European Best Practices in Dual Higher Education (DHE)

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Abstract: This article describes dual higher education (DHE) programs at universities in different European countries. The report was prepared within the EU funded CBHE framework of the DUGEOR project. The main goal of the project is to improve the competence of graduates of higher education and their employment in Georgia, taking into account the best practices of EU countries.

This article includes the results of an analysis of 15 dual higher education programs implemented by different universities in 3 countries (Austria, Germany, Spain, and Serbia) in different industrial sectors. In addition, we also reviewed the newly established DHE model in Serbia without in-depth analyses of the Serbian DHE programs. The report also implies the concept of DHE and general approaches to dual education in education policy. The report ends with a summary and conclusions that may be useful in the next stage of developing a dual higher education model in Georgia.

Key Words: Dual higher education, master, bachelor, apprentice, university, practice, work-related, work integrated, work-based, learning

Dual education in the educational system of European higher education institutions

The higher education system around the world has been changing dramatically in recent decades as a result of the impact of information technology. Rapid dissemination of information ensures social, technological or cultural access to knowledge.

If even in the previous century, the greatest importance was attached to the theoretical knowledge obtained in libraries and university spaces, today, an in-depth knowledge of fundamental works has been replaced by the information shared on the Internet, which, unlike the bachelors and masters from the previous century, nowadays are available to almost all interested people, regardless of their basic knowledge and age characteristics.

As a result of this circumstance, today in Georgia, as well as around the world, the demand for fundamental knowledge is somewhat reduced and emphasis is placed on the skills and universality of applying knowledge in practice. Of course, the acquisition of theoretical knowledge and the application of knowledge in practice has its own place in the university education system. However, the difference between the previous and current study models are based on the fact that the theoretical knowledge can be obtained relatively easily, while professional habits and constantly changing requirements related to work as well as developing adequate skills are much more valuable.

Thus, the modern and growing trend of obtaining knowledge in the coming decades will be the model of education where the student will be provided with basic theoretical knowledge and the professional skills that the modern labor market presents to the employee.

Historically, academic degrees have been directly linked to the initiation of a student (apprentice) into a higher level craftsman. A bachelor, from the French *bachelier* (eleventh century), meant a young man, an assistant to a master or craftsman (Wedgwood 1859), while a master or craftsman, also from the old French word *maistre*, was used to denote a person eminently and thoroughly skilled in some field (Harper 2023). The hierarchy of professional ranks in Georgia consisted of three-levels: master, prentice and apprentice. The master, as a teacher, would teach his craft experience to the apprentice, who after some time would start working as prentice, i.e. partially independent work, whereas after apprenticeship, he would be approved by the master and receive a set of workshop tools from him, and after that he would be considered as a fully fledged master. The oldest data

on the master-apprentice relationship dates back to the 6th century. According to Iv. Javakhishvili, ancient Georgian manuscript - "Martviloba of Eustathius Mtskheteli" (VI century) denotes a crafts union in Georgia as "workman's elder", "craftsmen's boss" and "superior", which were responsible for various actions towards "doers", i.e. "workers" (არჩვაძე, ბოკუჩავა და გელაძე 2011). Since the 19th century, a union of artisans named "Amkari" took hold, although it preserved the centuries-old tradition of passing knowledge from the master to the apprentice.

According to the researchers, the abundance of Georgian sources and data related to the Amkari unions, constitutes an important document which proves that the Amkari originated in Georgia and reached their powerful development in the 10th-11th centuries (გუგუშვილი 1975), (მესხია 1983).

Unfortunately, in the twentieth century, the ugly forms of economic and labor relations in Soviet Georgia weakened these traditions and they were forgotten, which did not happen in the civilized world, where the academic and professional education were developed side by side.

Based on the literature analysis, in which the integration of work-based learning methods in the higher education model of different countries is investigated, the following approaches can be outlined:

Work-Related Learning (WRL): It is a method in which learning takes place in close connection with the work environment through formal trainings (after work) or informal methods (on-the-job environment). According to study (Ferreira, Künn-Nelen and De Grip 2016), which analyzed the extent to which work-related learning is related to the development of employees' skills in 28 European countries, it was found that WRL uses two approaches: formal training and informal learning.

Various empirical studies have confirmed that individuals who participate in formal training or are involved in informal learning show higher skill improvement. It is also interesting that the relationship between informal learning and the development of work skills is stronger compared to participation in formal training. Nevertheless, these two forms of work-related learning are complementary. This complementarity further contributes to skill development, as observation shows that staff who participate in both training and informal learning show significant incremental improvements in their skills (Cunha and Heckman 2007).

Work-Based Learning (WBL): An educational strategy that provides students with a real-world work environment where they can apply academic and technical skills and improve their employability (cte.ed.gov 2020). Work-based learning refers to all forms of learning that takes place in a real work environment. It provides individuals with the skills needed to successfully obtain and keep jobs and progress in their professional development. Apprenticeships, internships/traineeships and on-the-job training are the most common types of work-based learning. These types usually – but not always – combine elements of learning in the workplace with classroom-based learning (Inter-agency Group on Technical and Vocational Education and Training 2017).

Work-based learning refers to learning that occurs when people do real work. This work can be paid or unpaid, but it is the real work that leads to the production of real goods and services. Some enterprises, particularly large ones, have their own training classrooms or workshops, and employees take time away from work to attend training sessions in them (ETF 2014).

Work-Integrated Learning (WIL): Training programs in this model connect university students with a workplace that is relevant to their field of study. This kind of professional HE (PHE) aims to combine a relevant field of academic study with work practice through a specific programme.

Work-integrated learning gives students the opportunity to apply knowledge gained from academic studies to relevant work and transform work experience into knowledge (Cooper, Orrell and Bowden 2010). Although work-integrated learning shares the same approaches as work-based learning (WBL), it differs in that WIL is part of the curriculum and guided by learning objectives, whereas WBL focuses on the workplace and is not linked to academic research and teaching (Cooper, Orrell and Bowden 2010). The WIL approach includes apprenticeships, field experiences, mandatory professional practice, cooperative education, internships, participation in applied research projects, and service oriented learning (Turcotte, Nichols and Philipps 2016). Work-integrated learning can have many names depending on the context. For example, WIL programs in healthcare are known as clinical placements, while in other fields they may be referred to as practicums, industry projects or simulations (if carried out at a university or in virtual reality) (Atkinson 2021). The WIL system is effective in that it not only improves the student's career, academic and other personal skills, but also has additional benefits for employers and academic institutions (Zegwaard 2014). The system is an effective tool for graduate employment.

Students who participate in WIL are more employable and better able to navigate the job search and transition of university knowledge into full-time employment (Jackson 2015).

In many countries, educational policy makers realize that for the effective functioning of the labor market, its intellectualization and the increase of innovative capabilities, it is necessary to strengthen the alliance of knowledge between academic organizations, industrial enterprises and other professional associations that define professional standards. The rapidly changing business and technological environment forces education providers to regularly update engineering curricula (Mahler, და სხვ. 2019). Work-based, work-related or work-integrated learning at the higher education level is emerging as a profitable model of cooperation between higher education institutions and industry. Higher education institutions have the opportunity to take advantage of the current challenges and create flexible curricula based on a theoretical and practical model of teaching, which are focused on meeting the demands of the labor market by developing relevant skills for students (Davey and Orazbayeva 2017). Such an approach is very effective in higher education programs in engineering and applied sciences, although it can be equally useful in other areas such as business and management, law and education. On the other hand, companies and entrepreneurs involved in the higher education process benefit from the involvement of students in their work tasks. Work-based learning helps companies overcome the shortage of skilled workers, improve the quality of the workforce, simplify the recruitment process and save costs. By partnering with higher education institutions, companies can influence the curriculum by adding the knowledge and skills they want.

Following the work-based learning approaches we have outlined above, there are several forms of incorporating work experience into higher education curricula, including internships, apprenticeships, practicum courses, etc. However, ensuring the highest level of incorporation of real-world work experience into education is achieved through dual-model training programs. There are two models of dual education - model of professional education and model of professional higher education. The first one is already implemented in Georgia, and the latter is a hybrid form of higher education, which offers the participant the opportunity to complete a bachelor's/master's program at a higher educational institution and simultaneously receive a certificate of practical professional training or work experience in a company (Davey და Orazbayeva 2017).

Dual education is fundamentally different from the "part-time" study or work model, where the type of work and the study program may differ from each other. A crucial feature of

dual education is that professional internships are an integral part of training programs (Zrnic და Miskovic 2017) (Davey და Orazbayeva 2017) (Nickel, Higher და Area 2021). Studying on a dual program means that students enroll and sign a contract, which allows them to study in two different places - the university and the company. Dual education considers the company as a student's learning environment together with the university. In this way, three parties are integrated into the system of dual higher education: student-higher institution-company.

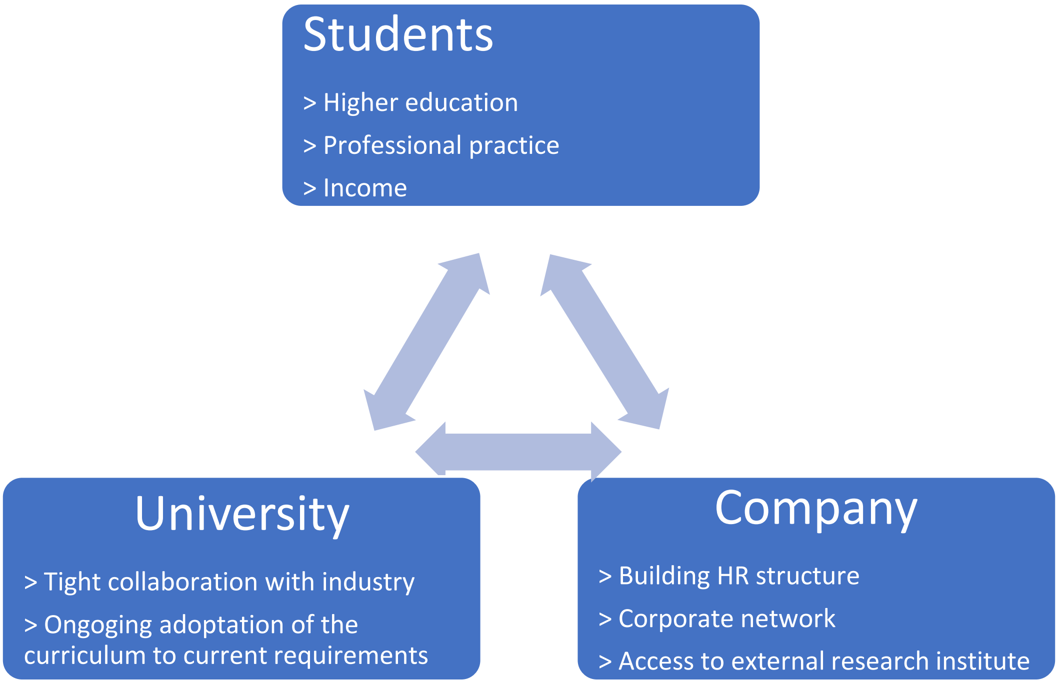

Figure 1. Characterization of Study programmes in Austria EQF 6-7. Graz: FH Joanneum. Source: (Hochrinner 2020)

This relationship, in its turn, is consistent with the requirements of both higher education and labor legislation. In addition to the flexible response to market demands, the dual education model also has a social impact, within which students with low socio-economic opportunities receive significant benefits as a result of conducting study and work together, which allows them to at least partially solve the problem of financing of the tuition fees.

Currently, dual higher education (DHE) training programs are an important educational direction in German-speaking countries (Graf 2013). For most other European countries, dual education is mainly implemented at the secondary, but not at the higher education level (Zrnic და Miskovic 2017). However, the need for dual education at the higher level led to the development of relevant legal regulations and the development of dual study

programs at the university level in a number of European countries. Accordingly, this situation puts the issue of quality assurance of dual training programs on the agenda, depending on their specificity.

The concept of dual education is not new. It started at the beginning of the 20th century at the University of Cincinnati, USA, which introduced a dual program for mechanical engineering students in a machine tool factory, and later spread to English-speaking countries. The first and most famous dual education system in Europe was developed in Germany when they established the Cooperative State University of Baden-Württemberg (German: Duale Hochschule Baden-Württemberg, DHBW) in 1974, which is the successor of the Vocational Academy (Berufsakademie) of the federal unit of Baden-Württemberg (Zrnic ϙ Miskovic 2017).

Comparative characterization of dual vocational and dual higher education models

Dual vocational and dual higher education models differ mainly in their focus, level of specialization and outcomes. The table shows the characteristics of these two models.

	Dual vocational education:	Dual higher education:
Focus	Focuses on providing students with specific skills and practical knowledge necessary for a particular profession. This model emphasizes hands-on training and prepares students for immediate transition into the workforce.	Aims to provide a broader and more comprehensive education including various disciplines, related to the core subject. Emphasis is placed on the practical application of theoretical knowledge, critical thinking, management and research skills. Students are qualified for immediate start in respective job positions.
Level of specialization:	Dual vocational programs are highly specialized and train students in specific occupations such as auto mechanics, culinary	In Dual higher education programs, the disciplines and fields of study offer a holistic approach to a relevant

	arts, electrical work, nursing, information technology, etc.	professional field. Learning takes place in parallel mode: theoretical learning is complemented by practice learning. Students receive systematic knowledge of the chosen study course but also learn and apply transversal skills, e.g. project management or quality assurance.
duration and outcomes:	Vocational education programs can vary in length, but are generally shorter than traditional higher education programs. They usually range from a few months to a few years, depending on the specialty. Vocational education programs are designed to provide students with the skills and knowledge needed to directly enter specific occupations. Their aim is to meet the immediate needs of the job market and as a result, graduates are quickly employed.	Dual Bachelor's programs are three to four years long, where almost equal time is allocated to studying theoretical subjects and developing practical skills. Graduates often go on straight to professional careers. Some study at a higher academic level in their field. A graduate of the Dual higher education program quickly adapts to the labor market and is highly employable. Students have the in-depth knowledge of a study subject as well as relevant skills to combine it with experiences from practice. Together with the transversal skills trained and adopted in academic and work environments graduates are enabled to manage real life challenges in their jobs.

It is important to note that these differences are not absolute and there may be some overlap between vocational and higher education. In some cases, the vocational education model may offer students to complete their knowledge and profession through higher education, and on the contrary, some higher education institutions may include professional or practical components. The specific structure and characteristics of dual higher education models may vary between countries and educational institutions.

Dual Higher Education

Dual higher education combines students' academic learning with work experience in enterprises/industry and can be used to achieve different goals such as (ETF 2014):

- development of professional skills that contribute to obtaining a recognized professional qualification;
- Development of work habits and job-readiness;
- Student's understanding of job requirements and making the right choice when planning their own career;
- Giving the students of low social status access to opportunities to work that they might
- not have otherwise
- In the process of creating the concept of dual higher education, the main key issue for policy makers is to develop a program and goals that ensure that the best interests of the parties involved in the implementation of the program are met. The dual higher education model combines the efforts of three main stakeholders - a three-way partnership between the student, the higher education institution and the company.
- The terms of cooperation are usually established by specific agreements between the company and higher education institutions, which define:
- Number of students accepted by the company (in different countries, taking into account the economic situation, the labor market and other circumstances, this number is different. For example, in Austria, one company receives 1-5 students, while the number of students employed by a German company may be from 10 to 60),
- Remuneration conditions (will students work for free or receive a salary),

- Number of hours spent in the company per semester (as a rule, the number of hours is transformed into study credits - if, for example, a student spends 200 hours in the company, which is 25 working days, he will be awarded 8 ECTS)
- Other rights and duties of the student, the company and the higher education institution.
- The work of the students in the company requires a supervisor, a mentor, who will guide the students in the company, give the necessary instructions for completing the tasks, and finally evaluate the activity performed by the student after the internship. As a rule, the mentor is selected from the company's internal resources. After completing the studies, the company is not obliged to employ the student in its production.

Analysis of DHE programs in European countries - summary

As can be seen from the examples of DHE programs implemented in European countries, the goals of dual higher education models are similar, although there are slight differences in structure and approaches, which in principle depend on the institutional and regulatory framework of the given country. For example, DHE programs in Austria are strictly regulated at the national level and therefore follow a uniform approach to program design and implementation (Austria), whereas in Germany the trend is much more flexible.

In all the countries we have studied, dual higher education programs are accredited by national accreditation agencies and are usually in line with the Bologna criteria, take into account the European Qualifications Framework (EQF) scheme, the requirements of bachelor's and master's levels and include the right to access the next educational level.

In all cases discussed, students receive remuneration for working in enterprises and In almost all cases, work is based on specific employment contracts.

In terms of partnerships with companies, there are significant differences in the size of the companies and the process of selecting students: in Austria, as a rule, the student chooses the company for further practical work (although the company's initiative to select students is not excluded), while in Germany, the company itself is the initiator of the selection and recruitment of students of the dual higher education program and the work practice.

As for teaching, it is a mixture of theory and practice. Studies begin with a theoretical semester followed by practical semesters. At the beginning of the study, the share of theoretical hours is greater compared to practical hours. In subsequent semesters, the volume of practice increases, and finally the ratio between theoretical and practical hours in undergraduate programs is on average 60/40, and in master's programs it is 50:50.

Students are evaluated by the staff of the higher education institution, guided by the report of the company representative (mentor). A student's internship report is usually supervised by a company representative, although it is also supervised by a university professor.

Among the 15 programs analyzed, the majority are technical DHE programs, although there are also DHE programs in management, business administration, education, and the health sector.

Austria

In Austria, universities of applied sciences play a leading role in the implementation of dual higher education programs, although other classical universities are also authorized to develop and implement dual education programs.

DHE programs in Austria are standardized within the educational framework. Most of the dual higher education programs are implemented in technical education programs and are in full compliance with the Bologna regulations - the duration of the bachelor's studies is 6 semesters and includes 180 ECTS, while the master's programs last 4 semesters and include 120 credits. Graduates of dual higher education, like graduates of classical universities, have the right to continue their studies at master's or doctoral level (EuroEducation.net 2014).

Accreditation of the dual higher education program is regulated by law and carried out by the Austrian National Agency for Education Accreditation.

All programs are jointly developed by representatives of HEIs and partner companies. Higher education institutions have a leading role in the development and implementation of training programs, which is also reflected in the ratio of teachers of higher education institutions (60%) and persons involved in the program from companies (40%).

The companies participate not only in the development, revision and implementation of the curriculum, but are also involved in the mentoring of the student's final thesis (co-supervised with the higher education mentor).

HEIs have overall responsibility for conducting student assessments. However, the inclusion of partner companies in the assessment of students is related to the practical part of the educational program (working in companies), which is not strictly regulated. The mentor from the partner company usually shares a recommendation with the head appointed by the higher education institution regarding the evaluation of the students based on a standardized reporting form.

The relationship between partner companies and dual higher education students is governed by a direct employment contract in accordance with Austrian labor law. As a rule, these contracts are concluded on a part-time basis.

As for the educational process, during the first and second semesters, teaching takes place in the HEIs settings and the staff of the HEIs is involved in it. From the 3rd semester, partner companies are involved in the educational process, and the distribution of hours between higher education institutions and partner companies is 50/50 at the undergraduate level and 40/60 at the master's level, which means that the partner companies have even more responsibility for the education of students.

Staff involved in teaching must have at least 3 years of experience in the relevant industry and an academic degree equivalent to at least 300 ECTS credits.

The employment rate after graduation is very high, ranging from 90 to 100%, and the dropout rate is 15 to 30%.

Germany

A dual education curriculum in Germany combines academic studies with work training and experience. Due to their practical nature, dual higher education programs are quite popular in Germany. Practical experience is an essential component of dual higher education programs. If a student is enrolled in a dual education study program, he or she also signs an employment contract with the company. Accordingly, teaching/training is carried out in two places: at the higher educational institution and at the place of the employer. In Germany, the dual higher education programs offered by different higher

education institutions are not unified. The design and structure of the program depends on the subject and specialization and the appropriate approach developed by the implementing higher education institution.

Dual higher education programs in Germany are based on the WRL, WBL, WIL approaches discussed above. All German higher education institutions can offer programs at the bachelor's and master's level. Dual higher education programs are available not only in technical disciplines such as engineering, but also in areas such as management, business administration and the health sector.

All dual higher education programs comply with the Bologna criteria, but are not unified (6 or 7 semesters for bachelor programs (180 to 210 ECTS)) and 4 semesters for master programs (60 to 120 ECTS). Graduates of dual higher education programs have the right to continue their studies at the master's and doctoral level. Some technical training programs are aligned and combined with professional education programs. In this case, graduates receive the corresponding degree and specialty of higher education and professional education.

Accreditation is regulated by law and is carried out by the National Accreditation Agency. All programs are jointly developed by representatives of HEIs and partner companies. Higher education institutions have a leadership role in the development and implementation of programs, which is also reflected in the share of teachers involved in the educational process between HEIs (60%) and partner companies (40%), including some variations. In addition to teaching and curriculum development/revision, industry partners are also involved in mentoring the student's final thesis (along with the university mentor).

The higher education institution is responsible for the assessment of students. The partner company is also involved in the part of the evaluation that covers the practical side of education, although this part is not unified in terms of a single structure or format.

Regarding the employment contracts, some companies sign a direct contract with the student of dual higher education, however, it is also common practice when the higher education institution and the partner company operate within the framework of the contract, and the terms of the employment contract with the students are determined by the Higher Education Institution and not by the partner company.

The first two semesters after the beginning of the educational process are held in a higher educational institution. From the 3rd semester, the educational process is distributed

between higher education institutions and partner companies in an approximate 50/50 ratio at the bachelor's level. As for master's programs, the partner companies have even more responsibility in the education of students, and this ratio is 40/60 in favor of the companies.

The personnel involved in the DHE programs must have experience in the relevant production process and possess a relevant academic degree.

Employment rates after university graduation are very high, ranging from 80 to 90%, and dropout rates from 5 to 20%.

Spain

Similar to Austria and Germany, dual higher education programs in Spain are implemented by different types of private and public higher education institutions. The design of the program depends on the discipline, the future profession and the approach chosen by the respective higher education institutions. Dual higher education programs are offered in fields such as engineering, education or business studies.

The curricula of the programs are built in the format of WRL, WBL, WIL models. Bachelor's and Master's dual higher education programs comply with the Bologna model (8 semesters for undergraduate (240 ECTS)) and 2-4 semesters for master's programs (60 to 120 ECTS). Dual higher education programs are not unified. All graduates of the dual higher education program have the right to continue their studies at the next level of education - master's and doctorate degree.

Development of dual higher education programs is implemented jointly by representatives of universities and partner companies. Partner companies are also responsible for developing a set of competencies for the practical part of the training process.

The leading role in the implementation process is assigned to the relevant higher educational institution. In the distribution of shares of teachers involved in the educational process, you can find different ratios from 50/50 to 75/25 between HEIs and the partner company, respectively.

Labor relations are regulated either directly by a contract signed between the student and the company, or by an agreement signed between the university and the company. There is no special standardized work contract for students in dual higher programs (although there is one for students of vocational programs defined by the state). Nevertheless, the general

framework of the agreement is as follows: a cooperation agreement is signed between the university, the company and the student, which defines the rights and obligations of the partners.

Accreditation of dual higher education programs is regulated by law and carried out by an accreditation agency.

As for the staff involved in the dual higher education process, in contrast to Germany and Austria, no special requirements were identified.

Data on employment rates are not available for all programs (some are newly introduced), but available data show that post-graduation employment rates are very high for dual degree programs (80-100%), while dropout rates range from 20-36%.

Serbia

Dual higher education in Serbia is at the initial stage of development. Although there is a long tradition of work-based learning in Serbia at the level of secondary vocational education, a legislative act regulating this area was adopted only in 2017 (Serbian dual education law 2017). As for higher education, the Law on Higher Education of the Republic of Serbia since 2017 envisages ways of institutionalizing cooperation between companies and higher education institutions, which promotes work-based learning. Accreditation standards in Serbia include mandatory internships in all professional training programs. The final institutionalization of the dual study model in higher education in Serbia took place in 2019 (Zakon o dualnom modelu studija u visokom obrazovanju 2019). Accordingly, the accreditation standards of study programs were updated and the first dual-model study programs were accredited in 2021, mainly in the direction of applied sciences. In the process of developing a dual education program, higher education institutions often faced difficulties as it was challenging to find companies that had the ability and willingness to accept students for work-based learning. At the initial stage, the need to unify the regulatory documentations necessary for students' involvement in work processes were also identified (contracts, study agreements, monitoring procedures, payment negotiations, work safety procedures, etc.). The enactment of the law on dual study model in higher education, put on the agenda the development of basic trainings for mentors involved in the training process of the companies. Another important problem is

related to the fact that often companies do not see the benefits that can be obtained by involving students in the work process. Even in the highly socially responsible companies the legally established payment rate for the students were recognized as a significant financial burden for small enterpriser (Marinkovic, Savic ϖ Stamenovic 2022). All these difficulties revealed the need to establish a dual higher education quality assurance system. Although the main requirements for the accreditation of dual higher education programs have been established by the National Council of Higher Education of Serbia, the main indicators for the evaluation and self-evaluation of dual higher education programs have not yet been developed.

According to the law of Serbia "dual study model in higher education", dual programs can be implemented in all educational programs that comply with accreditation standards, the Law on Higher Education and the National Qualification Framework. Accordingly, dual higher education programs can be implemented at all higher levels of education, with the right for graduates to continue to the next level of education.

Curricula of the programs according to the Law of Dual Higher Education of Serbia is compatible with WIL format, which implies the transfer of acquired practical skills in a certain number of ECTS credits and is an organized process. This process is taking place under the guidance of a company mentor, where the student implements theoretical knowledge in a real work environment, has direct contact with business procedures operating in the business world and technology, interacts with other hired professionals, and is prepared for real work.

A higher education institution willing to implement a dual higher education program will have to search in advance and create a network of employers who are ready to hire staff according to the qualifications provided by this university.

The higher education institution is responsible for the assessment of students. The partner company is involved in the part of the evaluation that covers the practical side of education. The evaluation format is governed by the university's curriculum framework. The mentor appointed by the company must possess the relevant competence.

The dual model can be accredited as an independent educational program or as one of the modules within an educational program. In addition to the standard accreditation requirements, the program/module must be accompanied by a description of the nature and scope of the work practice with the corresponding ECTS credits/hours. For the

organization of DHE modules, within the accredited educational program, the universities can submit an appropriate application for the realization of dual education without increasing the number of accredited students.

The distribution of hours between studying at the University of Applied Sciences and the hours spent at work in the company is determined within the framework of the DHE program, provided that the active learning carried out by the University of Applied Sciences (lectures, seminars and other forms of active education) must be offered for at least 450 hours per year, distributed on average over the entire training period. The same applies to the hours of the work based training, which, like theoretical learning, must be represented by at least 450 hours per year, spread over the entire training period.

HEIs-student-company relations are regulated on the one hand by the agreement between HEIs and the company, and on the other hand by the agreement between the student and the company. In the contract between HEIs and the company, there are mandatory conditions that must be met by the participating parties, including the commitment of the company to carry out training with its own funds. Respectively, the plan and program of the work based training, location and schedule must be clearly defined in advance, intellectual property rights must be protected accordingly, etc.

As for the contract between the student and the company, there are also a number of mandatory rules that must be taken into account during the study period at the workplace. First of all, it concerns the issue of material and financial support of the student. The company is obliged to compensate the student for the cost of using public transport, as well as the cost of food and insurance if these funds are provided for company's other employees. In addition, the student has the right to request work compensation, which is at least 50% of the salary of the staff employed in the corresponding position.

Recommendations for the future model of dual higher education

Within the DUGEOR project, based on the analysis of dual higher education programs of different European countries, it is possible to summarize the main results and present recommendations for the development of future DHE models/programs in Georgia:

- The dual higher education program is carried out at the bachelor's or master's level, corresponding to the relevant EQF level (6 – BA, 7 – MA).

- Graduates have the right to continue their studies at the next educational level.
- Where possible, along with an academic degree, a vocational education degree should also be awarded.
- In terms of contractual relations, it is recommended that contracts be signed directly between students and partner companies. However, it is also important to sign agreements between universities and companies. To the extent possible, the agreement between the student and the company should provide for compensation for the work performed by the student at the company to support the student's financial independence.
- The ratio of theoretical and practical work: it is recommended that at the undergraduate level, the first 2 semesters focus on theoretical learning, the first work experience starts from the 3rd semester and continues until the end of the studies (for example, with a ratio of 80/20 - theoretical/practical work). At the Master's level, more emphasis should be placed on practical experience and the proportion of practical work may be much larger than theoretical teaching.
- Company mentors must undergo special training to prepare for their highly responsible role. Regular meetings between company mentors and university teachers are recommended (at least once a year). In general, the obligations of companies and mentors should be broadly discussed and clearly defined—for example, the mentors' compensation and the amount of time spent on training.
- Representatives of both higher education institutions and the company should be involved in the process of developing and updating the curriculum (for example, in a 50/50 ratio). It is also recommended that company representatives have experience in the relevant field.
- Both academic staff and partner companies should be involved in the teaching process. It is recommended that HEIs representatives have industry experience whereas company tutors have approximately 5 years of industry experience and a relevant academic degree (minimum MA). The leading role in the evaluation is assigned to the higher education institution, however, in the part of practical work, it must rely on the partner company's information about the students' work, according to the established reporting and evaluation system.
- In the process of working on the final thesis, the student should be guided by the joint mentorship of the representatives of the higher education institution and the company involved in the educational process. The mentor appointed by the

company should evaluate the practical part of the work, and the supervisor appointed by the university should evaluate the academic and theoretical side of the thesis. It is recommended that the university mentor visit the company, meet with the company mentor and develop a joint leadership approach, etc.

- At the level of the Ministry of Education and the Quality Assurance Service, there should be a clear list of criteria that reflects the requirements that a study program must fulfill in order to be called a "dual higher education program". It can be the distribution of theoretical and practical credit hours; determination of learning outcomes; existence of two places for teaching; Involvement of companies in the training process; clear connection of practical and theoretical components; existence of a quality management and monitoring system for two different learning environments, etc.

Bibliography

Atkinson, Georgina. 2021. "What is Work Integrated Learning?" *https://myfuture.edu.au/career-articles/details/what-is-work-integrated-learning.* June 2. Accessed June 20, 2023. https://myfuture.edu.au/career-articles/details/what-is-work-integrated-learning.

Boud, D., and N. Solomon. 2001. "Future directions for work-based learning: Reconfiguring higher education. ." In *Work-based learning: A new higher education?*, by D. Boud and N. Solomon, 215-227. Society for Research into Higher Education;Open University press.

Bundesinstitut für Berufsbildung (Hrsg.). 2017. "Quality assurance of company-based training in the dual system in Germany: An overview for practitioners and VET experts." (BIBB - Direktvertrieb).

Cooper, Lesley, Janice Orrell, and Margaret Bowden. 2010. "Work Integrated Learning : a Guide to Effective Practice. ." (Hoboken: Taylor & Francis.). doi:ISBN 978-0-203-85450-1. OCLC 609858835.).

cte.ed.gov. 2020. *Work based learning tool kit.* Accessed June 20, 2023. https://cte.ed.gov/wbltoolkit/.

Davey, Todd, and Balzhan Orazbayeva. 2017. "Dual Study programmes: An effective symbiosis of theory and practice." *www.ub-cooperation.eu.* Accessed June 20, 2023. https://www.ub-cooperation.eu/pdf/cases/W_Case_Study_Duales_Studium.pdf.

Department for Children, Schools and Families Publications. 2009. "The Work-Related Learning Guide (Second Edition)." *https://dera.ioe.ac.uk/id/eprint/10591/7/Work-related_learning_Redacted.pdf.* Accessed June 20, 2023. https://dera.ioe.ac.uk/id/eprint/10591/7/Work-related_learning_Redacted.pdf.

ETF. 2014. *A handbook for policy makers and social partners in ETF countries.* http://ec.europa.eu/dgs/education_culture/repository/education/library/publicatioens/etf-wblhandbook_en.pdf.

EuroEducation.net. 2014. *Austria Higher Education System.* Accessed June 20, 2023. https://www.euroeducation.net/prof/ausco.htm.

Graf, Lukas. 2013. *The Hybridization of Vocational Training and Higher Education in Austria,.* Verlag Barbara Budrich; Budrich UniPress .

Harper, Douglas. 2023. *"Etymology of master", Online Etymology Dictionary.* June 20. Accessed June 20, 2023. https://www.etymonline.com/word/master.

Jackson, Denise. 2015. "Employability skill development in work-integrated learning: Barriers and best practice." *Studies in Higher Education* 2 (40): 350–367. doi:10.1080/03075079.2013.842221.

Mahler, E, G Ilieva, R Breaz, and P Georgiev. 2019. "Flexible pathways for modernisation of undergraduate engineering programmes by country-adapted implementation of the PRACTICE- Integrated dual study model in Bulgaria and Romania." *Balk Reg Conf.* Eng Bus Educ.

Marinkovic, Tatjana, Branko Savic, and Marina Stamenovic. 2022. "Quality assurance and key performance indicators for dual higher education study programs – needs analysis for the development and implementation of higher education of dual study programs in Serbia." *European Quality Assurance Forum. Shaping or sharing? QA in a value-driven EHEA.* West University of Timisoara, Romania. https://eua.eu/downloads/publications/1.05_marinkovic_savic_stamenovic.pdf.

Marope, P.T.M, Wells, Peter J., and Ellen Hazelkorn. 2013. "Rankings and accountability in higher education: uses and misuses." *UNESCO Global Forum Rankings and Accountability in Higher Education: Uses and Misuses, 2011.* Paris. 306.

Nickel, S, E Higher, and E. Area. 2021. "Quality Assurance Framework for Dual Study Programmes in Mozambique and South Africa ."

2017. "Serbian dual education law."

Suryadi, K. 2007. "Framework of Measuring Key Performance Indicators for Decision Support in Higher Education Institution." *J Appl Sci Res.* 12 (3): 1689–95.

Turcotte, J.F., L. Nichols, and L. Philipps. 2016. "Maximizing Opportunity, Mitigating Risk: Aligning Law, Policy and Practice to Strengthen Work-Integrated Learning in Ontario Toronto: Higher Education Quality Council of Ontario."

Van Damme, Dirk. 2002. "Higher Education in the Age of Globalisation: The Need for a New Regulatory Framework for Recognition, Quality Assurance and Accreditation." *GLOBAL EDUCATION* 1 (31): 7-12.

Wedgwood, Hensleigh. 1859. *A Dictionary of English Etimology.* London: Trubner and Co, 60 Paternoster row.

2019. "Zakon o dualnom modelu studija u visokom obrazovanju." http://www.pravno-informacionisistem.rs/SlGlasnikPortal/eli/rep/sgrs/skupstina/zakon/2019/66/1/reg/.

Zegwaard, K. 2014. "Work Integrated Learning in the Curriculum." In *Work integrated learning*, by S. (Ed.), Ferns, 1-6. Milperra, N.S.W. Australia: HERDSA.

Zrnic, N, and Z Miskovic. 2017. "Analysis of EU and worldwide practices and experiences."

არჩვაძე, გვანცა, მარინა ბოკუჩავა, and თამარ გელაძე. 2011. *ქართული მატერიალური კულტურის ეთნოგრაფიული ლექსიკონი.* თბილისი: მერიდიანი .

გუგუშვილი, პარმენ. 1975. *ამქრული ორგანიზაციები.* თბილისი: ქსე, ტ. 1.

მესხია, შოთა. 1983. *საისტორიო ძიებანი.* თბილისი: ტ.2.