

ADAPTING A DUAL HIGHER EDUCATION SYSTEM IN VILNIUS COLLEGE OF TECHNOLOGIES AND DESIGN: THE CASE OF UNIVERSITY OF SZEGED

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Abstract. *The system of higher education in the European Union based on legal instruments valid for all States Member. However, each EU State Member has additional national legislation, which taken into account in the design of the higher education system. The design and implementation of study programs is one of the activities of higher education. Compliance with EU and national legislation are important in design of study programs. It is equally important that the programs are necessary for the national economy, companies and attractive to students. The aim of the article is to determine the need and possibilities of dual teaching in the study program Transport Logistics of Vilnius College of Technology and Design.*

The structure of curricula of dual education at Szeged University in Hungary is analysed. The indicators of changes in studies and practical training from the point of view of students and companies at Szeged University are present.

The article presents a comparative analysis of legislation, study programs and business needs in Lithuania. The analysis showed that business enterprises in Lithuania would be interested in dual training; the application of dual training is not in principle contrary to Lithuanian legislation.

Keywords: *dual education, enterprise, higher education, transport companies.*

Introduction

When designing, implementing and accrediting higher education programs, great attention is paid not only to the theoretical knowledge that is provided to students during their studies, but also to practical skills. It is not essential to distinguish whether the student achieves the required level of competences during theoretical or practical training, but only a set of theoretical and practical knowledge allows to do that.

Accordingly, companies for which higher education specialists are trained note that graduates must be able to quickly become involved in the work process and be a proficient specialist. Corporate executives are often dissatisfied with the practical preparation of the students.

Currently, higher education in Lithuania is regulated by the Law of the Republic of Lithuania (Lietuvos Respublikos mokslo ir studijų įstatymas [LRMSI], 2009). on Science and Studies, the Description of General Requirements for the Implementation of Studies (Bendrųjų studijų vykdymo reikalavimų aprašas [BSVRA], 2016) and other legal acts. There is a statutory minimum requirement for practical training in the design of study programs. European Commission documents (European Commission, 2013, 2017) highlight the importance of practical training and the need to explore ways to increase the proportion of practical training.

The aim of this article is to analyse whether the dual teaching approach would be useful in study programs at Vilnius College of Technology and Design.

The objective is to identify the stakeholders and the impact of dual training on the stakeholders. To compare the requirements of the legislation of the Republic of Lithuania for practical training in higher education study programs and possibilities in applying dual teaching. To analyse the experience of dual teaching at the University of Hungary. To carry out the managers of transport and storage companies survey on the aspects of dual training in higher education.

The research methods used by the authors included a literature review and questionnaire survey of transport and storage services sector's enterprises conducted in 2019.

In order to analyse the opportunities to adapt a dual higher education system in Vilnius College of Technologies and Design, quantitative research was used, which allowed the authors to explore transport and logistics companies' opinions.

The essence of dual studies

During the existence of the guild system, a strict hierarchy (Deksniienė et al., 2019) prevailed in Europe: the apprentice, the labourer and the master. The Master's name was the only written proof of competence, and "apprenticeship certificates" confirmed the completion of the first phase of training.

After the Industrial Revolution, the liberal economic doctrine that promoted "free market factors" treated the traditional guild system as a barrier to competition and free trade, thus it was abolished in many countries and, after a while, new systems which were very different appeared. In Germany, Georg Kerchensteiner, a teacher from Munich, was the man who laid the foundations for the current dual teaching system in the country in the late 19th century (UNESCO: International Bureau of Education, 1993).

Currently, when labour market prospects have improved significantly and companies are again in need of well-trained workers, there is a growing gap between the needs of the labour market and the competences of the workers it offers.

The dual education model of higher education is a system whereby students spend half of their time studying for practical training in a company. In this way, higher education aims to facilitate the transfer of knowledge tailored to the market needs, while meeting the expectations of the society, education and industry (Kovács &Török, 2016).

In the EU higher education system, cooperation between stakeholders and the academic sector is usually limited to the research and payment, commissioned by companies, and the involvement of the company experts in the final evaluations of high school students.

A competitive economy requires that knowledge acquired during a university year has to be closely linked to the needs of the labour market (Welsh et al., 2008). The dual form of the higher education system is common as countries are part of a common process of disseminating knowledge and experience. The dual system implies close, result-oriented cooperation between parties (companies and institutions) (Yu, 2012; Göhringer, 2002).

Dual higher education consists of three participants. One is a higher education institution, the second is a company, and the third is a student. Participants in dual studies have different motivations. The Higher Education Institution strives for a strong and long-lasting relationship with business representatives, training tailored to real-life needs, nurturing motivated students and gaining a reputation. Corporate motivation is long-term investment in higher education institutions in order to have a steady competent loyal workforce. The student expects appropriate competences, more practical skills and higher employability after graduation.

The institution in higher education wishes to build a strong and long-term relationship with the representatives of the economy and seeks to adapt the training to real life demands, wishes to educate motivated students and with the support of high training level achieve reputation. One fact that determines the motivation of companies is the long-term investment in higher education institutions in the interest of receiving a steady workforce who were socialized on the demands of the company. The other motivation of the companies is to ensure the loyal professionals who were chosen and nurtured by the company for replacement. Among the motivation of the students are the higher chances for getting a job after graduation, the possibilities of gaining more practical knowledge, moreover, ending the studies within a given time frame and the regular monthly payment they get during the course of training (Kovács &Török, 2016).

The dual student has the opportunity to understand the interrelation among different enterprise subsystems, instead of seeing them as separate subjects at a course. It is possible to present them the system as a whole, the connection points among controlling, accounting, marketing, HR, procurement, logistics etc.

They hope to improve the quality of workforce, easier recruitment and cost-effectiveness. Through the cooperation they can form the curriculum. But even more important is for them the opportunity of deeper human and professional relationships. Companies' expectations from a student differs from those of an active experienced colleague. The students' full integration is the most important for them: professional, human, peer, and community integration. They find that a young, open person has fresh mind, new perspectives and approaches. Students can help the company in reformation, companies expect the young new colleagues to come up with ideas and suggestions, to be curious, because creativity has added value.

Teachers indicate, as the best thing in dual education, that the practical knowledge students acquire at their dual company helps them a lot to understand the importance of the academic curriculum. This understanding is an excellent motivational tool, students put more effort in learning, because they understand the utility of the different topics (Pogatsnik, 2018).

Through dual teaching, the higher education institution provides academic education: theoretical knowledge and insures students' accountability. The company provides practical knowledge: management processes, technology, work-related approach. The student obtains practical work skills and theoretical knowledge (confirmed by practical need). The benefits of dual training are presented in Figure 1.

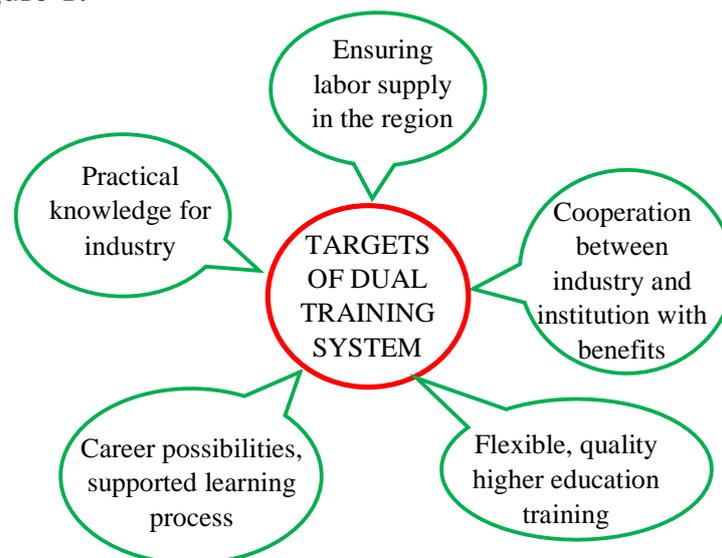


Figure 1 The general target system of dual training in higher education (Kovács & Török, 2016)

The active, collaborative relationship between the company and the university is another good impact of the dual training. The regular and formalized contacts can go beyond dual training and include joint innovation and research projects (Pogatsnik, 2018).

Lithuanian higher education system

The Law of the Republic of Lithuania (LRMSI, 2009) on Science and Studies (LRMSI, 2009) establishes the state regulation of science and studies, principles of quality assurance of science and studies, qualification awarding and recognition, institutions of science and studies management, organization and supervision of their activities. This law defines the mission of science and studies, which is (LRMSI, 2009) to help ensure the prosperity of the country's society, culture and economy, to be the backbone and incentive for every citizen of the Republic of Lithuania to fulfil his innate desire for knowledge.

General study requirements (BSVRA, 2016) and other legal acts specify that studies may be university or college; full-time or part-time (Nuolatinės ir išštesinės studijų formų aprašas, 2009).

The minimum duration for internships is at least 15 credits for university studies and at least 30 credits for college students. As the Vilnius College of Technology and Design, whose dual teaching we will analyse as an example, carries out college studies, it is worth noting that in college studies, practical training must account for at least one third of the program scope. At least 30 credits are given to practice, which represents 17 percent of the 180 study program credit scope. Similarly, the General Requirements for Study Conduct (BSVRA, 2016) stipulate that contact time should be at least 20 percent, it is 36 credits.

Lectures for full-time students are organized on weekdays. Such form of studies is hard to reconcile with work. Students acquire practical competences during the internship.

For part-time students, lectures are organized on weekdays or weekends. Students are employed in this form of studies. They acquire practical competences by working (if they are studying a work-related study program). Dual studies are not relevant for part-time students.

If a dual curriculum could be established without breaking the law, combining practice and practical training (seminars and workshops), we would get that from 144 credits (80 percent) to 54 credits (30 percent), students can develop practical competencies in companies.

The Case of University of Szeged (Hungary)

The University of Szeged, Hungary, started dual training at the Faculty of Engineering in 2015. Specially designed full-time study program for dual teaching. In dual teaching the following aspects were chosen and considered: practice-oriented branches, BSc and / or MSc level, full-time students, for the whole duration of education time, accredited companies (self-evaluation, visiting committee), according to regulation of the Dual Education Council. While creating the dual training program the following principles were taken into account: Professional knowledge: University - theory, Company - practice; Methodology: University - research, calculations, Company - projects, team works; Social skills: University - presentation methods, Company - negotiation technique.

Dual learning education program in Hungary was made on the basis of Germany's dual education system, but fully adapted to the Hungarian higher education system. The most important goal is a win-win situation for companies and graduates (and higher education).

Undergraduate programs have been adjusted from the traditional ones, where the study process consists of 7 semesters which have 210 credits with practice for 8 weeks at the company, and the dual learning program which has 210 credits with 58 weeks (290 working-days) practice at company.

The learning time table for dual education has 44 weeks (14 + 5 + 14 + 15) of practice in 1-3 studying year and 14 weeks in 4th year of studies.

Students are not employees, but have a special contract for some money (about 300 €/ m). In addition, they have to fulfil requirements such as: prescribed credits pro semester, good weighted educational average, positive approach, reliability, motivation. The contract can be cancelled anytime.

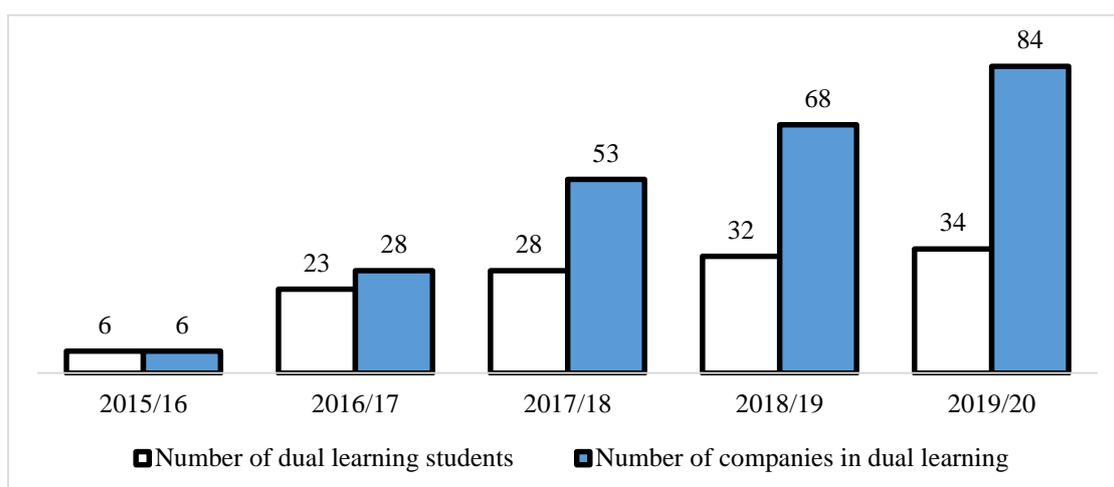


Figure 2 *Number of students of dual study programmes and partners for dual education at University of Szeged (created by the authors)*

The growing popularity of dual curricula, among students and companies, of the dual curriculum indicators are illustrate in figure 2. Meanwhile, the number of internships offered has grown from 6 to 347, over 57 times.

Dual education is advantageous for students for more theoretical and practical knowledge, more professional experience and about 1,5 year labour relations; for companies, because have young and fresh engineers, time of acclimatization is shorter; for universities, because have good connections with companies.

Good experience from dual learning: collaborating companies and their role are determinant (mentor engineer time, money, human energy); excellent expectations (good results, no longer duration of education); flexibility and communication between partners (students, university, companies) (content, timetable); motivated, loyal, purposive students.

Analysis of Possibilities of Dual Training in Lithuania

In the analysis of the possibilities of dual training application in Lithuania, a survey of managers of Lithuanian transport and storage sector companies was used. The survey is conducted in early January 2020. The aim is to determine the views of transport and storage company executives on students' practical preparation and approach to dual studies.

According to statistics (Lithuanian Republic Department of Statistics, 2020) in Lithuania in 2020, originally, there were 8565 transportation and storage companies. According to the Paniotto formula (Bailey, 1994), with 70 completed questionnaires, the survey reliability is 88,1% (sufficient above 80% (Bailey, 1994). The rating was on a 5-point scale with 1 being the lowest (strongly disagree) score and 5 being the highest (strongly agree) score.

The first questions of the survey aimed to find out the level of students' competence from the Transport Logistics department. Respondents assessed the level of theoretical knowledge of full-time students who had completed transport logistics studies. 77,2% of the respondents' answers highly value theoretical competences and only 5,8% received a low score.

Respondents assessed the level of practical competence of full-time students who have completed transport logistics studies (Fig. 3). 28,6% of the respondents highly value theoretical competences, 40% received average and 31,5% low score.

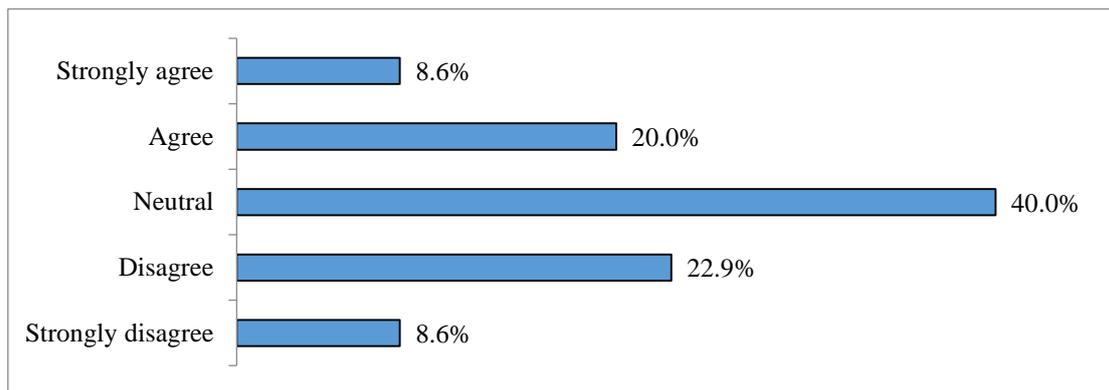


Figure 3 Respondents' assessment of the level of practical knowledge of graduated transport managers (created by the authors)

The first answers showed that theoretical competences were sufficient, but practical ones needed more.

The necessity of practice integration into the study process during the entire study period is shown by the respondents' answers 94,3% cite this as a necessity. There are no objections.

Respondents, who were asked about the duration of the internship, divided into equal parts, stating that the duration of the internship should be between 20 and 50 percent of the duration of the study. 88,6% of the respondents expressed the opinion that a practical training contract with the company could be signed for the entire study period.

An important issue is the integration of practice into the study process. Respondents did not have a consensus on whether it would be appropriate to integrate internships into the study process if part-time internships were held at the company and part at lectures in higher education (respondents split equally). However, when asked whether they would approve of work in the company for a few days a week, 82,9% of them agreed. (Fig. 4).

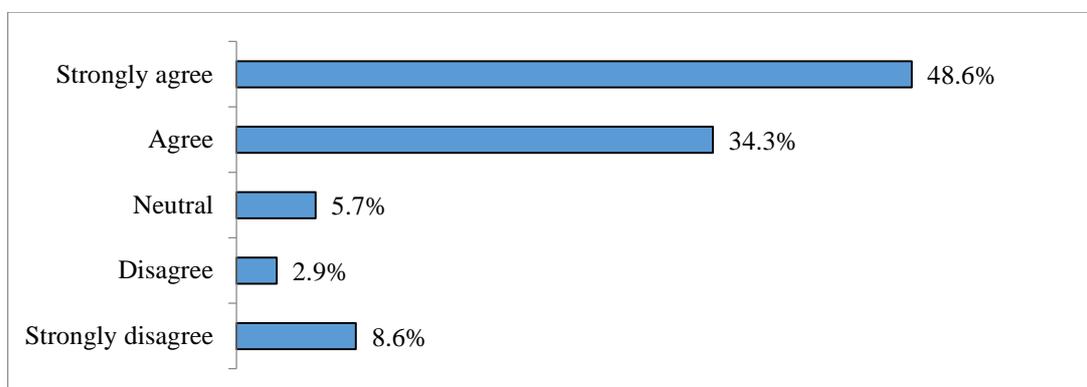


Figure 4 Respondents' assessment of the several days a week practice (created by the authors)

48, % of the respondents state the company benefits from the students during their internship. 11,4% of the respondents reject this fact. Therefore, 74,3% of the respondents agree with the opinion that students should get paid (scholarship) for work done during the practice. 5,7% oppose this idea. 37,2% of the respondents state that students should be paid a basic scholarship during the practice (34,3% of respondents disagree).

After asking the respondents which factors determine the amount of the student's apprenticeship allowance (Fig. 5), the main aspect is the amount of work done (36,5%), the duration of the apprenticeship (17,6%) and the enterprise apprenticeship allowance (2%).

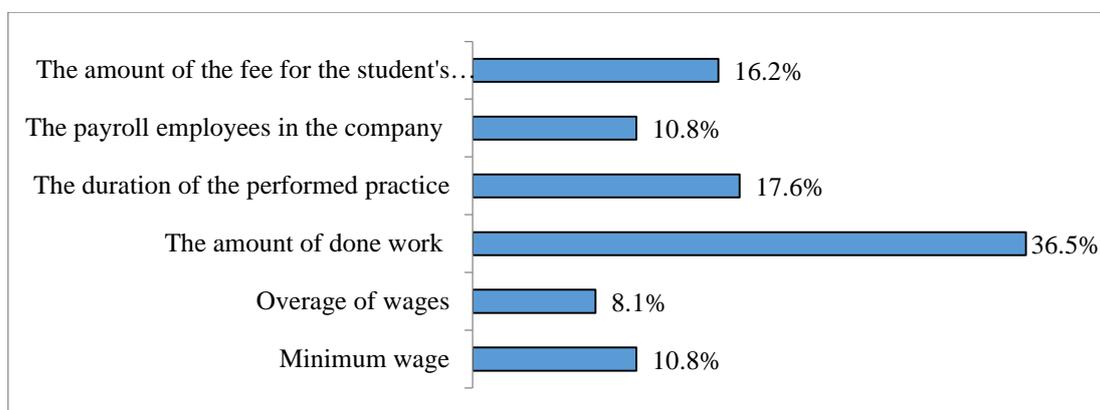


Figure 5 *Factors influencing student internship pay* (created by the authors)

For a long time, there has been a debate between higher education institutions and businesses about allocating funds to companies for practical student training in companies. Corporate executives say that practice tutors are distracted by unemployment and companies incur additional costs due to student practical training. Respondents' responses to the need for corporate funding for student placements differed in two opposing camps.

Conclusions

1. The need for dual training and its benefits for all three stakeholders: higher education, enterprise and student has been established.
2. The legal acts of the Republic of Lithuania provide for a minimum of 30% of practical training and 30 credits of practical training (16,7% of the study program). Nor should be gone beyond 80% boundaries of the practical training part.
3. The analysis of the application of dual training at the University of Szeged, Hungary shows the interest of employers in the growth of dual training.

Correspondingly, there is an increase in the number of students enrolled in 2015-2019 from 6 to 84 students.

4. A survey of managers of transport and storage companies showed the need for dual training in the Transport Logistics study program at Vilnius College of Technology and Design.

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