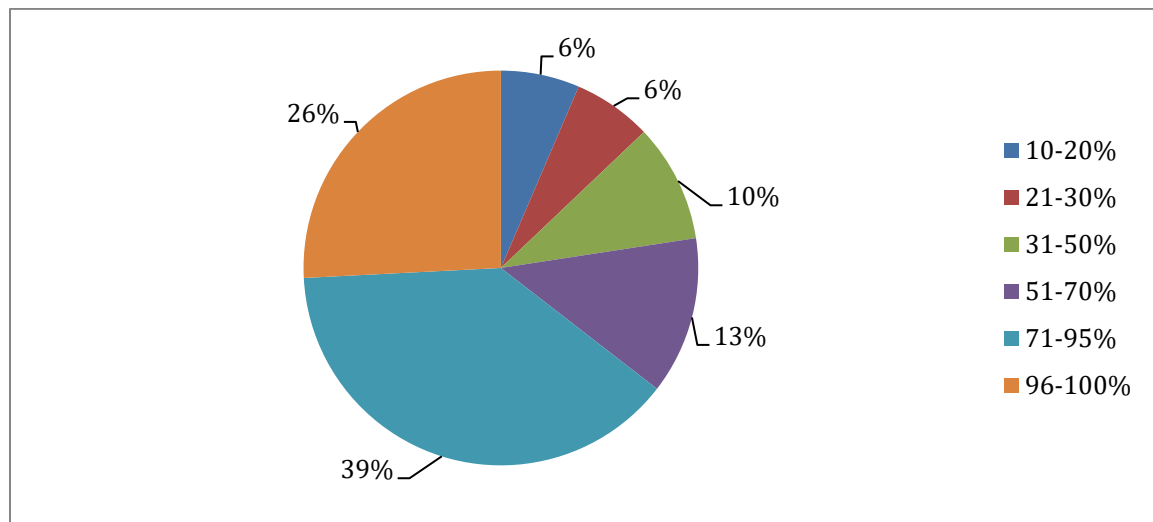


Figure 5. The share of specialists with higher education in the analysed companies, Ukraine

Source: Elaborated by authors based on survey results

Through its answers, the analysed companies identified that there are certain problems not only in the process of recruiting specialists, but also in maintaining them within the company, mentioning a high level of fluctuation among this category of staff.

Respondents of Moldovan companies are more affected by the turnover of highly qualified staff (61.9% of companies answered in the affirmative), and the representatives of the economic units in Ukraine perceive this problem at a lower level, but still considerable (46.9% of the analysed companies).

Regarding the level of satisfaction with the qualification of graduates of higher education institutions, the results of the study show an average level of satisfaction (figure 6).

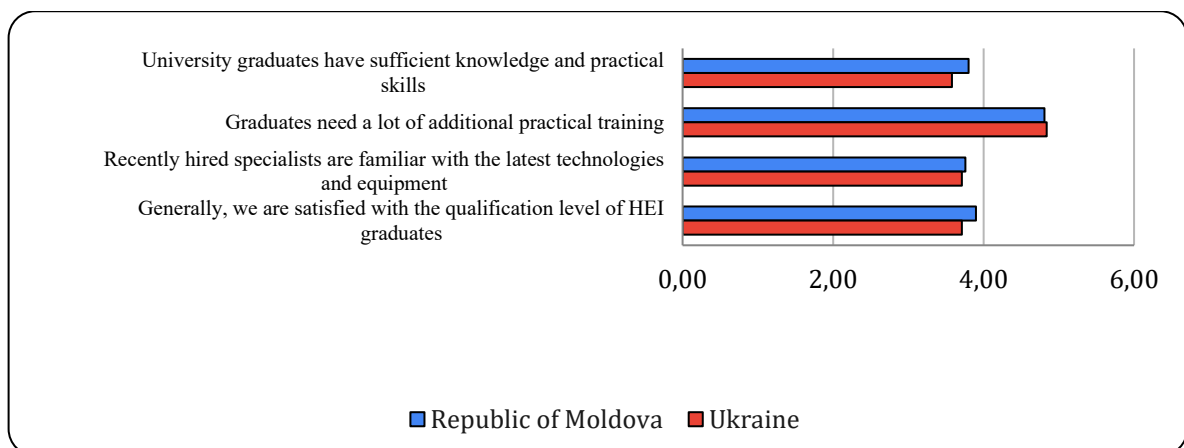


Figure 6. Level of satisfaction with the qualification of graduates of higher education institutions, Republic of Moldova and Ukraine

Source: Elaborated by authors based on survey results

There is a similarity in the answers given by the representatives of the companies from the Republic of Moldova and Ukraine. Respondents in these companies believe that

graduates need more practical training and that further efforts are needed to familiarize newly hired specialists with the latest processes, technologies and equipment.

To the question "Are you working with educational institutions in the region?" all companies in the Republic of Moldova responded positively, while the opinion of the economic units in Ukraine differs.

Almost two-thirds of the companies surveyed in Ukraine, 69%, already work with universities in the region, but 31% of companies are not yet involved in the process. At the same time, 100% of Moldovan companies and 96.87% of Ukrainian economic units expressed interest in further cooperation with higher education institutions.

Understanding the importance of working with higher education institutions in the training of future specialists, the companies participating in the survey highlighted the most frequently used forms of cooperation with universities in the country (Figure 7).

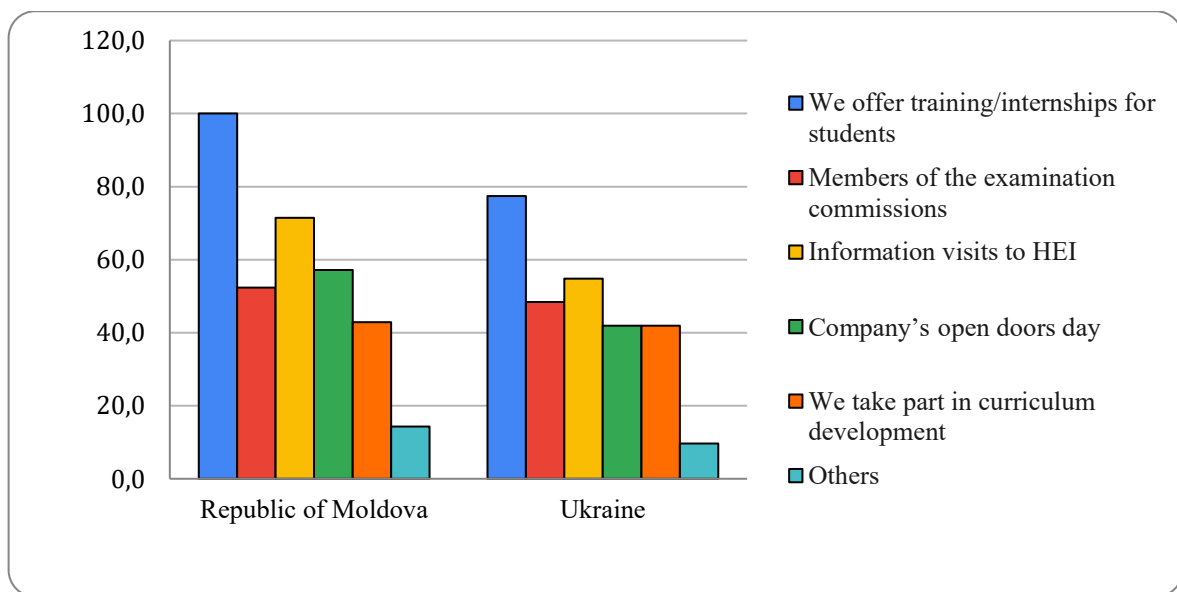


Figure 7. Forms of collaboration of companies with higher education institutions, Republic of Moldova and Ukraine

Source: Elaborated by authors based on survey results

Thus, it is observed that most companies in both countries offer internships (100% companies in the Republic of Moldova and 77.4% in Ukraine), carry out information visits in higher education institutions (respectively 71.4% and 54.8%), organizes the open day at the enterprise (57.1% companies from the Republic of Moldova and 41.9% from Ukraine), acts as members of the examination commissions (respectively 52.7% and 48.4%), participates in elaboration of curricula (respectively 42.9% and 41.9%), etc.

Although there are various ways of working together between business representatives and higher education institutions, they do not have a systematized character, framed in certain legislative regulations. Dual higher education can serve as a way to streamline these partnerships.

3.3. Knowledge and expectations of the dual education system

It is gratifying that when asked whether organizations are aware of dual education as a form of training for qualified staff for enterprises; respondents largely confirmed that they are aware of the existence of such a form of education.

Thus, 62.5% of the organizations participating in the survey in the Republic of Moldova stated that they are well informed, and 37.5% know something about this form of education. In the case of Ukraine, it is observed that the level of information is lower, namely: 50% of respondents know about dual education, 31% have heard about this form of education, but 19% are not familiar with this notion. The increased degree of information about dual education in the Republic of Moldova can be explained by the fact that since 2014 this form of education is used at the vocational level.

It is clear that further efforts are needed to popularize the concept of dual education. In this context, it becomes important to know from which sources the companies learned about dual education (figure 8).

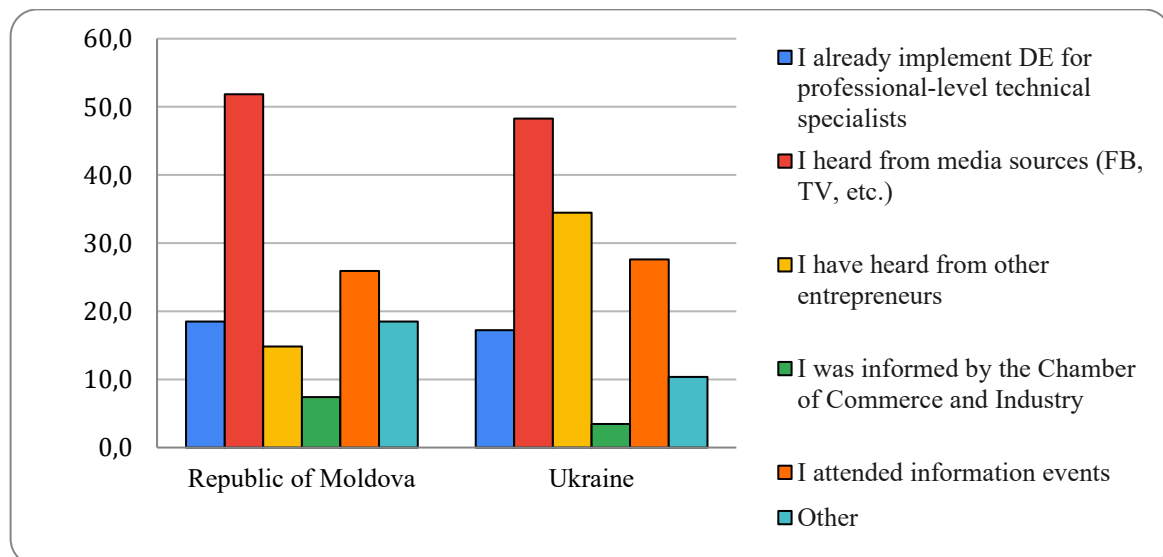


Figure 8. Sources of information on dual education, Republic of Moldova and Ukraine

Source: Elaborated by authors based on survey results

The companies from the Republic of Moldova, participating in the survey, mentioned that they found out about dual education from the following sources, which are exposed in descending order: mass media (Facebook, television, etc.), participation in various information events, implementation of dual education at technical vocational level, have been informed by higher education institutions.

Ukrainian companies have learned about dual education, mostly from media sources, from communicating with other entrepreneurs, participating in various information events, already implementing dual education at a technical vocational level and being informed by higher education institutions.

Economic entities in both countries have clearly shown interest in learning more about dual education. Thus, to the question: “Would you like to get additional information about

dual education” 92.6% of the respondents from the Republic of Moldova and 90.3% of the survey participants from Ukraine answered positive.

The interest in dual education from the business environment is not limited only to the cognitive level, but is also followed at the intentional level, by manifesting a desire to participate in the training of specialists through this new form of education.

Thus, 92.6% of the analysed companies in the Republic of Moldova and 90.3% of the companies participating in the survey in Ukraine expressed the intention to get involved in the training of qualified staff through dual system.

The companies, which expressed their desire to participate in the training of specialists through the dual system, were asked to indicate the occupations they considered more necessary (Figure 9).

Organizations in the Republic of Moldova have clearly shown that they are ready to work with higher education institutions to train IT specialists - 64%, engineers - 36%, managers - 32%, accountants - 31.82%, etc.

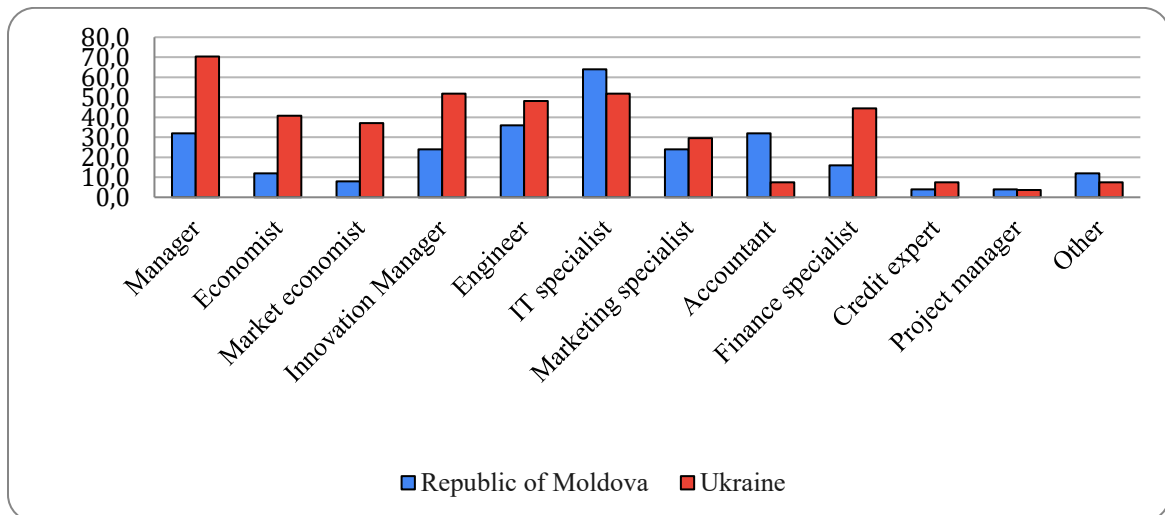


Figure 9. Occupations, which would be of interest to be prepared through dual education, Republic of Moldova and Ukraine

Source: Elaborated by authors based on survey results

Ukrainian companies have shown a greater interest in the training of management specialists - 70%, IT specialists and innovation managers, respectively - 52%, engineers - 48%, finance specialist - 44%, etc.

At the same time, the organizations participating in the survey expressed their agreement to contribute through various methods to the successful completion of the training of specialists through a dual system (Figure 10).

It is obvious that both Moldovan and Ukrainian companies are ready to hire graduates, trained through the dual system. At the same time, there are some similarities in the opinions of companies in both countries: companies are available to provide practical training of students within the company (85% of companies in the Republic of Moldova and 65% in Ukraine marked this method); are prone to get involved in a sustainable partnership with

universities in the process of preparing students (respectively 63% and 55%); are ready to participate in the development of curricula (respectively 52% and 36%); to remunerate students during practical training (respectively 48% and 26%); to delegate a person within the company (instructor, mentor), who will be responsible for the training of specialists through dual system (respectively 37% and 36%); few companies have expressed their desire to contribute to the facilities necessary for the training process (respectively 30% and 20%).

Dual education, according to the experiences of other countries, assumes that students must be remunerated for their work in companies, so it was important to find out the opinion of the companies on the size of the salary that would be available to pay the student (figure 11).

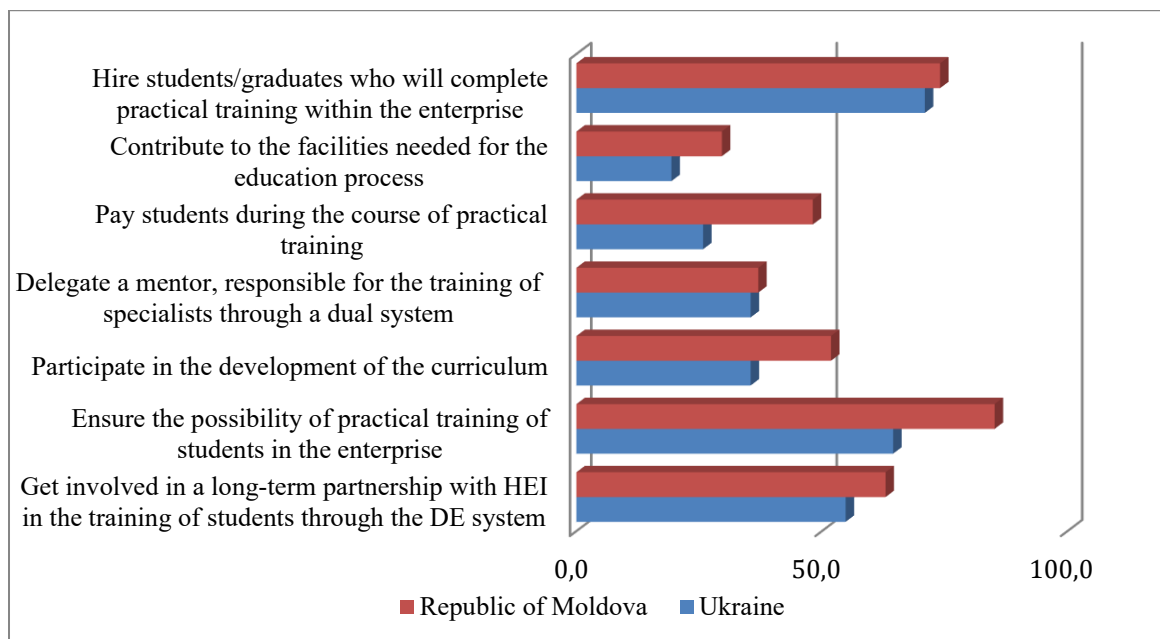


Figure 10. Contributions of companies to the training of specialists in partnership with educational institutions, Republic of Moldova and Ukraine

Source: Elaborated by authors based on survey results

Thus, the companies participating in the survey from the Republic of Moldova expressed their opinion on student remuneration, as follows: 40% of respondents are available to pay more than 120 euros per month, 16% are ready to pay up to 120 euros per month, 8% of companies consider that they could pay 100 euros per month, 4% are willing to pay 70 euros and 32% of respondents expressed a different point of view, stating: that they are not ready to pay for the internship; it depends on the number of hours and the involvement of the students; the minimum wage in the real sector; possible more, but it depends on skills and effort.

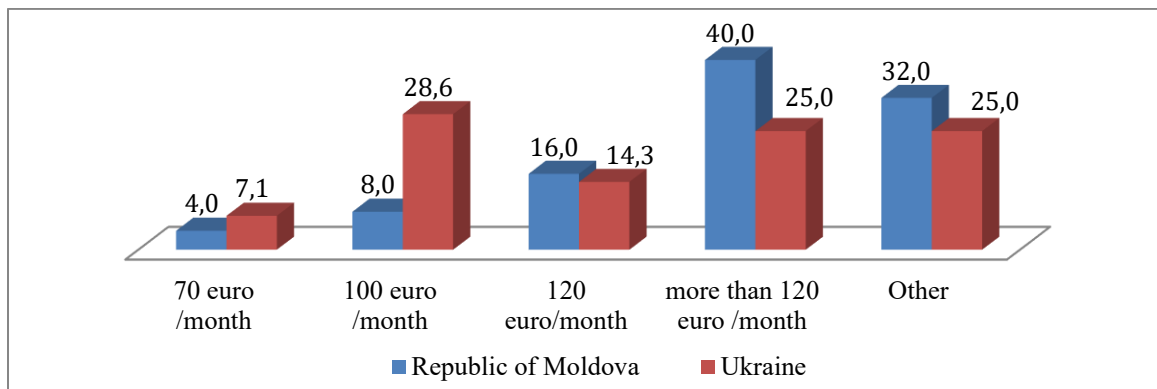


Figure 11. The amount of salary that companies are available to pay students, Republic of Moldova and Ukraine

Source: Elaborated by authors based on survey results

The economic units in Ukraine, which were interviewed, have the following views on the size of the salary to be paid to the student by the company: 28.6% of companies are willing to pay 100 euros per month, 25% - more than 120 euro per month, 14.3% agree with 120 euro, 7.1% consider that 70 euro per month is enough and 25% of companies have other opinions, namely: the company must teach the student, but not to pay his salary; it will all depend on the results of the interview; they normally pay fare market rate; finance issues need to be discussed further.

Thus, it is highlighted that many companies do not perceive the difference between dual education and internship, in the case of the classical model of higher education, which emphasizes the importance of further actions to popularize DHE and explain the role of the business environment in this process.

Regarding the duration of the practical training, from the total number of study hours, accepted by the company, the opinions at country level differ (figure 12).

Thus, the companies from the Republic of Moldova voted equally with 34.6 percentage points for the proportion of 60% of study at the higher education institution and 40% at the enterprise and 50% at the enterprise and 50% at the university. Less were in favour of the 40% at the higher education institution and 60% at enterprise - only 19.2% of respondents, and the 65% at the university and 35% at the enterprise was selected by only 3.8% of respondents. At the same time, some companies have mentioned that any combination may be possible for higher education.

In the case of Ukrainian companies, the answers provided marked 60% at the higher education institution and 40% at the enterprise - 36.7% of the total answers, followed by 40% at university and 60% at enterprise - 33, 3%, for 50% at the higher education institution and 50% at the enterprise voted 23.3% and 6.7% were exposed for 65% at the higher education institution and 35% at the enterprise.

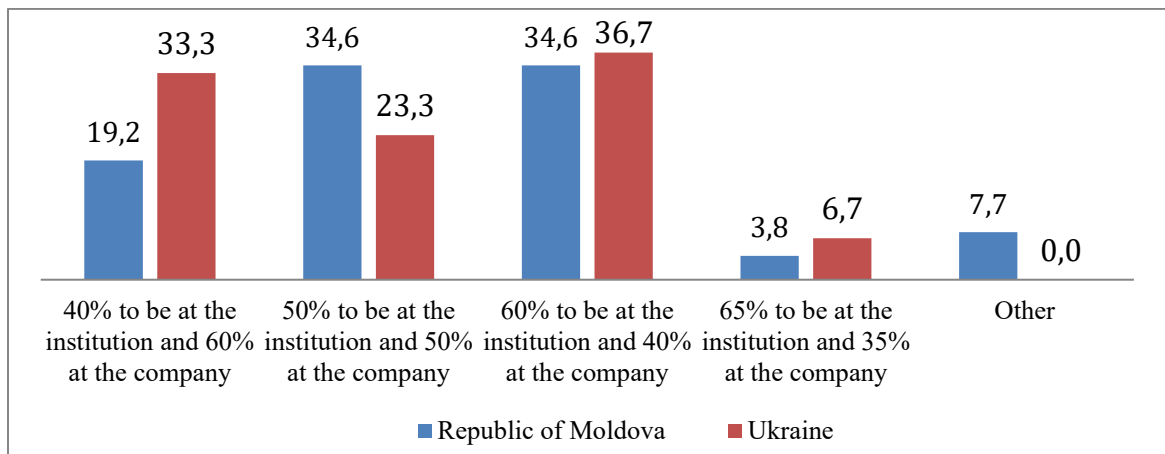


Figure 12. Share of the number of training hours at the enterprise and university (practical and theoretical), from the total number of study hours, Republic of Moldova and Ukraine

Source: Elaborated by authors based on survey results

Dual higher education can be organized according to several forms of training of future specialists within companies, so it was important to find out which would be more suitable for the organizations participating in the survey (figure 13).

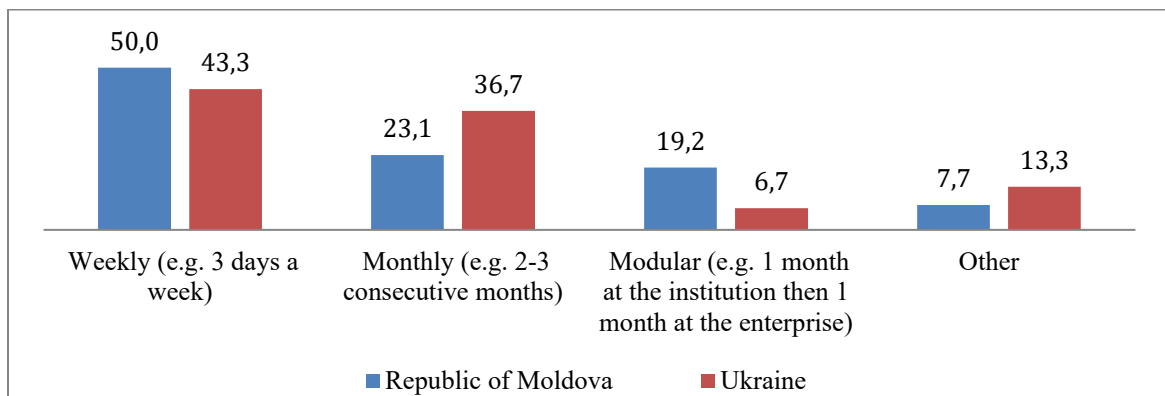


Figure 13. Form of in-company training of future specialists

Source: Elaborated by authors based on survey results

The analysis of the answers provided by companies in both countries identifies similar views to this question. Thus, the representatives of the business environment in the Republic of Moldova (50%) and in Ukraine (43.3%) opt for a weekly program, for example, 2-3 days each week when the student is with the company.

The monthly program follows (for example: 2-3 consecutive months), being chosen by 23.1% of companies, participating in the survey from Moldova and 36.7% from Ukraine. For the modular system, which involves, for example, 1 month at the institution, 1 at the company, 19.2% of respondents from Moldova and 6.7% from Ukraine opted.

Representatives of the business environment were asked to determine which are the most important professional skills related to performance that students can develop through dual education (figure 14).

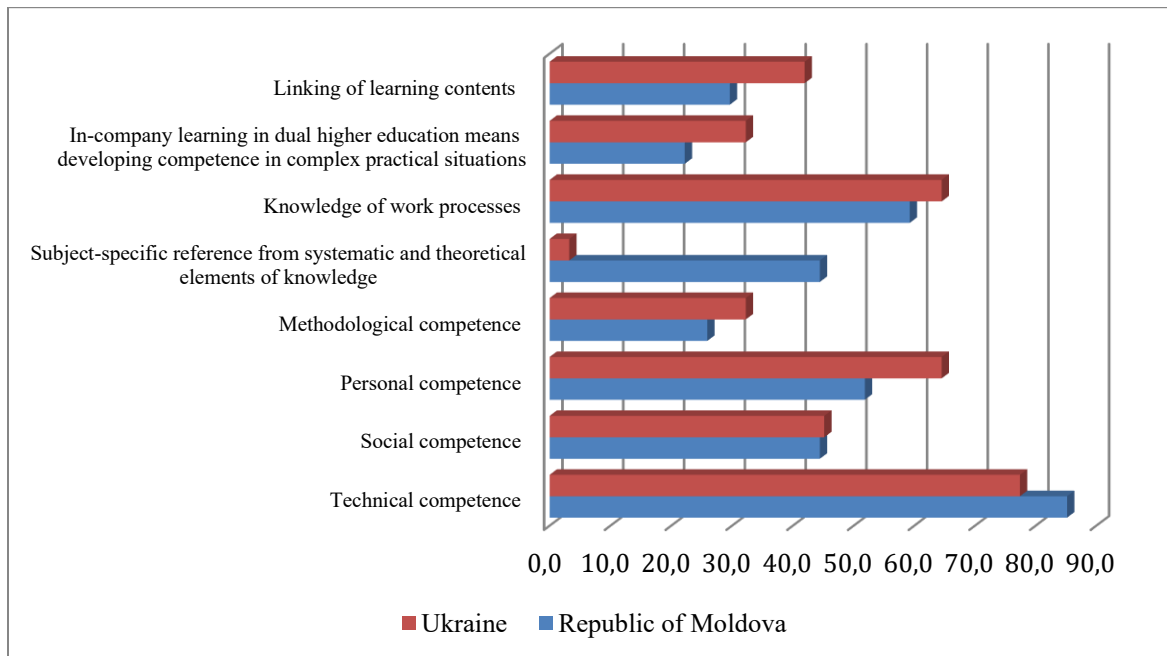


Figure 14. Performance-related professional skills gained by students in dual education, Republic of Moldova and Ukraine

Source: Elaborated by authors based on survey results

The analysis of the answers provided by the representatives of the companies from the Republic of Moldova and Ukraine reveals the existence of similar opinions regarding the abilities obtained by the students due to the dual education.

Respondents pointed out, first of all, that students will be able to develop *technical skills*, thus increasing their ability to solve problems in a task-oriented manner, based on knowledge of the subject and the ability to evaluate the result. Secondly, they will have the opportunity to increase their level of *knowledge in the field of work processes*, dealing with specific knowledge in a way that is productive and relevant to the situation.

At the same time, dual education through dual system will allow to increase the *personal skills* of students, which consist in the availability and ability to reflect on their own development in relation to individual and social values. It is also important that through dual education it will be possible to develop *social skills*, which consist in the availability and capacity to understand relationships and social interests.

Given that the representatives of the business units in the previous questions expressed some dissatisfaction with the level of training of graduates of higher education institutions, identifying weaknesses in the field of practical skills, knowledge of new processes, technologies and equipment, DHE appears as a system of education that could solve these problems.

The implementation of dual higher education is a complex process, in which various stakeholders must be involved, each assuming well-defined tasks and responsibilities. At the

same time, we must mention that it is necessary to develop country-specific DHE models (DHEM) that take into account the experiences of the leading countries in the field, but are based on the particularities of their own education system. For these reasons, the companies participating in the survey were asked to express their views on which stakeholders are considered relevant in the DHE implementation process (Figure 15).

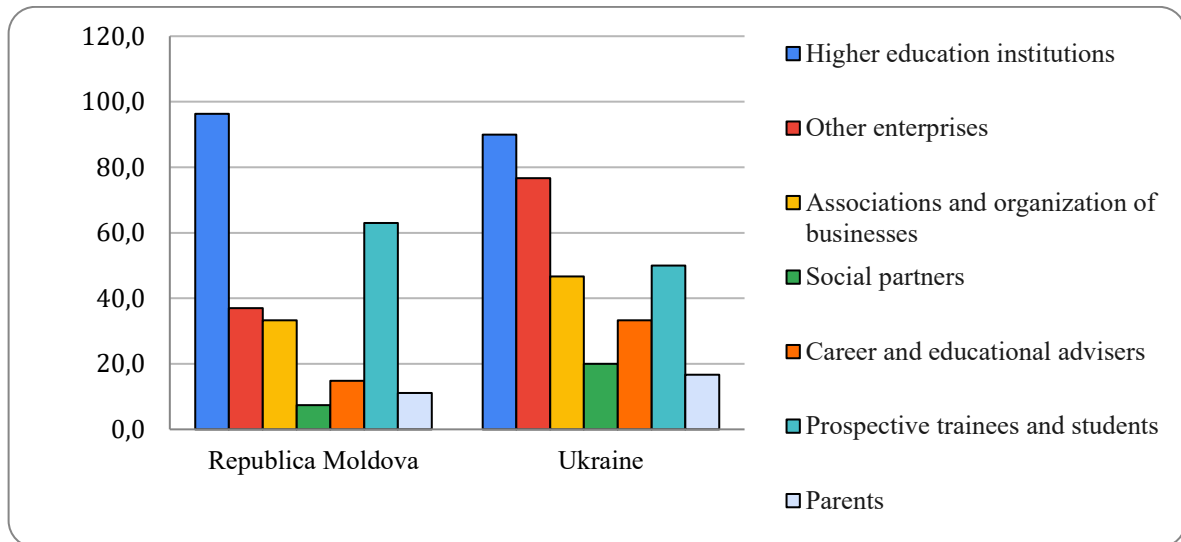


Figure 15. Relevant stakeholders to collaborate for the Implementation of the DHE, Republic of Moldova and Ukraine

Source: Elaborated by authors based on survey results

Companies from the Republic of Moldova highlighted the importance of two stakeholders: universities and prospective trainees and students. A smaller role in the process of implementing DHE belongs to other enterprises and business associations and organizations, and the relevance of career and education advisers, parents and social partners is considered very low.

Ukrainian companies have noted the importance of several stakeholders in this process. Thus, the respondents consider that the role of HEI, other companies, potential students and trainees, and business associations and organizations is important. At the same time, they emphasize the need to involve career and education advisers, parents and social partners.

Conclusions

Based on the study, we can conclude that companies are ready to get involved in the integration of dual higher education in the Republic of Moldova and Ukraine. The organizations participating in the survey expressed their willingness to contribute in various ways to the training of future specialists with higher education.

The results of the study conducted and described above, allowed us to develop a model of DHE, adapted to the existing context in the Republic of Moldova. Namely this DHEM

will be used for piloting the dual higher education within ASEM in the academic year 2022-2023.

We remind, that ASEM has chosen to redesign and pilot as Dual the existing bachelor study programs: Business and Administration (BA) and Applied Informatics (AI). This decision is based on several considerations:

- First of all, students studying in these specialties can do in-company training in companies in any field and of any size;
- Another important moment is the fact that there is a high demand for these specialties, with a significant number of students enrolled annually;
- International statistics show that in the countries where DHE is implemented, the most requested study programs offered in a dual way are in the field of BA and IT;
- The study on companies needs for DHE, carried out within the COOPERA project, showed clearly that organizations from the Republic of Moldova are ready to work with higher education institutions to train IT specialists - 64%, engineers - 36%, managers - 32%, accountants - 31.82%, etc.

Thus, we can conclude that most economic units in the country have a need for specialists in those fields.

An *integrated model in the existing program* was chosen for ASEM. This implies that for students who study dually, there are no separate subdivisions in the organizational structure of ASEM. For example, at ASEM within the Faculty of Business Administration, in the specialty Business and Administration there will be separate groups, which will study both traditional and dual way.

The integrated model will make it possible to facilitate certain advantages: it is not necessary to develop a completely new curriculum and to attract new teachers, and it is possible to organize lectures in larger groups. At the same time, it will be necessary to draw more attention to the integration of the in-company training period in the educational process, without negatively affecting the quality of teaching.

Following consultations with company representatives, it was decided to choose the following training model: *60% of the total number of study hours will be spent at the institution, 40% at the company.*

In this way, all lectures will take place at the university, being taught by tenured professors and specialists attracted from the business environment. Seminars and laboratory lessons will be divided. Some of them will be spent at the university, and the other part will be done in the economic units. Likewise, the individual study will be carried out both within ASEM and at the partner economic agents.

The distribution of training hours (theoretical and practical) in the university and at the economic agent will be organized according to a *monthly model*. This means that each semester will be divided into two parts. The first part will include the theoretical training of students, which will take place within ASEM and will last about 2 months (depending on the semester and year of study). Then will follow the practical training, which will be carried out in the economic units and will also last about 1.5 - 2 months (depending on the semester).

The *cooperation between ASEM and the economic agents* will be carried out at all stages of the realization of the dual higher education. Thus, the economic entity will be involved in the development of curricula in accordance with current and future needs; in the selection of potential students in the first year of studies and the training of professional skills in the real work environment; in ensuring the salary of students, during the entire training process; to involve students trained in dual format in solving real problems of the entity; to facilitate the employment of graduate students, who will carry out practical training in the partner company.

The company will delegate a person named mentor (a specialist), who will be responsible for training students and developing practical skills.

ASEM will conclude cooperation agreements with partner companies. Upon completion of the student selection process, companies will enter into training and learning arrangements during the course of study with students participating in the dual system.

In order to facilitate the cooperation with the economic agents, ASEM will prepare a methodological guide, which will describe the main aspects, related to the coordination of the students within the economic units.

In the first year of testing the dual education within ASEM, the existing curriculum will be used for the study programs: Business and Administration (BA) and Applied Informatics (AI), which have passed the accreditation. In the future, it is possible to adjust the curriculum to the demands of the business environment and to the specifics of the study process in dual format. This will require close cooperation with company representatives to take into account their needs for the training of future specialists in these fields. At the same time, teachers will be offered the opportunity to complete internships in partner companies.

At the institutional level, the *monitoring of the study process in dual format* will be performed by the Vice-Rector for teaching activity. The departments of Management and Entrepreneurship, and Applied Informatics in Business, which were chosen to pilot the dual education programmes, will be responsible for ensuring the quality of the educational process carried out in dual format.

The respective departments will organize in-company training of students; individual student work; taking the exams according to the curriculum; directing the process of elaboration and defence of the annual and undergraduate theses of the students; informational and methodical provision of the didactic process with didactic means (textbooks, course notes, methodical recommendations); and so on.

At the same time, will be delegated the persons responsible for the cooperation with the economic agents. Likewise, university mentors will be assigned, who will guide the students during the years of study, remedying all the difficulties that may arise in this new form of study. In order to inform ASEM teachers about the particularities of dual education, a methodological guide will be prepared, which will describe the main aspects related to the coordination of students studying in dual format.

Initially, the *enrolment of students* will be done in a similar way for all students, who will be informed when submitting the documents, that later they will have the opportunity to choose the mode of study: traditional or dual.

At the beginning of the study year (beginning of September) a meeting will be organized with all the students, who have been enrolled in BA and AI, where they will be explained what the studies in dual format consist of. Representatives of partner companies will also be invited to this meeting, who will present their offers and requirements to students.

In this way, those who wish to study dually will be required to submit a CV, a motivation letter and a list of companies where they would like to carry out in-company training. This portfolio will be sent to the economic agents, who will make the final choice. Subsequently, an agreement will be signed between each student and the economic agent, which will describe the rights and obligations of each. Students selected for dual study will be organized into a separate group, which will study according to a special program, outlined above.

Thus, the dual education implemented at the level of higher education institutions will require the realization of several considerable changes, but which will contribute to the increase of the quality of the educational process, offering multiple advantages for all the stakeholders involved: students, companies, universities, state.

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