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The past, present and future of professional education in the context of the accounting education

PhD dissertacion

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1. INTRODUCTION

1.1 ACKNOWLEDGEMENTS

First of all, I would like to thank Dr. János Lukács, professor Head of Institute, who have always provided me with the support I needed for moving forward throughout my career, and who had the patience to help me get through the difficult times. I wish to thank to my colleges for their support. Our conversations about our work as educators have inspired my contemplation, when I was stuck. I would also like to thank my students for their positive and negative feedback, since these have enhanced my commitment to improve myself as an educator. Last, but not least, thank you for the patience of my parents and my children, who have supported me throughout both the enthusiastic and the stressful periods.

1.2 OBJECTIVES, IMPORTANCE AND ACTUALITY OF THE RESEARCH

Over the 25 years my career as an educator, and even in the preceding period, when I was student, there was not a single year, in which teachers, pupils and parents had not been concerned with the topical reform. We were living in an era, where new reforms were constantly introduced, but the somewhat sceptical comment made by my first superior was partially reasonable: “Reforms come and go, but ultimately not much changes.” As far as I am concerned, I believe that even small-scale reformatory ideas aim to satisfy the societal and economic demands, because without innovation, we would fall behind in the national and international economic challenges. Reading the documents about education history, I have come to the realisation - as many others already have, before me – that the personality and attitude of the educator is an important factor. Consequently, the introduction of reforms, new curriculums, orders and regulations cannot be successfully implemented, as long as the educators do not agree with the innovation on a collective and on an individual basis and do not want to or are unable to work in such a manner that meets the expectations.[1]

In the past years, new regulations have been implemented regarding financial, structural and curricular issues, which provoked strong objections from the involved parties. In my dissertation I review the background of the topical legislation changes and discuss the expected

[1] I will not address the hypothesis that in the future technology will not be to assist educators, instead it will replace them.

impacts, motives and objectives of the amendments. A teacher's perception of and attitude towards change is influenced not only by personal experiences, but also by the measured results that indicate the quality and effectiveness of education. At present, the educational methodology is strongly related to the observation and the measurement of effectiveness of applied techniques in education. Thus, developing the measurement methodology is also an important part of the education system. In my empirical research, the employment of a modern educational methodology and the development and application of the measurement tool related to this methodology are explained.

Why has the research and transformation of education become so important? As a result of the extremely accelerated technological development that is characteristic of this era, most of the current in-demand professions were unknown 20-30 years ago. Furthermore, the students who enter the school system today, and graduate in 12-18 years are going to work in occupations we cannot yet imagine. In this accelerated world, it is difficult to determine a curriculum and a widely applicable methodology that is valuable in the long term. Higher education is somewhat closer to starting a career, however, by the time the student receives his degree, he is surrounded by new tools, technology, rules and opportunities and employers have already changed the occupational requirements that new employees have to meet in order to be hired. Thus, both the curriculum and educational methodology should be constantly updated.

It is, therefore, our primary concern to determine what the school should provide. According to Albert Szent-Györgyi, 'school is where people can learn how to study, where their curiosity is piqued, where they can learn what it feels like if they have done well, where they can experience the excitement of creating something, where they learn how to love what they are doing and where they find the work they like'. *(Szent-Györgyi Albert)*[2]

Aronica L Robinson believed that 'schools help us to familiarize ourselves with the world surrounding us and to discover our talents.' (Aronica L Robinson, 2016) According to Max Plancot, what children learn in school is less important than how they learn it, because this is what determines their application of knowledge throughout their life.

In Albert Szent-Györgyi's opinion 'the most important duty of University is to raise decent people. When teaching a profession, raising and educating the person is more important. Professional knowledge is useless, if it is not 'planted' into a healthy soul. Professional knowledge requires a human base. In our time, professional knowledge was considered to be

[2] https://docplayer.hu/5134616- Szent-gyorgyi-albert-az-elo-allapot.html Válogatott írások Kriterio Bukarest 1972., page 55.

more valuable than human qualities, whereas the latter one is the only one that can be built on.' (Albert Szent-Györgyi 1941)[3]

In one of the chapters of my dissertation I am unfolding the strong relationship between the societal-economic development and education – primarily the development of the professional educational segment – by a comprehensive systematization in both the national and the international context.

International studies, such as Mendenhall et al. (2013) and Hawkins, Mike (2013), highlight the change in the requirements to work in a certain profession. It is apparent that professional knowledge is barely listed among their job requirements (it is considered to be a basic requirement or can be learned through practice). Self-understanding, social and language skills, motivation, cooperation and flexibility are perceived to be particularly important. Based on the findings of the World Economic Forum (2014), although it can be seen that the required competences are changing, complex problem-solving ability is, and will be one of the most important skills among the required competences in the future as well. Kiss and Máté concluded in their 2016 study that based on the data of the Hungarian Graduate Career Tracking System, according to recent graduates, employers primarily prefer applicants who have better degree classification, have better language skills and/or have previous work experience in a foreign country. There is a significant difference between the job requirements of a relatively small business and a multinational company. Small businesses cannot afford more than the minimum required number of employees. Hence, they look for workers, who are able to work individually, have universal knowledge and previous work experience in the given (home) country, and who are able to start immediately. Multinational companies, on the other hand, want to hire team players, who are susceptible to change, are able to adjust well to the requirements of the system, and who are motivated to participate in further training. The transition between studying and work has been studied by several international (Cook et al., 2015; Kluve et al., 2016; Furlong et al.) and Hungarian (Cseh-Papp, 2007; Makó, 2015; Mikáczó, Varga) academics. The problem can be overcome by improving the cooperation between the areas of training and employment and the integration of qualification-related requirements into education. Instead of, or along with the hard skills, that are excessively present in the current curriculum, the development of soft skills is also important, which necessitates the development of the education system.

[3] Új Idők Journal, 1941., Issue 15, Page 456.

Besides the changing job-requirements, the socialisation of the generation involved in education is also going through a transformation. This generation possesses completely different strengths and weaknesses in the new social and technological environment. Generations Y and Z, who are commonly referred to as "digital natives", are characterized by multidirectional, divided attention, intrinsic motivation and the need for immediate feedback. (Tary 2011) Studies that are aimed at understanding these generations better assess their unique preferences, when choosing a workplace. The primary consideration is not the salary. Challenging tasks (Andavölgyi, 2018), friendly social environment at the workplace (Meier, Crocker, 2010:70–72), the opportunity to work in teams (Myers, Sadaghiani, 2010: 225-238) and the possibility of personal and professional development (Saxena, Jain, 2012:114–118) are perceived to be more important. Regarding the prioritization of personal success and work-life balance, the main aspects are how the workplace fits into their life (Tulgan, 2009:5), whether working hours are flexible and whether it is possible to work from home, or remotely, and if yes, to what extent. Employees defined their workplace-requirements as so-called „cool factors", that - beyond the mentioned criteria - are the following: creative communication and the application of modern IT equipment, flexible offices, having shared and relatable organisational values, good opportunities for further training and career (Surjansky, Ferri-Red, 2009:240). These aspects constantly pose challenges in education. The utilization of IT equipment, the flexible training schedule, the choice between solving work-related tasks individually or as part of a team, ensuring continuous development and training and the establishment of responsibility towards themselves, others and society have to be prioritized.

The environmental changes necessitate reforms. The process of setting the directions has to be based on serious research findings and analysis, for which only the international organisations have the financial and professional background. Hence, only the requirements set by these organisations can provide guidance for the developmental steps. Regarding Hungary's geographical location and integration into the European Union (EU), the means of cooperation is determined by the Union's policies. The EU's attitude towards education is greatly influenced by the fact that the Member States treat the question of education as an internal issue. The proposals after the OECD's assessment in 2008, as well as the objectives included in the EU's programme have set the direction, deadlines and the tools of measurements.

Based on the demographical data, it can be concluded that an increasing proportion of students enrol in tertiary education from age groups, of which population is decreasing in number. In the 2018/19 school year, 89,000 children finished elementary school, 55,000 students have done professional exams, 69,000 pupils received their high school diploma and 51,000 obtained a bachelors or a master's degree. The concept of lifelong learning "forces" more and more students who are already working to enrol in higher education or re-training. In the 2017/18 school year, 60% of the total number of people involved in education studied a BSc or BA course, 15% were enrolled in undivided training programmes (Law, Medicine, Teacher), 12% were doing a Master's degree, 6% were participating in a higher vocational education programme, 4% were involved in post-secondary vocational training and 3% were enrolled in a PhD programme. Almost 100% of the students on higher vocational education programmes, 25% of the undergraduates and 29% of the pupils in higher education chooses the part-time, online- or distance learning forms. (source: KSH 2018/19) The **role of higher education is changing** as well. Albert Szent-Györgyi, the most famous Hungarian scientist, who used to be the rector of the University of Szeged said that in the past, universities used to teach advanced scientific knowledge to scientists only. However, the majority of youth were not inclined to become a scientist. Therefore, universities would have to split their lectures into two categories: the first one, which would entail teaching everyday professions and the other one, with the purpose of training scientists and which moves within the highest level of knowledge. (Albert Szent-Györgyi 1940)[4] The requirements set for students can be varied, for example by offering, launching and defining different forms of training and sturdily separated training levels (post-secondary vocational training, Bachelor's, Master's and Doctorate degrees, further- and re-trainings). In the future, the value of undergraduate courses is estimated to decrease, whereas the proportion of further- and re-training, the forms of training where attendance requirement is minimal or non-existent, as well as the part-time, the online- and the distance learning, that are all accessible (both in time and in space) are expected to increase. The decreased number of contact hours necessitate the application of new tools and equipment, special learning materials, more office hours and the organisation of education. The main element of student-engagement is the career-planning, the financing and the strategic cooperation with employers, for which the development of a consultant service system is required. Feedback should be considered as the foundation of quality assurance.

[4] Rektori székfoglaló előadás 1940.

The international and internal competition among educational- and institution systems has been observable for decades. Within a given state, the impacts of this competition can be somewhat reduced by different elements of regulation, but it must not be ignored.[5] Due to the globalisation and the demographical effects, there is a serious contest for students in secondary schools and vocational schools, as well as in higher education. Following the change of regime, more and more foreign educational institutions have obtained a right to operate in Hungary and the number of Hungarian pupils studying in foreign countries has gradually increased. While the proportion of foreigners studying in Hungary is still substantial, 5-7%, the country has lost a lot from its leading position. The mobility of students is mainly facilitated through the cooperation among the institutions (see Erasmus and CEMS for example). The international close up is being hindered by the fact that in Hungary, there are many educational institutions and faculties, which requires the apportionment of resources among several departments. The accreditation implies a kind of professional control, but the question of effectiveness comes up more and more often. The issue of the financing of education is a critical question in every institution around the world, which influences the performance in the competition greatly. In Hungary this is a governmental responsibility, however, private- and business sponsors, as well as university-financing charities, as new organisations are being established increasingly. In the international institution rankings, some of the primary metrics are the scientific and publication performance, the ratio of international students and educators, the proportion of people with academic degrees and the student-teacher ratio. In the Hungarian ranking of higher educational institutes, the most prevalent metrics are the number of applications and admissions, the admission points and the students' and employees' reviews. In scientific and publication numbers, Hungary is clearly behind other countries, considering there are only a few (and low value) financial aids available due to language problems and regional research issues. The close up can principally be achieved by the improvement of the financing of research, the support of researchers in their career, the promotion of international cooperation among educators and researchers, the organisation of international conferences, the participation in international accreditation and the internationalisation of education.

The characteristics, expectations and satisfaction of international students have been assessed in various studies. (Berács-Malota, 2011; Kőmíves-Vörös-Dajnoki, 2014) The factors influencing the choice of institution are the suitability of the course, the academic reputation of the institution, graduate employability and the quality of education. (Soutar, 2002) Providing

[5] The contest is already present in elementary education, proved by the increment in the number of schools, where special curriculums are approved and in the excessively high number of applications.

education of an adequate quality – as a special service – is of key importance considering the satisfaction of consumers' (i.e. students') demands. (Roga et al., 2015) One of the important elements of the institutions' quality assurance system must be the consideration of students' reviews. At the Corvinus University of Budapest, the HALVEL system is used to request feedback from graduates who had already started working. It asks them to evaluate the subjects, the teaching material, the lectures, the seminars and the lecturers (preparedness, educational methods). It does not ask for graduates' opinion on the infrastructure, the circumstances, the educational coordination and the supporting actions. The departments, institutions analyse and discuss the received feedback, criticism and recommendations, correct and constantly update the teaching materials and methods and solve the emerging problems.

The efficiency and success of the people working in education is primarily the function of their personal satisfaction. According to Costa, the key factors that contribute to life satisfaction are: the working conditions; the remuneration; the relationship with co-workers and the atmosphere of the workplace; the autonomy, creativity and recognition; the opportunity of renewal and self-actualisation; the commitment towards goals, methodology and towards the organisation; good relationship with students and other personal emotional factors. The increased administrative burden, the changes occurring in education, the sensation of vulnerability, the lack of professional perspective and struggling to progress are factors that all have a negative effect on well-being and life satisfaction.

If we assess the situation in Hungary according to the above criteria, we find disappointing results. In this country, the salary of educators and researchers is substantially lower compared to the international average income and even to the earnings in the domestic business sphere. The lack of resources prevents research activity to be executed on the highest possible level, which has a negative impact on educators' and researchers' level of commitment. The familiarisation with practice, as a background that is essential for teaching, has become a subsistence question for educators, because of which educational development and research activity are often abandoned. Numerous teachers and professors, who are exceptional their practical activity as well, consider teaching a hobby arising from personal commitment, which is uplifting, but also demoralizing at the same time. The recent ongoing transformation of the higher education system lacks the broad consensus in the decisions made and the correctional proposals are not taken into consideration, which creates uncertainty, instead of alluring prospects in the involved parties. The restrictions planned regarding educators' working hours

and workload arouse serious doubts in everyone. Under these circumstances it is almost impossible to expect substantial commitment and exceptional educational and research activity from the educators. Thus, the leaders of the universities that enjoy professional autonomy, but are limited because of economic issues find themselves in a difficult situation. Inviting renowned educators is an unrealistic idea in the present income system. Solving these problems are beyond the authority of the parties directly involved in education. Therefore, in my dissertation, I will treat these issues as extraneous circumstances, even though they also have an impact on the areas I am focusing on.

The experts of the New Media Consortium, which is dedicated to research educational matters, predict the widespread application of hybrid and collaborative education in a short time (1-2 years). (Adaptive learning techniques, mobile learning) In 3-5 years, the physical circumstances of teaching-learning will facilitate a flexible education management. Furthermore, there will be smart teaching-rooms equipped with moveable elements, and the hallways and public spaces will provide secure internet access, which will make them suitable for individual- and groupwork. Learning and teaching will partially be moved from the campus to online platforms. (Internet of Things, IoT) The tools monitoring the process of teaching-learning (data mining software systems) will be developed, through which we will have more accurate information about the work that has been done and its results. In the long run (in more than 5 years), the participation in innovative tasks will be increasingly encouraged, and students who excel in critical thinking will develop the need for “deep-learning”, which is based on processing practical cases in groups or individually, that require pupils to connect their existing skills and knowledge. (Natural user interfaces and artificial intelligence will also be integrated in education in the future) (Bodnár, 2017, pp.14-24)

1.3 THE STRUCTURE OF THE DISSERTATION

I begin my dissertation with the overview of societal changes that induce the developmental processes related to education. I discuss the development of the Hungarian education system in a separate chapter (Chapter 2.), which – due to historical reasons – is lagging behind the Western European trends. The motto of this chapter is: *„Learn from yesterday, live for today and hope for tomorrow. The important thing is not to stop questioning!" (Albert Einstein)*[6]

Because of the globalisation, international research and the international objectives play an important role in the field of education. The European Commission published its document about the '*Europe 2020: A strategy for smart, sustainable and inclusive growth'* programme in March 2010, which lists the objectives in five points and establishes seven outstanding initiations linked to them. Based on the EU's and Hungarian statistical data, I have studied the results achieved at halftime of the programme, compared to the established objectives. Hungary is a member of the OECD since 1996. Since then, the data collection regarding education has become essential in our country as well. The issue '*Education at a Glance: OECD Indicators'* contains the data of 34 Member States, which provides a basis for the comparison of the level we have achieved and for our developmental activities. In my dissertation, the documents created by international organisations that have established objectives for education are of great importance. (Chapter 3.) According to the economic and social challenges, the Hungarian education system, along with the changes in international education policy is constantly under transformation. The regulations regarding matters such as teaching materials and methods, financing and educational management have changed frequently in the past decades, but in the last 2-10 years, a fundamental transformation could be experienced in these fields. In my dissertation, I intend to review and categorize the regulations of the period between the academic years 2012-2019 on all levels of the institution system, giving particular consideration to the courses in the economic- and accounting subjects.

Chapter 4. involves the categorization of the main directions of educational theory and the identification of educational methods that are equipped for the challenges, since in the course of education, the process that takes place between the teacher and the student is determinative. The requirements towards universities and the modern educational trends necessitate the

[6] https://hu.wikiquote.org/wiki/Albert_Einstein

simultaneous presence of upbringing, teaching, vocational training and research. The increasing amount of lexical knowledge and the everyday utilization of technological equipment promote the discovery, selection and application of theory. As a result, instead of the absolutism of knowledge-transfer, the development of skills and competences becomes prioritized in the education process. The lifelong learning mindset, the widespread application (and forced absolutism since March 2020) of online teaching implies the requirement of the related practical knowledge from those who work in the education sector. „My bravest late dreams have been 'degraded' into textbook information. And if you, the affable reader, who is not involved in science, think that the great masterpiece is complete and the creator is resting, you are wrong. In a few years. someone will create the same piece with better methods, and before you know it, you are nothing, but a piece of junk.*"*(János Szentágothai)[7]

Chapter 5. begins with the theses in relation to the Study. Subsequently, I intend to assess the variety of research methods, the students who participated in my study as respondents and review the available data. At the end of the chapter, I present the findings of my Study.
In the summary, I address the question I am most concerned with: To what extent can the development, and the research done in this field help and potentially improve my future teaching activities?

[7] Ulyssesként az agy körül 1993. Magyar Tudomány http://www.matud.iif.hu/2012/11/02.htm

1.4 THE FIELD AND METHODOLOGY OF THE STUDY

When reviewing the methods for studying the efficacy and effectiveness of education, I restrict my research to accounting modules in higher education. I consider my primary goals to be the judgement of students and educators involved in and affected by the ongoing developmental work in our department and the evaluation of the efficacy of the developed tools and methods. The two modules I assess, and of which development I contributed to are the Accounting information systems II. and the Analysis of financial statements. The Accounting information systems II. is a compulsory 3-credit module on the BA level for students approaching the end of the Finance and Accounting course, which is built on the synthesis and application of knowledge that they have acquired previously over the course of their earlier modules. It is taught to 90-120 students per class in 2 seminars per week, where students are divided into 4 groups. The Analysis of financial statements module has primarily been created for MSC students on the Accounting course, but it is also compulsory for those studying on the Finance stream. For the rest of the class, it is an optional module. There are 50-60 students from the Accounting and 100-120 from the Finance streams per class. As an optional module, it is taken by 5-10 students per academic year. It is a 5-credit module, taught in the schedule of 2 lectures and 2 seminars per week.

As the first step of the assessment, I will investigate the change in the evaluation of these modules in the past 5 years and the reasons for this change, based on the anonymous data obtained from the HALVEL system.

The fundamental question of the *second part of the assessment* is how students with varying learning styles and preparedness evaluate the teaching of the module and to what extend they find the developed tools and methods helpful in the preparation process. The non-anonymous survey uploaded to the '*Moodle' system*, which can be linked to the students' results, created in the year following the development is the data collection tool that is used for this purpose. At the beginning of the term, I have created a survey to explore the learning history and style of the students. Over the course of the term, week by week, I have assessed the efficacy of the developmental tools by asking the students to answer questions integrated into the process of learning about the teaching material and the tools used to deliver it, and about the time spent on a task and the students' opinions and emotions regarding it. I consider the assessment of the relationship between the responses obtained from the survey and the students' individual learning history, as well as their results achieved in the module very important.

Life has provided me with a further opportunity, which is the *third pillar* of my study. The 'forced' introduction of online education system could not have been included in the original structure, but it cannot be neglected. The first experiences with the online education system were studied through an anonymous survey. In this case, the number of participants has been substantially more, because we have asked for feedback from students who had successfully completed certain modules as part of the Accounting course. The Basics of Accounting is a BA-level module, which was taken by 170 students on the Finance and Accounting stream and 60 pupils on the Economic and Financial Mathematical Analysis course in this term. The Managerial Accounting module was studied by more than 1,000, essentially all second-year students, when the transition to remote teaching had to take place. Our questions were related to the utilization of the employed educational tools and methodology by the students and asked participants to compare their learning experiences prior and after the 15th of March.

The *fourth element* of my assessment is the study of the educator's opinions, for which I use qualitative analysis and conduct *interviews* to investigate the teachers' time-requirements, attitude and efficacy. I am aware of the fact that the number of my colleagues who contributed to the development cannot be considered sufficient from a statistical aspect. Hence, I have decided to process and categorize their opinions, ideas regarding the development by conducting interviews that focus on the fundamental topics, based on a previously established syllabus, instead of a survey.

With my research findings I intend to justify and confirm my hypothesis, that the inauguration of new educational methods cannot be delayed further, and that our developmental work has been set out on the right path.

2. Education – vocational training in the past and at present

„Learn from yesterday, live for today and hope for tomorrow. The important thing is not to stop questioning!" (Albert Einstein)[8]

Education is a process that has been integrated into the society and the economy as a whole, thus, it is sensitive to the changes of both of these matters. The dynamics of the demography, the high number of people in certain population groups (age groups), the insentiences, the urbanisation and the qualification level of the population are also important factors. The changes of the economic processes, which involves both the increase or decrease in the value of work done by people who work in different sectors or have certain qualifications, or skills and qualities that are increasingly perceived as more valuable, while others lose their significance must have an effect on the education. The financing issues of education depend on the development of the economic situation of the given society (country). The societal structural changes, especially the issues of segregation and mobility have a strong influence on the organisation of the school system. The reforms in the governmental system and the transformation of public administration have a considerable impact on the public education system. The cultural changes, the fluctuations of the value relations, the general attitude towards accepting homosexuality or preferring homogeneity bring substantial differences into the educational system as well. The internal structure of the educational organisations is characteristic of each country and is often built on traditions, through which it has special reactions to the changes. The hierarchy of the qualification levels, the expectations relating to the completion of each level and the socially acknowledged educational levels built on these have a significant impact on further education and employment systems. The organisational and financial structure of the tertiary education system is determined by the political and economic relations of the given nation. The maturity of tertiary education and the requirements it is expected to meet are dependent on the maturity of the economy. The society and economy, that are currently going through globalisation, demand standardisation and mobility from each participant.

Although in my paper I do not undertake education-historical research, I do believe that we cannot set aside the schematic historical overview of the relationship between the societal and economic changes and education.

[8] https://hu.wikiquote.org/wiki/Albert_Einstein

2.1 INTERNATIONAL EDUCATION HISTORY

The transmission of accumulated "professional" knowledge began with the formation of human societies.

In the **Paleolithic** Age, the tools to transmit knowledge were to copy the predecessors and to preserve traditions, which became more and more organized with the development of speech and language. The skills and know-how of pottery, construction and making clothing, shoes and jewellery were transmitted and developed further from generations to generations. The observation, imitation and playful practice of adult activities was integrated into everyday behaviour and actions, there was no separate education or training in the upbringing process.

In the **ancient** civilizations (Hellenistic, Indus Valley, Canaan, Minoan and Olmec), education and knowledge were the privileges of the clergy and the ruling class. From the IV-III. millennium B.C., there is already evidence that schooling and education is separated from everyday activities. In fact, it has slowly evolved from the initial groups gathered around scientists into organized, institutional establishments. The accumulating scientific knowledge in the areas of Agriculture, Construction, Mathematics, Geometry, Astronomy, Medicine, Strategy and Arts was primarily oriented towards maintaining the position of power. (Pukánszky & Németh, 1996) Manual work was considered to be inferior, done primarily by slaves and the poor social classes. In these classes, knowledge was still transmitted by the observation and imitation of practice. With the emergence of literacy (the Sumer cuneiform script in 4000 B.C., the Egyptian hieroglyphic writing around 2900 B.C.), but mainly with the invention of paper (in 105 A.D., China), more and more knowledge has been recorded and transmitted in the form of writing. Thus, literacy became a considerable advantage in the ancient society. The Hellenistic education (336-30 B.C.) has begun to spread as part of the Greek culture in the 300 years starting from and including the reign of Alexander the Great. Domestic education was gradually replaced by private schools that constituted of elementary (didascalion), secondary (grammaticus and gymnaszion) and tertiary educational (philosophical, medical, rhetoric) schools. The appearance of aristocracy brought along the demand for the registration of assets and the inspection of this registry. Such records were found from 350 B.C. (Lukács 2019) The origins of our narrowly interpreted professional areas - accounting and audit – can be found in these.

In Europe, at the dawn of the Middle Ages (529) the development of convents and monasteries institutionalized the educational organisations. The school system was characterized by the formation of study groups and the appearance of textbooks, subjects, curriculum, educational methods and

teachers, who considered education their profession. The convents prepared pupils primarily for ecclesiastical service. However, vocational training was also part of the curriculum, since a monk's responsibilities included activities that are essential for self-sufficiency. In the Benedictine, Cistercian, Jesuit and Piarist monasteries, different professions have become more dominant, depending on the local environment, and their courses have gradually opened to secular people "The West only learned the concept of regular work from the monks; they were the main creators of the industry of the Middle Ages." (Hauser, 1968) Secular education was only available to children from wealthy, noble houses. It took place in baronial courts, where the new skills were acquired through real-world practice. The teaching of women took place in nunneries and at baronial families. Since their soldier husbands were frequently away, managing the demesne often became the responsibility of the noblewomen. Thus, their education involved acquiring practical knowledge in areas such as agriculture, finance, languages and nursing. The "book literacy" was developed and taught in the institution of the Church, slowly the science of theology, law and medicine began to form and stand out. In 1088 Bologna, and in the 12th century the Parisian Sorbonne became the first representatives of academic education.

From the **13th century,** the urban parochial schools started to extend the curriculum according to the needs of the civilising society, but guilds were the determining areas of vocational training in the era, where the journeyman and apprentices received the practical training in the form of working for the masters. The expected level of professional knowledge was set out in the guild's rules and standards.

In the **13-15th centuries,** the secular schools appeared as part of civil development, where besides learning to read and write, familiarization with the areas of Mathematics, Economy, Religion, Jurisdiction, Administration and Medicine allowed for working in higher civilised occupations. The standard system of records related to farming and trading was taken over from the public administration system. A record from 1314, England mentions the "auditor" of the inland revenue. Around the middle of the 16th century, the committee of budgetary auditors was formed. From 1866, administrative bodies are required to construct annual reports that have to be inspected. (Sainty, 1983)

The Renaissance and Humanism, spreading gradually from Italy, were the dominant cultural ideologies in the **14-16th century.** In this period, the classic, antique Greek culture became conspicuous and besides the ecclesiastic education, the secular culture made headway. Book printing was invented (Gutenberg, 1450), which allowed for written culture to spread more widely. Turning to natural sciences and aspiring for universality was also characteristic in this era. Education took place in parochial schools, humanist urban schools (humane gymnasium) and at universities. The other dominant

movement was the Reformation, which stepped up not only against the emptied prestige and prodigal ecclesiastical politics, but also against the freedom of the Renaissance. The schism related to the name of Martin Luther (1483-1546), which involved the separation of the Evangelical and Calvinist Churches from the Catholic Church, had a serious effect on the school system. In education, Luther differentiates between the scientist, who had studied the original Greek documents of the classic erudition; the parson, who had read and written in Latin and had been capable of practicing and applying the art and science of Grammar, Rhetoric and Music and the plebs. Luther's goal was to support the plebs in developing civil virtues by spreading literacy across all this social class (including both males and females). Unfortunately, he was unable to implement his honourable vision in practice.

In the **18-19th centuries** the expectations regarding the education system have changed rapidly and significantly. The strengthening of the Protestant Church, the self-caring human ideal making a headway, the abolition of all feudalism, which facilitated the social mobility, the capitalist organisation of the economy and the industrial development demanded the involvement of broader social classes into education. The primary objective of the earlier educational ideologies was the training of a "better man" and the development of personality, while vocational training took place during practice (on-the-job). In contrast, education in the 19th century strived to facilitate the training of broader social classes; the keywords were equal opportunities and social integration. The fulfilment of vocational training was determined by the technological development and the economic competition. The role of the state became more and more important, which affected the transformation of the social hierarchy, ensuring skilled workforce for the economic development and the integration of civil values and virtues into the society. The separating educational organisations were placed under a central lead, the connecting points were regulated, and the independent education system was developed. The laws were extended to include mandatory elementary education (in most European countries between 1860-1870) and its legal sanctions, the curricular questions of education and the definition of standard organisational, educational methods and tools. The development of the "mass-education" systems entailed the organisation of classes based on age, the standardisation of the curriculum and the appearance of marks. With the rise of the demand, the selection of school founded by different entities (church, civil ('polgári') initiations, state) grew simultaneously, from which state education became the dominant one. The 4-5 years of elementary education was followed by secondary education, at the age of 10-12. Three forms of secondary education were separated. One of them was the gymnasium (lyceum), where the emphasis was on classic erudition, and from where the opportunity of further (academic/university) education was available. The other one was vocational school, where the focus was on teaching practical skills and knowledge, and which allowed students to continue studying Technology, Agriculture, Commerce or Economics. The third form was a relatively short (3-4 years) vocational training, from where at the age

of 13-14, students who had already learned a certain profession could start an apprenticeship in the industry and develop their practical skills in the course of their on-the-job training.

In the field of accounting and audit, the goal of standardisation and securing the professional standard was first set in England and Scotland by the professional organisations (accounting and auditing unions) formed at the end of the 19th century. Members had to take a strict vocational examination and they were required to have an impeccable moral rectitude. This facilitated the establishment of auditing organisations that were independent from the state. From 1870 in Germany, and 1867 in France as well, committees of independent auditors were formed, where stringent professional criteria were set out for and required from the members.

Following World War I (WWI), secondary education was transformed substantially. Its capacity has increased continuously, offering the opportunity to study for more and broader social classes. In the **beginning of the 20th century,** 3% of the 14 – 18 age group were attending an institute of secondary education. The development was characterised by considerable differences. The fastest change could be experienced in the United Kingdom. By the 1970s, more than 50% of the population had finished secondary school, while in Austria, this number remained under 15%. With the rise of the school leaving age, the transition from primary to secondary education was delayed, it was changed from the age of 10-12 to a later age in more and more countries, The system of having 8-10 grades of elementary school followed by the choice of secondary education (gymnasium, secondary and vocational) at the age of 14-16, based on previous studies, became widespread (although not homogeously in every country). Upon completion of vocational school, the opportunity to study in tertiary education also became available. Vocational training remained in close cooperation with the future employers, who supported the education by providing workshops and internships/apprenticeships.

Tertiary education has changed significantly after World War II (WWII), the entry requirements and the course structure were transformed, the number of admitted students grew. Besides the courses covering the classic, more diverse scientific areas, specialized institutions were created, where the teaching of subjects related to different economic sectors took place. Between WWI and WWII, 1-2% of young adults population were enrolled in tertiary education. Based on data from 1995, the ratio of 20-24 old people enrolled in tertiary education were 50% in the United Kingdom, above 40% in most Western European countries and around 22-25% in Eastern European countries. (Tomka, Chapter 11.) In Europe, education took place generally in free public institutions, where the admission was free or regulated by quotas. In the United States, the substantial variation in tuition fees determined the number of admissions. The effect of central regulation affected – infringed the practice of university autonomy in many cases, causing serious conflicts between governments and universities as a result.

The educational systems at the end of the **20th century** was not only affected by the historical traditions and economic maturity of each country individually, but also by their participation in the international cooperation. The **Organisation for Economic Co-operation and Development (OECD)** was founded in 1961 by 18 European countries, the USA and Canada. At present, it has 36 Member States and its headquarters are located in Paris. Hungary joined in 1996. Many states in the world set their own local aims based on the results of the OECD's assessments and the stipulated goals. This global organisation strives to help its Member States' governments in developing the best possible economic and social policies and in analysing their achievements. Although the OECD is considered to have a significant economic power, it does not provide financial support. Its members can only benefit from its expertise and the cooperation between the government and the sectors. The OECD's institutions are the Council, the Secretariat and the Substantive Committees, where the research of close to 200 topics take place. The Committees prepare comparative analysis, studies and recommendations for the Member States based on the data collected in the given topics. Education is such an important element of the economy that it is considered to be an exceptional sector even by organisations that focus primarily on the economic issue.

This educational sector is overseen by the Education Policy Committee and the Employment, Labour and Social Affairs Committee. The Education Policy Committee consists of the representatives of the Member States' Ministries of Education. Since the 1960s, this Committee has proposed progressive resolutions in several issues, including unemployment and the relationship of demographic processes and education.

In the field of education, Country-studies of each individual country have been prepared since the 90s. These studies are debated by the representatives of the countries, which compels the responsible leaders to practice self-reflection. The Country-studies also serve as a source of comparative analyses. The thematic studies are the collection of data organized around certain topics in various countries. The primary goal of these is not to provide feedback for the leaders of the involved countries, but to propose conclusions and suggestions that have general value. So far, the studies were concerned with the following education-related thematic areas: assessing the quality of education; educational research; fight against failures in schools; PISA surveys (in subjects such as Reading, Mathematics, Natural Sciences); teaching and nursing children; the transition from education to work; the application of ICT tools in education. The problem of the curriculum has been receiving specific attention, because due to the technological development, certain jobs are gradually becoming automated and robotized, and as a result, workers have to learn a profession. According to the OECD Committees, the skills required for lifelong learning should be prioritized over lexical knowledge. Thus, they have added new competences,

such as creating new value, problem solving, conflict resolution and taking on responsibility alongside with basic skills such as reading, numerical and digital skills, information management, physical and mental health and social and emotional basics.

For the Member States of the **European Union** the organisational expectations provide further guidance for educational development. In 1963, the constitution considered education as a national issue. Although it has not intervened in the affairs in this field, it regarded the standardization of vocational training-policies that are subordinate to economic goals and increasing the efficiency of vocational trainings as a priority. Vocational training, therefore, was not considered to belong to the educational regulatory range. From 1974, a strategy started to form that proposed "smooth methods" as influencing tools in the European educational system. These are: the project/programme method, influencing through the strategy of economic growth, prioritising mobility, grass-root development based on cooperation, which might encourage autonomous entities to cooperate without political commitment. The European Community started its first community-level action programme regarding educational policy in 1976. Its main areas of cooperation were: providing adequate education and training to immigrants and their children; tightening the relationship between the educational systems of the Member States; preparing and sharing documentations and statistics about the Member States' educational systems; cooperation in the area of tertiary education as well, improving the foreign-language skills of students, teachers and researchers and ensuring equal opportunities.[9]

[9] Resolution of the Council and of the Ministers of Education, meeting within the Council, of 9 February 1976 comprising an action programme in the field of education. Official Journal C 038, 19/02/1976 P. 0001-0005.

The European Centre for the Development of Vocational Training (CEDEFOP) was founded in 1975. This organisation is responsible for preparing documentations and analysis about vocational training; supporting the advancement and coordination of certain studies; promoting/spreading information about vocational training, encouraging the collective approach of the problems of vocational training; providing a proper panel for the discussions relating to vocational trainings. From 1986, programmes supporting education gained a new impetus in the Union.

- The COMETT's objective was the improvement of practical training the students receive
- The Erasmus is an international exchange programme, helping university students to experience studying in a foreign country.
- The Petra (later: Leonardo da Vinci) supports the international cooperation programmes of educational institutions.
- The TEMPUS, launched in 1990, encouraged the academic cooperation with Eastern European institutions as a program that was above the Member States.
- The Youth for Europe facilitates the mobility of young people in Europe.
- The Lingua programme supports language learning.
- The IRIS is to promote the vocational training of females.

The Union considers vocational training a common European issue, while education is treated as a national question. Therefore, it is important how vocational training is defined. At the time of signing the Treaty of Rome, compared to the current interpretation, its definition used to be more specific. Essentially, it only included the practical training for agricultural and industrial work that used to belong to the national Ministry of the Economy. Following the economic changes, this definition has been extended, though, there was no common agreement in this issue. The European Court of Justice held that in the case of Francoise Gravier, the plaintiff, who studied animation at the Belgian Royal Academy of Fine Arts and was required to pay a higher tuition fee, as his Belgian peers, was right. The reasoning included the new definition of vocational training, which broadens the scope of the decisions made by the Union regarding vocational training. The new definition is as follows: "Any form of education which prepares for a qualification for a particular profession, trade or employment or which provides the necessary skills for such profession, trade or employment is vocational training, whatever the age and the level of training of the pupils or students, even if the training programme includes an element of general education". (Verbruggen, 1998) The Erasmus programme at universities, for example, has been

created based on this precedent, thereby considering it a form of vocational training.[10] The objectives in the area of university education are increasing the number of enrolments in tertiary education, strengthening the economic cooperation and the involvement of adult students, promoting lifelong learning and regarding the advancement of information technology, encouraging an open approach to teaching and improving remote teaching.

From 1992 onwards, the Treaty of Maastricht legitimised the practical initiations in the field of education. According to the constitution, the questions of education remain national issues, but the EU does complementary work to encourage cooperation and to support the developmental pathways The primary aims of these common steps are the problems related to employment and competitiveness, thereby assisting the resolution of economic and social challenges. The report made in 1993 claimed that the European economic downturn (losing the competitive advantage against North America and Eastern-South-eastern Asia) had mainly been caused by the decreased ability of the workforce to get accustomed to the information and knowledge economy and in this context it has stressed the fundamental role of education and training. Based on this, the Committee has decided to set the objective of constructing a common educational strategy. The strategy released for discussion (published as a white paper) proposed to continue the existing programmes and created two additional ones: the Leonardo da Vinci and the Socrates. The aim of the Leonardo da Vinci was to support the cooperation programmes and the improvement of quality of the education and training in the area of vocational training policy, while the Socrates had very similar goals, except it was intended to be employed in the area of general education.

In 1997, **based on the Treaty of Amsterdam,** the development of the **community action programmes** began, setting out employability, entrepreneurial mindset, adaptivity and equal opportunities as the main objectives. In the field of education, the support of the transition from studying to working and of the skills that enhance employability became a priority. The national representatives of education gradually became involved in the process. The indicators related to the evaluation of educational achievements, that were accepted by the ministers of education, became the tools of coordination and influencing, besides quality improvement.[11] Article 165. regarding education, and 166. on vocational training in Chapter XII. (Education, vocational training, youth and sport) of the constitution states the following:

[10] Commission of the European Communities v Council of the European Communities. Case 242/87. European Court of Justice
[11] European Commission, 2002a

Article 165: “The Union shall contribute to the development of quality education by encouraging cooperation between Member States and, if necessary, by supporting and supplementing their action, while fully respecting the responsibility of the Member States for the content of teaching and the organisation of education systems and their cultural and linguistic diversity”

The aims are as follows:

- “developing the European dimension in education, particularly through teaching and the dissemination of the languages of the Member States;
- encouraging the mobility of students and teachers, by encouraging inter alia, the academic recognition of diplomas and periods of study;
- promoting cooperation between educational establishments;
- developing information and experience exchange on issues common to the education systems of the Member States;
- encouraging the development of youth exchanges and of exchanges of socio-educational instructors, and encouraging the participation of young people in democratic life in Europe;
- encouraging the development of remote education;”

In Article 166.: “The Union shall implement a vocational training policy, which shall support and supplement the action of the Member States, while fully respecting the responsibility of the Member States for the content and organisation of vocational training”

The aims of the European Union in the sphere of vocational training are to:

- facilitate adaptation to industrial changes, in particular through vocational training and retraining;
- improve initial and post-secondary vocational training in order to facilitate vocational integration and reintegration into the labour market;
- facilitate access to vocational training and encourage mobility of instructors and trainees and particularly young people;
- stimulate cooperation on training between educational or specialized training establishments and firms;
- develop information and experience exchange on issues common to the training systems of the Member States.”

The results of the programmes have not improved the situation of lagging behind the USA and certain Asian countries. A leeway was shown in the financing. In 2000, the average amount spent on education by the Union was 4.9 % of the GDP. This value was 5.8% in the United States and 3.6% in Japan respectively. Compared to the average amount of private investments spent on educational establishments by the Union (0.6 % of the GDP), this sum is 4-times as high in the United States (2.2% of the GDP) and twice as high in Japan (1.2% of the GDP). In addition, there was a lag in the number

of graduates in the EU, where among the people aged 25-64 years, 23% of males and 20% of females had an academic degree. These ratios are 36% and 32% in Japan respectively, and 37% considering the whole population's average in the United States. Since education policy is treated as an internal issue in the Member States, direct regulations and legal sanctions would be unsuccessful in the EU, because they would provoke objection in the nations. Based on the resolution and authorisation made at the Summit held in March 2000 in Lisbon by European Council, the '**Education & Training 2010' work programme** was adopted in 2002. In the context of education and training, it was first declared in this resolution that joint action is required in this field. Cooperation is achieved by employing the principle of open communication in issues related to employment as a method for discussion between the involved parties. The first two steps were to identify the common goals (setting the deadlines for each sub-task) and to determine the target values, based on which performance can be quantified. The subsequent step was to interpret the aims of the EU on the level of national politics and ultimately, to evaluate the execution based on standard measures. This system has established a benchmark, introduced good practices and set an example. Since these were not requirements, they were acceptable for the representatives protecting their national interests and for the social parties involved in the communication.

Besides the principle of lifelong learning, the following strategic goals and goal-systems were determined:

1. The improvement of the quality of educational and training systems within the EU. (The development of the education and training that teachers and educators receive; The development of skills required by the knowledge-based society; Securing access to information and communication technology (ICT) for everyone, Making STEM degrees more attractive; Perfecting the exploitation of resources.)
2. Facilitating the access to educational and training systems for all. (Open study environment; Making studying more attractive; Active citizenship; The promotion of equal opportunities and social cohesion.)
3. Opening the educational and training system to the external world. (Strengthening the connection with the world of work and research, as well as with society in general; The development of language learning; Promoting mobility; Strengthening the European cooperation.)

In some of the target values set in the programme, remarkable result were achieved (for example, the number of dropouts at the age of 18-24 years decreased from 17.7% (in 2000) to 14.4%, but the targeted value (10%) was not reached. Among the adults (aged 25-64 years) the number of people participating in education was raised from 8.5% to 9.3%. (However, the target was 12.5%.) It became evident that the programme must be continued. Among the EU's strategic goals, the area of education has become more emphasized, the existing aims were reaffirmed in the Europe 2020 programme. Although

additional ones were incorporated as well, I will elaborate on these later, when discussing the current educational system in Chapter 4.

The international comparison of education and vocational training, the determination and acceptance of the common objectives1 and a comprehensive community educational policy are not feasible without the **statistical and documentational systems** that are essential for the comparability of the data. For the standardisation of the database and the facilitation of interoperability, for the harmonisation and recognition of the qualification levels and the tools, as well as the development of a European vocational training framework are inevitable. The International Standard Classification of Education (ISCED) system created by the UN's educational and cultural organisation, the UNESCO, categorizes the levels and types of qualifications. The first draft was approved in the mid-1970s.

According to the European Union's 85/368/EEC Council Decision, 5 levels of qualifications and the occupational qualifications required for each profession were established. The levels are specified by the training that provides access to a certain level in the following way:

- Level 1: compulsory education and professional initiation;
- Level 2: compulsory education and vocational training;
- Level 3: compulsory education and/or vocational training and additional technical training or technical educational training or other secondary-level training;
- Level 4: secondary training (general or vocational) and post-secondary technical training
- Level 5: secondary training (general or vocational) and complete higher training

At the end of the '90s the cooperation of three major international organisations (OECD, UNESCO, EU) concerned with education policy facilitated the revision of the ISCED-97 system. At present, this standardized educational statistical database forms the basis for national and international data collection on structuring, financing and operating educational systems.
The revision of the ISCED in 2011 aimed to organise the education programmes (ISCED-P) the levels of educational attainment (ISCED-A) and fields of education and training (ISCED-F) into uniform coding schemes. This system is employed by the Hungarian Central Statistical Office as well for data collection. I intend to discuss this in more detail in Chapter 4, where the present education system is examined, but we shall review the historical development of the Hungarian education system first.

2.2 HUNGARIAN EDUCATION HISTORY

The universal education history estimates that schooling in Hungary started in 996, when the Benedictine monastery in Pannonhalma was founded. Initially, not only the wealthy, but also the poor children were provided with the opportunity to study, but the synod held in Esztergom under the realm of Coloman, king of Hungary (1074-1116) (in Hungarian: Könyves Kálmán) ordered the punishment of unauthorised "literacy".

During the 11-14th centuries, the cathedral schools have strengthened. Due to the ban, the monasteries focused more and more on the training of future monks. The majority of the Hungarian noble youth were studying at Western European universities. In the beginning, Bologna, Paris and Oxford, but from 1348 Prague, from 1364 Cracow, from 1365 Vienna were the main locations for the education of the erudite youth. There have been several attempts in Hungary to initiate academic education. King Louis the Great (I. Lajos) between 1367-1390 in Pécs, Sigismund of Luxembourg between 1395-1403 and 1410-1419 in Óbuda and King Matthias Corvinus of Hungary between 1467-1470 in Bratislava have all founded universities, but all of them ceased to operate after the maecenas monarch's death. The spread of the humanist erudition was slow in Hungary. It first appeared in royal and baronial courts, among these the most important ones were the courts of Sigismund of Luxembourg (king of Hungary between 1387-1437), then King Matthias Corvinus of Hungary (1443-1490), where educators such as János Vitéz (1408-1472) and Janus Pannonius (1434-1472) used to work.

Similarly to the international practice, the Hungarian registration and auditing practice, has begun with the management of the Treasury assets. At the time of King Matthias, a treasury was established, however, there was no independent audit. During the Habsburg realm, the financial and governmental reforms in the era of Ferdinand I (1526-1564) and Maximilian (I. Miksa) (1564-1576) facilitated the development of the chamber of financial auditors.

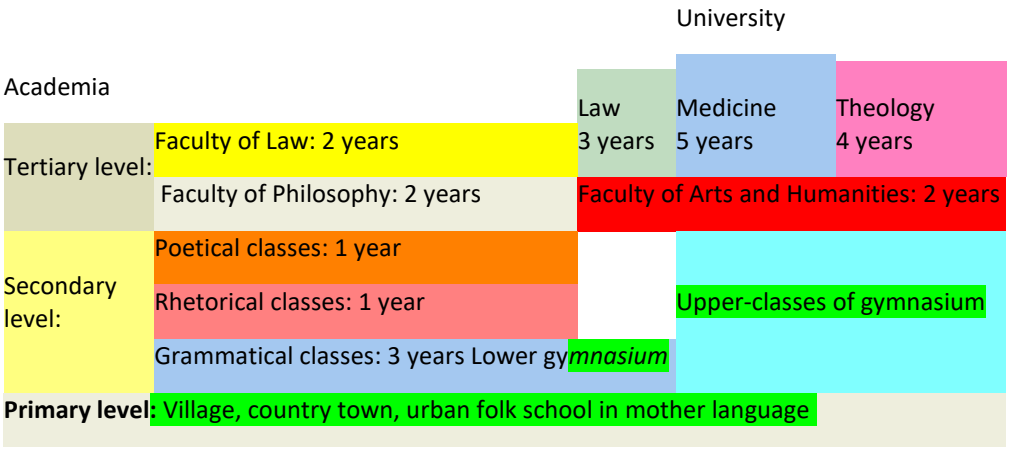
Later, exceptional scientists, such as Péter Pázmány, Comenius and János Apáczai Csere, were working on the advancement of Hungarian education. In Hungary, the schooling system of the era was characterised by ecclesiastical and private schools, and only a small proportion of the population was involved in education. The Turkish attacks were hindering the development of the country already from the mid-1400s, but during the era of the Ottoman Hungary (1541-1699), the economic and societal advancement was set back completely. After the Habsburg realm reconquered the Hungarian territories, it took control over them, which continued to limit the opportunities for development. In the area of vocational training, the settlement of the Western craftsmen in the 1700s and the subsequent formation of craft guilds as educational bases led to a substantial improvement. The first Hungarian real-sciences

college (’reálfőiskola’) was the Collegium of Szenc, founded in 1763, which operated only for a relatively short period (17 years). The pupils of the school were studying Mathematics, Accounting, Double-Entry Bookkeeping, Finance, Economics and mailing style. (Finánczy, 1901) At university-level, commercial-farming, financial and administrative and political knowledge has been taught as a subject named ’kameralisztika’. (Szögi, 1995) From 1769, at the University in Nagyszombat a separate department was established for the education of Political and ‘kameralisztika’ sciences (Administration, Finance, Economics, Commerce and Bill of Exchange subjects), which later, in 1848, was split into three departments: Economics, Commerce and Bill of Exchange.

The 1723 commercial decree of Charles III (III. Károly), king of Hungary introduced the obligation of bookkeeping, which increased the demand for skilled professionals. The Laws XV. and XVI. of 1840 contained rules regarding the Bill of Exchange (XV.) and the maintenance of traders’ records and documents (XVI.).[12] Furthermore, the person who prepared these documents was obliged to report regarding their accuracy and credibility. The obligatory independent bookkeeping was established in the 1860s due to frequent insolvency and bankruptcy. As a result of these changes, the demand for sufficient number of qualified professionals with an economics degree has increased, however, at the time, the system of qualifications was not yet regulated. The governmental regulation of education – in accordance with the system that was appearing in European countries – was first introduced in ***1777*** by Maria Theresa (Mária Terézia) in the decree ***Ratio Educationis I.***, then in ***1806*** by Francis I (I. Ferenc) in ***Ratio Educationis II.*** According to § IV. of Ratio Educationis I.[13], it has to be thoroughly assessed, which studies are suitable for whom in their future social position, and what benefit these can provide in everyday practical life. Moreover, this section stated that the descendants of the nation will become farmers, craftsmen or paterfamilias in order to fulfil their submissive Christian duties. The decree reinforced the existing school types and registered them in the rulebook. The contemporary main school types were the folk school on the elementary level, the gymnasium on the secondary level and universities that focused on the faculty of either Arts and Humanities, Law, Medicine or Theology on the tertiary level. (see Figure 1.)

[12] http://31.186.81.235:8080/api/files/view/31968.pdf

[13] Ratio Educationis I (1777) based on the notes and translation of Dr. Aladár Friml



1. ***Figure: The school system of Ratio Educationis I. (1777)*** *(Source:Pukánszky & Németh, 1996: 32)*

The decree primarily detailed the curriculum to be taught in the gymnasium, where bookkeeping was taught as part of the **Arithmetic accounting and algebra geometry** subject in upper-classes of gymnasium, but not yet as an individual subject. According to § CXXXVIII. of Ratio Educationis I., the pupils would benefit from being taught the general method of double entry bookkeeping (*doppia*) and the correct way of asset and household management, as these could be extremely useful in their future life. Following the decree, trade schools teaching agriculture and farming were founded one after the other, firstly in Szarvas, (1779), then in Keszthely (1797), Nagyszentmiklós (1799) and Magyaróvár (1818). These served as models for the schools established later on, that were oriented towards teaching trade and commerce.

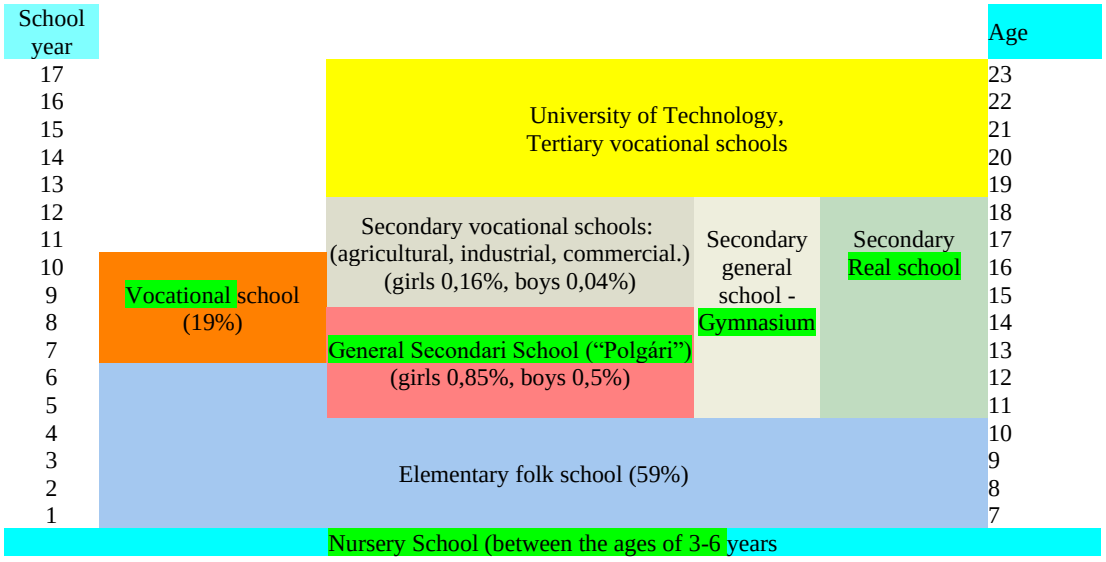
At the turn of the 19th century, polytechnical institutes were established in Prague (1806) and Vienna (1815) with Commerce and Economics faculties. The pupils had the opportunity to study Business- and Commercial Stylistics, Commerce, Commercial- and Exchange Law, Commercial Arithmetics / Mathematics, Bookkeeping for Business, Commercial Geography, History of Commerce and Commodity Knowledge.

In 1846, the "József-ipartanoda" was founded, which provided secondary qualifications and had three faculties: the Faculty of Industrial Science and Technology, the Faculty of Commerce and the Faculty of Agriculture. In 1850, it was merged with the Institute of Engineering, which was part of the University of Pest. Three of its departments were teaching subjects related to economics and commerce, such as General and Commercial Accounting, Bookkeeping, Natural History geography, Commodity Knowledge, Commerce, Industrial Business Writing and German Language. Due to the fast technical development, students were rather interested in Technology degrees, therefore, the number of pupils

studying commercial subjects was considerably low. At the Budapest University of Technology and Economics, there was a separate Department of Economics between 1863 and 1871 for traders and farmers. This 2-year course offered an academic degree. However, after the Austro-Hungarian Compromise in 1867, instead of continuing to exist independently, the course was integrated into other departments. (Mann, 1987)

On the 15th of September 1849, Kaiser Ferdinand approved the 'Entwurf' (The statute regulating the system of real school and gymnasiums in Austria), which replaced the previous 6-class gymnasium and 2-year academy with the 8-class gymnasium, ending with high school graduation central exam and a 6-class real school real school. The first institute oriented towards teaching Commerce on an academic level, the Budapest School of Commerce, opened in 1857, and offered secondary-level education in the beginning and reached the standard, that met the criteria of the academic requirements, only in 1899. The establishment of the specialized teacher training institute was linked to this issue. In 1857, the Polytechnical Institute of Buda was converted into the Budapest University of Technology and Economics and new universities were founded in Kolozsvár, Debrecen and Bratislava. Additional institutions that were established for the training of secondary school teachers developed further as a separate institution alongside the Faculty of Arts. At the same time, the first practical schools were founded. In 1868, several education-related regulations were enacted with the governance of József Eötvös (1813-1871), Minister of Education and Religion. The most important provision was the introduction of compulsory education of children aged 6-12 and 15 years, since primary education had been a condition of vocational training. The development began, the number of schools and educators increased, more and more children were attending schools (between 1868 and 1913, the proportion of students among school-aged children has risen from 48% to 93%) and the number of literates has started to soar (in 1890, 38% of the population above the age of 7 was illiterate, by 1940 this ratio has decreased to 6%). Nevertheless, the amount spent on this advancement was still substantially less than the budget ratios in more developed European countries, thus, the international gap in qualification levels as expanded further. The guilds have gradually disappeared over the 19th century (the Industry Act of 1872 has also enacted their dissolution) and in some sectors, the determination of quality-related rules and qualification requirements were taken over by "industrial bodies" In the larger settlements of the country, a succession of "polgári" general secondary schools were established, where after the first four classes of secondary school, subjects such as Chemistry, Agriculture or Industry, Statistics, Law and Bookkeeping were taught. The commercial vocational schools were gradually converted into institutions that could award students with a high school diploma (upper secondary school leaving exams).

The period of real school education has slowly become the same length – and in many cases, of equal value – as gymnasiums. The Act XXX. of 1883, enacted under the governance of Ágoston Trefort (1817-1888), Minister of Education and Religion, contained the detailed regulation of the curriculum and structure of secondary education (8-year classic gymnasium and real school.



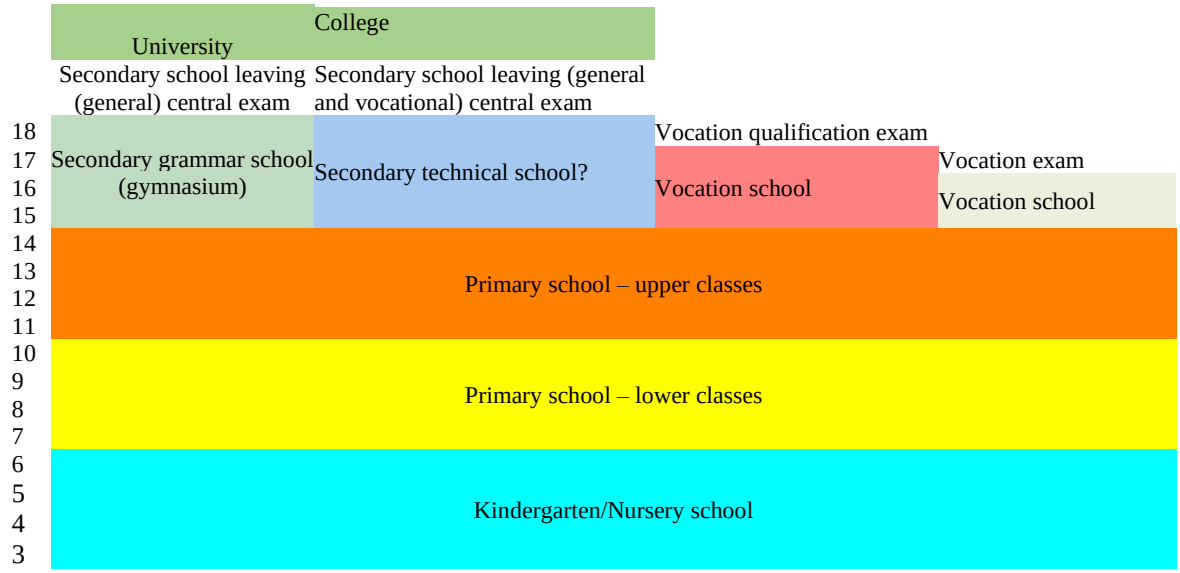
2. Figure: The Hungarian school system at the turn of the century. [14] (Source: Pukánszky & Németh, 1996. IX.)

Figure 2. is shows the Hungarian school system at the turn of the century. Following 4 years of elementary folk school, gifted and wealthier children could choose to continue their studies either in gymnasium or reáliskola. Skills for manual workers were taught at vocational schools. The secondary levels of vocational training were built on the "polgári" schools. Typically, real schools allowed students to continue their studies in technical tertiary education, while entry and admission requirements to classical universities included a high school diploma, which could only be obtained upon graduation from gymnasiums. The progressive educational provisions made in the period between WWI and WWII were mainly the result of the work of Kuno Klebersberg (1875-1932), Minister of Education and Religion. The aim of Act VII. of 1926 was to involve all regions into public education by building new schools and developing schooling for children living on farms. In 1920, a decree was issued, which ordered the conversion of the Faculty of Economics of the Royal Hungarian University into an individual institution. This faculty was given the authority to award its students with Doctorate in Factory Management and Doctorate in Economics qualifications. In 1934, with the fusion of multiple

[14] The cells show the percentage of children in the population, who are between the ages of 6 and 14 years, and for whom education was compulsory (for 2936.7 thousand people, equivalent to 81% of the population, was education compulsory) based on the Hungarian Statistical Yearbook of the year 1900.
Pukánszky - Német 1996. IX fejezet – (Kovátsné Németh, 1995).

establishments, the József Nádor University of Technology and Economics was founded, where one of the faculties was the Faculty of Economics, with departments of Administration, Agriculture and Commerce.

Besides the Hungarian secondary and tertiary trainings in Accounting, the work of those who pursued a career in auditoring, which was considered to be the highest possible qualification in this occupation, and the required qualification for the vocation was regulated by the Association of Hungarian Certified Public Accountants, which was founded between 1911 and 1932 in several steps. The association and the institution of certified accounting was disbanded by the socialism on the 15th of September 1950 and was only re-established in 1987.



3. Figure: The Hungarian school system in 1961 (Source: Pukánszky & Németh, 1996. XII.)

The 8-year folk school was introduced in 1940, but the war led to its abolishment in many locations From 1945, the Hungarian school system and curriculums were developed based on these. Firstly, 4 years of lower classes, 4 years of upper classes education, then the 4-year gymnasium and the compulsory education up to the age of 14 were inaugurated. In 1948, the schools that had been under the Church's control were nationalised. By the mid-80s, 95% of the students who were obliged to attend compulsory education/training programmes had finished elementary school. In 1937, there were only 38 gymnasiums and 112 secondary vocational schools. In the beginning of the '50s, however, there were already 175 gymnasiums and 230 secondary vocational schools in Hungary. In addition, the number of students has almost doubled compared to the data from 1937. Law No. 3. of the 1961 Education Act set the objective of encouraging the transmission of vocational knowledge and skills and the enhancement

of general erudition, alongside with ideological education. The legislation has also extended the compulsory education requirement up to the age of 16, which was further increased to 18 years in 1985. The University Reform in 1949 has abolished the secondary school teacher training institutions and teacher assessment committees, the training of secondary school teachers became the responsibility of university faculties. The training of Economics teachers has begun in 1948 at the Hungarian University of Economics. The elements of the Hungarian school system, following the 1961 Education Act are presented in Figure 3.

Due to the school-preparatory function of kindergarten, which has become standard throughout the years, it is considered to be a part of general education. It is responsible for facilitating and supporting the development of skills that are essential for starting elementary school. There is no significant difference in the organisational structure of the lower and upper classes of primary school. In contrast, the educational aims and methods are considerably distinct. Education is compulsory up to the age of 16, which means that the 8 grades of elementary school and one of the secondary educational institutions is obligatory for all Hungarian citizens. Vocational schools and secondary vocational schools offer primarily vocational training, along with minimal development of general education. The secondary vocational school and the gymnasium both award students with a high school diploma upon graduation, thus, they both provide pupils with the opportunity of further education at college or university. Secondary vocational schools prepare students primarily for tertiary education that matches their existing interests and qualifications. The distinction between the nature of training in college and university has been made at the beginning of tertiary education. In college, the nature of training is rather technical, while universities prepare for research and education and teach fundamental scientific knowledge. Between the ‘60s and the ‘90s, this educational structure has not changed much, some alternative opportunities became available (for example alternative schools: Rogers, Kincskereső, Zsolnai, AKG), but these affected a small proportion of the population only.

Following the proclamation of democracy (23rd of October 1989), the Hungarian school system became much more liberal, which was reflected in the authorization of the operation of ecclesiastical schools, the return (denationalisation) of educational buildings and the facilitation of competition in the textbook market. From 1995, the National Core Curriculum has defined the basic entry-requirements for certain learning areas, but it has also provided the freedom of choice in resolution methods. When considering the occupational regulations, it should be noted that that the organisational and financial background has been through several substantial transformations. The authority of the establishment of new schools has become the responsibility of municipal councils with different level of authorites. The variation in territorial and financial backgrounds led to considerable differences in the available opportunities for

certain educational institutions, educators and students, thereby limiting the mobility between social classes. The new central organisational and financial system was introduced in 2013 and 2016 in two steps, with the objective of finding a solution for this issue. I will provide a more detailed description of this initiation when discussing the present education system in Chapter 4.

In the professional training of accounting, 1959. is considered to be an important milestone, when the system of qualifications in the field was regulated by the Ministry of Finance. The levels of qualifications were determined as follows:

- Accountant trained according to the Act 186/1959 (in school system – vocational exam - 4-year training)
- Chartered accountant (minimum age of 24 years, professional degree obtained in college, 2-year training – extracurricular course)
- Chartered auditor (minimum age of 30 years, professional diploma, 2-year training - extracurricular course)

The preparedness was based on the high-quality/standard of education, the /professional exam and the required professional experience. The system of qualifications is basically equivalent to this one, however, the length of education period and the exam requirements have changed multiple times. The actual regulations will be reviewed in Chapter 4, when discussing the current education system.

2.3 THE EFFECTS OF ECONOMIC PROCESSES ON THE EDUCATION – RESEARCH FINDINGS

The base idea of my historical review is that education is a process that has been integrated into the society and the economy as a whole, thus, it is sensitive to the changes of both of these matters. The demographical and economic processes, the societal structure, the governmental and administration system, as well as the structure of cultural value relations of education are all influencing factors. In order to summarize the international historical studies that assess the role of certain societal, economic and cultural elements, the great philosophers of English and German education history concluded in their work published in 1987 that "in the early industrialisation phase, tertiary education had remarkable autonomy, and thus, its interference with economy was insignificant, however, it was strongly related to the development of governmental bureaucracy." Furthermore, " in spite of the acceleration of the industrialisation process and the increasing schooling ratios, the relative educational chances were stagnating: in the period between late 19th century and WWI, higher education, which was being organised into a system in Europe, appeared to have strengthened rather in the aspect of its reproductional societal nature. (Müller–Ringer–Simon 1987, 3, 7.) Renáta Németh PhD has examined the recent changes in the questions of Hungarian education history. She aimed to prove Treiman's modernisation hypothesis from 1970, based on the data from the years 1983,1992 and 2000 published by the KSH. The hypothesis was that regarding mobility, the economic and technological development leads to a more open society. Németh's conclusions show contradictory changes. Her statements emphasize the effect of family background on personal cultural background which has a strong impact on the educational and workforce-markets' situation. She claims that the skills that are in focus recently originate from and develop in the family, rather than in school. Németh's arguments are based on Hungarian data. However, Hungary is not an ideal example to prove Treiman's theory, since our education systems is unable to narrow the societal gaps despite the PISA's suggestions In the countries that are internationally considered as examples to be followed, the question of how to support the close up of groups that are lagging behind is a key issue of education, in which they have accomplished significant improvements. According to my assumption, the results of a more comprehensive international assessments are not distinct from the theory. In the next chapter(s), I will discuss the current international and Hungarian programmes that shape the education system by reviewing the environment, in which education is being practiced every day, through the identification of the benefits, barriers and disadvantages of the regulators.

3. Education Policy at present

> „My bravest late dreams have been 'degraded' into textbook information. And if you, the affable reader, who is not involved in science, think that the great masterpiece is complete and the creator is resting, you are wrong, in a few years someone will create the same piece with better methods, and before you know it, you are nothing, but a piece of junk.*"*(János Szentágothai)[15]

When reviewing the public education system of each country, we find several similarities in some respects, but also considerable differences in other areas. In most states, education is compulsory from the ages of 5-7 to 16. Moreover, the requirements for progression to the next level in the existing hierarchy of the education system are also similar. Although kindergarten is not compulsory in every country, it is free in almost all of them. Elementary education, which takes 4-6 years, followed by lower- and upper secondary school education are both free and compulsory. On the upper secondary level, specialisation is possible in most countries. Textbooks and school buses are free in the majority of cases. The operation of schools established by the government, the church, civil organisations and private businesses all receive funding from the government. In most countries there is a core curriculum framework, which dictates the required level of knowledge and competences; however, the content of these curriculums varies greatly. In the United States, the constitution prohibits the regulation of the curriculum, and often, there are problems with the qualifications of the teachers. They try to enforce the requirements towards schools with the employment of annual competency tests. In the best performing countries, to minimize the number of student dropouts and to compensate for the existing societal disadvantages, personalized teaching is offered for those lagging behind, in order to help them to catch up. In these countries, besides the supportive central regulation, the prestige of the teaching profession is ensured by outstanding income and high-level professional requirements.

[15] Ulyssesként az agy körül 1993. Magyar Tudomány http://www.matud.iif.hu/2012/11/02.htm

The educational pathways after compulsory education levels offer a wide range of interdependent courses, with exit opportunities at various stages in a diverse, but organised system of training institutions with varying levels of education. The price of diversification is sometimes that the qualification structure of the country becomes extremely complex. The titles ordered to each degree differ and they do not indicate the type of the qualification. Therefore, it is sensible to compare qualifications based on the achievements and acquired knowledge at the end of the training, instead of using the duration of the course as a basis of comparison. The system (ISCED) developed by organisations that are concerned with the improvement of education (OECD, UNESCO, EU) systematizes the education programmes and related qualifications by education levels and fields. This facilitates the comparability of the exit requirements and the required knowledge, skills and competences for a given profession set out by certain educational units.

The ***ISCED system*** (in its 2011 extended form) systematizes the educational programmes, fields and qualification levels. The educational programmes (ISCED-P) and qualifications (ISCED-A) are classified in the following way:

0) Pre-primary education level (Kindergarten) Early childhood education: entrance age is 3 years; typical duration is 3 years; principally designed for developing the skills that are necessary for participation in school and society, and to equalize the disadvantages originating from differing family backgrounds.

1) Primary education level (elementary school): age (6-7 years) is typically the only entry requirement at this level; typical duration: 4 years; students receive an annual school report, which in many cases contains textual evaluation - rather than grades - to specify the areas that require particular attention and further development

2) Lower secondary education level: entry requirements: completion of Level 1; entrance age: 10-11 years; typical duration: 4 years; annual school reports. General education (2A)[16], as well as special arts and remedial training programmes that prepare for further education. In case of the lack of abilities, it is possible to obtain a low-level or partial qualification (2C) without the possibility of further education. Students who obtain

[16] the meaning of the letters behind the numbers: „A" prepares for further education, „B" prepares for further vocational training, „C" prepares for labour market entry, „G" general education programme, „P" professional training and „V" vocational training.

these qualifications are able to work in manual occupations after an education period which can be as short as 12 years.

3) Upper secondary educational level: entrance age: 14-15 years; entry requirement: completion of Level 2A. Programmes at this level are more differentiated, with an increased range of options and streams available:
    - General (gymnasium) education (3A): 4-5 years, ends with general final exams (Hungarian: 'érettségi'), intended for students who want to study further
    - Secondary technical secondary school (3A,P): 4-5 years; exit requirements: general and vocational final exams; Provides students with the possibility of continuing their studies on secondary- and higher vocational courses
    - Secondary vocational training (3C,G); prepares students for vocational exam in 2-3 years; Cumulative duration: 14 years, which provides the possibility of working in various occupations within a certain industry.
    - For poor performing pupils, vocational school (3C) offers preparatory training for a professional exam, which enables them to work in narrower range of fields after 12-13 years of cumulative duration.

4) Post-secondary non-tertiary education level; entrance age: 18-19 years; entry requirement: final exam certificate, compliant with level 3A; Higher - specialized vocational - courses (3C); typical duration: 1-3 years; ends with vocational exam; allows for working in occupations where the final exam certificate is a requirement, after a training with a cumulative duration of 16-18 years. This educational level has a significant role in the area of qualifications, where final exam certificate is required, in professional transitions, re-training and in the pursuit of lifelong learning

5) Tertiary education level; entrance age: 18-19 years; entry requirement: final exam certificate compliant with level 3A. In this group of qualifications, trainings with various durations and aims are included.
    - Accredited, vocational tertiary education (5B), short typical duration: 2-3 years; The focus is on preparing students for a given professional field, ends with technical diploma (this is not a degree). Cumulative duration: 16-18 years, which allows for working in certain occupations. Its further training and retraining role

is important both for those who only have a final exam certificate and for those with a degree. In case of further studies, credits received from previously completed education programmes may also be counted towards the completion of a programme at a higher ISCED level.

- University programmes that award students with a BA degree (5A) upon completion take 3-3.5 years. These play a role in preparation for master's courses, but a considerable number of students decide to enter the labour market after obtaining a BA degree after studies with a cumulative duration of 18-19 years, because the salary available with this qualification is already substantial. These graduates are able to work in occupations that require a degree.
- Long, undivided tertiary education programmes (5A) award pupils with an MSc degree upon completion, which takes 5-6 years. These graduates are able to work in occupations that require highly advanced qualifications, such as doctor, pharmacist, lawyer, architect and teacher in Hungary.
- The Bologna process split the training programme into BA and MSC parts. For MSc courses that are the result of this separation the entry requirement is a BA degree (5A, B). These courses prepare students for jobs that are oriented towards theory, practice and research. Most students who complete these programmes entry the labour market upon graduation, which means that the cumulative duration of their studies is 21 years.
- Specialised tertiary educational courses require a BA or MSc degree and provide qualifications for highly specialized occupations. Graduates enter these programmes at the age of 21-23. The cumulative duration of their study period is 23-25 years. This form of education has a significant role in the further- and re-training of those who are already working and have tertiary qualifications.

6) Doctoral programmes' (DLA, PhD) requirements include scientific work and an MSc degree. The duration of the course is typically 5 years. Upon completion, graduates are awarded with a doctoral degree. In educator and researcher careers, but in managerial roles in any industry as well, these programmes are particularly important. It provides a further- and re-training opportunity for recent graduates, as well as for those who have been working in a profession for several years.

The subject of my dissertation involves the empirical observation of the BA and MSc programmes classified as 5A among the ISCED levels, since I at teach courses at these levels. The foundational training on the tertiary level, the upper secondary general school and the secondary vocational education all have a significant impact on the work ongoing in higher education. Hence, I intend to review the regulations, the structure, requirements and educational tools at these levels as well.

The vocational classification of educational and training fields (ISCED-F) was integrated into the system in 2011. Since 2018, the data collection of the Hungarian Central Statistical Office is also based on this system. According to the Hungarian KEOR (Standard Classification System of Educational Fields), the trainings can be categorized into 11 broad fields, 29 narrow fields and approximately 80 detailed fields with the application of a 4-digit code. In case of mixed educational orientation, the classification is determined by the most characteristic one. The brief overview of this system is as follows:

- 00 is the code for the general framework: for example, the 0021 code indicates the education of fundamental skills, such as writing, reading and arithmetic.
- 01 is the code group for the specialized educational directions. Within this group, the 0114: Teacher training with subject specialisation is relevant in relation to my dissertation topic.
- the 02 code group includes the Humane Sciences and Arts. An example within this group is the 0222, which stands for History and Archaeology Education.
- the 03 group indicates the field of Social Sciences, where the code 0311 denotes the education of Economics.
- the Business, Administration and Law Studies belong to the 04 group. The main subjects of my research, Accounting and taxation studies have the code 0411.
- the 05 code group stands for the educational courses in the area of Natural Sciences,
- the 06 for Information and Communication Technologies,
- the 07 for the Engineering, the Manufacturing and the Construction Industries,
- the 08 for Agriculture and Veterinary,
- the 09 for the Health and Welfare and
- 10 for other services.

For statistical analyses, using the standard system for data collection, the involved parties can classify their activities and qualifications both at national and international levels.

The aim of the European Union is to "improve transparency, comparability and portability of people's qualifications and to facilitate the comparison of qualifications from different countries and institutions".[17] The currently applied form of the European Qualifications Framework (EQF), which was approved in the European Council Recommendation on the 22nd of May in 2017, is the integral continuation of the system that was originally set up in 2008. It differentiates between 8 levels of learning outcomes (knowledge), skills, competences, autonomy and responsibility. Compared to the ISCED system, it defines a broader set of characteristics for each level, especially with regards to autonomy and responsibility. The application of the credit system supports primarily the development of flexible educational pathways in the fields of higher and vocational education, thereby facilitating the mobility between the qualification levels and international training programmes. Level 1. assumes the basic knowledge which is required for carrying out simple tasks under direct supervision; Level 2. assumes the ability of carrying out tasks with limited autonomy, using simple rules; Level 3. requires taking responsibility for completion of tasks in work or study by selecting methods and tools individually and assumes the knowledge of processes; Level 4. expects the application of factual and theoretical knowledge in broad contexts in order to generate solutions to specific problems, while exercising self-management, and the supervision of the routine work of others; Level 5. assumes the ability to carry out tasks based on comprehensive knowledge, applying creative methods, and to control and supervise the performance of self and others (University BA entrance level); Level 6. requires the person to be capable of organising complex technical or professional activities, of taking responsibility for the work of subordinate groups and of solving innovative, complex problems, building on the advanced level of one's theoretical and practical knowledge (BA level); Level 7. assumes critical awareness of knowledge issues in a specialized field, the application of this knowledge in research and/or innovation fields, and management and/or supervision of work and study activities based on strategic approaches (MSc level); Level 8. requires the ability to carry out autonomous research, innovative activity that facilitates scientific advancement and to be committed towards solving critical problems (PhD level). This classification refers to the ISCED system in determining a specialized field, when it categorizes the qualifications.

[17] https://europa.eu/europass/en/european-qualifications-framework-eqf

In the next part, I intend to review the developmental direction and the targeted reference values set out by international organisations. The European Union's Education and Training 2020 document contains the tasks related to education. I intend to carry out the comprehensive overview of the aims, requirements and results relating to the education system based on this document. From the OECD's educational policy concept, I mainly address the one regarding higher education, thereby providing details on tasks that are essential for the transformation of higher education. I establish the foundations of my research theses with the overview of the Hungarian developmental concept and the effective regulations.

3.1 EU Regulation 2020

According to studies carried out at the beginning of the 21st century, Europe's economy was lagging behind compared to the USA's and Japan's development. The European Union considered the possible solution to be a uniform strategy, with education being one of the key factors. The Education and Training 2010 document contained the aims and indications set out in this field, as well as the target values expected to be achieved by 2010. Not all objectives set out in the programme were achieved, and it became clear, that the work has to be continued, in fact, the management of further areas is also necessary. The European Union's Education and Training 2020 document, as part of the smart, sustainable, inclusive growth strategy[18] to be achieved by 2020, contains the tasks related to education. The main concept of the strategy is that due to the changes in technology, politics and society, the labour market - following the changes flexibly - demands increasingly higher levels of qualifications, as well as more and more expertise. Half of the jobs require tertiary, secondary or postsecondary qualification (ISCED level 3, 4). Two of the goals established in the growth strategy concerns education directly: decreasing the dropout rate and increasing the proportion of people who have a degree. I will elaborate on this later on. Firstly, I will consider the goals set out in two topics: raising the employment rate and the abatement of poverty. These are strongly connected to education. After the objective and the targeted reference value, the average of the EU's member states and the Hungarian statistics in 2008 and 2019 are described. For comparison, the 2019 data of

[18] https://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf

countries that are similarly developed as Hungary (Czech Republic (CZ), Poland (PL), Slovakia (SK), Slovenia (SLO)) are provided in parentheses. The source of the data is the Eurostat's Tables on EU policy chapter.)

- 75% of the population aged between 20-64 years should be employed. (in 2008, the average of the EU was 70.2%, Hungary's was 61.5%; in 2019, the EU average was 73.9%, Hungary's was 75.3%; CZ:80.3%, PL:73%, SK:73.4%, SLO:76.4%); The improvement is significant in this field. Hungary has already achieved this level, but the EU average is still below the 75%. Due to the pandemic, there is a substantial retrogression, its long-term effects are uncertain.
- The number of residents at risk of poverty has to be reduced by 20 million. This target value in Hungary is 450,000. (In the EU, compared to 2008, the decline in the number of involved residents is 7,521,000, which denotes a decrease from 23.7% to 21.8%. In Hungary the decline is 986,000, which indicates a drop in the ratio from 28.2% to 18.9%. CZ: 12.2%, PL:18.2%, SK: 16.3%, SLO: 14.4%) Despite the remarkable improvement, the proportion of residents at risk of poverty is still significant. Since it is known that a substantial proportion of these residents are children, whose studies are greatly influenced by the situation, we have a lot to do with their close up in education.

Experts have found that based on the analysis of the European statistics, the reasons for extreme poverty are: being in the career entrant status, having low-level qualifications, being involved in migration, having limited abilities or having disabilities, having only one source of income in the family and living in a poor neighbourhood.[19] According to data from 2019, among the population aged 15-64 years, the ratio of low level of qualifications, which is frequently linked to adversity, is 24.9% in the EU. In Hungary, this value is lower (20%), but it still falls behind the similarly developed countries. (CZ: 12.3%, PL:13.3%, SK: 14.5%, SLO: 15.8%). The proportion of the population with tertiary qualifications, which is considered to be the driving force of the development, is 29.5% in the EU and 22.5% in Hungary, which is also significantly lower than in countries developing similarly to ours. The 2019 employment data confirm this statement. The employment rate of the low-qualified (ISCED 1-2) workforce is 46.6% on average in the EU, 39.4% in Hungary, while 84.9% is the EU average and 85.2% is Hungary's employment ratio among those who have tertiary qualifications (ISCED 5-6).

[19] Source: A Magyarországra vonatkozó 2019. évi országjelentés https://ec.europa.eu/hungary/about-us/growth-and-jobs_hu#szemdok

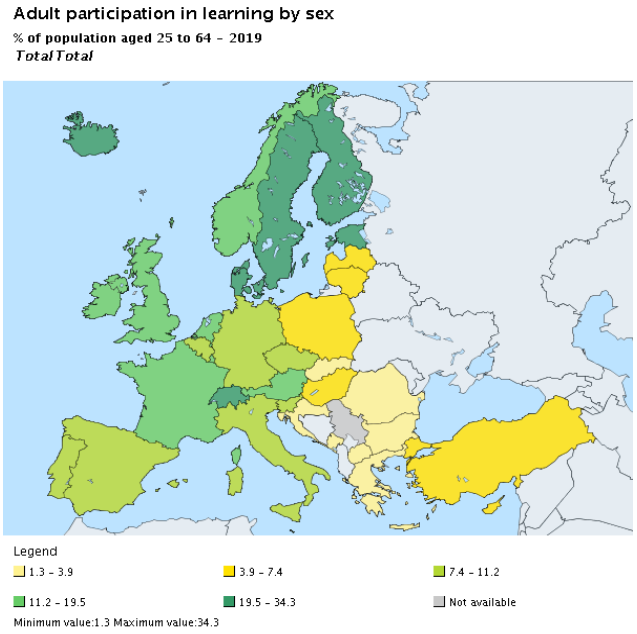
Aside from the reduction of the drop-out rate and the increase of the ratio of university graduates that appears in the economic targets, a further primary aim set out in the Education and Training programme is to increase the number of people involved in lifelong learning and international mobility. The strengthening of the interoperability between the levels that are now comparable owing to the qualifications system, and thereby, the support of flexible individual learning pathways; The improvement of the quality of education and the efficiency of the training programmes, especially in the fields of basic skills and teacher training; Regarding the encouragement of fairness, social cohesion, active civil involvement and the education for democracy, the fight against dropout rates and discrimination, as well as the expansion of early childhood education are all mentioned in the programme. The spread of innovation, creativity and entrepreneurial skills on the educational training levels is also a new element.

In the following paragraphs, I will focus on the reference values set out in certain areas of the programme elements, the chosen tools and methods to achieve these, as well as on the results that have been accomplished so far. I am going to compare the EU's averages to Hungary's data primarily, but the statistics of other, similarly developed countries in the region are also provided. (Czech Republic (CZ), Poland (PL), Slovakia (SK), Slovenia (SLO)). The source of the values I am using is the Eurostat statistical data[20] and the OECD statistics[21]. The causes and measures influencing the change in Hungary's values will be discussed in next Chapter The structure and regulation of the education system in Hungary.

[20] https://ec.europa.eu/eurostat/data/database
[21] https://stats.oecd.org/

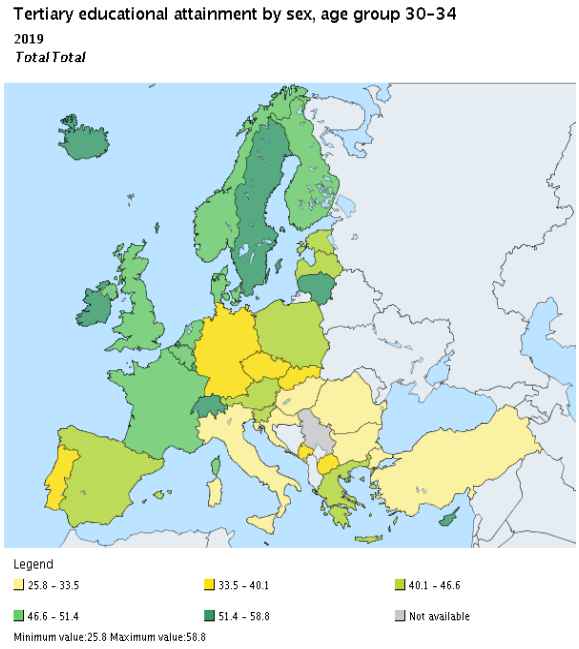
Regarding the encouragement of lifelong learning:

➢ On average, the participation of minimum 15% of the adult population (aged between 25-64 years) – particularly the low-qualified people – in lifelong learning was set out as the aim to be achieved. In 2014, the Hungarian value was 3.2% and the EU average was 10.7%. By 2019, these numbers were increased to 5.8% and 11.3% respectively. However, these ratios were far from the targeted values. The map next to the text shows the change in the European values by country. (CZ: 8.1%, PL: 4.8%, SK: 3.6%, SLO:11.2%)



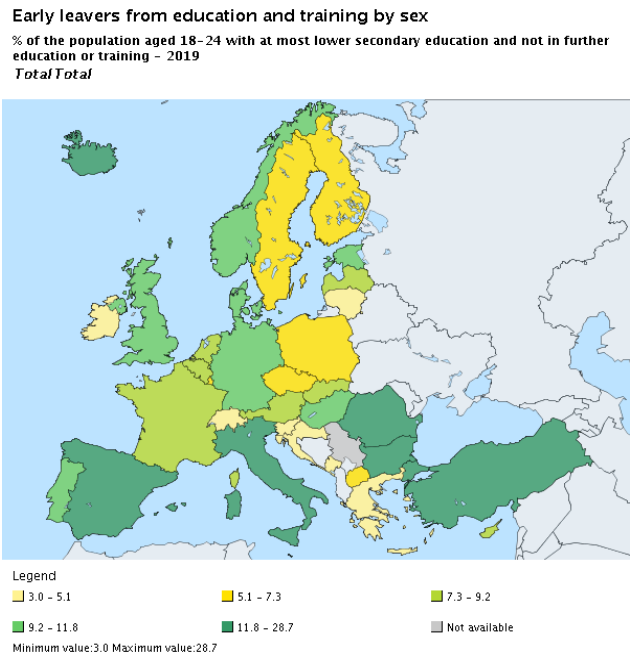
4. Figure: Adult participation in learning by sex (Source: EU stat)

- The goal to be achieved is at least 40% of the generation aged 30-34 to have a certificate of higher education – the Hungarian target is 34% (In 2008, 31.1% was the value in the EU and 22.8% in Hungary; in 2019, EU: 41.6%, Hungary: 33.4%) The EU average has reached the target. Although Hungary's goal was lower, which had been attained in 2014 with 34.1%, there has been a retrogression since, thus, the 2019 value is below the original target. Compared to 2008, a remarkable progress is observable, but Hungary is still behind its direct rivals' and the Union's achievements. (CZ: 35.1%, PL: 46.6%, SK: 44.0%, SLO: 40.1%)



5. Figure: Tertiary educational attainment by sex, age group 30-34. (Source: EU stat)

- The dropout rate must be decreased to less than 10% among young people aged 18-24 years. (In 2008, EU: 14.7%, Hungary: 11.7%; in 2019 EU:10.6%, Hungary: 11.8%) Hungary used to exceed the Union's averages, because the EU values have improved and have almost reached the target, while Hungary's statistics have deteriorated. At present, our country is far behind the similarly developed states regarding this issue. The change in the European values is shown by country on the map next to the text. (CZ: 6.7%, PL:5.2%, SK: 8.3%, SLO: 4.6%);



6. Figure: Early leavers from education and training by sex (Source: EU stat)

Based on the OECD's data, the ratio of male dropouts who are part of a minority group is particularly high. According to Hungarian statistics, 65.3% of the Roma youth leaves school early. As stated in the progress report made for the European Commission in 2020, among 15-24-year-olds, 10.7% of the population does not attend school and is unemployed.

The tools and methods for achieving the desired results are:

- creating an attractive alternative in the form of vocational training, which adjusts well to the labour market requirements, and from where transfer to higher education is possible;
- establishing a postgraduate specialist training (formal and informal forms of education), which is easily accessible for people with various backgrounds and which facilitates the change of careers;
- creating flexible systems (at any point in life) based on the recognition of academic records and qualifications (including certificates) and on the support of individual learning pathways;
- ensuring adequate support for those with disadvantaged backgrounds (involvement of women and dropouts).

The "**Youth in movement**" (Hungarian: "Mozgásban az ifjúság") programme has been established to increase the performance of education systems and to ease the labour market entrance for young people.

- At least 20% of young graduates who have a tertiary qualification, (among 18-34-year-olds) and 6% of adults who have basic vocational qualification should have study or work experience in a foreign country. According to the EU Commission report made in 2017 about the difficulties of data collection, the collection of reference data is not ensured. Every country in the world can be involved in mobility as a host or sending country, hence, besides the tender programmes, individual applications, transfer applications due to having parents working in a foreign country, long-term student status, short-term study- and internship programmes should all be included. The document proposes statistical measurement as a potential method for data collection. Based on data from 2012, 2.6% of the Hungarian university students have been to a foreign country, and the graduate-tracking system states that 9.8% of the graduates have an experience related to their studies in a foreign country. In 2017 4 309, while in 2018, 4,692 people participated in a foreign programme with the Erasmus+ scholarships. Among these, 73% in a study-, and the rest in internship-related programme. [22] In Western European countries, more than 30% of university students gain international work or study experience. (Bander et al., 2014.)

The integration and improvement, as well as the connection of the tools supporting the achievement of the desirable outcomes (the EU's mobility, university and research programmes, such as the Erasmus, Erasmus Mundus, Tempus and Marie Curie) with national programmes and resources; the acceleration of the modernisation of higher education (curriculums, control and financing), including the international comparison of the performance and results of higher educational institutions; the development of methods that promote mobility programmes and strengthen entrepreneurial skills among young professionals; the encouragement of the recognition of non-formal and informal education; the creation of a framework to support the youth in the entrance to the labour market.

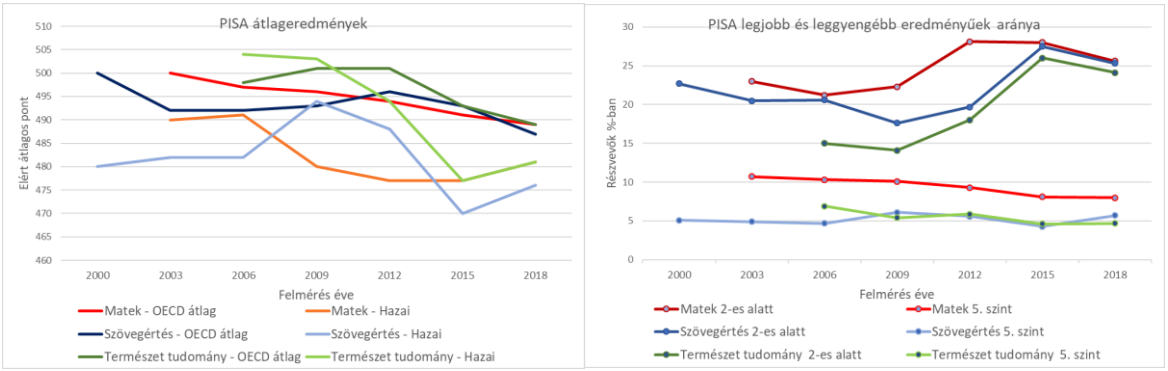
The mobility between countries has to become an integral part of professional training practice (the Europass supports this aim by establishing a uniform CV structure and documentation system.)

The "***Schedule of new skills and workplaces***" (Hungarian: ***„Új készségek és munkahelyek menetrendje"***) targets the modernisation of labour markets and aims to facilitate the lifelong

[22] Hungary: Mobility in higher education
https://eacea.ec.europa.eu/national-policies/eurydice/content/mobility-higher-education-29_hu

development of skills in order to enhance the employment rates and – among others, through the mobility of employees – the rapprochement of the supply-demand on the labour market at the EU level. The reference values in the field of skill-development are:

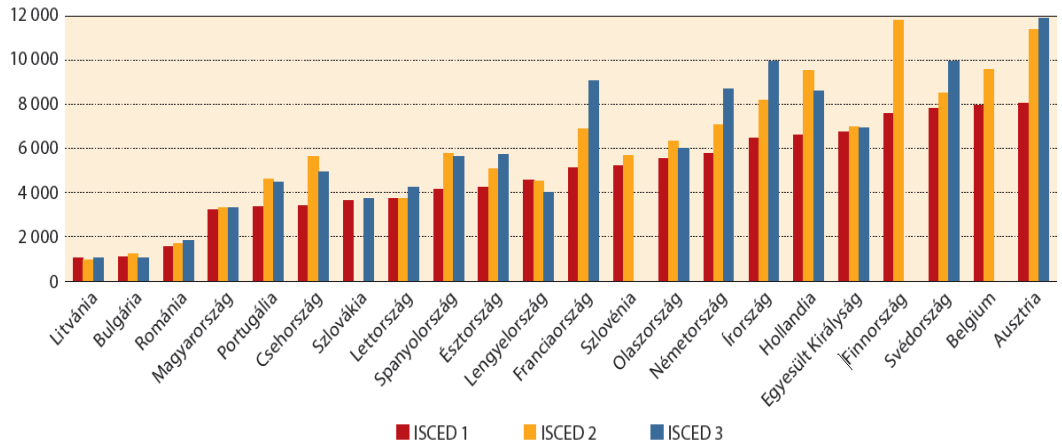
- At least 95% of the children who are between the age of 4 and the compulsory school-entrance age have to be involved in early childhood education. The Hungarian data was 94.7%, while the EU average was 93.9% in 2014. In 2019, Hungary has achieved the desired value with 95.7%. The EU average was somewhat below this (94.8%). In this statistical indicator, Hungary exceeded the values of similar countries. (CZ: 91.5%, PL:93%, SK: 82.2%, SLO: 93.1%);



7. Figure: The PISA statistics between 2000 - 2018. (based on OECD reports)

- The foundation of skill development is the level achieved in the competences in the areas of Reading, Mathematics and Natural Sciences. The target value in this indication is to reduce the proportion of low-performing 15-year-olds below 13-15%. The 2009 data showed 17.6% for Hungary and 19.7% as the EU average. By 2019, these have decreased to 25.3% and 21.7% respectively, thus, not only a lack of improvement, but a retrogression can be observed. The countries that are similarly developed to Hungary – except for Slovakia – achieved substantially better results. (CZ: 20.7%, PL:14.7%, SK: 31.4%, SLO: 17.9%) According to the PISA statistics of 2018, the ratio of low-performing students is 25.3% in reading comprehension tests, 25.6% in Mathematics and 24.1% in Natural Sciences. In the same year, the averages of the OECD Member States are 23%, 24% and 22% respectively. The change in the achieved average points and the ratio of the best and lowest performing students can be seen in 7. Figure. between 2000 and 2018, with measurements taken in every 3 years.

The detailed analysis of the PISA results concludes that the GDP value per capita in the given country causes significant deviations in the points, but the growth of the higher values has an ever smaller effect on the national average. The impact is similar, when considering the educational expenditure per capita: for higher values, the average-influencing impact decreases. Hungary is among the worst performing countries in this respect, as 8. Figure shows.



8. Figure: The expenditure per capita in educational institutions by qualification levels according to ISCED Levels 1-3 in 2012 using comparative values (PPS) (ranked based on ISCED Level 1)23

Based on paragraph 3.3.3. written about the topic of education and training in the UNION country report 2020, in the EU Member States, the educational results are greatly influenced by the individual, social and economic background. In Hungary, the social background of students (parental qualifications) explains 19% of the differences in the achieved points (OECD 12%). In certain schools, the abilities of the pupils are increasingly homogenous. The deviations caused by the variation in the place of residence have a large impact as well, and this is incremented further by the fact that at the age of 10, the best performing children are transferred into a separate school. This leads to the concentration of excellent and low-performing students in schools. School type appears to be a more definitive factor. It causes a difference of 86-87 points among student attending gymnasium or vocational school. Having to choose a school type at a relatively early age has a serious impact on students' potential opportunities later on.

[23] Györgyi Z. (2016): *The financing of education in the European Union* The European Union on education – strategic directions and interpretations Institute of Education Research and Development Budapest (44.)

There are nations (for example Poland), where the determinative impact of school type was successfully and substantially reduced.

The measures taken regarding the "***Schedule of new skills and workplaces***" programme:

- Together with the European social partners, the creation and execution of the second phase of the "flexible security" programme,
- the identification of the methods that facilitate the better management of economic transitions,
- promoting the fight against unemployment and the increase of the activity rate.

Furthermore:

- The modification of the legislative framework in accordance with the principles of intelligent regulations, with the changing employment trends (for example working hours, expats) and with the new health and security risks that can be experienced in workplaces.
- To facilitate and encourage the mobility of the workforce within the Union with the help of the financial aids ensured from structural funds – primarily the European Social Fund (ESF) and the harmonisation of supply and demand; the promotion of a progressive and comprehensive labour market migration policy, which has a flexible reaction to the priorities and needs of the labour market.
- The strengthening of the social partners' capacity, the application of the social debate's problem-solving ability at all levels (EU, national/regional, sectoral, businesses), as well as the enhancement of the cooperation among labour market institutions - including the governmental employment services of the Member States.
- To encourage the development of a strategic framework, which facilitates the cooperation in education and training between the involved parties.
- To ensure that vocational training and the general, higher and adult education provides the opportunity for acquiring the skills necessary for participation in the labour market, as well as the development of the common language between education and work, the European classification of Skills, Competences, Qualifications and Occupations (ESCO).

The concepts related to general education cannot be separated from vocational training, since it is a key component in the majority of the programmes. In order to attain the goals in all types

of educational pathways (from the basic and partial vocational training to the scientific university courses and research), new measures are necessary to be implemented. The target values regarding the ***improvement of the quality and efficiency of vocational basic and further training*** is to reach at least 82% in the rate of employed young people (20-34 years), who have a secondary qualification and have left the education system 1-3 years ago. The Hungarian value in 2014 was 78.5%, while the EU average was 76.1%, which has been increased to 81.6% by 2018.[24]

The most important measures regarding this issue need to be focused on the following: the introduction of national quality assurance systems that comply with the European Quality Assurance Framework (EQAVET) recommendations; the establishment of a competence framework for teachers and educators who work in the vocational basic and further training sectors (entrepreneurial competence); ensuring a high quality professional qualification, that meets the needs in the labour market, by increasing the application of on-the-job learning forms; the heightened improvement of key competences to enhance the adaptability and flexibility of students and workers; the improvement of vocational training's responsiveness to the labour market needs with the help of the design tools, and through cooperation with the social partners and the governmental employment services; ensuring a high quality training, focused on personalised on-the-job learning experience (flexible and module-based individual learning programmes); facilitating the transfer from vocational training programmes to higher education for high-risk groups; adequate "tracking systems" to monitor the employment rate of students – primarily the high-risk groups – involved in vocational training; career orientation services and the recognition of previous studies, especially in the case of migrants, to facilitate their integration into society; tightening the partner-relationships among vocational training institutions, local communities, civil organisations, parents and students; providing experimental and active learning opportunities to acquire 'e-skills', and to develop a risk-taking culture, curiosity, proactivity, intrinsic motivation and critical thinking; ("Erasmus - Young entrepreneurs" experimental project). [25]

At the national level, the Member States have to ensure the following: investing efficiently in all levels of education and training (from early childhood education to higher education); the improvement of scholastic records on every level (pre-elementary, elementary, secondary,

[24] Education and vocational training
https://www.europarl.europa.eu/factsheets/hu/sheet/139/oktatas-es-szakkepzes
[25] http://eur-lex.europa.eu/legal-content/HU/ALL/?uri=CELEX:52010DC0296

vocational and tertiary education) through an integrated approach, which is involves the development of key skills competences, and which is oriented towards decreasing the drop-out rate; increasing the openness and relevance of educational systems, firstly by creating national qualification frameworks, secondly by the harmonisation of learning outcomes and labour market demands; supporting the labour market entrance of the youth through an integrated approach, which involves – among others – consultation, guidance and internships/apprenticeships. Furthermore, decreasing labour market segmentation, facilitating easier transitions, implementing the national modalities of the "flexicurity principles" approved by the European Council, which allows for a better work-life balance; the revision and regular inspection of the effectiveness of tax and social (security) benefit systems from the aspect of whether it is worth to get a job. Particular attention has to be paid to low qualified workers, and any obstacles of self-employment have to be removed.[26]

The common higher education policy of the European Commission was published in 2005, in the 'Commission pushes role of universities in Lisbon' document. According to this document, the main causes for universities' inability to act as a driving force in the execution of the programme are that these institutions are overregulated, underfinanced, insufficiently differentiated and excessively isolated from the economic and social environment. Based on these, the aims are to improve their financing by making it more attractive and effective, and supporting the involvement of adults participating in lifelong learning. Moreover, aside from classic universities, it is necessary to establish organisations that offer technical diplomas.

[26]COMMUNICATION FROM THE COMMISSION EUROPE 2020 A strategy for smart, sustainable and inclusive growth
https://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf

3.2 THE BOLOGNA SYSTEM IN HIGHER EDUCATION

For the implementation of the European Union's higher educational goals, cooperation among the Member States is essential (let us not forget that education is a national issue). The European Higher Education Area (EHEA) is striving to find the tools that are essential for goal attainment and to implement the modifications at a national level according to the common standpoint, through the collaboration of the Ministers of Higher Education and expert bodies. The EHEA has imposed measures oriented towards increasing the competitiveness of European higher education and the standardisation of the training structures and requirements, which allows for more interoperable and comparable qualifications and degrees.

This transformation programme is known as the Bologna process. Its steps in keywords are:

1998. Sorbonne Declaration – introduction of the system with two main cycles (undergraduate/graduate), use of credits;

1999. Bologna Declaration – easy to read, comparable degrees/diplomas;

2001. Prague Communiqué –fair recognition and dual degrees, common diploma supplement;

2003. Berlin Communiqué – portability of loans and grants the recognition of degrees and periods of studies, quality assurance system, the relationship of research and higher education;

2005. Bergen Communiqué – European Qualification Framework (EQF), flexible pathways in higher education, cooperation based on sustainable development;

2007. London Communiqué - employability, work permits, development of the European Quality Assurance Register (EQAR);

2009. Leuven/Louv ain-la-Neuve Communiqué – set out the objective to achieve 20% participation level in student mobility, focusing on global strategy.

The main points of the Bologna Declaration (with the extensions added after the conferences):

- we are working on the improvement of the international competitiveness of European higher education;
- the introduction of a standardised diploma supplement written in a common language, which details the qualification in a standard format; this is easy to understand and can be compared with other degrees;

- introduction of three-cycle system– first cycle is an at least 3 year-long (minimum 180 credits) BA programme, the second cycle is a master's course; the third cycle is a doctoral programme;
- the collection and transfer of credits – a system that supports student mobility, which reduces the administrative barriers of the legal recognition of degrees, and which promotes the collaboration in the question of quality assurance at the European level;
- collaborations among institutions, training and mobility programmes open to students, educators and researchers.

The Bologna Tuning project is an initiative proposed by universities, which aims to standardize the training programmes and complements the operation of the Bologna system. Besides the preservation of autonomy and diversity, it provides guidelines on the harmonisation of education programmes. The goal is to ensure comparability while maintaining an individual profile. Based on the opinion of academic parties, employers and graduates, 17 of the most important competences related to the training have been included. Among these, the ability to summarize and analyse, to learn, to apply the knowledge in practice, the adaptability to new situations, oral and written communication skills in the mother language, interpersonal skills and creativity are considered to be particularly important. (Source: González – Wagenaar, 2008 pp. 46-47.)

In Hungary, the system was implemented after several professional and political debates in the 2005/2006 school year. This has been discussed as part of the Hungarian education system in next Chapter.
Besides the EU, the OECD's findings also propose to set the target values for the development. Its strategy regarding higher education shows many similarities with the Union's plans.

3.3 THE OECD'S HIGHER EDUCATION STRATEGY

In the issue (written in between 2004 and 2008 by the OECD) titled 'Higher education for knowledge society' the four main missions for higher education were set out. These were: to be the development of human capital, the establishment of knowledge bases and the spread, application and maintenance of knowledge. Hungary was not involved in this project, but we can conclude the lessons learnt from the findings. The higher educational policy recommendations for the leaders of the Member States who are concerned with education issues are related to the following nine areas.

1. *The establishment of a national higher educational strategy* involves firstly the determination of strategic goals by involving the interested parties and through social consultation. Secondly, matching the institutional goals accordingly, the allocation of management instruments, the conclusion of financing agreements, the strengthening of the system's coherence (abolish the divided faculty structure), as well as supporting the transition between training and education levels and work (consultation, joint programmes).

2. In the context of *Linking the financing of higher education to national priorities*, the development of the financing and the cost-sharing between the government and the consumers have to be in harmony. A financing system connected to societal usefulness is a primary aspect. Its main tool is performance-based allocation (based on input and output indicators), involving the student-support systems as well.

3. The assurance and development of high quality in accordance with the higher education policy aims builds on internal evaluation, self-evaluation and external evaluation feedback. In order to attain the goals, strong management tools (financing agreements) are necessary. The coherence of the system (course structure, territorial division) has to be enhanced, and it has to form connections with public education and employers in order to have a coordinated training process which satisfies the labour market's needs. Institutional strategies have to be developed according to the central goals, with the involvement of societal groups interested in higher education (institutions that take specialities into account).

4. With regards to *ensuring equal opportunities and fairness*, the harmonisation of secondary and tertiary education, the initiation of diversified (different levels to meet the demands) courses, the application of positive discrimination, facilitating alternative entrance pathways and the operation of effective consulting services have to be enhanced. Furthermore, it is necessary to create an interest for the institution in all the above. (financial and ethnic background, sex differences, immigrants, geographical location, disability, mature students).

5. The *role of higher education in the area of research and innovation* has to be strengthened. The primary aims regarding this point are the establishment of knowledge centres and the promotion of the cooperation among the institutions. The international mobility, the development of innovative skills and interests, the basic, project and mixed financing solutions all have to be enhanced and the infrastructure has to be improved.

6. The *support of the academic career pathways* involves assistance in the adaptation to changes (support of a beginner researcher both professionally and financially), the freedom in research and education activities, the satisfaction, the harmonisation of societal needs. This requires having supporting services and their internationalisation, the employment conditions, the nomination regulations and an adequate income system provided.

7. Regarding the *strengthening of connections with the labour market*, the central coordination of the education and employment policy and strengthening the career management consulting and orientation services, taking students' needs into account are necessary. The market labour demands have to be integrated into the training requirements (ICT, business and problem-solving skills). Furthermore, the selection of graduates has to fall within the labour market demands.

8. The *internationalisation of higher education strategy* has to appear both on university and on the national levels, considering the coordination, ensuring interoperability, enhancing the competitiveness, improving the intercultural skills, internationalising the curriculums and education methods. The institutions take on an active role in this and support the cooperation with international organisations, the integration of international students. Programmes that promote the mobility of students are necessary to be

developed, the mobility of the programme and the institution has to be enhanced and its limitations have to be reduced (language of the education, educators' income), the alternatives of the international rankings have to be monitored.

9. Regarding *the implementation and execution of higher education strategy,* institutions that support the communication and consensus among the involved parties have to be established, agreements have to be reached on vocation policies, a comparability criteria system has to be determined, the initiatives coming bottom-up need to be supported, the system has to be transformed through regular consultations and using a gradual approach, the opposing factors should be combatted and the effect mechanisms have to be identified.

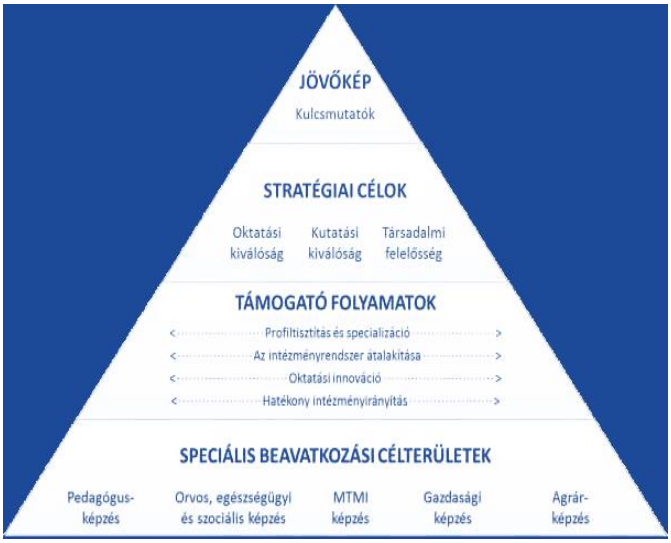
The postulates do not specify direct goals and methods. According to the recommendations, the development and the success do not depend principally on the magnitude of resources invested into education, but on having the right people to become teachers, training them to be effective educators and on students receiving the best possible education. In the next paragraphs, I review the Hungarian phrasing of these aims, the steps taken thus far regarding the execution of these aims and the achieved results.

3.4 HUNGARIAN EDUCATION STRATEGY AND THE IMPLEMENTED STRUCTURE – REGULATION

The OECD's statistics relating to education and its recommendations serve as guidelines to the Hungarian plans. The guidelines proposed by the EU are not orders or requirements, since only the national governments have authority over educational issues. However, for the implementation of the common activity programme, all countries aim to contribute with their own goals and development plans according to their individual situation. The Hungarian plans were conceived separately for public education and for higher education. The development project for the Hungarian higher education was described in the 'Shifting of Gears in Higher Education Mid-Term Political Strategy 2016' document, which is the result of the joint effort of the Ministry of Human Capacities and László Palkovics, who was the Secretary of State for higher education at the time.

3.4.1 Shifting of Gears in Higher Education

In the document, as 9. Figure shows, the strategic goals, the supporting processes and the special intervention areas are detailed from the vision, which is considered to be the goal.



9. Figure:. Shifting of Gears in Higher Education Mid-Term Political Strategy 2016'

The aim is phrased as the summary of the foreword of the document: „The key to Hungary's development is the adequate quantity and quality in higher education, which enables the country to react both to social and to economic challenges. Everything is provided in the Hungarian

higher education for us to attain our ambitious goal. Thus, the challenge for the next decade is to create the most excellent higher education system in the region, which is focused on performance, high quality, competitive knowledge and the joint success of the students and educators, utilizing our strengths, opportunities, resources and existing experience."
By 2030, the target values and goals regarding the development of higher education are[27]:

- The number of the advertised courses to be reduced by 15% (from 10,732 to 9,122) countrywide, while maintaining the affected capacities. Since 2012, the number of institutions decreased from 68 to 64, there was 406 BA and undivided, as well as 402 MSc advertised courses in 2019, but some of them are run in multiple locations. For September 2020, there are 3,499 undergraduate, 3,355 undivided, 3,576 master's and 611 tertiary vocational training programmes advertised.[28] In total, on the university level, the number is 10,430, which shows a decline. However, together with the tertiary vocational training programmes, the total number of courses is 11,041, which is an increased value compared to the original one.

The fulfilment necessitates the cooperation of the institutions, the division of tasks among them and a healthy competition among the courses and the establishment of specialized institutions with related research performance. The training structure needs to be transformed: its flexibility should be increased; quality training (accreditation) is required, while the level of interoperability rises. The decrease in the regional differences and the development of the transborder Hungarian education are especially important challenges.

- The average ratio of dropouts in higher education should be reduced by 10% in undergraduate and undivided courses (from 35% to 25%). According to 2018 data, the situation has not improved, the ratios of dropouts are 40% in BA, 50% in undivided, 15% in master's and 50% in doctoral training programmes. (Pusztai 2015.)

Dropout rates present a significant challenge in higher education, which is gradually becoming mass education. Based on the interviews conducted by the educators of the University of Debrecen (Pusztai 2015. 740), full-time students from disadvantaged backgrounds, who take

[27] The target values from 2012 to 2020 are given in the parentheses

[28] https://www.felvi.hu/felveteli/szakok_kepzesek/szakleirasok/

on a job while studying, are the most likely to drop out due to financial reasons. Further causes include the inability to meet the university requirements in terms of study performance, the disappointment in the chosen course or in further education, or the combination of the above. The high number of students on online and part-time courses, who withdraw due to the strain of working while studying, and of the degrees that are not issued because of the lack of language exam all belong to this domain.[29] The Hungarian dropout rate measurement method is based on the difference between the number of freshers and graduates. Hence, those who take a gap year(s) or change courses are also counted as dropouts. The increase of the educational expenditure, the decrease of the governmental financing, as well as the unpredictable scholarship system all worsen this result. With the introduction of the Bologna system, the problem was expected to be mitigated by the shorter course durations, but this has not occurred. The tertiary vocational training creates an alternative way to obtain a professional qualification for those who drop out of university programmes. For the improvement, the advancement of quality and preparedness of education and the development of a performance-based progress system are necessary, where the focus is mainly on personal mentoring, research activity and personal development in order to achieve a more intense training. The student differentiation – according to the individual skills and capabilities and the management of talent development and alignment are essential. Furthermore, the transformation of doctoral training programmes – establishing an incentive system is also related to this challenge.

- The number of international students (from 23,000 to 40,000), as well as the ratio of students participating in international training programmes, in an at least 3 months or a minimum of 15 credits worth of travel or internship in a foreign country have to be increased (from 10.41% to 20%). In the 2019/20 academic year, 33,142 international students attended a full-time course in Hungary, which shows a considerable advancement; the proportion of students coming from China is significant. As I have mentioned before, it is difficult to obtain reliable data about the Hungarian students who study abroad. According to the Erasmus+ report (which takes only part of these pupils into account), in 2017, there were 6,822 Hungarian students who participated in an

[29] In the Spring of 2020., the language exam requirement has been removed for those, for whom this was the only factor that prevented them from receiving their degree/diploma. According to the government's estimates, there are 75,000 such students, whose attainment of the qualification will improve the statistics.

international training programme or internship, while there were 8,492 international students who came to Hungary for the same reason. [30]

For the improvement, it is necessary to increase the proportion of courses taught in a foreign language and the definition of advanced admission and exit requirements (language skills) towards students. It is also important to determine the priorities, the development of quality training and of institutional and central strategies based on the institutions' individual strengths.

- The ratio of freshmen in dual degree undergraduate programmes should increase (to 8%) in the relevant fields of education and training. According to the felvi.hu website, 510 courses offer the possibility to study in the form of dual degree programmes. In reality, we are far from reaching this level: as reported by the OSAP in 2018, in the 2018/19 school year, there were 2,062 students enrolled in dual degree programmes.

The teaching of relevant skills and knowledge with practice-based solutions, that can be utilized in the labour market; the improvement of competence levels; the spread of remote and online teaching forms; the integration of modules that promote the development of a project and outcome-based and entrepreneurial mindset are important objectives for the future,

- The ratio of the 30-34-year-olds in the population who have academic or equivalent qualifications needs to be increased (from 29.9% to 35%). By 2019, we have achieved 33.4%, which can be considered a significant improvement, but is far behind the EU average (40.7%).

The management of global problems; interdisciplinary, problem-solving mindset; the technological development to contribute to well-being; besides education and research, the third mission (business and other institutional relations) – advancement in social innovation and taking steps towards the attainment of the goal – are also essential.

Regarding the subject of word-class research:

[30] https://op.europa.eu/en/publication-detail/-/publication/ae35558f-41b8-11ea-9099-01aa75ed71a1/language-en

- The target values to be achieved are: increasing the number of researchers (from 37,000 to 56,000), the number of R&D workers per 1,000 employees (from 8 to 12), as well as the ratio of people who have obtained doctoral qualifications (from 22% to 30%).

Further aims are: the enhancement of the participation rate in doctoral and practical research, as well as of the international and domestic collaboration, involving foreign researchers; increasing scientific productivity by joining European competence centres; improving international reputation. The introduction of practice-based doctoral training, the establishment of a tutorial system would promote the implementation of the programme.

- The increase in the number of patents (from the 13% that is registered in Hungary to 25%) and of publications written in a foreign language (from 10,177 to 13,000) produced in higher education) are set out as the target values.

To facilitate the attainment of this goal, the increase of the RDI (research, development and innovation) expenditure as a % of GDP (from 0.24% to 0.5%), of the direct RDI income of the institutional system as a % of the total budget (from 1.5% to 10%) and of the related community and EU financing and the renewal of the infrastructure are necessary. The university research projects should be related to practical fields. As part of this, the number of direct (business) orders in the R&D field is expected to grow.

Regarding the subject of higher education as a catalysator of urban and regional development:

- The number of multi-stakeholder forums in higher education (from 2 to 12), of creative urban strategies, where a higher educational institution contributes to the implementation of the project (from 2 to 5), and the number of higher educational energy efficiency modernisations/passive public institutions that function as a model should be increased (from 2 to 10). Furthermore, the number of Spin-off businesses, of the participators involved in higher educational sports and exercise and in health developmental services should be raised by 20%.

The related steps are: cooperation between higher education and local economic development (incubation facilities, creative city); encouraging the active participation of higher educational institutions in dealing with social challenges; (financial support of research and studies in the areas of gender, sustainability, resource management, climate change and quality of life);

expansion of educational, perspective-shaping awareness services (Researchers' night in Hungary, Celebration of Hungarian Science, University of Omniscience); creation of modern informational content and providing wider access; (administrative and file-sharing software systems, digitalisation, publications, educational content); strengthening the higher education's function as a service provider (sports development, health developmental courses)

Regarding the goals and methods set in the subject of education innovation, the primary task is to focus on practice and student engagement (project, skill development, reducing the number of contact hours); the appearance of the financing body in the management; the separation of the tasks of the operations management (rector – chancellor); the development of an effective incentive system; the transformation of the student body system (Students' Union, new services, code of ethics); the expansion of the business and community financing, based on the new business model (strategic goal); the unrestricted use of the institution's own revenues; the establishment of a flexible employment and bonus scheme. The 50% ratio of governmental financing in higher education is not to be increased, thus, the institution has to raise the remaining financial resources from community tender opportunities, R&D and other direct revenues (tuition fees and other services), in the form of patronage. The indices of the training programmes' financing that form the basis of governmental resources are: the overhead costs of the programme; the ratio of the credits completed in reality and the credits completed according to the curriculum; the improvement of the competence results; the number of undergraduate, master's and doctoral degrees issued; the ratio of dropouts and students completing their studies within the normal period of time; improving the chances of students with disadvantages backgrounds. The indices of the financing of research activity are: technology transfer; patents and other forms of IP protection; publications written in a foreign language; the number of students and graduates involved in doctoral programmes; domestic and international scholarships, competitions, awards.

The steps to be taken determined particularly in the subject of economics education are: reducing the number of undergraduate courses (interdisciplinary nature, optimisation of the training programme selection, dual degrees); the further development of master's courses according to the local needs and enhancing their orientation towards practice (educators from the industry); encouraging the internationalisation of certain institutions (courses taught online and in a foreign language); increasing the participation rate in adult and tertiary vocational training programmes (goal-oriented cooperation with employers).

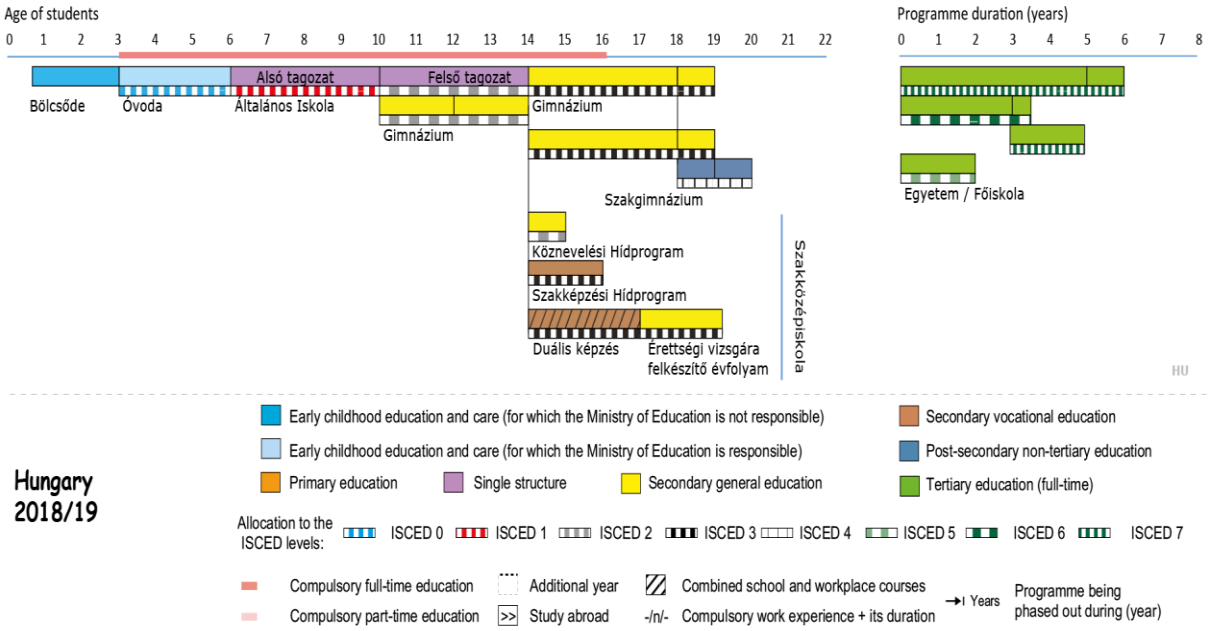
3.4.2 Legislations in the field of education

Hungary's Fundamental Law, operative since the 1st of January 2012, following our previous constitution, declares the right to education in the mother language; the freedom of learning and teaching in order to facilitate the attainment of the highest possible level of qualification; the free and compulsory elementary and the free secondary education, which is available to all; and the tertiary education, which is also available to all based on their individual competences. Furthermore, according to the law, parents are obligated to ensure that their children meet school attendance requirements. 10. Figure represents the structure of the Hungarian education system.

The management, organisation and financing of education and training are governed by various legislations, that have allocated the tasks. Based on Act CXC. of 2011., which regulates the national public education, elementary and secondary education is governed by the Hungarian Ministry of Human Capacities. The provisions related to tertiary education are stated in Act CCIV. of 2011., according to which from the 1st of September 2019, the Ministry of Innovation and Technology oversees this field. Under the Act LXXVII. of 2013. on adult training and Act LXXX. of 2019 on vocational training, the Ministry of Innovation and Technology oversees the vocational and adult training as well.

Act CXC. of 2011. on national public education regulates the entry and exit requirements of each educational level, the rights and obligations of students and teachers, the characteristics of the institutional system and the principles of its financing. It facilitated the establishment of minority, ecclesiastical and private schools. The Government Decree 229/2012 (VIII. 28.) on the Implementation of the Act on National Public Education, and the Government Decree 110/2012. (VI. 4.) on the issue and introduction of the National Core Curriculum (Hungarian: NAT) [31] are strongly related to this statute.

[31] Prior to the current National Core Curriculum (NCC) (introduced in 2010), there have been three further NCCs (1995,2003,2007) in place. On the 31st of August 2018., The Hungarian Ministry of Human Capacities published the draft of the new NCC, which would have entered into force on the 1st of September 2019. originally, but this date has been moved to the 1st of September 2020.



10. Figure: The Hungarian school system in 2018-19 (Source: EU Hungarian overview[32])

The National Core Curriculum has determined the ideal values and erudition to be followed in educational activities. It has defined the knowledge and learning, set the pedagogic principles, the basic content, approach and responsibilities in teaching and educational activities; established the responsibilities regarding the development of students with special needs; determined the main areas, the content of the erudition, and the professional content – through core curriculums - to be conveyed. "… in national erudition, in the transmission and preservation of the domestic nationalities' culture, in the familiarization with universal culture and in deepening the grasp of existing moral concepts and mental-emotional susceptibility. Furthermore, it is responsible for developing the skills, competences, knowledge and attitude necessary for studying and working, for encouraging performance when working individually or in groups, for establishing a drive to contribute to public wealth, for enhancing the national and community cohesion, the patriotism. Moreover, it is responsible for raising young people to be actively committed towards the truth, fairness and justice, the good and the nice, in cooperation with the family; for developing the intellectual, emotional, moral, social and physical skill and abilities necessary for the development of the harmonised personality."

The National Core Curriculum has determined the key competences to be developed by public education. These are the communication in the mother language and in foreign languages, the

[32] https://eacea.ec.europa.eu/national-policies/eurydice/content/hungary_hu)

mathematical competences, the natural scientific and technical competences, the digital competences, the social and citizenship competences, the proactivity and entrepreneurial competences, the aesthetical-cultural consciousness and the ability to express oneself and being capable of effective individual learning.

Probably the most important critique regarding our public education system is the strengthening of segregation. The stratification of the residential environment and the freedom of choosing a school separate schools based on social status. For the most gifted children (typically supported by high-status parents), after the 4th year and 6th of elementary school (at the age of 10), it is possible to transfer to a gymnasium for the remaining time of elementary and secondary education, which allows for segregation. Having the choice between the gymnasium, the vocational high school (earlier: secondary vocational school), and the secondary vocational school (earlier: technical school) after the 8th grade of elementary education also contributes to segregation. Only a small ratio of the children with disadvantaged backgrounds consider higher education as an option, for which they should choose the gymnasium. In theory, the vocational final exam obtained upon the completion of vocational high school training programmes provides students with the possibility of continuing their studies in higher education. However, statistics show that in reality, this chance is getting smaller and smaller. In 2012, 58.21% of the students attending a higher educational programme came from gymnasiums, 20.42% from vocational high schools (this is already a decline, compared to the ratio in 2000, which was 35.23%), 14.3% from other tertiary institutions (second degree, MSc) and 7.07% from abroad. In the 2017/18 academic year, 60.14% of the admitted pupils came from gymnasiums (although the ratio has increased, the actual number of students were 6,573 less compared to 2012) and 13.03% from secondary high/technical schools, which is a significant decrease both percentagewise and in numbers (by 6,782). 10.96% of the students came from other higher educational institutions (here, the number has decreased by 3,369 only, therefore, there has been an increase percentagewise), but the ratio and the number of international students has risen by 3,092, which was equal to 10.96% of the pupils. The European report regarding these facts states the following: “The decreased effectiveness and fairness of the school system is presumably related to the low level of curricular freedom, to the lack of socio-economic diversity within schools, as well as to the low pay of teachers” (European Commission, 2018 comprehensive report, pp. 98.)

The current government believes that the solution to these problems is centralization. From 2013, the regulations have increasingly restricted the autonomy of schools in choosing learning material, textbooks and in human resource management. The organisation, maintenance, and from 2016, the operation of elementary and secondary education was taken over by a central body, the Klebersberg Institute Maintenance Centre (Hungarian: KLIK). Since the 2016/2017 school year, the tasks have been divided up among 60 county-level centres. The 2019 amendment of the National Public Education Act introduced changes, such as compulsory pre-school kindergarten education from the age of 4, bureau decision has become a condition of homeschooling and it is not required anymore to ask for the opinion of the board members, students and parents on appointing school principals. Although, it allows for latitude in complementing the income, it stipulates that teachers have to attend compulsory further training every 7 years. According to the Act, for the teaching of the subjects regulated in the National Core Curriculum, a maximum of 2 textbooks/ subject/ grade can be chosen from the textbook-catalogue, but the textbook supply (renting) is free of charge for students. From 2020 onwards, the implementation of alternative educational programmes has to be based on the National Core Curriculum of the term in at least 70%, which restricts the deviation from the central programme considerably.

The lack of teachers is already causing serious problems in disadvantaged regions and vocational education, and the fact that 41% of the teachers are above the age of 50 is an ominous sign. The low pay (the lowest in the EU, it also significantly less than the national minimal wage)[33], the increasing amount of educational and administrative strains and the restriction of job autonomy make the teaching career immensely unattractive. The ratio of students in higher education choosing this career is small, and only half of the graduates decide to work as a professional teacher. In order to avoid the system's centralization measures, the number of private schools that do not receive funding from the government has risen remarkably. In 2018, more than 1,200 kindergartens, elementary schools, gymnasiums, vocational schools, as well as colleges operated under not-for-profit or economic organisational, foundational, associational or private management. The relative freedom of these institutions (curriculum, textbook, education management) allows for autonomous education, but they also present another possibility for segregation. According to 2017 data, 107,000 children were attending ecclesiastical schools and 18,000 students were registered in private schools. They represented

[33] Eurydice, 2018; OECD, 2019d

approximately 10% of the involved age group. In the latter ones, the monthly tuition fee (between 30,000-150,000 Hungarian Forints) and the financial contributions received from parents have a serious exclusionary effect, primarily based on the students' financial background, not on their abilities.

The previous vocational training acts (of 1993 and of 2011), before the *Act LXXX. of 2019 on vocational training, which has been in operation since the start of 2020,* facilitated the obtainment of professional qualifications. Providing the possibility of the attainment of the qualifications listed in the National Qualifications Register (Hungarian: OKJ) that are in-demand and recognized on the labour market and in the economy and ensuring equal opportunities for all students were two of the important aims. A further objective was to develop a flexible system for vocational training, which meets the required standards of both the global and the national economy, and which improves the employability of its students.

The amendment of the Education Act, which applies from the 1st of September 2012, decreased the school leaving age from 18 to 16. This provision had no impact on students who attend gymnasiums, but the ratio of pupils still studying in vocational schools at the age of 17-18 has declined dramatically. The earlier 98% in the involved age-group has fallen to 85%. A significant number of these students has chosen the termination of their studies without obtaining qualification. The mitigation of legal obligations led to a decline in the number of tools to encourage the lower social classes to finish their studies. By 2018, although the EU average of early school-leavers has decreased to 10.6%, the Hungarian ratio has increased considerably from 11.4% (in 2014) to 12.5%. A large proportion of school-leavers are unable to find a job; hence, they turn to public employment services.

From the 2016/2017 school year onwards, both the training structure and content regulations have been changed remarkably. The 4+1 year-long programmes in vocational high schools and the 3+2 year-long programmes in technical schools have been introduced. Upon the completion of a 5-year vocational high school programme, students are awarded with a general final exam certificate and a qualification. In trade schools, after the 3rd year, at which point students have attained a qualification, they can choose to study two more years in order to obtain a high school diploma. Vocational schools and the skill-developmental special vocational schools prepare children with special needs and moderately serious disabilities, who unable to progress at the same rate as other students, for the vocational exam and equip them with the knowledge that is

necessary for them to start their professional careers. On the 1st of July 2015, a vocational training centre was established for the direct vocational coordination of vocational education. The operation and management of these centres is vocationally and financially independent. Therefore, compared to the previous arrangement, there is relatively more economic latitude in the new maintenance structure, which facilitates primarily the flexibility of daily operation and of the developmental investments. The vocational training centres work on the issues related to vocational training in the member institutions that serve as vocational schools. The centres can perform tasks related to student accommodation, as well as tasks related to non-public education. They can also be involved in adult training supported by the government, which is not part of the school system. Upon the completion of a vocational training programme, students receive a certificate of vocational qualification. The list of recognized qualifications is recorded the National Qualifications Register.

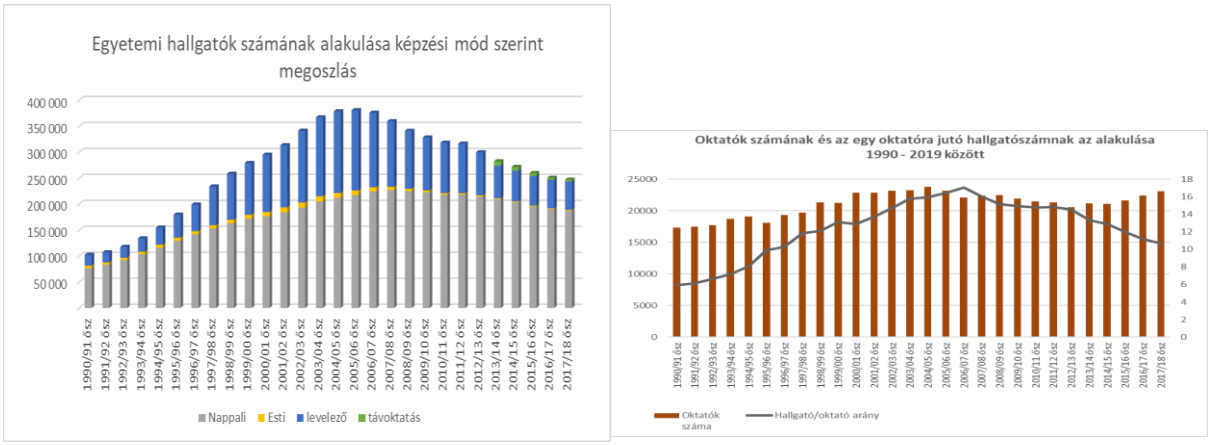
The primary aim of the new vocational training act of 2019 is to attract more students into vocational education. It has introduced various changes to attain this goal. The vocational training institutions are being renamed again. The 5 (6) year (2 years foundational and 3 years of vocational training) technical institute programmes now allow for the obtainment of a technician qualification, which is recognized as a higher-level final exam from the vocational subject. Thus, they prepare for middle management positions, but facilitate the continuation of studies in further education as well. The final exam taken in the vocational subject provides an advantage when applying for a tertiary vocational programme after the 5th year. Based on the curriculum regarding the general education subjects, the same rules apply, as in upper secondary general school: the second foreign language, physical education and arts subjects are not compulsory. Vocational training takes place in the time that is spent on these previously mentioned subjects in high schools. Vocational schools provide students with the possibility to obtain a vocational qualification under 3 years (1 year foundational and 2 years of vocational training). According to the regulations, the students involved in this type of education programme will receive scholarships and – provided that they have an employment contract – salary. Together, the amount of the scholarship and financial aids related to further training compared to the salary available in vocations that do not require advanced qualifications/degrees can discourage students with disadvantaged backgrounds to continue their studies, which can have a mitigating effect on social migration. The pre-secondary vocational qualifications listed in the National Qualifications Register can be attained in these institutions. Those, who pass the vocational exam, receive financial support to start their career. The acquisition of practical skills and knowledge is enhanced by dual degree programmes. The

stable economic background of vocational training is ensured by the chancellery system, which aims to create responsible, transparent and professional management scheme in vocational training centres and to establish a responsible and transparent management system. From September 2020 onwards, vocational teachers are not going to have the public servant status anymore. Without raising the school leaving age, the vocational education act requires parents to ensure that their children continue their studies until the age of 18 or until they have obtained at least one partial vocation.

As stated in the *Act CCIV. of 2011 on national higher education*, the aims of higher education are: to ensure the intellectual and economic development of the nation by the transmission of competitive knowledge, by serving the public wealth; to provide transparent, competitive theoretical and practical education; to carry out fundamental and applied scientific research; innovation; to raise the next generation of educators and researchers. The higher education institutions are independent, their autonomy is the most pronounced in education, scientific and research activities. The government and the Ministry of Innovation and Technology, which is the governmental body responsible for higher education, performs organisational, developmental and regulatory monitoring tasks. The leading body of higher education institutions is the senate, which consists of the rector, the chancellor and the president (this latter one does not exist in every institution). The core educational activities of these institutions include tertiary vocational training, undergraduate and master's courses, doctoral programmes and postgraduate specialist training. Higher education institutions can be founded by the government, by minority self-governments, by public ecclesiastical juridic persons, by economic corporations and/or by foundations. The governmental recognition of the institution is awarded by the Parliament, when the requirements (the headquarters, the location where the educational activity takes place is secured for at least 8 years, 60% of the teaching staff has an employment or public servant contract) are fulfilled.

In Hungary, the number of higher education institutions was at its peak between 1992 and 1995, with 91 institutions. Since then, this number is constantly shrinking. In the 2019/2020 school year, there are 65 higher educational institutions in Hungary. It is important to note, that since typically institutions have a secondary establishment aside from the headquarters (which is a product of the fusion of a previous institution, or of the foundation of a new training site), the number of training sites has not decreased. 21 public and 8 private universities; 5 public and 4 private universities of applied sciences, 1 public and 26 private colleges operate in the country

in 2020. Considering only the Corvinus University of Budapest, there are 446 accredited courses in total in the 4 campuses (Budapest, Székesfehérvár, Csíkszereda, Révkomárom). 70 of these courses (full-time, part-time, online) are taught in English, 3 in German, and the rest are delivered in Hungarian language. 306 of the courses are post-secondary vocational training programmes that award graduates with a diploma.



11. Figure: The changes in of the number of students and educators in higher education and in the number of students per teacher (Based on the Hungarian Central Statistical Office's data)

The graphs in 11. Figure demonstrate how the number of students and educators and the number of students per teacher has been changing since 1990. The number of students was the highest in the 2005/2006 school year. The graph shows that the majority of the growth can be attributed to the rise in the number students enrolled in online courses, which has gradually decreased since. The student/educator ratio was the highest (17) in the 2006/2007 school year. The reasons for this were not only the high number of students, but also the mandatory downsizing or lay-off of the teaching staff. Between 2007 and 2013, the rate of the decline in the number of educators was smaller than in the number of students. After 2013, although the number of students kept decreasing, the number of educators started to grow, thus the student/educator ratio has reduced significantly (10.7 in 2019). The 2016 EU data can be used for international comparison. The Hungarian student/educator ratio (13.7) is lower than the EU average (15). The values vary considerably with the institutions. The ratio is remarkably lower for private and ecclesiastical universities. Among public universities with the large numbers of students, the student/educator ratio of the Semmelweis University (9.6) is outstanding, but the values of the University of Szeged (13.1) and the University of Pécs (13.3) are also good. The Corvinus

University, with its 24.7 ratio is lagging far behind the other Hungarian universities in this respect. [34]

The traditional academic higher education system has been transformed according to the Bologna process principles. After joining the EHEA programme, there were serious political and expert debates from 1999, and the new training structure was only introduced in the 2005/2006 school year. The accreditation and curriculum development were characterised by deals between lobby groups. The previous 5-year university education system based on vocational foundation was not compatible with the requirement of completing the transmission of knowledge and skills that can be applied in practice by the end of the short training period. Regarding the BA programmes, the 3-year system, which had been developed earlier in traditional colleges was considered to be the base, conventional methods and teaching material were and are dominant today as well. There has not been a serious curricular and methodology development, the academic requirements have appeared only in a few elements.

The degrees issued in undergraduate trainings have to meet the academic, the labour market's and the vocational qualification requirements as well. In BA courses at classic universities, the focus is still on the preparation for further studies, and the courses of earlier colleges remained practice-oriented. However, no unique specialisation has been developed, which would provide a different pathway for those who intend to continue their studies, and for those who intend to start their professional careers upon graduation. The development of the syllabus and the curriculum of specialized subjects in undergraduate and master's training programmes have occurred at different times and have not been based on a concept that encompasses the whole system. Some parts of syllabus of undergraduate training are exaggerated, and there was no conscious decision made regarding what should be left for MSc programmes.

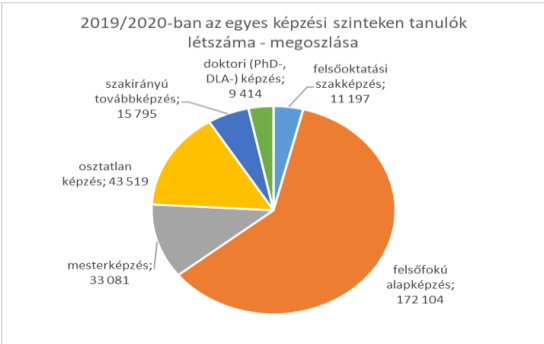
The competition for students between universities has led to bad decisions. The institutions offering MSc courses launched their programmes with complete openness, requiring only minimal professional knowledge aside from motivational interviews, in order to ensure that no student who is interested will be excluded. In international competitive institutions, a BA degree that matches the specialization of the MSc course or the equivalent knowledge are basic entry requirements. The vocational modules of the undergraduate training cannot be repeated (since there are students on the MSc programme, who have already completed these), but without

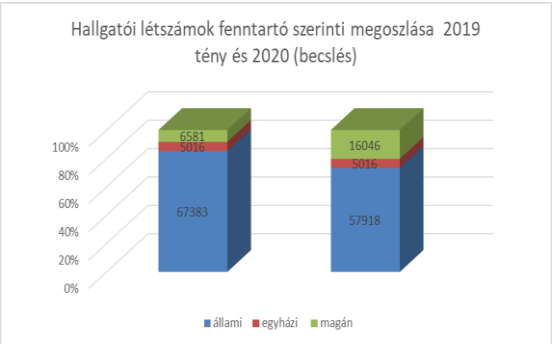
[34] Source: https://ranking.elte.hu/hu/2018/10/12/magyar-egyetemek-legujabb-vilagranglistajan/

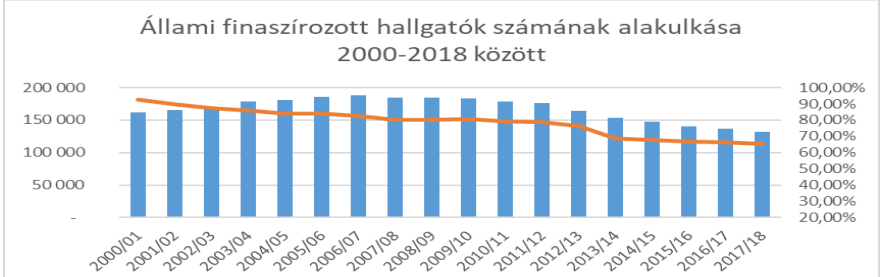
solid foundations, further, more advanced material cannot be built on them either. As a consequence, some of the MSc graduates have knowledge built on unstable foundations. Therefore, in certain professional topics, their knowledge is behind of those students' who have completed the matching BA course.

In Europe, the completion of certain credits requires 25-30 study hours on average. Thus, during the 14-week semester + the 6-week exam period, 30 credits require 37.5 study hours (calculating with 25 hours). This varies by course and module. Surveys have shown that in economics related courses, the necessary time investment is typically less, while in medical programmes it is more. Based on student feedback, in Hungary, these courses can be completed with less hours spent studying.

Due to the special implementation and other circumstances (disadvantages), the expected rise in the standards and in interoperability, and the attraction of international students after the introduction of the Bologna system did not occur. The domestic courses could not attract the Western European students (lack of educators, lack of programmes in foreign languages, lack of infrastructure and lack of student accommodation). The lack of MSc entry requirements threatens with the worsening of training quality standard. Regarding the reduction of public financing, this is a favourable process, since there are less years of training to be funded. Based on the Hungarian Central Statistical Office's data on education, it can be seen that due to the economy's 'graduate-sucking' effect, only 40% of the students continue their studies on master's courses after the 3rd year. The number of people choosing to enrol in doctoral training programmes has also decreased considerably.







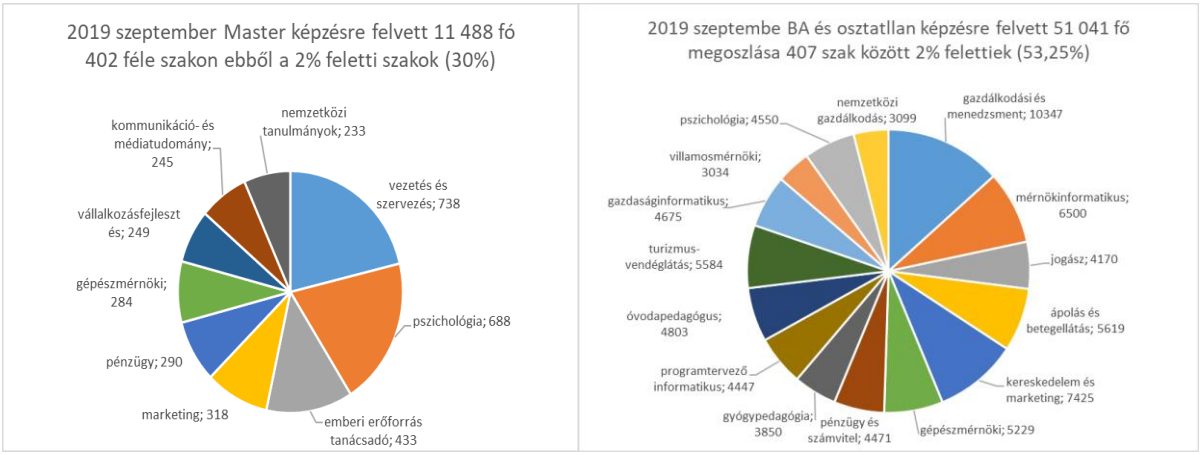
12. Figure: Students in higher education by qualification levels and by financed institutions, and the change in the number of students who receive governmental funding (Based on the Hungarian Central Statistical Office's data)

12. Figure shows that in 2019, 60% of the students involved in higher education were enrolled in undergraduate courses (3 years long), 15% in undivided training programmes (5 years long), 11% in master's courses (2 years long), 3.3% in doctoral training programmes, 3.9% in tertiary vocation training and 5.5% in postgraduate specialist training programmes. In total, 9.4% of the pupils participate in training programmes that offer a diploma. They have a significant role in lifelong learning, therefore, this education pathway should receive special attention.

The proportion of "state-funded" full-time students among all Hungarian students has been shrinking since 2001 (92.4%), in the 2017/2018 academic year, it was 65.4%. Between 2001 and 2007, this denoted an increase in the number of students, however, the rise in the number of Hungarian students in total was faster than on the proportion of "state-funded" pupils, therefore, the ratio shows a decline. From 2007 onwards, the ratio continues to decrease, even though the number of students in total is also shrinking, that is, the proportion of "state-funded" students is getting smaller at a faster rate than the total number of pupils. 91% of the students enrolled in master's and tertiary vocational training courses are funded by the state, but in BA and undivided courses, this ratio is constantly declining. It appears that the reduction of government involvement, which is one of the objectives determined earlier, is becoming a reality. The other important aim is to increase the ratio of young adults who have tertiary qualifications. For now, the processes that can be seen are contrary to this advancement, which might be explained, for example, by the decrease in the financing ratios.

In September 2019, only 331 from the 407 from the offered courses were launched, and a total of 51,041 students were admitted. The courses with the highest number of pupils were the Business and Management (3,828), IT Engineering (2,643) and Law (2,634), but on 110 courses, this number is below 5. At the same time, only 354 from the announced 354 master's courses were launched with 11,488 admitted students. The largest number of students were enrolled in the following courses: Management and Leadership (674), Psychology (588),

Human Resources (416), Marketing (310) and Finance (280). In 43 courses only 1, in 40 courses only 2 and in 17 courses only 3 students are enrolled. The distribution of students among the courses with the highest enrolment rates is presented in 13. Figure. The majority of the 6,451 students admitted to tertiary vocational training programmes are studying on an economics-related course. Numerical proof of the fragmentation can be seen. The courses that launch with a very low number of students cannot operate economically.



13. Figure: The distribution of students by course and by education level (Based on the Hungarian Central Statistical Office's data)

According to the higher education amendment act of 2019, the right to operate a higher education institution can be demised to foundations established by the government. As a result, instead of a budgetary institution, it will operate with the successor company's rights, as a private university. The employees will not be in the public servant status any longer, they will enter into a contract of employment. This transformation of higher education is oriented towards reducing the governmental involvement and establishing self-sustaining universities. The Corvinus University of Budapest is the first among the transformed institutions, where the 2019/2020 academic year has started with the new system. Instead of receiving funding for the tuition fees from the government, the best-performing students get foundation scholarships. From the 2020/21 academic year onwards, six other universities are going to be financed by foundations, and two other institutions are preparing to complete the transformation by the end of the year. These universities are not going to be public anymore in the new status, they will enter into working agreements with the staff, but their financing is going to be differ from the Corvinus University of Budapest's. Their operation will continue to be funded by the government, the foundation will have long-term (15-25 year) contracts and 3-5-year frame-

work contract with the government. The status of the students will not change, they will be able to apply both for state-funded and self-funded courses. The curators of the established foundations can choose their membership themselves, which ensures the long-term membership of the people appointed at the time of the establishment. Compared to similar forms that exist in the international practice, the foundations that finance universities have gotten greater autonomy regarding the university operations (for example: determination of the organisational and operational regulation, performance evaluation system), thereby reducing the senate's scope of authority and the university's autonomy.

As stated in the *Act LXXVII. of 2013 on adult training*, the aim of adult training is to promote the ability of the people who live in Hungary to overcome the challenges of economic, cultural and technological development, to facilitate their successful entry to the labour market, to ensure their opportunity to be successful throughout their lives and with the help of adult learning and training, to improve the quality of live. Its further objectives are a better organisation of the professional, language and supported training programmes and strengthening the inspection of the content, quality and execution of these trainings. This legislation does not apply to those who study in a public or higher educational institution, only to those who participate in educational training programmes that are not included in the public education system and are funded by the state, from EU projects, or the government is officially responsible for it. The Act divides these programmes into 4 groups (training fields):

A. state-recognised training in the NVQR (National Vocational Qualifications Register) that provides a vocational qualification
B. other supported trainings registered by the Chamber; its programme requirements have to be approved through a special process
C. general and other supported language trainings
D. other supported trainings (e.g. remedial programmes, general competence development trainings, supported workplace trainings).[35]

The Hungarian Chamber of Commerce and Industry plays a significant role in the operation of adult trainings; thus, it can properly vindicate the economy's interests in adult education.

[35] Source: https://eacea.ec.europa.eu/national-policies/eurydice/content/adult-education-and-training-35_en

3.5 THE LEVELS OF PROFESSIONAL ACCOUNTANCY TRAINING

The economics-oriented vocational training programmes that focus on accounting training courses strongly relate to my research topic.

Students who attend economic vocational high schools in the 2019/2020 school year obtain a final exam certificate after the first 4 years and study one more year to attain a vocational qualification. Those, who study in gymnasiums have to complete a 2-year training programme (Finance-Accounting, Customs, Duty and Tax Administration, Payroll Administration) accredited by National Qualifications Register after the final exam in order to obtain one of the accountancy-related qualifications. In the 2019/2020 school year, in economic vocational high schools, aside from the general subjects, vocational orientation education (economic environment, behavioural culture, information management) can also be found in the 9th and 10th grades as 18-20% of the curriculum. In the 11th and 12th grade 27-30% of the classes involve foundational vocational training (theoretical economics, business economics - the accounting education is integrated into this subject). The new vocational training system facilitates the attainment of this qualification in technical institutes, which takes 5 years. According to the general information on this topic, in these technical institutes, the teaching of general subjects (that are also assessed in final exams) will take up equal time of the training, as in gymnasiums, but instead of second language, physical education and arts subjects, vocational training subjects will be delivered. During the first 2 years there will be vocational foundational subjects in the curriculum, while in the remaining years, specialized vocational training will take place. It is an important change that the final exams will be taken at the end of the 5th year, not the 4th.

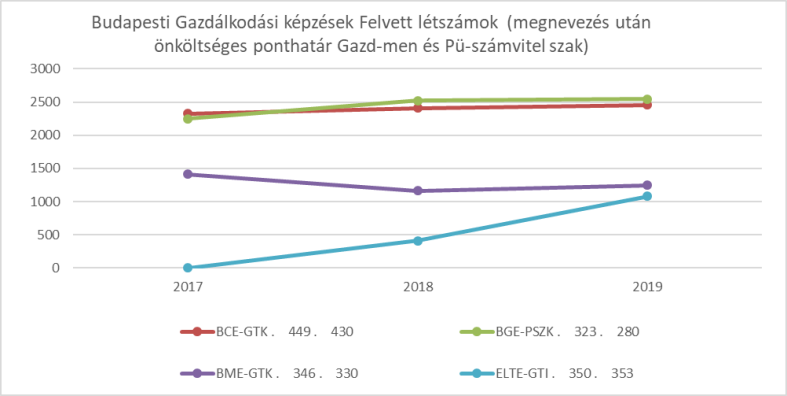
The possibility of further studies will be open only for those who have completed all the 5 years of the training. The final exams taken in vocational subjects will be considered higher-level exams, which is expected to enhance the probability of students continuing their studies and apply for tertiary vocational training course according to their specialization. As I have mentioned before, only 13% of the students admitted to higher education institutions come from vocational high schools. This means that the probability that a pupil who studied in a gymnasium applies to a higher education institute is 2.5 times higher and his chance of being admitted is 1.5 times higher than of those students' who have a vocational final exam.

The next level of accounting qualifications is the *Qualified Accountant,* which is a further training built on the finance-accounting qualification. This is a tertiary vocational training programme, which does not require, nor does it offer a diploma. The available specializations for Qualified Accountants are: IFRS, Business, Budget, Financial Institution courses. In Hungary, the idea that this type of education is part of the education system has become widespread. Typically, this qualification, which is required by the accounting departments of larger companies, can be attained after 2 years of studying and passing a vocational exam. The higher education institutions had to make a lot of compromises during the course of education organisation in order to be able to guarantee this qualification to their students.

Experts consider the main problem of the *higher education in economic fields* to be the fragmentation. Since I personally work in this sphere as an educator, my experience is in line with this opinion. I will not detail the national data, but regarding the transformation of the education system in Budapest, the education structure is not changing according to the original plans. There used to be two separate higher education institutions, the College of Finance and Accountancy and the University of Economics that differed logically and in the purpose of training. The introduction of the Bologna system removed the differences between their training programmes in order to improve the interoperability.

There is a rule that appears in relation to universities: they can only become outstanding universities, if they have multiple faculties that offer courses. This have forced the institutions to take special steps, such as mergers, new faculties, training orientation development and course accreditation. The students' considerable interest in economics attracted universities to this field. At present, there are 4 universities in Budapest that offer economics-related courses.

Some indices of this competitive situation are presented in 14. Figure. The figure shows the number of admitted students between 2017 and 2019, and next to the training institutions code, the entry requirement points for the self-funded programmes of the two largest courses (Business and Management and Finance and Accounting) are provided. As an educator at The Corvinus University of Budapest, I am surprised by how the numbers are changing, but I consider the increasing entry requirement points to be the assurance that the best students are going to be enrolled in one of the courses offered by our university. It is astonishing that ELTE has achieved such a growth in the number of admitted students, while other universities have not lost remarkable number of pupils.



14. Figure: The relationship between the number of admissions and the entry requirement points (Source: Felvi.hu statistics)

In the possession of a university degree, the qualifications that can be attained in tertiary vocational training are the *Certified Tax Specialist* (VAT, income tax, international tax*), the Tax Auditor and the Auditor*. Based on Act LV. of 1997 on the Chamber of Hungarian Auditors and the Activities of Auditors, and on the re-codified version of this legislation, the Act LXXV. of 2007, the 'auditor' qualification is included in the national training regulations. The requirements of the training are set by the Chamber of Hungarian Auditors. Only those who have 3 years of full-time work experience in auditing and pass the competence exam can become members of the Chamber. At present, regarding the rise of the auditory obligation limits, the market is saturated. The audit of important international companies is conducted by one of the "Big Four" firms.

Lifelong learning is strictly regulated in this field. Without completing the compulsory annual further training, neither 'Certified Auditors' nor 'Auditors' are allowed undertake work in their specific profession. For 'Certified' Auditors, the compulsory annual training takes 2*8 hours, while for 'Auditors' it is 4*8 hours.

4. EDUCATION METHODOLOGY

„What children learn in school is less important than how they learn it, because the latter one is what determines their application of knowledge throughout their life." (Max Plancot)

After considering the practice from a regulatory point of view, let us review the methodology issues that are typically not regulated by legislations. This study is not intended to process the philosophical, psychological, ethological and sociological directions of educational – teaching theory in detail. However, I believe these are related to the essence of my dissertation, because without having the principal directions determined, the practical work might be on the wrong path.

4.1 EDUCATIONAL – TEACHING THEORY

Educational theory involves the exposition of the goal, the content, the process, the strategies, the methods, the organisational forms, the frames and the tools of education. (Ballér et al., 2003: 2.) There have been various attempts to systematize this theoretical topic. I am going to base the discussion of the topic on the following logic: 1) Is it possible to educate? How can teaching and education be defined? 2) What is the interpretation and the content of education? 3) The theoretical organisation of the process, methodology and activity management of education; 4) The role of motivation, needs, age and education level; 5) Educational theory concepts; 6) Practice – teaching – school – organisation – teacher. Throughout the discussion of the topic I will consciously strive to highlight the thoughts that are directly related to vocational education, but we cannot ignore the foundations of general educational theory. Firstly, because history of individual personal development serves as the base of vocational training. Secondly, because the principles established in teaching and educational theory apply in vocational training as well.

4.1.1 Is it possible to educate? How can teaching and education be defined?

The radical answers given to the first question, which are:

- No, it is impossible, because of genetic determinism;
- There is no genetical background, everyone can be educated without any limitations,

were refused by most trends in educational sciences. The difference between the theories are in what kind of fields, with what kind of methods and to what extent the educational effect is believed to be achieved. Various definitions have been created in relation to the fundamental concept. "The aim of education is to achieve changes in the personal development of students as a result of the teaching-learning process during the course of processing the learning material that represents the modern cultural

belief." (Falus, 1998: 161.) Education - according to its definition as being scientific synthetization – is a complex, conscious, planned, direct and indirect action which has a decisive role in the transmission of culture, and which is the essential tool of knowledge acquisition, skill and proficiency development, cogitation functions, attitudes, abilities, shaping behaviour and beliefs and its most important intention is the development of self-regulated learning. (Ballér et al., 2003. Chapter 5.)

Among the definitions established in psychological and pedagogical directions, the following simple interpretations of teaching and learning were considered the standard by me: Teaching is the targeted action which ensures that the conditions of learning are provided. (Ballér, 2003) Learning is the permanent and adaptive change in a system or a controlling partial system as a result of interactions with the environment. (Falus, 1998, 161)

4.1.2 What is the interpretation and content of education?

As the goal of education, the value and its unfolding are being determined. "The value is generally a product which has a dual function. In part, it contributes to the development of narrower and broader human societies, thus, it has an explicit socio-developmental function. On the other hand, it promotes the personal development, that is, it has an individual developmental function as well." (Bábosik 2004: 3) The value always arises from the identification and analysis of the given era's known facts and correlations. The fast technological and societal changes lead to the confusion in the interpretation of value based on political and ideological grounds, of which indications can be experienced these days as well. In the definition that is irrespective of social environment, value is "the constructive way of life. (Bábosik 2004: 3) The content of the abstract definition is always changing depending on the era's human ideal.

In the Universal Declaration of Human Rights (UDHR) (Article 26.) , which was proclaimed by the United Nations General Assembly in Paris on 10 December 1948, the followings are stated: "Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace." The basic characteristic of the European Union's human ideal is the unity of morality and social capacity of living. Detailing the peculiarities of this human ideal, we can say that the human who meets the expectation of the EU's society has an altruistic, work-oriented, cooperative and tolerant personality from socio-moral aspects, while he is motivated to develop himself continuously, responsibly nurtures his own positive capabilities, is capable of adaptation to changing circumstances, practical and is overall a convertible individual considering self-development and self-validation. (Bábosik 2004: 5)

4.1.3 The theoretical organisation of the process, methodology and activity management of education

The deepest, most persistent, effects in the education process of children are the result of different methods and proceedings applied in school, in the family and in boarding-school. The material environment and condition system, the adults (authority), the contemporaries and contemporary groups and the constructive tasks are all factors that play an important role in education. (Bábosik,2004: 27) The methods of educational activity based on the personal development functions can be the following:

Direct methods (the direct methods of habit formation and innervation (direct instruction, drill supporting, assessments); Direct methods of shaping the ideal, conveying behavioural-activity models (the teacher should say, presentation of ideals person, method, result, setting an example);), the direct methods of raising awareness (teachers through lectures, explanation, conversation, individual analysis of students).

Indirect methods: the interactions with contemporaries which promotes habit formation (participatory role in their own learning, each other's control, support, inspection, evaluation, assistance, organisation of local governments, organisation of perspectives, study tasks, development of traditions, how to access and comprehend information); The indirect tools of human ideal shaping (the organisation of the model conveying peer interactions). The choice of method is influenced by which age group we are teaching, the teaching material, the goal to be achieved and the personality of the teacher.

4.1.4 Motivation – needs – age – education level

Motivation means the activation of the existing need(s) of the child in the course of his action. Consequently, by letting the needs prevail in the course of the action, we make the activity attractive to the child and the child will be open towards the educational, shaping and developing effects of the activity.

The classification of needs from an evolutional aspect differentiates between 3 main groups: the group of biogenic needs (nutritional need, physical activity, resting), the group of psychogenic needs (intellectual, aesthetical, creative, diversity, freedom, order, fantasizing, playing, competing) and the layer of sociogenic needs (patronizing, caritative, fairness, pleasing, social coexistence, exchange of opinions, cooperation, friendship, control, protection, love, prestige, following the social norms, preservation of personal dignity, the need to become valuable). (Bábosik 2004: 38) The chosen background of motivation is determined by age. At the “pre-conventional” level, the adults’ rules orientate already. In the “conventional” phase, the behaviour is governed by the expectations of the family, the group or of broader communities, while at the most advanced, “post-conventional” level, the interiorized principles control the behaviour autonomously. (Bábosik, 2004: 67)

4.1.5 Educational theory concepts

Based on the elements that make up and determine the quality of these concepts and the criteria according to which they are evaluated, two main directions can be differentiated. The key phrases of the traditional direction are: takes place according to normative, moral aims; towards intellectual (abstract knowledge transmission) personality; employing the controller (knowledge transmitter) and the receiving roles and direct tools (frontal education management) with levelling, selective treatment. Its representative is: Comenius Jan Amos Komensky (1592-1670). On the contrary, the reformative direction of education is value-based, built on self-development, free activity, during the processing of the practice-oriented curriculum, cooperative tools, positive reinforcement and differentiated methods are applied. Its first representative was Jean-Jacques Rousseau (1712-1778). The practical developmental concepts have not defined their activity according to all the characteristics, and in their practice, the aspects are combined. The modern pedagogic theory synthetizes and improves the procedures further, placing the educational concept on a new quality level.

4.1.6 Practice – teaching – school – organisation – teacher

The keywords that characterize education are the following: the school, the class, the student, the teacher, the lesson, the timetable, the syllabus, the core curriculum and the remote teaching tools and platforms. The theories of learning style are concerned with the whole process of learning, including the inspection of physiological-biological or motivational factors, while the cognitive style theories focus on the trio of information acquisition-processing-retrieval. Although from my topic's aspect the latter one is the primary one, I also consider the approach from the aspect of learning style theories important. More than a hundred educational theory models are differentiated in the literature. Its main factors are the environmental effects; the emotional motivation; the sociological groups, methods; the psychological questions and the methods of information processing. Under a broad interpretation, the environmental effects are the family, the society, the school, the generation, the segregation, the physical environment and methods of studying. To complete the previously described approach of emotional motivation, the use of positive-negative emotions also has an important role. From a sociological point of view, the consideration of the determinative role of the family and educational background and the preference of either form of education (individually, in pairs or in groups) vary. The key categories of the four most determinative theory models determined by these factors are provided in Table 1. While in Constructivism both sides are active, in Behaviourism the learner is the receiver. It focuses on different things in its content as well, instead of piling up intellectual knowledge, the practical problems of the collective knowledge become prioritized. According to the theories based on the Cognitive schemes, learning is the integration of new elements into the existing knowledge, which facilitates the creation of new schemes. The existing connections can not only promote, but also hinder the acquisition of new skills and knowledge. Connectivism is the youngest one among these models. It places the information acquisition and its correlation – that occurs frequently during non-direct learning activity –

in the intersection of pedagogy and network research. Besides the ‘what’ and ‘how’ related to teaching, the questions ‘where’ and ‘where from’ appear as well, however, considering information overload we experience today, I would reverse it to: ‘what’, ‘from where not to’.

Models	Behaviourism	Cognitivism	Constructivism	Connectivism
Representatives	John B. Watson (1878–1958)	1956. George A Miller and Ulrich Neisser	1980. Jean Piaglet and Ernst Glasersfeld	George Siemens and Stephen Downes
Period	end of the 19th century	second half of the 20th century	second half of the 20th century	end of the 20th century
Mode of learning	observing, behaviour-centred	structuring, modelling	social construct, individual idea	interpretation of network-based patterns
Influencing factors	feedback, rewarding, punishment	existing schemes, experiences	commitment, participation	depth and strength of network connections
Role of memory	repetition, drill	coding, storing, retrieval	recontextualization of existing knowledge	adaptive patterns
Transmission technique	stimulus – response	knowledge duplication through structuring	socialisation	joining the existing hubs
State of learning	task-oriented learning, frontal education	reasoning, problem solving	open ended tasks	idea maps, integrative studies

1. Table: The four education theories (Source: Kulcsár 2009. with my own additions)

I will pay special attention to the areas regarding the mode and the state of learning outlined in Table 1., as I intend to continue my research in these areas. What kind of learning strategy do the students employ, and what kind of learning technique, tools do they apply primarily? *Learning strategy* involves the procedures, that have been chosen by the student consciously or have been organised spontaneously to help the cognition. The determining factors in the selection of the method are the learning material, the mental maturity of the student, the goal and the environmental conditions of studying. Learning techniques include reading (loud, silent); the recital (repetition, summary, essence); talking (in pairs, in groups), systematization (sub-headings, outlines), the identification of unknown words, key phrases (study map), the note making, the recapitulation, as well as asking and answering questions, rephrasing the acquired knowledge, graph construction, recital. In the digitalised era, the tool bar of the online world has a significant effect on the implementation of the mentioned techniques.

Aspects	Reception	Self-activity
Goal interpretation	focused on the learning material	personality-centred
Purpose	knowledge acquisition	cognitive development
	intellectualisation	versatile self-development
Regulation	directly controlled	indirectly controlled
Relationship	primate of teaching tasks	understanding, paying attention to reciprocity
Education management	„identical selection"	the selection meets the students' needs
Attributions	external, static	internal and external, dynamic

2. Table: The dimensions of the main concepts related to teaching (Source: Ballér et al., 2003: 12)

The classic school system is struggling to adapt to the challenges of the changing environment, thus, the progressive solutions are the alternative schools and experimental trainings with special authority that secede from the classic system. In order to find the directions of development, the selection of schools is enlarged, since "the pedagogic efficiency of an educational-teaching institution is directly proportional to the magnitude of its selection of activities". (Bábosik, 2004: 15) The "alternative" schools that are built on the various reformative pedagogic principles – among others – are: New School, Montessori, Decroly, Kerschensteiner Work School, Ferrieére, Waldorf, Freinet-Modern school, Dalton Plan, Rogers, Szentlőrinci School Experiment, Zsolnai. These typically differ from traditional education either by changing the role of the teacher (facilitator, control function, motivator), or by paying particular attention to the children's personality (joy of learning, competition, methods tailored to the person, requirement, evaluation). Table 2. shows the considerable difference between the conventional, reception-based education and the concepts based on student autonomy.

The results in other scientific fields had an effect on the principal and practical approach of education. The cybernetic approach emphasized the nature of the regulation system, while psychology and sociometry contributed to the attention becoming focused on evaluation solutions and on individual differences respectively. According to the cognitive theories, the individual peculiarities fundamentally determine how the person is able to use the opportunities provided by the teacher and the environment for his own development. Learning style can be defined as the mode of information acquisition and processing that is characteristic of the individual. (Bernáth et al, 2015) The *cognitive style* theories study the individual's processing method, its relationship with the rest of the world and how the student's personality, experiences and individual methods influence these under the given circumstances. Its key questions are the individual differences of cognitive methods, attention and reminiscence. The observation regarding the individual's cognitive style has multiple aspects – it studies how the individual

can manage the deviations arising from his experiences and from his internal values, how complex or simplifying approach he takes when dealing with a problem, whether he ponders before or reacts immediately to questions, whether he approaches the information emphasizing or blurring the differences, whether he moves in one direction or discursively over the course of processing, to what extent the external and generative load influence the process. Based on the cognitive theory, teaching can only be made more efficient, if the transmission of the content elements of education is used to develop the cognitive ability and the efficient, well-developed, cooperative system of the skills and knowledge is formed. (Csapó 1999) The combination of the systems formed throughout the development is the *competence,* which involves the efficient cooperation of skills, abilities and knowledge. From the student's side, the *self-regulation* of the personal process of understanding – this process includes the development of alternatives while solving the problem, the rejection of the best practices, the progressive, solution-centred approach. (Klein, 1951) With better time management practices and setting both short-term and long-term goals as a result of self-regulation, the actual work becomes more efficient as well. Teaching and learning are also *situational processes,* because appearing in cultural activities and in practice it is a more interesting, more effective and *collaborative process,* since its forms that involve interactive processes result in a more permanent knowledge. The applicability and usability of the knowledge, the level of understanding have important consequences regarding content and methodology. The choice between everyday usability and professional perfection conforming to the level of education is an important decision point during the determination of the curricular requirements.

Éva Bodnár PhD investigated the peculiarities of cognitive style that emerge throughout e-learning in her 2007 study. She studied the cognitive style in two dimensions, based on Riding's model. When considering the relationship of the holistic – analytic personality and the verbal – visual processing method, she distinguished between two categories. Based on the responses of the analytic (paying attention to details, systematic, building primarily on text-based information) students, she concludes that in the learning material, they consider the role of pictures and videos especially important, they prefer tasks such as model-construction and analysis. In addition, the form of the table of contents, the references within the material and the printability of the documents are of great importance for them. The intuitive type (synthetizing, open, following their intuitions in decision making) of students regard the wording, the specific examples, the emotions, the tasks influencing the movement as substantial, they prefer external links that refer to information beyond the learning material and working in groups. Moreover, they favour when the information can fit on one page. With regards to my own research, this study is important, because although I categorize the students I examine using Szitó's learning methodology survey, not Ridding's cognitive personality survey, the visual and the verbal differences can be found in my approach as well. Thus, this is the technique I am going to apply to study the attitude of student groups towards different educational tools.

Accordingly, the development and the application of the methods that facilitate a variety of choices is the direction of the advancement. In the following paragraph, I am going to highlight these from the multitude of methodological solutions.

4.2 EDUCATION – LEARNING METHODS

From a practicing pedagogue's view, the questions that influence cogitation are: What do we have an impact on? How much latitude do we have? Based on the available tools, the path of execution is: the goal setting, the selection of the methodology that serves that aim, the development, the application of the materials and the integration of the experience with the application.

The optimal method depends greatly on who we are teaching (age, number, domestic, international), what form of training (tertiary vocational training, full-time, part-time, online, remote, internship, apprenticeship, traineeship, dual degree, mentoring) and what kind of content (subject-based – complex, theory – practice, foundational – interdependent) we are using to educate. Who the educator is (domestic – international, academic or industry professional, what his personality is like); as well as what the material conditions are like (site of education, laboratories, technical tools, special classrooms) also have a substantial influence on the method.

15. Figure: Teaching methods – adult – higher education

In my dissertation, I only consider the methodological opportunities in full-time university training, regarding the education of practical subjects. I am not going to study the effects of the conditions over which I do not have control, such as the Bologna system, the curriculums, the physical and

organisational circumstances. I do have the autonomy in the choice of education methodology, therefore, the ones that affect my practice are outlined in 15. Figure.

In mass education, the individual particularities are not considered to be significant anymore. The future's path is adaptive teaching, which offers differing teaching materials and methodologies, taking the individual ability, interest and the composition of study groups into consideration and differentiates the requirements as well. In order for the student to have adequate motivation, the form of relationship (individually, in pairs, in groups; consultation with the teacher), in which he/she can operate efficiently, has to be found; The competence level of the individual has to be connected to (interests, preferences, learning potential); Enough space need to be provided for independency (form and content) that creates a sense of autonomy. The selection from the methods listed above does not mean the exclusion of the other options. The techniques can be applied simultaneously, they can follow each other and alternate in the whole education system. What works best in terms of enhancing performance and motivation vary with the student.

4.2.1 Self-regulated learning – mentoring –training agreement

"The term "self-regulated" is associated with forms of learning that are metacognitively guided, at least partly intrinsically motivated, and strategic." (Winne and Perry, 2000: 533.) This trend builds on the active contribution, creative, constructive attitude, control of one's actions, valuable ambitions, criteria and expectations, where the mediators, the environment have minimal impact on self-regulation. Its strategical steps are the planning, the tracking, the controlling and the reflections.
It is necessary to establish a context in the school and in the classroom, where the students have the possibility to take control over their own learning; they have the opportunity to choose the activity, to develop and execute their personal learning ambitions, where they can discover and understand their strengths and weaknesses and are provided with the chance to evaluate themselves. (Molnár É. 2013: 48.) The tools that assist the self-regulated learning in higher education can be the mentoring, the training agreement, the learning outcome description of the curriculums' and the modules' and the problems, questions and practical connection points of the tasks and case studies. In higher education, the term *mentoring* implies the continuous consultant role of a teacher, an expert or a more experienced student. In this framework, besides the questions regarding finances, education management and learning efficiency, it can help with personal problems and the challenges that students face in everyday life. In case of the individual *training agreement* with his mentor, the student reviews his ambitions and visions about the course, schedules the tasks and works accordingly throughout the academic year. The primary aims of mentoring and the training agreement is to support the student, but it also has a positive impact

on the patronizing teacher, who – as a person who oversees the course structure and the hierarchy of the training elements – can track the student's progress according to his goals, and based on this, he can make correctional suggestions for the emerging problems

4.2.2 Competence-based teaching

In the competence-model, education is focused on the psychic systems and components to be developed, which leads to a desirable personality. In contrast, in the traditional model, the main goal is the acquisition of the learning material of choice. From the definitions of competence that can be found in literature, I will only mention two. The first one: the components (component systems) of personality that are motive and capability systems serving a given function. (Nagy, 2000) The second one: "Competence is the structured, collective system of personal resource-formations developed as a result of learning (experiencing, practicing), which facilitates the constructive and successful application of the acquired knowledge and personality components in a specific mental and/or physical field." (Henczi - Zöllei, 2007: 235) Considering the key area of my dissertation, the development of the curriculum, the previously acquired the constructive and successful application of the acquired knowledge and personality is the important part. Several scientific works are concerned with the systematization of the competences and competence groups. I will elaborate on two of these, that I consider to be standards at the level of university education. Kádek's (2012) competences that are valued by the employers are: 1) Organisation and planning: goal setting, prioritization, time management; 2) Communication: reading comprehension, negotiation skills, use of foreign languages, structured presentation of thoughts; 3) Professionalism: responsibility, perseverance, precision, striving for excellence at work; 4) Teamwork: adaptability, group thinking, willingness to compromise; 5) Problem-solving: analytic skills, logical thinking, proactivity, having a good understanding of the problem.

The 6 leadership competences according to Spencer–Spencer (1993) are: 1. performance, action; 2. support, help; 3. influence; 4. leadership activity; 5. cognitive functions; 6. personal efficiency. To develop the competences outlined above, the efficient methods that are important to mention are working in groups, project-based tasks and individual work that consists of structured steps and is paired with continuous feedback.

4.2.3 Cooperative learning– cooperation – task sharing

Working in pairs or in groups is an effective way of constructive learning, which develops cooperation skills, tolerance and expands knowledge. Working in pairs might involve solving an exercise together,

if the parties have similar capabilities, or a study pair, if they have different capabilities and help each other throughout their collaboration. Groups are the most efficient when they are smaller (consist of 4-6 people). Groups can form spontaneously or under supervision, by interests, experience, age, profession, or task, they can be homogenous or heterogenous. (Csehné 2006) The term cooperative group work involves a group's cooperative work on a task, which – as an integral part of the activities inside or outside the classroom – results in the common problem-solving activity of students with different skills and capabilities. Students practice and develop their cooperation, communication and problem-solving skills through their own experiences. (Roeders, 1998: 93-97.)

4.2.4 Learning Outcome (LEO) – outcome – results-based approach

Regarding the whole education level, the outcome-based approach provides the systematization of what the students are required to know, what they have to be capable of by the end of the training. The learning outcome is a statement about what the students have to know, oversee and execute after completing a learning phase successfully. (Kennedy 2007: 21) At the time of the accreditation of courses, these requirements have to be determined and also renewed from time to time. During the determination of the requirements, the guidelines of the Qualification Framework, based on which the qualification is classified, have to be taken into consideration. Throughout the development and transformation of the courses, the internal coherence of the training programme, the assignment of skills and knowledge to the level of the module, the aims, requirements of each module, the recognition of how they are connected to each other and how this can be managed, the educators' competences, the student involvement and dealing with the organisational problems are important factors. The programme's system in the curriculum, its breakdown to modules is explained in the module descriptions. The cooperation between programme instructors and the academics who are involved in the teaching of the modules is indispensable. The curriculum broken down to modules might not be suitable for preparing students to solve complex problems that are built on the whole training programme. A module to teach the integrating, problem solving approach is frequently developed by the end of the training period. The Accounting information systems II., which is one of the modules my research concerns, conforms to this concept.

The entrance and exit of students throughout the training necessitates a multi-stage education system. The documentation of what the required results are on each level and what the targets on the previous level are, on what we can build on is of special importance. The cooperation in this direction in the region has been implemented in the Tuning Educational Structures in Europe project, which I have introduced in Chapter 3.2. In the European Higher Education Area (which the project concerns), the LEO can be considered as the dominant approach. Based on the statistics of 2018, which involved 295

European higher educational institutions, 76% of them planned their courses based on this rationale. (González és Wagenaar, 2008)

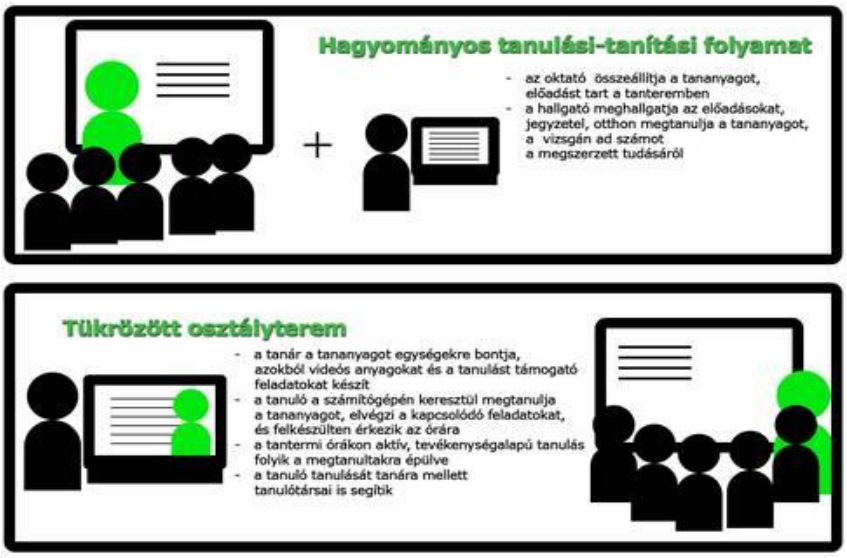
4.2.5 Project method– problem-based teaching – collaborative problem solving

The project method is a technique that builds on the students' interests and the common activities of students and teachers, which organises the familiarization process as a series of projects. (Falus et al., 2003: 278; Dewey J 1993: 81) The projects are complex tasks, which the groups solve with a structured, plan-based approach. The collaborative problem solving involves a common activity, where pairs or smaller groups perform a series of steps in order to get from a certain position to the target stage. The method leads to the solution of the given problem according to the learning outcomes. (LEO) It necessitates the use of the technical tools of practice (computer, software). (ICT) It encourages the practice and development of the required competences (critical thinking, creativity, communication, self-control, time-management). (Competence, Self- regulation, Cooperation) Apparently, it combines the tools of the learning-teaching methodology in a complex way, which is the reason for its difficulty and for the special significance of its application.

4.2.6 Blended Learning – Flipped Classroom - Hybrid teaching

This is another complex system which is built on the combination of various methods. It combines the classroom teaching (typically in the form of problem solving, cooperative group work) and the online remote learning (individual processing of the teaching-learning material). The students prepare for the contact hours at home, using their computers. They watch the (typically short) videos made by the teacher, review the relevant literature, collect the essential information and data through web searches, solve the related exercises. These steps of the process can be performed online, in their own time schedule. The evaluation of the tasks that help with control and practice can also be automated, thus, they can support the processing of the material according to the student's individual schedule. Following the individual preparation, typically setting a minimum level of completion as a requirement, the classroom activity takes place. In possession of the theoretical knowledge, the acquired information is deepened, synthetized and applied individually or in groups, through activity- and experience-based methods. The essence of it is shown in 16. Figure. According to the experience in the implemented cases, the combination of the techniques, the flexible application tailored to the student's peculiarities lead to higher levels of motivation, and consequently, a more efficient learning process. The students' work can be evaluated by a scoring system based on sub-tasks, where positive feedback, differentiation,

individual responsibility, comparison with others' performance and the evaluation of each other's work can occur.



16. Figure: Blended learning - Flipped classroom technique (Source: Bodnár et al., 2017: 33)

4.2.7 The utilization of ICT tools

The employment of the Information and Communication Technology (ICT) at some level is a condition of almost every modern technique. There is a wide selection of free and paid platforms, software and applications to complement education by using computers and smart phones. In Spring 2020, the pandemic situation led to an accelerated development in this field. The demand for a greater capacity has increased considerably, to which the providers reacted quickly and created the necessary conditions to help education by providing free access and developing their products and services according to customers' needs. While several good solutions were constructed, some unreasonable decisions were made as well. Learning from these, it is important to find the methods to have the use of tools fully integrated into the training process. The integrated e-learning system, the *Moodle* at the university offers a variety of possibilities to improve the efficiency of education. In the Moodle system, the education management and evaluation elements (curriculums, schedules, methodology materials, surveys); the main forms of sharing the learning material (notes, videos, sound recordings, exercises, links); communication channels, platforms for student-teacher and student-student directions; tools that aid the assessment of the students, which can be used to upload tests and the pupils' work; platforms for sharing interactive content and the software to be used can be found. The *Teams* system that facilitates

interactive visual and audio connection became the key element of solving the education remotely, which was forced upon the society. Besides live lectures, seminars and consultations, it can also be utilized to manage documents that can be edited by a group of invited people and in group training, which is necessary for remote work. The *Stream* platform for video sharing and the *Kahoot* tests for quick online feedback also play a special role in education. The internet can be used to search for practical problems, data and requirements as well. (thematic websites: reports, organisational data, legislations, consultation-based data search). Based on the experiences, it is important to assess the effectiveness of the tools, and for the sake of transparency, to select the best ones. The largest challenge in the future is the integration of the knowledge acquired and of the material made regarding the ICT systems into practice, when schools return to conventional teaching. This research area matches my dissertation topic, but due to the submission deadline, unfortunately I am unable to collect the data would be necessary for a detailed analysis.

4.2.8 Dual degree programmes

Dual degree programmes are the result of efficient cooperation between educational institutions and employers, where the theoretical education part takes place in the school and the acquisition of practical knowledge occurs at the workplace. The advantage of these types of programmes is that the practical training at firms is integrated into the education in a higher number of classes based on the curricular content and structure, which enhances the students' professional competences, business operation skills and company culture. The economic organisation and the student enter into a student employment contract, according to which the firm is obliged to ensure that the agreed amount of salary is paid to the student throughout the period of the training. The weekly amount of pay must be at least 15% of the minimal wage (approximately 60% of the monthly minimal wage). Its most important objectives are to increase the quantity of practice-oriented education content and techniques, and as part of higher education, the development of labour market-oriented, entrepreneurial competences.

4.2.9 The feedback - HALVEL – Graduate tracking (DPR) – Student evaluation questionnaires (SEQ)

The feedback cannot be treated as an individual education methodology tool, but it is one of the keys to development regarding the employment of any technique. One of the most important elements of quality assurance is how the student and the employer evaluates the process and results of the training. The demands related to the organisation of courses and training programmes after the training and the assessments have taken place, the opinion of students and teachers, the employer feedback regarding the graduates' knowledge can all be significant indicators of development. With respect to higher

education, the data collected by the *Graduate Career Tracking System (DPR)* provided information on the professional performance and progress of graduates, as well as their feedback and evaluation of their degree course. The findings of career tracking survey offer information about the graduates' salaries, status on the labour market, and the relevance and application of the skills they have acquired throughout their training. In the course of education, at the end of the term, students are asked to provide feedback. In the Student Evaluation System (HALVEL) students assign a rating between 1 and 5 to the importance, being interesting, learnability of the modules, the educators' preparedness, education methodology and their personal attitude. On one hand, the anonymity in the HALVEL system facilitates more responses, since students are not restricted by their fear of consequences. On the other hand, it can become a platform for the formation of ill-considered, radical opinion, which might be based on a momentary, offended state of mind. Because of the anonymity, the results of the questionnaire cannot be linked to the respondent, their social background, education management peculiarities, performance, which reduces the usefulness of the collected data. The special questions regarding the content of the modules are not being asked in the university-level questionnaires, hence, more and more departments aim to evaluate the efficiency and the students' attitude towards special education tools and techniques with surveys. My research is largely based on such questionnaires, which I will discuss in detail in Chapter 5.

4.3 THE TOOLS FOR MEASURING THE EFFICIENCY AND THE QUALITY OF EDUCATION

What exactly do we want to measure? Efficiency? Quality? How do we define these terms and to what extent do we have to interpret them differently when talking about education?
Efficiency is the achievement of the desired effect or the ratio of the input and output. It can be approached from two directions. The attainment of a goal with the least possible input, or the achievement of the best possible result with the given capacity. Does the efficiency of the education service improve, if we ensure the degree for the same quantity of students while spending less money? If the same number of teachers can facilitate the progression of more students? Some of the indicators and signs in the current education system seem to be in accordance with this interpretation. In Hungary, the objective set in higher education (as I have mentioned previously) is to increase the percentage of young adults who have a degree to 34%, while decreasing the government expenditure in this field (in a country, where there is no tradition of private financing). The achievement of both goals at the same time is a great challenge, even if the students who enter education are considered to be "uniform workpieces" that need to be "shaped". However, if we recognize that we have to teach individuals who have different abilities, attitude and career prospects, this challenge seems impossible to overcome. We have to reject the initial interpretation of efficiency, because it cannot be applied to education. The definition of the socio-economic efficiency of education, suggesting to what extent the capital invested into human capital can contribute to the training of productive workforce that is capable of generating profit, shows a more complex picture, but it is still not complete. The measurement of outputs is more complicated. The development of social skills, the training of people with disadvantaged backgrounds, the fairness aspects are all the results of education from the overall social perspective. The measurement of the necessary inputs is also a complex problem, because not only the teacher, the material and the physical conditions present the essential terms, but also the time investment and supportive attitude of the student and his family are vital. In public education, the normative governmental financing is typical, the freedom in choosing a school and the characteristics of the schools being available to the public and the school voucher system can lead to a competition between schools, which can improve the efficiency. This effect is most likely to appear in densely populated areas, since in small towns, there is no realistic selection (on top of that, it would entail an unrealistic amount of time and financial burden).

Quality can be interpreted in comparison of quality and quantity, as the endeavour for excellence; based on the ranking scale, by the words 'deepened' and 'usable'; according to the civil quality ideal, by 'refinement'; using the industrial scale, by 'proper' and 'standardized'; and from the provider's perspective, it is responsible for creating consumer satisfaction. (Csapó B. 1999.) The quality of knowledge and education includes all of these projections. Based on international measurements, the knowledge of domestic students in the comparison has deteriorated significantly. In the '70s and '80s,

the comparative analyses showed the knowledge of our students to be outstanding in the areas of natural sciences and mathematics. By the ‘90s, this advantage has disappeared, and at present, we are experiencing a considerable fallback. What has changed? Has the standard of education fallen back so much? Has the attitude towards learning changed, or the measurements tools and measured parameters? In fact, all of these are changing, and it is important to follow their background in order for our evaluation to be valid. The decision of becoming a teacher is often based on emotional (not rational) grounds. It is connected to a decision based on long-term stability on the part of the employer, the student and the parent as well. That being said, we cannot overlook the quality and its development. As models of quality control, the public, professional and consumerist appear in Kogan’s work from 1996. The public and professional control are typically connected, because the feedback of the principal and the colleagues are dominant in both. Based on a secondary analysis of a data collection from 1996 concerning the Hungarian literature teachers, they feel responsibility principally towards the student and themselves. Furthermore, those who imagine their future permanently in education require feedback primarily from the principal, based on class-visits. (Nagy, 1998) Besides the lasting commitment of educators, supportive and developmental evaluation, establishing the need for self-reflection and reflection and developing this ability are essential. The qualitative questions of education are elusive, but there is a demand to demonstrate this. Walsh’s idea regarding this is that we are trying to measure according to detailed criteria, but this cannot be perfect and constant. Thus, the ability to make sound judgements is more important than the measurement. (Walsh 1994)

The article Consumerist school (In Hungarian: “Vevőközpontű iskola”) by János Setényi concerns the consumerist quality control. Regarding the laic consumer (parent, child) “is always right”, “all of his needs must be satisfied”, but “why does he chip on our work” dilemmas, he constructed a definition tailored to this specific situation: “Consumerism is an approach, which encourages the development of reciprocal commitment between the educational institution and its consumers” (Setényi 1993) The reciprocity in the definition is the keyword to me. Without the cooperation of the involved parties, no endeavour can be effective.

From the aspect of the central government of the nations, of the necessity of international comparison, of the given school (training organisation) and of the students, educators, researchers and parents involved in education, it is important to what extent the training meets the expectations. In the diverse education system, it is not easy to find categories by which the measurement can be executed. When assessing the quality and performance of education, many dimensions have to be taken into account. The question of what we consider to be the goal, the results to be achieved is very important. The examination can vary depending on whose (student, employer, educator, government) criteria we are using as a reference. Further decisions are required regarding the territorial (international, national, regional, entire training interval, one specific educational level, school, class, individual) and temporal

aspects[36]. Choosing the additional influencing factors (social background, previous knowledge, physical conditions, etc.) besides the fundamental objective is also not always obvious. The technique, which can be used to measure the performance that has a progressive effect on the results and the outcomes of the development can also be varied. Regarding the organisation of assessments, the source, the technique of information acquisition, as well as its content are important. The information can be obtained from the school's management board, the pedagogue, the student (before his entrance, during and after his training) or the employer, but an external observer organisation can assist as well. It can be carried out in the form of a survey (personal, online), an interview, or it can be based on observation. The questions, the collected data can refer to specific knowledge, performance, to the parameters, to the conditions of the execution, to the personal attitude and feelings towards this and to social circumstances. An established analysis and decisions can only be made based on the objective results of the measurement.

The majority of the results is difficult to manage, not suitable for the orientation of the involved parties, therefore, the development of integrated indicator systems is necessary. The frequently debated institution rankings are "good examples" of how the order can vary with different inputs or weighing. A secondary vocational school cannot be compared to elite gymnasiums based on the competition results and further education statistics of their best-performing students. However, they can have greater accomplishments in the students' abilities measured by the entry and exit requirements and in helping the students who are lagging behind to catch up. With regards to the overview of the present education systems, I have compared some of the nations' educational results based on different numerical indicators and reviewed their objectives. The development of the indicators necessitates the construction of conceptual models. The underlying model of the OECD's indicators of education systems (INES) differentiates the fields of context, the inputs, the processes and results. The indicators provide data on the state of the given system. These can be used as index numbers, but they are not capable of offering a diagnosis and solutions. (Katryn et al., 1994) The exaggeration of the indicators' role, highlighting some of their key elements (e.g. salary, financial aspect) can imply at least as many negatives, as many benefits their application offers. They can be considered as a tool for shaping education policy, but they cannot be the single base on which these policies are built on. The quality components, the role of the local relations is just as important. This requires the development of a local evaluation system. Based on the measurement outcomes, with the help of expert teams, proposals, suggestions are formed on what actions the involved organisations should take and how they should conduct these.

Measurement method– what indicator are we studying, when we are assessing quality?

[3636] long term: for example, the entire training period can be more than 20 years, the achieved results at each level can be tracked, or we can look at the characteristics at a given moment in time

The effectiveness (i.e. the output performance), the efficiency (quotient of the output performance and the invested resources) and the impact of the school can be measured based on the added value model (as the difference between the input and the output performance) or with the help of statistics (admission and competition results). Besides the quantitative criteria, the qualitative (fairness) criteria appear as well (mitigating the socio-cultural and ability differences, the support of poor-performing students). (*Creemers és Kyriakides, 2009*) The indicator of choice depends on the scope of the analysis, but also on the researcher's material and temporal opportunities. In my dissertation, for some of the data I am using, the previous years' statistics are also available. I employ the secondary study of these statistics to support my theses. The survey I have created was developed based on the speciality of the modules, and accordingly, the data was collected in the same academic year.

Performance should be measurable!

On verbal and written examinations, various tools and techniques can be employed to measure the theoretical knowledge, the ability to apply the acquired knowledge, the possession, the development of the socialisation, communication, numerical, digital, entrepreneurship, innovation skills, the opinion and feelings of the candidates and the progress in these. My survey is based on students' opinions. Hence, I measure efficiency by the score or grade the student has achieved, how much time he declares he had spent on the module and his evaluation regarding efficiency.

The scale based on which the results can be compared has to be established!

The collection of expectations is what we correlate to. This might include the scale set by international measurements (PISA, competence), the state (academic record, statistics on failing to progress, grade repetition, dropouts, final exam and further education statistics), the future employer (skilled workforce), the sponsor of the educational institution, the educator, the student or the parent. In my study, I am going to use the relation of the achieved score and the invested time and the student evaluation on a scale of 1-5 as the tools of measurement.

We have to determine the assessment levels and criteria!

The subject of the assessment can be the entire school system, or a part of it (training levels, department). It can be carried out by school, by faculty, by class, by student, by teacher, by subject, by course or by development steps separately. A further assessment criterion can be how certain parameters have influenced performance (family background, abilities, location, school type) and the educational circumstances (physical environment, equipment, organisation conditions), what kind of relationship is between the best and worst performing students, student groups. In my study I am going to assess how the module results, the student evaluation has changed in the past 6 years and what the evaluation of the teaching techniques used in a given academic year was like.

Study elements

The study can refer to central regulations (the schedule and the quantity of learning material), National Core Curriculum), to school-related factors (vibe, conditions, guidelines) perhaps to classroom elements (processing, form of assessment, student and teacher qualities, behaviour).

The simplest approach is if we measure the effectiveness of the school according whether it has attained the objectives it had set out for itself. (Madaus et al., 1981). In the history of this research field, we can find more complicated conditionalities. Coleman (1966) and Jencks et al. (1972) have studied the impact of school on student performance, while Edmonds (1979) and Rutter et al. (1979) measured the rate and extent of progress.

The investigation of the effect of the school and the teachers on students with differing backgrounds (Scheerens and Bosker, 1997), the influence of certain factors on the outcomes and the short and long-term effects of the trainings (Sammons et al., 1994) can be considered as research methodology steps.

The added value type of assessments (Sammons et al.,1994) and the advanced studies that focus on the investigation of cognitive and social outcomes by applying hierarchical regression techniques (Creemers et al., 2010) were based on different approaches.

The studies that systematize the process as a whole tried to provide the list of the key factors of good study performance. (Levine and Lezotte, 1990, Sammons et al., 1995)

From the 1990s, the education effectiveness models aimed to explain the role of the influencing factors (Scheerens, 1992; Stringfield and Slavin, 1992; Creemers, 1994) with the approach based on sociology (erudition and family background, institution culture), economics (expenditure and its composition, time factor) and psychological (willingness to learn, motivation) aspects.

Besides the quantitative studies, the qualitative (classroom observation) research offers an opportunity for the in-depth investigation of the processes. In addition to the study of student and school effectiveness, the issue of teacher effectiveness can also be investigated from various aspects. Long-term studies, with observations carried out at multiple dates can help to investigate the impact of changes, developments and to draw the curve of the long-term progress (*Reynolds et al., 2011).*

The overview of the diversified research direction of education effectiveness is not simple. For this reason, manuals have been written to summarize the systematization of the results. Townsend assembled the international studies in 2007, Creemers and Kyriakides systematized the theoretical approaches in 2008, Creemers et al. created a summary of methodologies in 2010. Meta-analysis proved to be an efficient research method, which did not include primary research, but synthetized the results of previous studies instead.

In the summary study of Scheerens et al. (2004) (approved by the UNESCO), presenting the characteristics of the effective school, the following factors were found to be the most important (key factors): achievement-oriented policy, high expectations of pupil attainment, strong educational leadership, consensus and cohesion among staff, the priorities and quality of the curriculum, the

opportunity to learn, school climate, institution evaluative potential, parental involvement, classroom climate, effective learning time, structured teaching, differentiation, reinforcement and feedback.
My study includes both qualitative and quantitative elements: in addition to the numerical data on student opinion and the achieved results, I am basing my research on the received textual evaluation and on the background information of interviews.

4.3.1 University quality– measuring value

Narrowing the topic further, let us consider the peculiarities of the values that should be emphasized in order to assess the performance of higher education. Fábri (2016)'s work regarding the measurement of universities' value systematizes the international and Hungarian rankings' calculation methods. Collecting and organizing the different criteria and the numerical indicators that the appraisal organisations take into account, we find the following:

- the average score of the admitted students, teacher/student ratio, student evaluation,
- the quality of the educators, average pay, academic degree, awards (Nobel, Fields), patents
- internationalisation (ratio of international students, educators, international collaboration),
- scientific and publication performance – impact factors – Scopus, (per number of educators
- employer feedback, labour market positions, starting salaries, top managers,
- reputation, preference list of applicants, number of training programmes,
- number of graduates, the number of issued certificates,
- the source of financing ability, institution size, financial background – expenditures,
- online presence, popularity.

The AHELO[37] programme, developed by the OECD in 2008 aims to compare learning outcomes of higher education. The comparative measurement of the institutions specialized in different fields and students 'achievements presents a serious challenge. The preferences were first set out in the study, commonly referred to as the "PISA of higher education". Based on the votes of the representatives of the countries involved in the collaboration, the order of priorities of the teaching-learning outcome factors is the following: 1. critical thinking, 2. professional knowledge, 3. problem solving, 4. teamwork, 5. communication, 6. ability to apply the knowledge acquired in specialized fields, 7. ethics and values, 8. creativity, 9. ability to learn, 10. global prospects. Furthermore, self-management, lifelong learning, flexibility, social responsibility, research and an additional 22 elements (a few more interesting ones: patience, intellectual challenge, decision-making and leadership skills) were listed.

[37] Assessment of Higher Education Learning Outcomes.

The most important evaluators of university quality are the students. In order to measure *student satisfaction*, firstly the term 'satisfaction' needs to be defined. "Satisfaction is the happiness or disappointment of a given person, which arises from the comparison of the performance (or outcome) of a product or service to his expectations." (Kotler, 1998: 74.) Satisfaction can be considered expansively or as a component based on the value judgement on quality. "Quality is the sum total of the product or service attributes, which makes it suitable for the satisfaction of recognized or implicit demand. (Kotler, 1998: 90.). In the complex model of Alves and Raposo (2007), student satisfaction is mostly influenced by the image of the institution, the expectations, the perceived quality and value (directly and indirectly). According to recent studies, student satisfaction is based on the experiences with education and the related services. Therefore, data should be collected regarding both of these areas. Harvey (1995) stated that the most common fields of student satisfaction surveys are: library services, catering, accommodation opportunities, IT services, social life, scholarship grants, university environment, teaching methods, style of educator and teaching, the assessment, the student workload and the organisation and evaluation of the courses. Hill (1996) discusses considerably more areas, including for example further services such as career counselling, student representation, sports facilities, university bookshop, healthcare services, personal relationship with the educators, feedback etc. The College Student Satisfaction Questionnaire (CSSQ) contains 70 scale-type questions regarding grants, social life, learning conditions, recognition and education quality to measure satisfaction. The College Student Survey (CSS) measures satisfaction in 5 areas (curriculum and teaching, sports facilities, student life, relationship with the department, campus services) with 27 questions.

Student satisfaction primarily refers to consumer satisfaction, not buyer satisfaction, since in most cases students are not the ones who pay for the service. The student opinion can change substantially throughout the education process as a result of new experiences and personal development. I would like to cite János Setényi's idea about consumerist education, that is of great importance to me: "reciprocal commitment". The student, who expects the progression of his development only from the educator, without making an effort himself is going to be disappointed. In higher education, the conscious application of self-regulated learning and using the relevant elements from the available selection can facilitate efficient advancement. My research builds principally on the varying depth of module evaluation questions. I attempt to find the correlations by contrasting these with the students' performance statistics.

5. EMPIRICAL RESEARCH

The everyday challenges of enhancing and improving the efficiency of education have a significant impact on what the future generations' knowledge, approach and competence will be like. My goal is to discover the techniques that can be employed in the field of tertiary accounting training and the documentation of the requirements of their introduction. At the time of choosing the topic and developing the theses, I was focused on the educational experiences related to the module Accounting information systems II., which was being transformed following a university concept that had been under development for several years.

Initially, the development was gradual and restricted, meaning that only certain subjects could be transformed, through calling for tenders, but the due to the pandemic and the consequential mandatory switch to remote teaching, some elements of the process have been accelerated. It is important to note that the advancement was designed based on a well-developed concept which has been planned in advance, and which involved not only the tools, but also the entire system of education. The challenge of the sudden switch to remote teaching had to be overcome within 1.5 weeks. It was not based on changing the educational concept, rather on switching to new tools. In my opinion, the experiences throughout this switch cannot be left out of my dissertation, which concerns the same topic. However, it is important to clarify that without a concept that had been developed in advance, forcing a completely new and different way of teaching in the middle of a term, which had been started with the rules and requirements of the conventional education system, cannot be as effective, as a comprehensive, conscious advancement. It necessitated compromised decisions from the management board. Even by maximally exploiting the capacities of the teachers', an optimal solution was impossible to find in such a short period of time. I was involved in the process and all my critical comments are the critique of my own work as well. I have no intention to offend anyone, but I strongly believe that in order to improve the solution methods in the future, the identification of the mistakes is essential. Although the comprehensive study of the remote teaching system could not be included in this work, I needed to mention the first experiences with the switch regarding our largest two modules in the second term of the 2019-2020 academic year (Managerial Accounting and Basics of Accounting). The general question to assess is which pedagogic techniques, tools and educational conditions receive a positive, as well as which ones receive a negative rating from those involved in education. In this chapter, after the introduction of the applied databases and the summary of the statistical methods of processing, I am going to discuss the module developed according to the original concept, which has been involved in the assessment. Subsequently, I intend to explain the surveys that determine the content of the databases I have mentioned previously and summarize the findings of the analysis. At the end of my empirical research, I am going to evaluate the theses.

5.1 Statistical Methodology

The assessment of the Accounting information systems II. (PSZI2) module was based on the indicators of academic record, the HALVEL results' trends from 2015 onwards and the Moodle survey responses I had created and uploaded to Moodle in the first term of the 2019/2020 academic year. The number of students taking this module fluctuated between 62 and 82, thus, instead of using a sample population, I have analysed all the available and relevant responses.

The HALVEL system contains the feedback given by the students on each module since the second term of the 2004/2005 academic year. The timelines that can be created based on the HALVEL system's data provide a good basis for analysing the work of teachers, modules, departments and institutes. The data related to teacher evaluation are also used to determine the performance of the educators. The responses given to the questions in the survey are anonymous. Students who complete the questionnaire in the last weeks of the term are able to select and book their exam dates earlier. Before analysing the data, it is important to mention the problems related to its content that hinder the process. The questions have changed by the 2019/2020 academic year, resulting in incomparable data in some questions. In the 2018/2019 academic year, the survey contained more questions regarding attendance, participation, the time spent on the module, the processability of the material and the relationship between the student's own performance and the teacher's evaluation. In the 2019/2020 academic year, instead of these questions, there is only one additional comment: 'I regularly prepared for the classes'. In 2018-19, the questions regarding the teacher assessed whether the class was enjoyable and understandable, while in the following academic year, this question is formulated with the words 'understandable, with clear explanations'.

The time spent on the module can be an important information, when it is established both in the international literature and the Hungarian requirements (see above) that the time students are required to spend on the completion of 1 credit is 30 study hours (30x45 minutes). Considering the data available up to the year 2019, the issue arises that in case of modules that are worth different number of credits, we see the number of study hours spent on the completion of the modules and the system just calculates the simple average. This value could be the basis for the comparison of the modules, but in this way, the averages are irrelevant, only the data regarding the change of the modules over time provides valuable information.

The teachers who review and the people who analyse the feedback do not have the chance for the thorough control of the data. For the evaluation of the mean values, the standard deviation can be helpful. The students are required to assign a rating to each question on a scale of 1 to 5. The standard deviation of the ratings 1 and 4 is considerably higher, which might question the suitability of the average to describe large amounts of data. From a frequency table (Appendix 2.) that summarizes the evaluations in the 2018/2019 academic year, it can be seen that at every question that received the ratings 3,4 or 5, there are 3 respondents who gave a rating of 1 (even to his own participation in the classes). In relation to statistical analysis, in order to obtain a valid analysis, it is often necessary to filter out the responses of those who did not take the completion of the survey seriously. It would mean a considerable improvement, if the system would be developed to ignore the feedback of those who assign the same rating to all questions (or at least provide the possibility of applying this feature). My other argument to support the development of this feature is personal. Since I pay attention to the evaluation of my work, I am personally affected by such data. I do not know, whether the students rated my performance so negatively, or just did not take the completion of the survey seriously. With respect to their personal rights, I would be curious about what observations these students have actually based their critique on and what grades they have achieved in the module (perhaps they are the ones who dropped out during the term and got an 'unsatisfactory' mark). However, I cannot link the comments in the textual evaluation to the numerical ratings. (I apologize for the personal thought in the middle of a scientific study, but this form of feedback is not helpful and does not support my development, though this would be its fundamental purpose.)

Besides the content issues of the data, the method of data retrieval from the system is also problematic. It is not possible to display both the timelines and the responses recorded in various years regarding the modules at once. The system is only able to display each year separately, and only by using other tools (Excel) can the module leader, the teacher or a researcher obtain the information he needs. Several survey systems assist users with graphs and analyses to interpret the data. The tools our university currently employs are unfortunately far from being capable to offer this feature.

We cannot see beyond the numbers, it is not possible to view the method of calculation based on which the background of certain values could be explained. Consequently, it cannot be treated as a reliable basis of analysis, the outcomes have to be treated with some scepticism.

Database 1.:

I have created a database based on the data (which was organized by year and by module) from the Corvinus University of Budapest's Student Evaluation System (HALVEL). I used the accessible statistics for the module PSZI2 from the last 5 years and conducted a primary research. (HALVEL data is available from each term with the recorded number of students: 2015/16: 46 students; 2016/17: 61 students; 2017/18: 62 students, 2018/19: 69 students, 2019/20: 82 students.)

Database 2.:

A database aggregated from the responses received to the 13 questionnaires that were filled out in the first term of the 2019/2020 academic year through Moodle by the students who took the module PSZI2. I have edited and formulated the questions of this survey based on the previously introduced Szitó's learning methodology questionnaire. Typically, 75 out of the 82 students who took this module have completed the surveys. From these collated responses, I was able to create the basis for my theses. In the case of the last survey, the number of respondents was reduced to 35.

Database 3.:

The experiences with the remote teaching system introduced on the 15th of March 2020. due to the pandemic are summarized based on the first experiences with the different solutions of our two largest modules, Managerial Accounting and Basics of Accounting. Regarding this, I aim to study the differences through the change in the student performance data throughout the term and the HALVEL results. I have limited access to the HALVEL data on the part-time and online courses that involve the Managerial Accounting module, thus, I have not included these in my analysis. Approximately 82% of the 913 full-time students who have taken the module have filled out the HALVEL questionnaire. I will only use their responses one for my study.

Database 4.:

The students who took the Managerial Accounting and the Basics of Accounting modules were asked about the tools used in remote teaching in the form of a Google Survey that we have created. Regarding the Managerial Accounting module, we have received 309 responses, while this number was 126 for the Basics of Accounting module. In Managerial Accounting, not only the full-time, but also the students on part-time and online courses have been asked to complete the survey. Hence, in this case, I can study the results based on the distribution by the form of study and by course. The ratios among the

respondents are approximately equal to the sample population ratio, the details will be discussed later on.

The majority of the questions in the survey asks the student to choose a rating on the Likert-scale between 1 and 5. This provides information for statistical analysis quickly, without the need for transformation.

Database 5.:

All HALVEL and Moodle surveys provide the platform for textual feedback. This feedback was processed by marking the keywords and the individual classification of the responses, so that an analysable database could be created. In the Accounting information systems II. module, the database has been created according to my system, while for the Managerial Accounting and the Basics of Accounting modules, my colleagues, Norbert László and Eleonóra Tarpataki have provided me with processed databases based on their departmental quality assurance-related summaries.

Due to the low number of participators (2 educators), the teachers' evaluation of the development cannot be supported by statistical data. I recorded our experiences based on the ideas that have emerged in our meetings. The experiences regarding the sudden introduction of remote teaching are recorded based on the what has been said in the educators' forum of the two involved departments (Financial Accounting and Managerial Accounting).

The tools that have been used for the purposes of data processing and analysis are the editor of the Excel Power Query and the IBM's SPSS 25 program package. Their use was facilitated by the Corvinus University of Budapest.

I consider the impressive presentation of the results important, thus, I have employed various tools of graphic representation. Pie charts, column charts, line charts, combined representation methods and tables containing highlights were constructed for this purpose.

Throughout the assessment, beyond the statistical basic operations, I have applied multivariate statistical methods (correlation calculation, factor analysis, discriminant analysis).

Besides the frequency analysis of each variable, to reveal the relationship between the scales, I use the Chi-square test and in case of significant relationship, I assess its strength by the gamma index. The index indicates the strength of the relationship between -1 and 1. If the significance level is below 0.05, the significant relationship and its strength is greater, if the index is close to 1 or -1. 0 denotes no relationship.

The factor analysis can be used to examine more variables that are related to each other. Here, by assigning the variables into groups, the influencing factors can be organized.

I try to assess the impact of the change of the independent variables (influencing factors) on the dependent variable (result) by calculating the linear regression, assuming that there is causal relation between the two variables.

When studying the relationship between the variables, the strength of the relationship is quantified with the Pearson correlation coefficient. The coefficient is used to measure the strength of a linear association between two variables, where the value of r is a number between -1 and 1. r = 0 indicates no correlation, r = 1 means a perfect positive, r = -1 denotes a perfect negative deterministic correlation. In case of linear association, the square of the correlation coefficient equals the coefficient of determination, which measures how well the observed outcomes are replicated by the model, based on the proportion of total variation of outcomes explained by the model.[38]

I used discriminant analysis to categorize the pupils I examined into groups based on the similarities of their responses, and thereby studying the group-forming effect of the variables.

The questionnaires based on which the databases have been created are provided in Appendix 1. The summary statistics tables and output are given in Appendix 2., in the dissertation text only a few of them are presented.

[38] https://www.datavedas.com/model-evaluation-regression-models/

5.2 Experiences with remote teaching in the modules Managerial Accounting and The Basics of Accounting

In the spring term, where the remote teaching became compulsory, the Accounting information systems II. was not among the offered modules. In that term, the modules with the highest number of students were the Managerial Accounting and The Basics of Accounting. These modules were not involved in the previous education methodology development[39], therefore, they were not labelled as areas to be studied. However, for the remote teaching method, these will have to be transformed as well. In these two modules, we have applied multiple similar solutions, but in some areas, we have employed different techniques, hence, their comparison might be interesting.

Different decisions were made in the question of lectures, because from the Basics of Accounting, there are no notes, thus, students had to receive the theoretical material in some form. The form of choice was a video recording of the lectures. During the lectures, students were able to check how well they have understood and processed the material by filling out Kahoot tests. This was not compulsory, but the incentive to complete the tests was that the best-performing students received bonus points for their exams. In Managerial Accounting, since there were lecture notes, no video recording was necessary to be created. The notes, instead of being uploaded in the original form, where the student is required to fill the gaps, were provided in a completed form, without any serious modifications. During the lecture, students had the possibility to ask questions related to the material using an online chat platform.

Regarding the content of the material, the decisions made were similar in both cases: the exercises to be solved were shared with the students in the form of a Power Point presentation, with audio recordings supplied to the slides. In the presentation, we strived to help the processing of the material with detailed explanations and theoretical references.

On how to use the time periods when the seminars would have taken place, somewhat different decisions were made. Fundamentally, we provided students with the possibility for live consultation through Microsoft Teams, waiting for the questions according to a previously agreed concept, but throughout the personal contact, in some groups these have transformed into discussions about solving the given problems. In Managerial Accounting, the Moodle chat has been set out to be the platform of

[39] The Basics of Accounting in English was involved in the development, but I was participating in that

consultations. This has also been converted in some cases, as due to the difficulties with Moodle, caused by too many people using it at the same time, some groups have switched to Microsoft Teams.

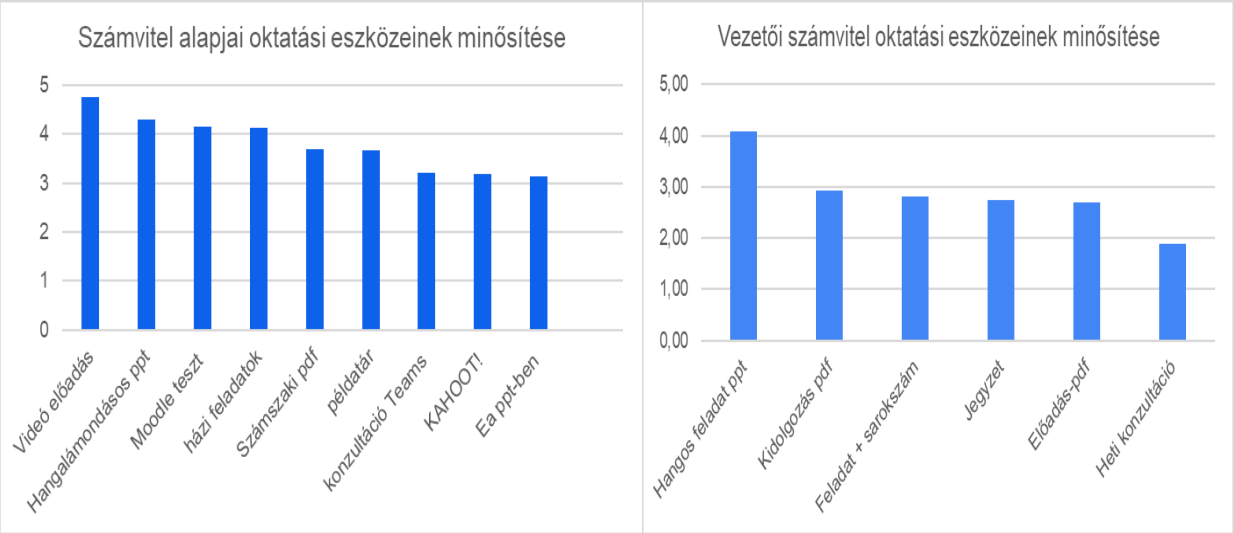
Regarding the question of term-time assessments, similar resolutions have been reached. Since the partial exams (that were supposed to take place at the end of the first quarter of the term) were cancelled, the assessment part that determined the grade were moved to the main exam period. In Managerial Accounting, we have not determined any kind of term-time assessment, in the Basics of Accounting, however, the pre-conditions of the exam were to achieve at least 75% on the weekly tests (in two of them, it was possible to have a result below 75%, but at the beginning of the exam period, students were provided with the opportunity to retake the test) and to submit the solution of received homework every two weeks.

The exams were to be completed in the form of online tests in both modules. When constructing the exercises, we were aiming to minimize the possibility to lose points due to the interdependency of the questions, which the software cannot manage. Due to the nature of the subject, this has been fundamentally successful, although in Managerial Accounting, it could not have been resolved entirely. We were striving to assist the assignment of points within the exercises by dividing them up into multiple parts, but this could not be solved perfectly with the tool of machine scoring. (According to the decisions made regarding the modules, there were no exercises to be marked by teachers.) In order to limit the possibility to cheat, copy or to solve the tasks with external help, all students have received a unique test, created from the grouped question-bank. In addition, the exercises had to be solved in a given order, it was not possible to return to previous questions and the time to complete the test was also restricted. In order to reduce the probability of the questions being shared with third parties, there was no possibility to view their responses or the correct answers. In the Basics of Accounting module, the students on the Finance and Accounting stream were required to attend an oral examination as well, which could only be take place online. In Managerial Accounting, students were provided with a sample exam to help them practice the assessment in the online form under the new circumstances. The main differences in teaching these two modules remotely are outlined in Table 3.

	Managerial Accounting	Basics of Accounting
Written theoretical material	available	not available
Presentation	consultations Moodle chat platform	video recording available in the weeks of the processing + 2 weeks and in the exam period
Seminars	online consultation using Moodle chat	live consultation using Microsoft Teams
term-time assessments - motivation	-	weekly test, homework submission in every 2 weeks
End-of-term Assessments	online test	online test and verbal exam

3. Table: Differences in conducting remote teaching (Managerial Accounting and Basics of Accounting teaching method)

The academic records and the HALVEL results in relation to these two modules are already available. At the end of the exam period, the link for the survey we have created regarding the specialities of the modules was sent to the students who had already finished their exams. As I have mentioned it when describing the databases, for Basics of Accounting, we have received responses from 126 students (out of the 370 who were enrolled in the module). For Managerial Accounting, out of the 1182 (full-time, part-time, online) students, 309 have completed the survey. In case of the latter one, 78.7% of the total number of students, and 79.5% of the respondents are on full-time courses. Thus, the full-time students are somewhat overrepresented, but this difference is not significant. The ratio of full-time and part-time + online respondents relative to the total number of students on the courses is 24.5% and 23.4% respectively. On the online Finance and Accounting course, the number of pupils who completed the survey is considerably high (40%), 8 out of the total of 20 students. The ratio of respondents is also higher than the average (33.3%) on part-time second-degree Engineering, Law, Medicine courses. These two groups are, therefore, overrepresented among the participants, and consequently, in the analysable database as well. The activity of students on other courses was below the average. When assessing the data, I pay particular attention to the students on the Finance and Accounting course, because this is the undergraduate degree managed by our department.



17. Figure: Evaluation of the remote teaching tools

In the departmental survey, we asked the students to rate the tools used in remote teaching (they had to evaluate them on the Likert scale, giving a rating between 1-5) [40].

Lecture recordings were only available for the Basics of Accounting module. Its evaluation is relatively good, 79.36% of the students assigned the highest, 17.46% the second-highest rating to it. The special role can be attributed not only to the remote teaching period, but to the lecturer, who is usually rated highly by students,

The tasks that were handed out through the presentations with the audio recordings received rating of 5 by 59.5% and 58.3% of the students respectively. This is considered to be the best technique, and it is suggested to be integrated into conventional teaching in the future as well. (17. Figure)

The Teams consultation replacing the seminars was given an average rating of 3.21, 14.28% of the respondents rated it as unsatisfactory. In Managerial Accounting, the Moodle chat received a rating of 1.88, 55.7% of the students found it unsatisfactory. On the educators' forum, it was agreed that the solution chosen for the seminar alternative was a wrong decision. Effective work was only experienced in groups where the teacher consulted with the students on how to solve the exercises. In case the education has to be continued in the remote form in the future, the teacher-led, practical problem-solving form of consultation is preferred, according to the opinions voiced on the educators' forum.

In Managerial Accounting, the usefulness of the available lecture notes for studying was rated 'unsatisfactory' by 25.2%, 2 by 21.7% and 5 by only 8.1% of the respondents, resulting in an average

[40] The surveys are given in Appendix 1., the summaries and graphs created for the analysis can be found in Appendix 2.

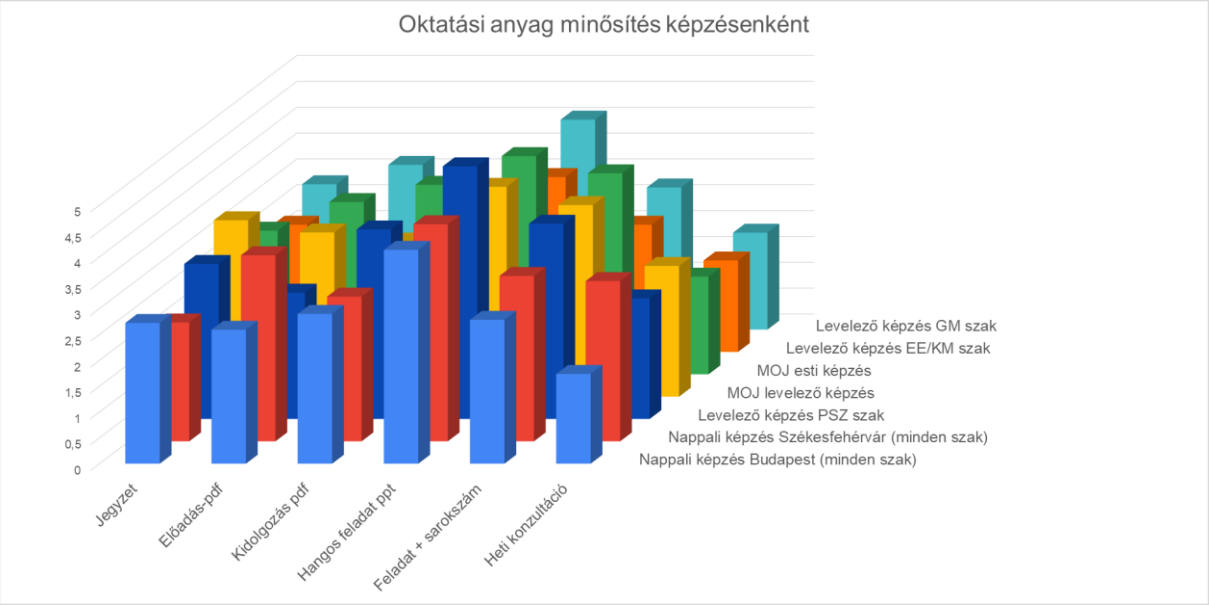
rating of 2.75. The pdf (printable version for students) created about the lecture material was not rated particularly efficient, it received an average rating of 3.14. This is considered to be the worst tool for the Basics of Accounting module and with 2.68, it is rated the second-worst after the chat consultation in Managerial Accounting.

Although the Moodle test and the homework submission every 2 weeks were pre-conditions for the exams in the Basics of Accounting, they have received relatively good ratings, 4.15 and 4.11 on average respectively. The students felt that these were efficient tools to motivate them to regularly prepare for classes. According to the textual feedback, students taking the Managerial Accounting module missed the term-time assessment as a motivational tool.

The form of end-of-term assessment was the online exam for both modules. There was no question regarding this tool in the survey, however, students were able to evaluate it the textual feedback. The insufficient amount of time to complete the test, the problem of subpoints and the lack of possibility to review the exam were mentioned as negative critique. In the textual evaluation, the "open-book" exam-logic has appeared multiple times, in which they have seen the opportunity to spend less time and effort on exam preparation. This might have become a boomerang, since there was not enough time to search for the answers.

The survey regarding the Managerial Accounting was completed by full-time, part-time and online students; we have seen interesting differences in the outcomes. Among the respondents, full-time students considered the live video seminar to be a helpful tool for studying (4.14), while part-time and online students preferred the lecture notes (2.9) and the printable version of solutions (3.02). In my opinion, this can be attributed to the considerable differences between generations, which I have discussed previously in my dissertation. The full-time students who study on the campus located in Székesfehérvár rated the printable version of the lecture higher (3.6) than the rest of the respondents. On the online Finance and Accounting undergraduate degree and the Engineering, Medicine and Law second-degree courses, the solved exercises and its version given with corner reference points received a higher rating than on other courses. As far as I am concerned, those who are already working in the industry approach the exercises' structure based on their workplace experiences, which is why they appreciate this type of tool more.

Compared to the average rating (3.43) that 'The module met the expectations' statement has received, the students on the online Finance and Accounting course assigned a much higher rating to it (4.5). The consequence of the course specialisation is that a considerably larger proportion of students on this stream thinks that it is possible that they are going to work in Accounting (4.13, while the average was: 2.61). These differences are graphically presented in 18. Figure, the statistics are provided in Appendix 2.



18. Figure: The evaluation of remote teaching tools– Managerial Accounting

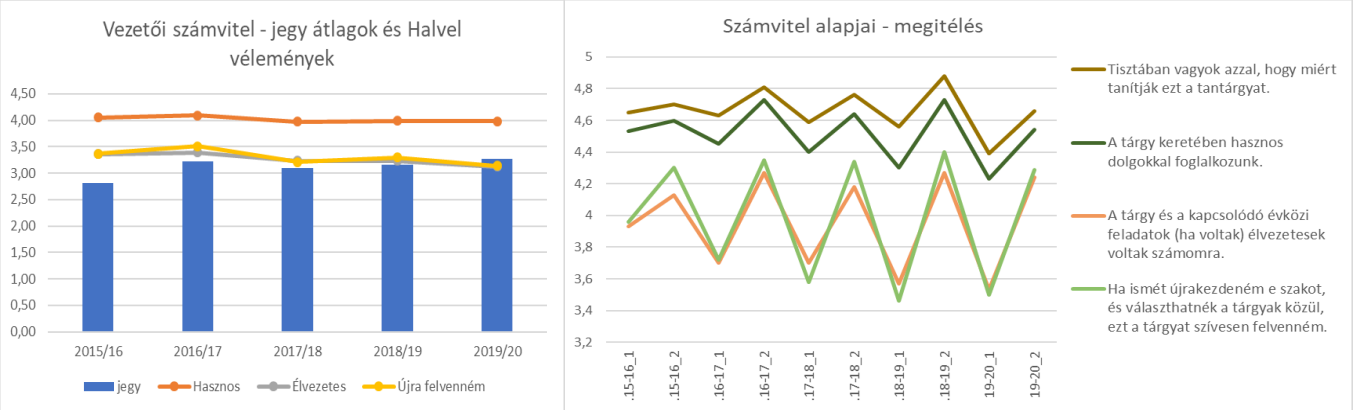
The feedback provided by the students phrased with their own words are contradictory in some places. As an advantage of remote teaching in both modules, 47% of the respondents mentioned the opportunity to manage their own time schedule, 30% the possibility to watch the video recordings unlimited times, 27% the ability to study at their own pace. The quality of seminars with audio recordings was criticized by some, and they would expect more theoretical explanations, perspective-shaping, although some consider the videos already too long and they are not motivated to watch them. 43% of the participants suggested that the lack of possibility for contact hours was a disadvantage, and 16% found the exam difficult. The completed lecture slides were appreciated, but a more extensive presentation, containing the minimum requirements would be preferred. They have found the exams difficult, and in Managerial Accounting, they considered it to be very different than the practice exercises. We could have supported their preparation with more similar problems, mock exams. Due to the time constraints, restricting the return to previous questions and the management of cumulative mistakes, the students felt disadvantaged. They were missing the possibility to review their exam, based on which they would have been able to decide whether to make a re-evaluation request. The students taking the Managerial Accounting module have found that the incentivizing power of term-time assessments – homework, online tests, point-obtaining opportunities in seminars have motivated them to prepare for the classes on a regular basis. On the educators' forum, we have set out the discovery of incentivizing tools for studying and preparation in this module as an important objective. Based on the standpoint formed on the forum regarding both modules, the idea of several term-time assessments on smaller amount of materials is perceived to be an efficient solution.

According to student and educator feedback, it is clear, that we prefer conventional teaching. From the educational development perspective, one of the most important questions in the survey is which tools used in remote teaching should be integrated into conventional teaching[41] as well. 80% of the students suggested the application of problem-solving videos in the conventional education system. In Managerial Accounting, the short video recording versions of the lectures, and a more extensive form of Power Point presentation, which contains the material that is sufficient for the minimum requirements are proposed (15%).

The objectives determined in the educators' forum (mentioned above) involve a more active relationship with students, increasing the student engagement through working together with them, continuous consultation about the requirements and expectations and the development of the tools that motivate students to prepare for classes were the agreed steps for improvement. The idea of not letting the quality to deteriorate in spite of the circumstances was particularly emphasized. We believe that by using various tools simultaneously, it is possible to achieve diversity in the teaching techniques, but we also intend to mitigate the irregular form of exams and to improve the attitude of students. Experiences with software systems that are suitable for carrying out personal identification and programs that monitor the conditions during the examination and decisions in this regard would support our aims in this area. The verbal confirmation of the exam results is also considered to be a potential solution, but this is only feasible if the number of candidates is sufficiently small.

In the term, where teaching had to be carried out remotely, the average grade in Managerial Accounting was 3.28, which is better than in the previous years (2.8; 3.23; 3.1; 3.16). In addition, only 6% of the students have failed the module, which is considerably lower than earlier (9-10%). In the HALVEL survey, regarding the questions, that were comparable with the ones from the previous years, we have received similar ratings, as in the past years, there is no significant difference.

[41] At the time of writing the dissertation, it was unknown if we have to work in the conventional or the remote education system in the following academic year.

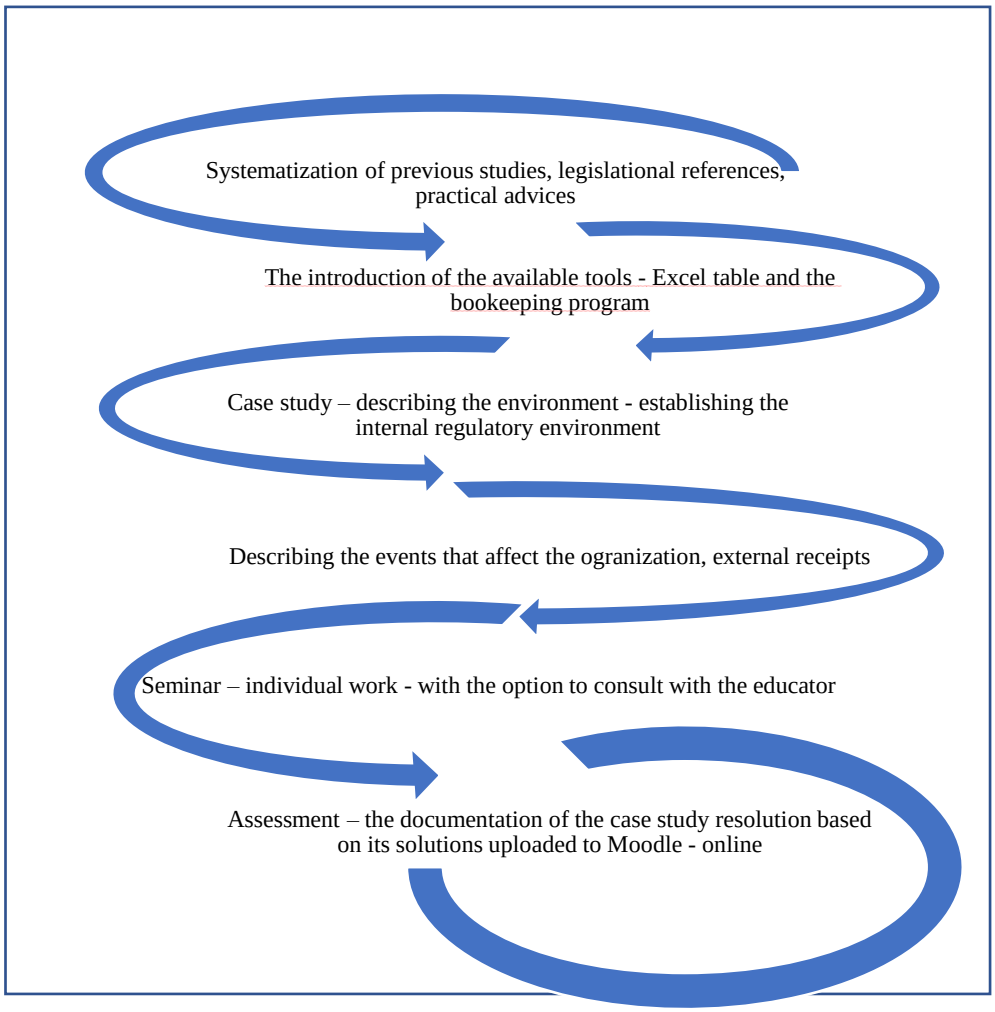


19.Figure: The impact of the term in which remote teaching was required on the average grades and on the HALVEL outcomes

In Basics of Accounting, the average of the exams results has also improved (even compared to the results of the students on the Finance and Accounting stream in the previous year), the fluctuation of the student rating in 19. Figure. indicates the difference between the judgement of the entire class taking the module in the first term and the students on the Finance and Accounting undergraduate degree in the second term. Compared to the class of 2018/19 in the second term – which is the relevant one in the context of remote teaching – all indices have decreased minimally, but they are still better than the rating of most taught modules.

5.3 THE DEVELOPED MODULE: ACCOUNTING INFORMATION SYSTEMS II. (PSZI2)

Following the university's developmental concept, we use the combined methods of blended learning, the increased application of IT tools and projects built on case studies in the module. Using the combination of efficient methods introduced earlier, the Accounting information systems II. module is taught in the following way: Throughout the training, we organise the material learnt earlier into a complex system, apply practice-like techniques and IT tools, and structure it as a semester-long case study. The foundational modules are: Economic Law, Financial Accounting I-II; Accounting information systems I.; Knowledge of Taxation. The drafted summary of the theoretical knowledge – for revision purposes – was made available online, in the form of slides with audio recordings. The level of proficiency in the previous studies can be assessed with online tests. This way, the student can measure his own level of preparedness. Before the development, the explanation of these topics was part of the seminars. By removing it from the seminar tasks, we saved time, which facilitated the processing of a wider range of topics through the case studies.



20.Figure: The developmental concept for the Accounting information systems II. module

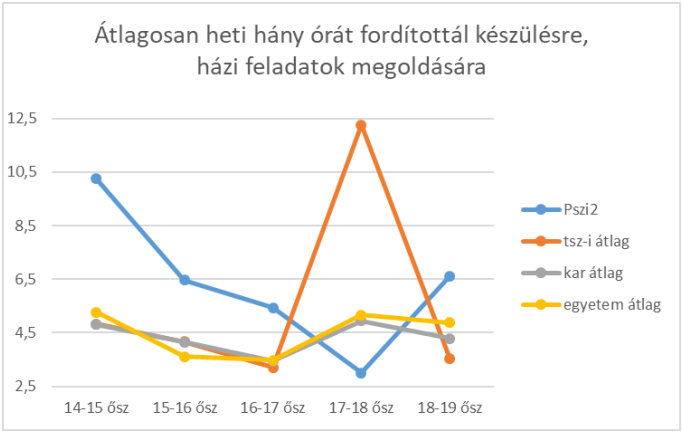
Throughout the course, the general ledger accounting is done in an Excel-based, simplified online program, based on the source documents that can be downloaded from Moodle. In the modules that appeared in the previous studies, we provide the data taken from the receipts that are necessary for ledger processing. Throughout this module, students can familiarize themselves with the requirements towards the receipt, with the management of non-regular receipt and with the entire data content of the receipt that is related to the completion, retraceability and data security of – besides the ledger processing – the financial movements, taxes, stock movement , etc. Knowing the requirements, students are expected to develop the necessary analytical system individually.

Reading the operative law is also integrated among the tasks and the completion of an online test allows for the immediate control of this activity. The principal method of work is the individual problem solving, which is supported by the opportunity to consult with the educator. It is not feasible to restrict the communication among students completely, when working on an assessment, but this is not the goal

either, since throughout their careers, they might benefit from the skills that they gain from communicating with each other, when consulting with their colleagues in the future. Feedback and evaluation are provided on a weekly basis, which is feasible even in the case of approximately 100 students, by developing algorithms to support the evaluation. 20. Figure outlines the structure of the system.

The evaluation of the developmental work presented a great challenge. It is important to develop this important tool for the teaching practice of the module and for its further advancement. Fundamentally, we have approached the issue from the educators' and students' point of view, who were participating in the process, hence, we have chosen the following tools: conversations, interviews and surveys. The related databases are the change of grades (source: my own records), the HALVEL results for the module between 2015 and 2020 and the systematized data based on the surveys completed by the students attending the courses in the first term of the 2019/2020 academic year.

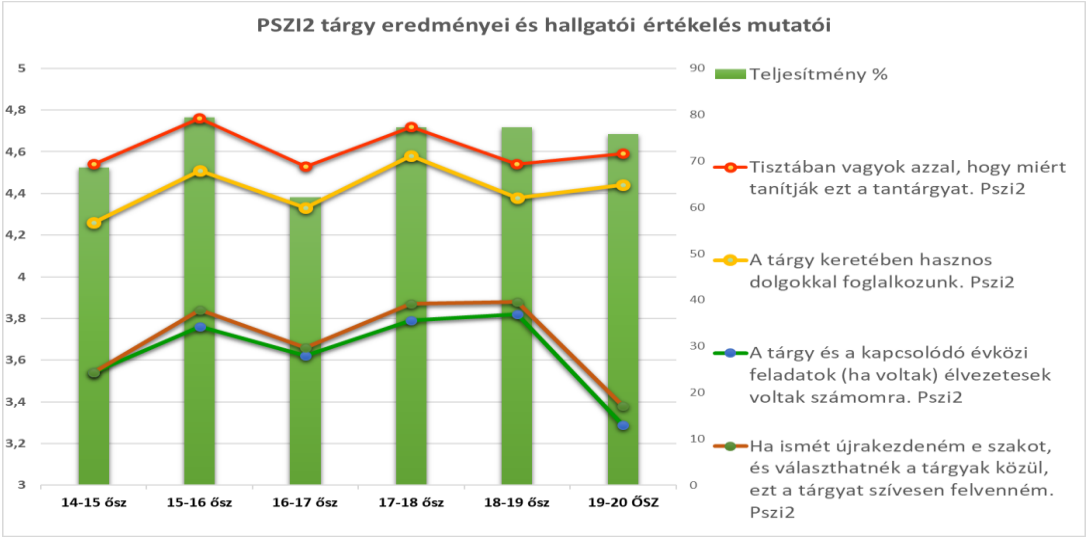
One of the most important indicators to measure the effectiveness of the module is the grade, which can be retraced in the Neptun system. In the first term of the 2018/19 academic year, in the Accounting information systems II. module, from 77 students, 4 have failed, 2 have passed with a grade of 2, 10 have received a 3, 14 pupils have achieved the second-best grade (4) and 47 students have received the best grade (5), with an average performance of 83%. In the first term of the following year (2019/20 academic year), from the total 75 students, 4 of have failed the module, 8 have received a 'satisfactory' (2) grade, 11 have finished with a 3, 19 have received a 4 and 33 have achieved the 'excellent' (5) grade, the average result was 78%. Technically, those who have failed the module stopped submitting their assignments at some point of the term, i.e. they have given up before the end of the term. Surprisingly, the performance has declined by 5% in the term in which the development has taken place. The exact reason for this is difficult to retrace, but I intend to identify it based on the student feedback. I assess these using two sources: the student evaluation system (HALVEL), which has been applied for years and the module-specific survey uploaded to the Moodle system, which I have created.



21. Figure: The time spent on the PSZI2. module per week between 2014-2019

Based on the HALVEL data, I will firstly assess the time spent on the module. According to the statistics, substantial fluctuation can be observed. In the 2014/15 academic year, students have spent 10.5 hours per week on average on preparation for this module (a standard deviation of 16.88 belongs to this piece of information, which questions the validity of the average), while in the 2017/18 academic year, this number has been reduced to 3 hours/week. In 2019/20, the HALVEL survey did not contain a question referring to this piece of information. Although, the calculated average based on the answers received in the Moodle questionnaires is 4.49 hours/week, this value contains the time period of the seminars as well, which leaves us with approximately 3 hours/week for classes for this year too. Considering the 30 hours/credit performance set as a requirement based on this dataset, in 2014/15, it was 54.16 hours/credit[42], while in 2017/18 and 2019/20, it was 21.66 hours/credit[43]. The fluctuation of the data is difficult to explain. It can be a distorting factor, that the HALVEL questionnaires are completed at the end of the academic year, in the exam period, which might influence the answers of the respondents. The weekly questions asked on Moodle can provide more objective evaluation, however, here, we have asked students to choose a value on a scale, from which the calculated average provides less precise results. In the HALVEL system, the departmental, faculty and university modules are also given for comparison purposes (21. Figure). As I have mentioned it when describing the databases, the average number of hours for multiple modules is questionable. Instead, the hours/credit value would be a good basis of comparison. The 12.5 value, which was the faculty average for the 2017/18 academic year is as questionable, as the 10.5 for 2014/15. I am not able to retrace the data used for the calculation of these averages from the HALVEL system, hence I cannot reveal the reason for the considerable spike.

42 ((10,5+2 the seminar)*13 weeks)/3 credits=
43 ((3+2 seminar)*13 weeks)/3 credits=



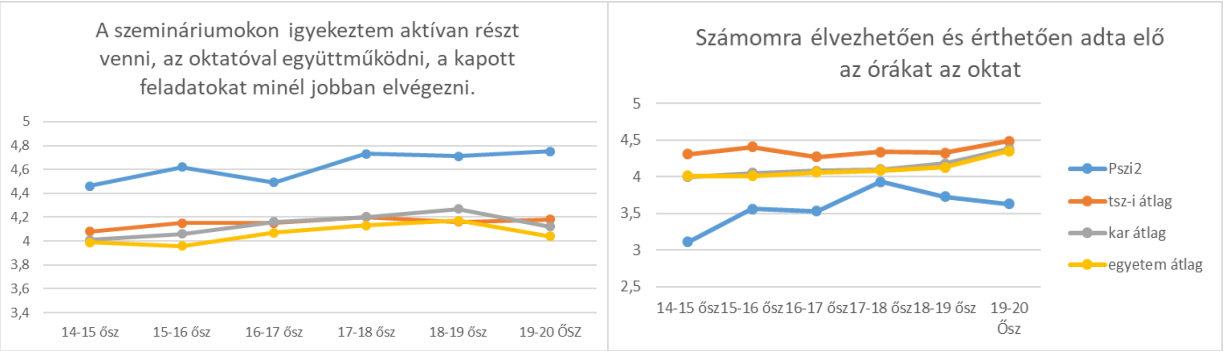
22. Figure: The average results of the PSZI2 module and its evaluation based on HALVEL data between 2014-2020

The student performance in percentages and the student evaluation of the Accounting information systems II. module between 2014 and 2020 based on the answers to certain questions in the HALVEL survey is shown in 22. Figure. The 45, 61, 62, 69 and 80 values for the years that I examine were based on those students' responses, who attended 81-100% of the classes. A rating on a scale of 1-5 (Likert-scale) has been assigned to each evaluation criteria; this is presented as a line chart. (In order to highlight the differences, the primary vertical axis does not start from 0. While this is an intentional distortion, it is important to note.) The student effectiveness is depicted with a column chart on the secondary vertical axis, based on the average percentage of performance (the achieved score from the maximum number of points available). The values for this were 68.54%; 79.46%; 62.15%; 77.29%; 77.24% 75.79% respectively for the given years.

The index that expresses whether the students understand the relevance of the module shows an interesting fluctuation. This value is changing in the following way: 4.76; 4.53; 4.72; 4.54; 4.59, which essentially moves together with the indicator of how useful the module is perceived by the pupils (4.51; 4.33; 4.58; 4.38; 4.44). The 'enjoyable tasks' and the 'I would take the module again' aspects fluctuated similarly, but between 3.6 and 3.8. It is visible that the direction of the fluctuation is typically the same as the fluctuation of the student performance.

The data for 2018/19 is somewhat different. While the 'relevance' and 'usefulness' ratings have declined, the 'enjoyableness' and 'I would take it again' indices have increased further (3.82 and 3.88; these are the highest values in the period of the study) and the performance percentage is almost the same as in to the previous year.

The student effectiveness has decreased minimally by the 2019/20 academic year, from 77.24% to 75.79%. The ‘usefulness’ and ‘relevance’ values have increased, but the ratings given for ‘enjoyableness’ and ‘I would take the module again’ statements have declined substantially (3.29 and 3.38 respectively). I aim to find the explanation by analysing the textual student feedback.



23.Figure: Certain indices of the student evaluation regarding the PSZI2– based on HALVEL data

The average values of students’ active participation between the 2014/15 and 2019/20 academic years are 4.62; 4.49; 4.73; 4.71; 4.75. (this is presented in 23. Figure) The rating of the learning material quantity is increasingly higher (last data from 2018/19!), it has risen from 4.00 to 4.21. The teacher evaluation between 2014 and 2017 indicated a substantial progress, the ‘enjoyable’ and ‘understandable’ ratings have increased from 3.11 to 3.93, but even these values are below the reference numbers set by the university. However, in the last two years, the average value has declined, firstly to 3.73, then to 3.63.

Some valuable comments from the 2018/19 academic year’s textual student feedback:

- “This was our most useful module so far, but it does need some refinement”
- “Why have they not warned us about legislations that we were not aware of and it led to a deduction of points”
- “One of the best undergraduate modules I have taken. This was my first and only module that strived to simulate real life. I have begun every class with enthusiasm, I enjoyed them. There is room for small improvements and uncertainty, but this might be a rather positive, than negative thing in being similar to real life”
- “The manual management of the analytics required a lot of unnecessary work. In this way, we do not make efficient use of the given programs, and the time spent on useful activities is also reduced.”
- “The fundamental concept of the module is good, but its methodology is not the best”

- "We would have needed more advices in the beginning, most things we had to figure out ourselves."
- "Perhaps, this was the most useful and practical module in the term. Throughout the term, it required a lot of work to be done, but eventually, this was one of the best modules"
- "In this form, I did not see much use of the module. It is not linked to Accounting information systems I. and is not practical enough"

In the 2019/20 academic year, students have written considerably more textual evaluation compared to the previous years. In 2018/19, there have been 15 comments (out of 69 students), while in 2019/20, the 'what I liked' question has received 25 responses, the 'what I disliked/to be improved' was answered by 20 comments, out of 82 students. Among the 'what I liked' comments, almost everyone have mentioned the 'practical nature' (24) [44]. Further comments included the 'aims to imitate the reality' (7), the 'possibility to ask' (1) and the 'the weekly assessments were good/incentivizing' ideas. For the 'what I disliked/to be improved' question, almost all opinions included the 'there is no actual teaching' (12), 'relative to how many credits it is worth, it requires too much work' (8) comments. Some felt that the scoring system had been incorrect (3), meaning that it had been unpredictable, disproportionate at the beginning and at the end of the course. In addition, the 'use of programs that are applied in practice, instead of the employment of preliminary tools' comment has also appeared as a critique. In my view, the reason for the retrogression in the evaluation - based on the feedback - is that the learning material from the previous modules to be used has been uploaded to Moodle in the form of a Power Point presentation with audio recording. We were hoping that students would use them actively and it would facilitate more efficient work to be done in class regarding the case studies. The students have not taken advantage of this opportunity, and since we have removed the theoretical revision block from the lectures, they felt that there is no teaching during the lecture, only assessments. I aim to refine the influencing factors further, based on the Moodle survey data.

The expansion of the HALVEL system will allow for questions asking about special areas of the modules. As long as this is not possible, the survey uploaded to Moodle can be used to receive feedback referring to the special components of the module and the development. This latter one is not anonymous and we cannot make incentivizing promises (e.g. early exam application opportunity, as for the HALVEL questionnaire), we were able to 'award' the completion of surveys during the term with bonus points, however, for the end-of-term questionnaire, this was not a feasible option either, thus, as expected, the participation rate was lower. If the survey was to be filled out after the module has been completed, it would reduce the restraining impact of the consequences, but students would be less willing to complete it. During the term, there have been 13 surveys. In the first week, I asked students

[44] the number of occurrences given in the parentheses

about their previous studies and learning style. In week 2-11, the questions were aimed at the work and the applied tools. Not all students have responded every week, but from the 10-week average, only 3 students' responses are missing. In the first week of the exam period, students were asked to complete a survey to evaluate the module as a whole, and regarding the competences they have developed by the end of the course. (Unfortunately, this latter one has only had 35 participants, out of the total number of (75) students enrolled in the module) The questionnaires can be found in Appendix 1.

The questions at the beginning of the term were aimed at two topics:

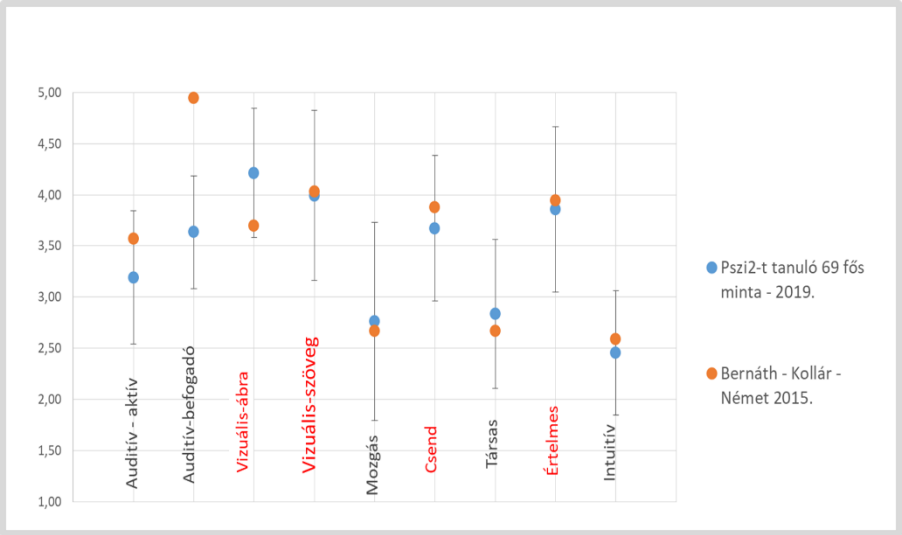
1. Questions about the learning style - based on Imre Szitó's survey - involve the choice between verbal-visual-kinaesthetic learning methodology; the preference of individual/social conditions and the influence of intuitive/observant personality traits.
2. Questions regarding previous studies, declaration of estimated knowledge and the achieved results. Due to the restricted access to academic records in the Neptun system and to GDP-regulations, it is not possible to download these data. Therefore, I can only use the information provided by the students for research purposes.

In the weekly survey, besides the topical step of the case study solution, there have been questions about the learning tools and methodology: students have to rate the usefulness of supporting elements on a Likert-scale of 1 to 5. (documents, supplements, the summary of knowledge from previous studies to be used, the lecture explanations, the consultation with students and teachers and the operative legislations)

The questionnaire at the end of the term can be divided into two sections.

1. Questions regarding the processing of the subject (quantity of learning material, sparking of interest, the preparedness of the teacher, enjoyableness, relevance, evaluation of the student's own performance and whether they would recommend it to the next class) (On the Likert-scale of 1-5)
2. Evaluation of the level of competences achieved by the end of the course (On the Likert-scale of 1-5)

To assess the learning methodology, I used the revised version (based on the 2015 study by Bernáth – Kollár – Németh) of the survey that Imre Szitó has developed in 1987. As a result of the advancement of the IT tools, they have tested the original survey with a sample that consisted of 619 elements, by using main component analysis and Varimax rotational system. By partly modifying the original survey, they have proved that the questions fit well with the factors, the weighing of the questions are above 0.4 and the questions do not charge any other factors with a weighing of more than 0.4, i.e. the scales are consistent and well-separated. The quantity of people I have asked does not allow for the confirmation of survey factors, hence, I accept the 2015 results as the base of my analysis. The applied questionnaire and the organisation of answers into factors is provided in Appendix 1.

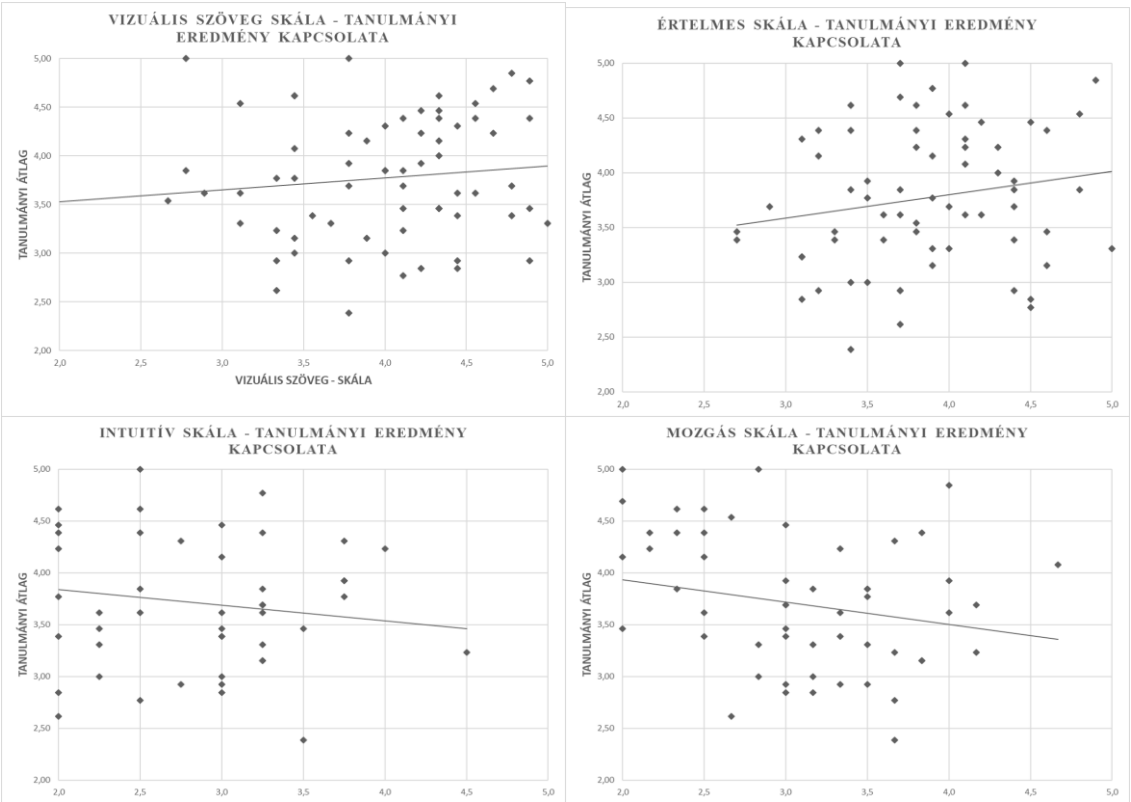


24. Figure: The outcome of Szitó's learning methodology survey factors

According to the 2015 study, it has been shown that the auditive-understanding, and the need for visual figures and texts and undisturbed study environment increases with age and progression in the education system. At the same time, on rational processing scales, the need for kinaesthetic tasks and group-based tasks decreases. Among the students I examine, who are specializing in Accounting at the university, I have recorded lower values on the auditive-active and the auditive-understanding scales, and higher ones for the visual-figure scale than the typical numbers I have found in other studies. (the results are presented on 24. Figure) There was no significant difference on the scales of kinaesthetic, silent and social processing methods and rational and intuitive approach scale compared to the values from earlier studies (the social is somewhat higher, the silent is a little lower, the values on the rational and intuitive scales are also lower, but the small deviation (error) can be a result of the low number of elements).

Based on the data I have obtained from the students I have studied, they generally prefer information built on visual depictions, when processing the learning material. Furthermore, they study in a silent environment, mostly using a non-social method and the rational (observant), not an intuitive approach. The findings suggest that the role of intuitions and creativity decreases with age. This is also unusual among students on the Accounting course

I have studied the correlation between the learning methodology peculiarities and effectiveness by depicting the frequency of the student responses. From the graph (25. Figure), it is can be seen that there is a weak positive correlation between the textual information processing and the result. The accurate reading and comprehension of the documents is an essential part of accounting, and consequently, of this course as well.

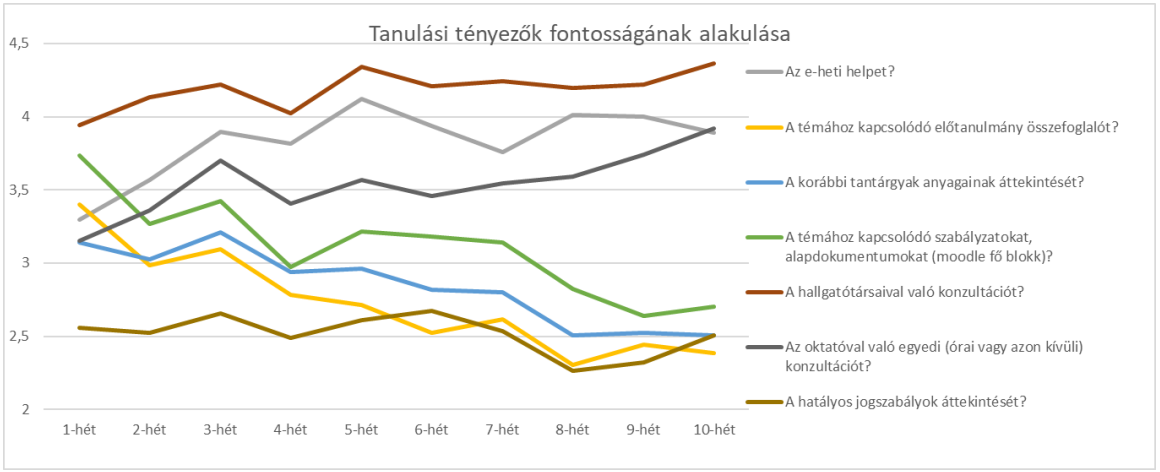


25. Figure: Correlation between learning methodology survey factors and academic results

The weak positive correlation between the rational approach factor and the academic results confirms my expectations, since the integration of the acquired data into accounting systems and the understanding of its effect on the systems' elements helps with the processing and the inspection.

There is a negative correlation between the factor of the preference of kinaesthetic learning methods and of the academic results, as well as between the intuitive approach and the achieved results. In case of an Accounting module, these correlations seem logical, the data have supported my assumptions.

Part of the weekly Moodle survey referred to the usefulness of the tools provided for studying. (26. Figure demonstrates how the evaluation has changed throughout the term).



26. Figure: Correlation between learning methodology survey factors and academic results

The help of another student received the highest rating continuously. One could say that teamwork has been developed, but based on the textual feedback, it appears that students have not considered it as a group-work experience. In our experience, in the majority of the cases, the evaluation of the applied communication tools has not changed according to this. The students have not discussed the solution. Instead, one of them has sent it to another, who has integrated it in his work almost without a questioning its correctness. We have been thinking about a development direction for years, where every student has to solve a case study based on different events and values. However, the continuous marking of 40-45 kind of different solutions for 1 teacher is not manageable without a technological background developed for this purpose.

The second-best rated tool was the weekly help, where we have supported their work by providing notes on the problems and tasks of the given week. Thus, this education tool can be considered a successful support technique. The smaller remarks were concerned with further elaborations and clarification.

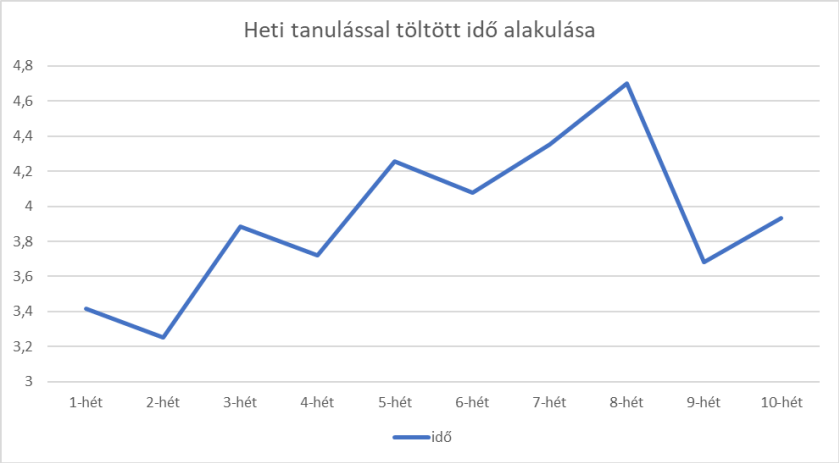
Throughout the term, the supportive role of teacher-student consultation has increased. The fundamental goal was to play a consultant role on the seminars and also on the online platforms, besides class-hours. Initially, students did not maximize this opportunity – knowing the teachers' attitude in the previous studies, I am confident to say that they are not used to this – but they have built on it increasingly, as time has passed.

The ‘monitoring the changes in the operative law’ has received the worst rating almost throughout the whole term. This is unfortunate, since in the accounting industry, it is impossible to ignore the effects of legislation changes. In case of legal disputes, the basis of reference is the exact script of the legislation, not the other expert. In the term of the development, we were already striving to incentivize students with tasks that require them to quote the exact script of the legislation and practice how they can access it, without success. We need to take further measures in this field.

One of the main areas of the development regarding the teaching of this module is the systematization of previous studies and to share the related documents on Moodle. We suggested students to review the related notes before the seminar that was relevant to the given topic. With this measure, we wanted to enhance the effectiveness of the seminar. Since a substantial proportion of the students did not follow our advice – and we did not discuss the material in class either, assuming that they did – we experienced much greater uncertainty among the participants when solving the problems. The weakening of its rating is understandable, because in the last weeks of the course, less and less problems – that were not dealt with before – were added to the case study.

One of the questions in the weekly questionnaire referred to the time spent on the case study. We used the average of these numerical answers (4.49 hours/week) to complete the information regarding the time spent on the module in the 2019/20 HALVEL survey. The question requires the respondent to choose one from the listed statements that describes his time-management regarding the module the most accurately. The choices for the question ‘How much time has the student spent with working on the case study?’ are: 1: I have not worked on the case study this week, 2: Basically only the time of the seminar; 3: seminar + 10-30 minutes at home; 4: seminar + 30-60 minutes at home; 5: seminar + 60-120 minutes at home; 6: seminar + more than 120 minutes at home. To improve the relevance of these responses, I converted them into average time by multiplying the frequency of the given rating by 0 for 1 and by 2-6 in the other cases, according to the rating’s magnitude. This includes the time of the seminars as well. The weekly breakdown of these values is presented in 27. Figure. In the first few weeks, students have not realized how much work they have with the 1-2 pieces of information they have received. In general ledger accounting, which was taught prominently in the earlier studies, the effects of these are often not apparent, but it is necessary to develop the analytics for the tools that are required for the administration. In the textual evaluation, many have mentioned the lack of study aids provided in advance as a negative comment. The objective of the module was to teach what kind of

information is required for the administration, and how minimal is the sufficient quantity of data; this is why we did not provide the supportive material in advance.

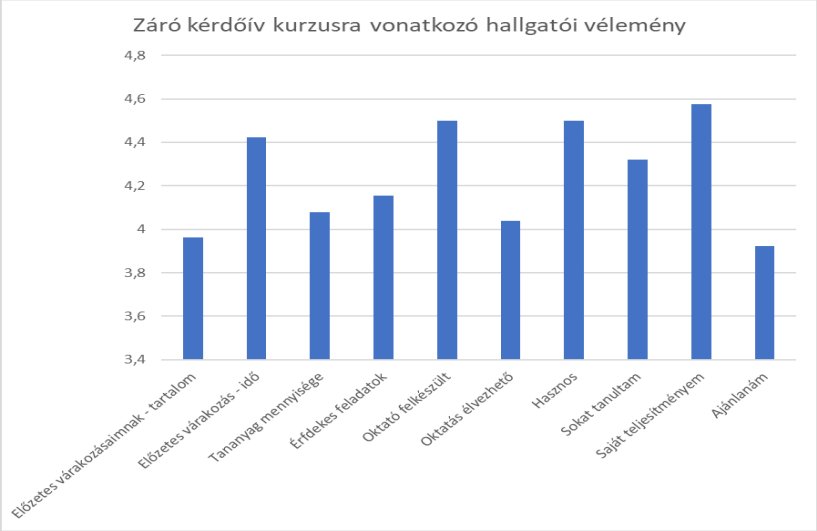


27. Figure: The weekly time spent studying for the PSZI2 module

In the last two weeks, technically, there was little to no new information in the case study, in order for the students who are lagging behind to be able to complete the project and to correct the mistakes they have not noticed earlier. (In the accounting case study, the last exercise was to complete a financial report and tax return compilation, supported by the analytics and conforming to the rules of bookkeeping) The students who have done accurate work until that point could essentially relax, they have finalized their assignments through consultation, which is why they spent less time on the task.

The participation rate in the final survey is substantially lower than in the previous ones, only 35 out of the total 82 students have completed it. In the first part of the questionnaire, we have asked a comprehensive evaluation of the module from the students. They had to assign a rating between 1-5 on a Likert-scale to each question. The participants have rated their own performance the highest. Since the task was to solve a case study individually, we do not want to take this away from them. In fact, we are happy to see their ability to perform on such a level. Compared to the actual results, 6 students have rated their performance to deserve a higher, and 3 to deserve a lower grade.

The data regarding ‘usefulness’ and ‘teacher preparedness’ are reassuring, but there is room for improvement. However, the low ratings given for the ‘I would recommend it to the future generations’ and the ‘it did not meet my expectations with regards to content’ questions should urge us to seriously reconsider our approach.



28. Figure: The correlation between learning methodology survey factors and academic results

The textual feedback highlighted the emerging problems on a weekly basis, based on which we have already taken steps throughout the course, and there are several details to be transformed. Week 1. – It is not clear, what is expected from the students, there is an excessive amount of new information; Week 2. - The system is unclear to me, more extensive help would be useful, the teacher is very helpful though; Week 3. – I understand the project more and more, but I could use some consultation and a table to summarize what is expected from us – there were only a few assignments, I was able to catch up with my work; Week 4. – There is no textbook, I am struggling to progress with the task at home, I would require a sample solution and scheme to be uploaded on Moodle, it is difficult to comprehend the receipt; Week 5. – The time to write the assignment was not sufficient – we should discuss the material in the class that takes place before the submission deadline, too little information is mentioned in class; Week 6. The marking process is unfair, points are deducted even for details that we have not discussed; Week 7. – The opportunity to consult with the teacher should not only be available during classes and seminars, there are too many details to pay attention to; Week 8. – The point deductions for tiny mistakes are demotivating, a lot of time is required to be spent on this module besides the classes and seminars; Week 9. – It is possible to complete the assignment on time with a lot of work done at home, if there is a problem, the teacher helps, the two teachers should synchronize their work in all activities, in class, there is an abundance of new information in class, that are not feasible to do; Week 10. – The incorrectly submitted document was sent over by a student from another group - the solution differs in the two groups, the marking is emphasized excessively by the end of the year, this is not good.

Feedback from the final survey: “Not all details were unambiguous, these should be clarified”, “More practical information is required to solve the problems”, “The theoretical foundations of the PSZI2 module should be taught in the PSZI1 module”, ”I have achieved the highest possible grade in this

module at the end of the term, for this, I feel that I did not need luck, I have fought for it with my two hands and my laptop :).”

Based on the feedback discussed above, the supplement was created with an expanded content in the topical term already, as a support document. However, this will never be complete, because the objective of the course is that by the end, the student is able to recall the steps required to process a document. The amount of information provided in this regard can be increased, the connection between the documents and the tools of bookkeeping are potential topics to be assessed in the form of a Moodle test.

The opportunities for personal extra consultation are the office-hours, but we have also provided consultation possibilities, common problem-solving and error-finding approaches in the IT room. This can be offered in advance in an institutionalized form. As a positive aspect of remote teaching, the screen-sharing platforms and online video chats expand the range of available possibilities.

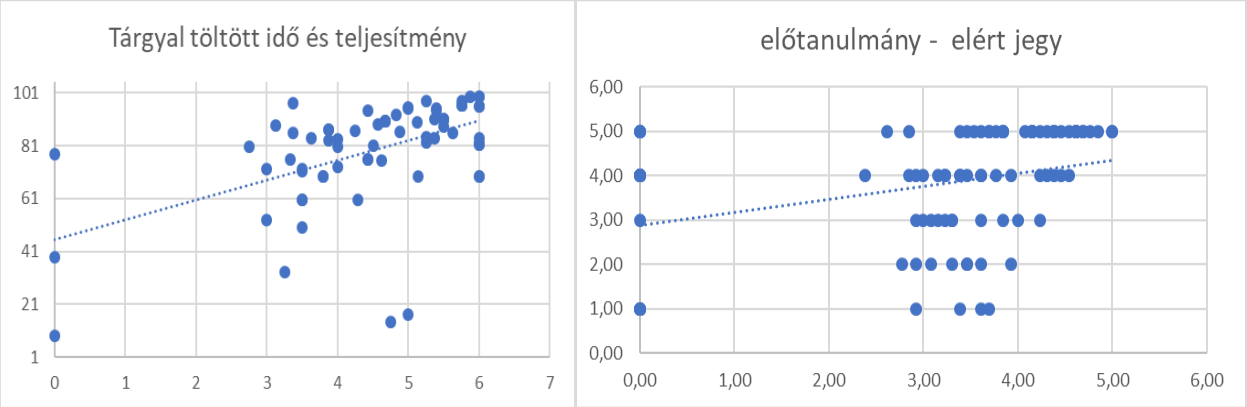
The developments for the next term are: The review of the receipt content at the beginning of the course can reduce confusion. The requirements towards the analytics are taught in the modules throughout the previous years of the course, students should be incentivized to utilize this knowledge, but the practical Excel solutions and main questions should be highlighted in class as well. A guide to complete the simplified tax return forms could reduce ambiguity.

5.1 THESES

Hypothesis 1.

The success in an orderly subject that is based on practical learning depends on the knowledge acquired throughout the previous studies and on the time spent on it. The higher average achieved in foundational modules and in the time spent on preparing for the Accounting information systems II. module leads to better results. I examined this hypothesis by calculating the correlation coefficient.

According to the frequency distribution of the data, the time spent on the given module has a larger impact on the results, than the previous studies, but both of them are in correlation with the final grade. (29. Figure)



29. Figure: Frequency distribution graph depicting the correlation of the different factors.

The results of the correlation test are included on pages 5-6. in Appendix 2. The correlation coefficient is significant for both factors, because the value of p is below 0.05. The value represents a smaller than moderate positive relationship not only between the achieved grade in the module and the time spent on the module, but also between the final grade and the results in the student's previous studies.

Consequently, I find the hypothesis to be proven. Although the relationship between the achievements in previous studies and the final grade obtained in the module and between performance and the time spent on the module is not function-like, but it can be considered significant.

Hypothesis 2.

The enjoyment of the subject depends primarily on the student's learning style. The method is more likely to be evaluated positively by students who are system thinkers and capable of maintaining long-term focus. To prove the strong relation between the classification of learning style according to the questionnaire and the students' opinion, I calculated the correlation coefficient.

In this correlation calculation, I included the learning style factors and evaluation points of the final questionnaire associated with the subject. According to the correlation matrix on page 7. of Appendix 2., the following correlations are apparent:

Based on the hypothesis, the students who use the auditive-understanding information processing more effectively evaluate the module more positively than the system thinker, rational students, who prefer the silent, individual form of work. In the correlation matrix, positive correlation was indicated by a green colour, while negative correlation was marked with pink, so that the direction of the relationship is clearly visible.

The auditive-understanding characteristic indicates a positive correlation in most evaluation points, however, the relations are weaker than the moderate correlation. In the aspects of time commitment and the understandability and enjoyability of the teacher's explanation, the relationship the relationship is negative.

This positive relationship is not justifiable in case of students who prefer the deep studying form of work. For the majority of the evaluating factors, a minimal, rather negative relationship can be observed. Based on the correlation matrix, it is visible that when a student prefers this type of learning style, he is not keen on applying other methods, as the matrix shows a negative correlation with those.

In the case of the rational, system thinker type of students, a positive, but minimal correlation is indicated for almost every evaluation point. Regarding 'the content met my expectations', 'the usefulness' and 'I have learnt a lot' statements, a negative relationship was found. In my opinion, the reason for this is that students who were able to systematize the learning material well in their previous studies did not benefit as much from this module.

In the majority of cases, the relationships between the factors are weaker than moderate. The correlation between the preference for kinaesthetic learning and the satisfaction with the module content is somewhat stronger, than moderate. The characteristic of students who prefer an auditive – active, or visual – graphic information processing method indicates a weaker than moderate, inversely proportional relationship with the rating assigned to the 'the content met my expectations' statement. –

The subject is not primarily built upon group communication, kinaesthetic problem solving. Hence, for students who have this kind of mindset, this subject did not meet the expectations.

The module lived up to the expectations of those students, who accepted the quantity of the learning material. The preparedness of the teacher was evaluated more positively by the pupils who prefer social interactions.

The hypothesis has been partly proven, because the positive relationship could not be always proven for the features accentuated in the hypothesis, but the diverse evaluation of the different styles is clearly demonstrable from the correlation tables.

Hypothesis 3.

The preference of the support notes created throughout the development (video, text, figure, link collection) was dominant in case of students who have visual and verbal learning styles. There is a strong relationship between the learning strategy questionnaire and the term-time evaluation of the learning material. To prove this hypothesis, I calculated the correlation coefficient.

Based on the first 4 rows of the correlation matrix on page 8. of the Appendix 2., we use the responses of the students, who are auditive active, auditive-understanding and visual graph or visual text information processing types. The green colour indicates a positive, while a negative relationship is indicated with a red colour.

In the visual graph and text rows, the evaluation of the tools indicates almost always a weak, but positive correlation. The visual graph attributes move opposite to the text format of helping notes and the consultant role of peers.

The students who prefer auditive - active information processing did not find a suitable tool for themselves; positive correlation is shown with the previous modules' material. In most cases, only minimal negative relationship can be observed, but in case of the receipt, the case study text and the consultation with peers, a weak negative relationship is detectable.

Based on the statements of the auditive type of students regarding the education tools, we cannot consider their relation to any of the tools determinative, because the value converges to 0 at each relationship. In the case of the efficiency rating of support notes, the case study text and the regulation, the relationship is positive, converges to 0, while in the case of the receipt, the summary of learning material from previous modules, the explanation in class and the one-to-one consultation, the results show a negative relationship, which converges to 0. This result is interesting, because when evaluating this module at Hypothesis 2., this group has given the most positive ratings. I found this surprising, but

subsequently, for the evaluation of the tools, I expected a more positive outcome. I was also unable to find an explanation for this outcome based on the textual feedback.

Thus, I find the hypothesis to be proven, because although the correlation between the factors of the preference of educational tools and of visual processing type students is weaker than moderate, it is clearly positive, while the evaluation of the other groups is neither significant, nor is it negative.

Hypothesis 4.

The preponderance of independent work, the communication with peers and the utilization of the teacher's help becomes dominant in connection with the psychologic characteristics relation to the social environment. There is a strong correlation between the weight of the learning strategy questionnaire and of the work method during the semester. To prove this hypothesis, I calculated the correlation coefficient.

According to the 'Silent' and 'Social' rows of the correlation table on page 8. of Appendix 2., we use the responses of the students who prefer independent work style in a silent - undisturbed environment and of those who prefer group work. The green colour indicates a positive relationship, while negative correlation is marked with red.

There is no significant difference between the two groups considering their relationship with the tools. Almost all values converge to 0, hence, there is no indication of a significant correlation.

The largest (though still minimal) difference between the two groups appears in the consultation with peers, because, according to the choices of the students who prefer the social environment, there is a considerably weak positive relationship, while according to the answers of the students who belong to the 'Silent'-group, the correlation shows a negligible negative value.

The consultation with the teacher is preferred somewhat more by students in the 'Silent' group (minimal positive relationship). I expected a larger discrepancy regarding this matter, because these students are the ones, who are afraid to ask questions in class in front of their classmates. Students who are more social are typically braver to ask questions in front of their classmates.

In spite of the weak differences, I do not consider this hypothesis to be proven, there is no significant difference between the choices of the two groups.

Hypothesis 5.

There is a strong relationship between the student's opinion about the module and the achieved grade. In order to prove this hypothesis, I calculated the correlation coefficient.

At the assessment of the tested module's (Accounting information systems II.) HALVEL data previously, we could see on a graph, that the average of the grades in the module and the evaluation provided for the given term move together. 120. page 22. Figure. The 'useful' and 'relevant' evaluation aspects over the whole period in which the assessment took place represented nearly as much movement year by year, as the average of the grades. Based on the figure, between 2015 and 2018, the rating given to the 'I enjoyed the work throughout the term' and the 'I would take the module again' statements followed the same pattern. On the contrary, in 2019-2020, the rating of these two aspects differed from the previously typical pattern. The HALVEL system is anonymous, I cannot combine the individual opinion with the achieved grade. Thus, for this purpose, I gathered information through Moodle questionnaires.

I examine the student's achieved grade and his answers given in the final survey regarding the module by calculating the correlation coefficient. The results of the SPSS run can be found on pages 9-13. of Appendix 2.

The percental value of academic record moves together mostly with the student's responses given to self-assessment questions (80.2%, $p<0.05$). We saw this at the overview of the data as well. 6 students have rated their performance to deserve a higher, and 3 to deserve a lower grade than what they actually received.

There is a weaker than moderate, positive relationship between the academic record and the acceptable quantity of material that needs to be processed (0.467, $p<0.05$).

The SPSS run indicates a weak, positive correlation (0.295, $p<0.05$) within the usual expected margin of error between the achieved grade and the expected time commitment.

There is also a weak, positive correlation (0.267) between the rating assigned to 'usefulness' and the final grade achieved in the module, and we can say the same for the relationship between 'the content of the learning material met my expectations' statement and the final grade received (0.213). However, in both cases, the error was above (0.068 and 0.071) the usual 0.05 margin of error), hence, we have to treat these relationships with scepticism.

Regarding the other factors, the SPSS run indicates a positive relationship in most cases, but with small values and substantial errors. Thus, these cannot be used adequately. For all variables, the outcome of

the run indicates that we need to reject the null hypothesis with regards to independence. Consequently, the relationships found between the factors have to be rejected too.

Based on the findings described above, I find the hypothesis to be partly proven, since although a significant relationship cannot be detected for every single evaluation aspect, there is some kind of relationship in all cases. Furthermore, for 4 groups, a weaker than moderate, positive relationship can be observed.

Hypothesis 6.

There is a strong relationship between the opinion of the students about the teacher and the level of involvement. The students who spend more time studying during the term and work precisely evaluate the teacher more positively. To prove this hypothesis, I calculated the correlation coefficient.

By plotting the frequency, we can see a strong relationship between the evaluation of the time spent on the module and the rating assigned to the 'the teacher made the subject clear and interesting' statement. The trendline is considerably steep. The correlation coefficient calculation is within the acceptable margin of error, which indicates a weak-moderate positive relationship.

A much less ascending trendline can be seen for the relationship between the time spent on the module and the preparedness of the teacher. Therefore, the correlation here is weaker. The outcome of the correlation test matches the significance level requirements that confirm the weak positive relationship. The documentation of the tools used throughout the assessment can be found on page 14. of Appendix 2.

Based on these findings, I find the hypothesis to be proven.

Education takes places as a result of the simultaneous movement of, and despite the counteraction of several influencing factors and personality traits. There are relationships between the examined factors, but a model, which can be used to explain how and why the students' evaluation is formed, could not be constructed, because in my study, I was only able to assess a small number of influencing factors and personality traits.

6 CONCLUSION

This research was conducted to evaluate the developments in the module and to study the change in its effectiveness.

As a teacher, my primary aim is ‘to do a better job in everyday life’. In relation to this, several areas have been discovered that require further development.

The tools and objectives of teaching methodology need to be determined in advance. In addition, these have to be communicated well towards the students.

Sharing the learning material in advance in blended learning is only effective, when the students require it, when they can measure the extent to which they were able to understand and process it, when they receive feedback regarding their performance and when inadequate work has direct consequences.

The system of requirements has to be precise. The students need to feel, that it is predictable, and they need to be prepared for the challenges with regards to content and form.

The problem solving and the answering of questions shall be supported with the possibility for one-to-one consultation. Many students are insecure and are afraid to ask questions on a public forum or in the seminar. Their preparation should be assisted with additional options.

Every student is different. Some of them are better at studying, when using a written form of the theoretical knowledge, while others are better at kinaesthetic, active problem-solving. Thus, one type of support document is not sufficient, we need to provide the information in various forms (notes, detailed outline, live lecture, video recording, platform for consultation), striving to satisfy the needs of as many students as possible.

Besides the method and numerical results of the steps, it is also essential the emphasize their purposes and requirements. It is important for the students to be aware of the purpose and deadline of tasks. Although we are expecting adult students to manage their own study schedule, we still need to support them with their everyday motivation.

It is challenging to break off students’ habits and the good practices in the previous modules. In the case of teaching a module that has a fundamentally different methodology, we need to pay particular attention to informing students.

The purpose of a practice exercise is not the exposition of the numerical solution. Its purpose is the familiarization with and the understanding of the sequence of conscious steps, when choosing between the potential solution methods and paths. Students need to be prepared to be able to do that.

Another area of my research was to determine the development plan regarding the experiences with the use of the quality assurance tools and students' evaluations in practice. The goal is to receive and provide feedback to the participants on the intentions and on the different fields and objectives, and to recognize the complexity of the evaluation process of the educational effectiveness. Besides lexical knowledge, the skills that support its application should be among the evaluation criteria as well. A flexible and well-constructed feedback system is necessary for those involved in the training. For the teachers and researcher colleagues, obtaining the results they need by merging multiple databases is not a viable option. My suggestions are related to the HALVEL system we use at the university currently. However, the replacement of this system with a new a multiphasic feedback analysis system would be a more effective solution.

Beside the general students' evaluation system, it is worth integrating the questions regarding the different modules' characteristics into the questionnaire. The development of questions and question groups that consider the specialities of educational tools and educational coordination methods needs to be enabled.

Preserving anonymity, the connection between the academic record and the evaluation should be traceable (at least on the level of 'passed' or 'failed').

It would support the research evaluation, if we had the opportunity to overview the applied calculation methods and the original data set. This would also make the errors more visible and the data could be used more precisely for the analysis.

Questionnaires completed by students who did not take the task seriously (where all answers are the same) should be sorted out. Through detecting outliers, debugging should be enabled.

For research purposes, the access to the results of the modules that are not taught by the given person who is writing the study should enabled.

Indicators used for different courses, modules and institutes should be made comparable. For example, the time spent on the module should be linked to minimum credit number.

Extracting and analysing the data should be made simpler through the possibility to download the timelines and offering a wider selection of analysing tools.

As a teacher and as a researcher, I profited immensely from the work carried out for my dissertation project, and I hope that my ideas will facilitate to take further steps towards educational development.

HUNGARIAN SCHOOL SYSTEM TITLE – ENGLISH – HUNGARIAN VOCABULARY

- Early childhood education – kora gyerekkori oktatás
- Nursery school – bölcsöde
- Kindergarten - óvoda
- Elementary school - általános iskola
- Vocational school - szakiskola
- Secondary vocational school - szakközépiskola
- Secondary technical school - szakgimnázium
- Secondary general school (4-grades, 6-grades, 8-grades) / gymnasium - gimnázium
- Secondary school leaving exams – leaving exam 'érettségi'
- Vocational qualification – szakképzettség
- Post-secondary non-tertiary education – középiskola utáni, nem egyetemi oktatás
- Tertiary education - felsőoktatás
- College – főiskola
- University – egyetem
- BA (Bachelor of Arts), BSc (Bachelor of Science) – Bologna rendszer - alapképzés
- MA (Master of Arts), MSc (Master of Science) – Bologna rendszer - mester képzés
- PhD (DLA) – Doktori képzés
- Higher courses – felsőfokú szakképzés
- Technical courses – szakmai képzés
- Compulsory education – kötelező oktatás

- **http://www.oecd.org/education/Hungary-Profile.pdf**

FIGURE NOTE:

TABLE NOTE:

SOURCES:

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1. APPENDIX: QUESTIONNAIRES:

Halvel questionnaire 2018/19:

Student1s attitude:

- How many lectures did you attend during the semester??
- How many seminars and exercises did you attend during the semester?
- On average, how many hours a week have you spent preparing, solving homework?
- How much did you study for the exams??
- How much other time have you spent on the course?

The course:

- I tried to actively participate in seminars, to work with the instructor, the task was carried out as much as possible.
- I am aware of why this course is taught.
- The course in the context of useful things on our mind.
- The course and the related interim duties were when they were enjoyable for me.
- It was the amount of curriculum content and learn.
- If I could re-enact this course and choose from the subjects, I would like to take this class.
- My teachers feel the same way about my performance as I do.

The teachers:

- The instructor prepared the lesson
- For me, the lessons were presented in a pleasant and clear way by the instructor.
- I recommend, or adding to the instructor cours is different.
- Overall, I learned a lot from my teacher in the cours.

Preliminary studies (own compilation)

Filling in the questionnaire is voluntary. Its purpose is to collect data on the results and self-assessment of objects on which our subject relies.
Data from the questionnaire will be used for educational development and scientific research, strictly anonymous. The identifier is only used to link to the data of additional questionnaires to be completed during the semester

What grade did you get that course?
1 - not learned; 2 – sufficiling; 3 - medium; 4 - good; 5 - class;

How do you consider your knowledge that course?
1 - not learned; 2 – sufficiling; 3 - medium; 4 - good; 5 - class;

The courses:
Informatics 1;
Basics of Accounting;
Managerial Accounting
Finance of Accounting 1-2;
Accounting Information System 1-2;
Knowledge of Taxation;

Learning style questionnaire (Szitó Imre)

Read the following sentences carefully! Decide which of the five answers is typical of you and put that number in the dotted line! There are no correct or incorrect answers here. Only your own opinion is important.

1 = it's not like me at all..
2 = not typical me.
3 = i can't decide yes or no.
4 = typical me.
5 = very typical of me.

1	Nyugtalanít, ha tanulás közben csend van körülöttem. Silence around me makes me uncalm during studying.
2	Könnyebben meg tudok tanulni egy új dolgot, ha megmutatják, mint ha szóban elmondják. I can learn a new skill easier, when they show me, than when they tell me with words.
3	Jól tudok füzetből tanulni. I learn easily from an exercise book.
4	Látnom kell a megtanulandó szöveget ahhoz, hogy megjegyezzem. I have to see the text, which I have to learn, to memorise it.
5	Könnyebben megértem a tanár magyarázatát, ha egy ábrával vagy táblázattal szemlélteti. I understand the explanation of the teacher easier, if they use a figure or table.
6	Tudni szoktam, hogy mi a logikája az alfejezetek sorrendjének a tananyagban. I usually know the logic of the subsections in the curriculum.
7	Gyakran előfordul, hogy megtalálom egy feladat megoldását, de nem tudom elmondani, hogyan jutottam a megoldásra. It happens often, that I find the solution of an exercise, but I can not explain how I got there.
8	Tanulás közben szeretek járkálni. I like to stroll when I am studying.
9	Élvezem, ha egy tanár olyan kérdéseket tesz fel, amin gondolkodni kell. I enjoy when teachers ask questions, which require thinking.
10	Szeretem, ha párban kapjuk a feladatokat az órán. I like working in pairs on the lessons.
11	Jobban szeretem az olyan feladatokat, ahol mozdulatokat kell megtanulnom. I prefer tasks, where I have to learn moves.
12	Ha látom a megtanulandó szöveget, könnyebben megjegyzem. If I see the text, which I have to learn, I memorise it easier.
13	Könnyebben tanulok meg egy bekezdést a tankönyvből, ha átlátom, hogyan kapcsolódik az előző és a következő bekezdéshez. I memorise a paragraph easier, if I realize how it connects to the paragraph before and after.
14	A tanári magyarázat nem sokat jelent nekem, inkább tankönyvből tanulok. The explanation of the teachers does not mean much to me, I rather learn from the student’s book.

15	Könnyebben megy a tanulás, ha közben mozoghatok. Moving makes learning easier for me.
16	Inkább egyedül szeretek dolgozni. I prefer working on my own.
17	Szeretek problémákon gondolkodni. I like to noodle problems around.
18	Jobban szeretek táncolni, mint tanulni. I prefer dancing to studying.
19	Nagyon hasznos számomra, ha a tanár ábrákat mutat, amikor magyaráz. I find figures and tables shown by the teachers really useful.
20	Gyakran úgy tanulom meg a dolgokat, hogy a tanár magyarázatát jegyzem meg. I often learn things through memorisings the teachers explanation.
21	Jobban megy nekem az olyan feladat, ahol valamilyen mozdulatot kell megtanulnom. I am better at tasks, where I have to learn moves.
22	Hangosan szoktam elolvasni a tananyag szövegét, amikor felkészülök. As I prepare, I usually read the text of the material out loud.
23	Jobban szeretem a tanár magyarázatát meghallgatni, mint ha a könyvből kellene megtanulni az anyagot. I prefer listening to the teachers explanation to learing the material from the book.
24	Teljes csendben tudok csak tanulni. I can only learn in complete silence
25	Ha vannak ábrák, rajzok a könyvben, könnyebb a tanulás. if there are diagrams, drawings in the book, it is easier to learn
26	Könnyen jegyzek meg mozdulatokat. I can easily memorize movements
27	Jól tudok úgy tanulni, ha csak némán olvasva átveszem a leckét. I can learn well by reading in silence
28	Azt jegyzem meg könnyen, amit a tanár elmond. I can easily remember what the teacher says
29	A csoportmunka nekem segít, hogy jobban menjen a tanulás. teamwork helps me to get better at learning
30	Szeretem aláhúzni vagy színessel kiemelni a lényeget a szövegben I like to underline or use color to highlight the essence in the text
31	Gyakran előfordul, hogy megtalálom a matematika példa megoldását, de nem tudom elmagyarázni és bebizonyítani, hogyan jutottam el a megoldáshoz. I often find a solution to mathematics, but I can't explain and prove how I got to the solution.
32	Könnyebben tanulok egy szöveget, ha olvasom, mint ha hallgatom. I learn a text more easily when I read than when I listen
33	Szívesebben tanulok az osztálytársammal vagy a barátommal, mint egyedül. I'd rather study with my classmate or my boyfriend than alone.
34	Fontos számomra, hogy megértsem a tanulnivaló tágabb összefüggéseit. it is important for me to understand the broader context of learning
35	Tanulás közben nagyon zavaró, ha beszélgetnek körülöttem. while learning it is very confusing when they talk around me
36	Általában átlátom a tananyag logikai felépítését. I usually see the logical structure of the curriculum
37	Akkor tanulom meg könnyen a dolgokat, ha bemutatják, hogyan kell csinálni. you can easily learn things by being shown how to do it
38	Szeretem hangosan átismételni a tanulnivaló főbb pontjait. I like to review the main points of learning aloud

39	Jobban tudok tanulni, ha csend van körülöttem. I can learn better when it's quiet around me
40	Jobban szeretem az olyan feladatokat, amin gondolkodni kell, mint azokat, ahol a tanultakat kell alkalmazni. I prefer tasks that need to be thought about rather than tasks that need to be applied
41	Könnyebben tanulok meg valamit, ha hangosan mondom, mint ha csak magamban olvasom. I learn something easier when I say it out loud than when I just read it to myself
42	Sokszor eszembe jut, hogy mi lehet a válasz a tanár kérdésére, de nem tudom megindokolni, miért az a jó válasz. I often wonder what the answer to the teacher's question is, but I can't explain why it is the right answer
43	Dolgozatírásnál sokszor tudom, hogy a válasz a tankönyvben a lapon hol helyezkedik el. when writing a paper, I often know where the answer is in the textbook on the page
44	Egyedül szeretek tanulni. alone I like to learn
45	Könnyebben megtanulom a logikus dolgokat. it's easier for me to learn the logical things.
46	Akkor tanulok könnyen, ha közben szól a rádió, tv vagy a zene. you can learn easily when you're listening to radio, tv or music
47	Jobban megértem a tankönyvben lévő szöveget, ha ábra is van hozzá. I understand the text in the textbook better if there's a diagram
48	Dolgozatírásnál vagy felelésnél szinte látom azt az oldalt, ahol az anyag a tankönyvben vagy füzetben van. when writing a paper or answering, I can almost see the page where the material is in the textbook or booklet
49	Amikor egy matematikapéldát megoldok, szinte minden lépést meg tudok indokolni, hogy miért tettem. when I solve a math example, I can justify almost every step of the way
50	Szeretem, ha a tankönyvben az ábrák, táblázatok színesek. I like to see the textbooks and tables in color.
51	Szívesebben tanulok hosszabb anyagrészeket, ahol látom az összefüggéseket, mint különálló leckéket. I prefer to study longer sections where I see the context rather than separate lessons
52	Felelésnél gyakran szó szerint emlékszem a könyv vagy füzet szövegére. I often remember the text of the book or book verbatim when I answer it
53	Ha tanulok valamit, szeretem tovább gondolni azt when I learn something, I like to think about it further
54	Szeretek jegyzetelni. I like to take notes
55	Szeretek úgy tanulni, hogy rajzot, ábrát készítek közben. I like to learn by drawing and drawing pictures
56	Nem zavar tanulás közben, ha a háttérben megy a tv vagy szól a zene. I don't mind learning if the tv is playing in the background or the music is playing
57	Szeretek másokkal csapatban dolgozni. i like to work in teams with others

Tanulási stílus kérdőív értékelése:

Az **57 kérdést** 9 faktorban - **a skálái ez alapján:**

- **"auditive-active" „auditív-aktív"**: 22 27 (fordított) 38 41 4 állítás
- **"auditive-understanding" „auditív-befogadó":** 14 (fordított) 20 23 28 4 állítás
- **"visual-figure" „vizuális-ábra":** 2 5 19 25 37 47 50 55 8 állítás
- **"visual text" „vizuális-szöveg"**: 3 4 12 30 32 43 48 52 54 9 állítás
- **„kinaesthetic" „Mozgásos"**: 8 11 15 18 21 26 6 állítás
- **"silent „ „Csend":** 1 (fordított) 24 35 39 46 (fordított) 56 (fordított) 6 állítás
- **"group-based tasks" „társas":** 10 16 (fordított) 29 33 44 (fordított) 57 6 állítás
- "**rational processing" „értelmes"**: 6 9 13 17 34 36 40 45 51 53 10 állítás
- **"intuitive" „intuitív"**: 7 31 42 49 (fordított) 4 állítás

Kérdőív: Heti anyag feldolgozás (Saját összeállítás)

Minden héten az azon a héten végzett munka alapján kértem kitölteni az alábbi kérdőívet!

Milyen mértékig találta hasznosnak a feladatmegoldáshoz kapcsolódó eszközök közül?
Az Esemény szöveget?
1 - nem használtam 2 - nem igazán hasznos 3 - mérsékelten hasznos 4 - hasznos 5 – meghatározó hasznosságú

A Bizonylatokat?
1 - nem használtam 2 - nem igazán hasznos 3 - mérsékelten hasznos 4 - hasznos 5 – meghatározó hasznosságú

Az e-heti help-szöveget?
1 - nem használtam 2 - nem igazán hasznos 3 - mérsékelten hasznos 4 - hasznos 5 – meghatározó hasznosságú

A témához kapcsolódó előtanulmány összefoglalót?
1 - nem használtam 2 - nem igazán hasznos 3 - mérsékelten hasznos 4 - hasznos 5 – meghatározó hasznosságú

A korábbi tantárgyak anyagainak áttekintését?
1 - nem használtam 2 - nem igazán hasznos 3 - mérsékelten hasznos 4 - hasznos 5 – meghatározó hasznosságú

A témához kapcsolódó szabályzatokat, alapdokumentumokat (Moodle fő blokk)?
1 - nem használtam 2 - nem igazán hasznos 3 - mérsékelten hasznos 4 - hasznos 5 – meghatározó hasznosságú

Az órán elhangzott magyarázatokat?
1 - nem használtam 2 - nem igazán hasznos 3 - mérsékelten hasznos 4 - hasznos 5 – meghatározó hasznosságú

A hallgatótársaival való konzultációt?

1 - nem használtam 2 - nem igazán hasznos 3 - mérsékelten hasznos 4 - hasznos 5 – meghatározó hasznosságú

Az oktatóval való egyedi (órai vagy azon kívüli) konzultációt?

1 - nem használtam 2 - nem igazán hasznos 3 - mérsékelten hasznos 4 - hasznos 5 – meghatározó hasznosságú

A hatályos jogszabályok áttekintését?

1 - nem használtam 2 - nem igazán hasznos 3 - mérsékelten hasznos 4 - hasznos 5 – meghatározó hasznosságú

Mennyi időt töltött ezen a héten az esettanulmány megoldással?

1 - ezen a héten nem dolgoztam az esettanulmányon

2 - lényegében csak a szeminárium idejét

3 - szeminárium + 10 és 30 perc közötti otthoni

4 - szeminárium + 30 és 60 perc között otthoni

5 - szeminárium + 60 és 120 perc között otthoni

5 - szeminárium + 120 percnél több otthoni

Mi okozott gondot a heti munkában, milyen javaslata van a fejlesztésre vonatkozóan?

Záró kérdőív – kompetenciák: (Saját összeállítás)

Tisztelt Hallgatók!

Köszönettel tartozom az egész féléves - kérdőív kitöltésben - végzett munkájukért!

A válaszaikkal segítik, hogy jobbá tegyük az oktatást. Volt, amit már folyamatosan korrigálni tudtunk és lesz, amit csak a következő évfolyam számára tudunk átalakítani.

Jelentős segítséget nyújtanak személy szerint nekem, hogy a PhD dolgozatom empirikus kutatási részét az önök válaszaira építhessem. A félév során több konferencián hasznosítottam már válaszaikat (szigorúan név nélkül).

Kérem amennyiben idejük engedi, így a félév lezárását követően válaszoljanak még néhány kérdésemre. (Ezért már nem tudok plusz pontokat ajánlani, csak megköszönni tudom.)

A kérdések egy része a teljes kurzus értékelésével kapcsolatos (1-10. kérdés).

A másik része a teljes képzési folyamatuk kimeneti kompetenciáit igyekszik feltérképezni (11-29. kérdés).

A kérdőív kitöltése kb. 10 percüket veszi igénybe.

Közreműködésüket előre is köszönöm!

Mikáczó Éva

Előzetes várakozásaimnak megfelelő volt a tárgy tartalma.

Értékelje a kijelentést az 1 (egyáltalán nem értek egyet) - 5 (teljes mértékig egyetértek) skálán!

Előzetes várakozásaimnál több időt töltöttem a tárgyal.

A tananyag mennyiségében és tartalmában feldolgozható volt számomra.

A tárgy és az évközi feladatok érdekesek voltak számomra.

Az oktató felkészülten tartotta az órát.

Az oktató számomra érthetően, élvezhetően vezette az órákat.

A tárgy keretében hasznos dolgokkal foglalkoztunk.

A tárgy keretében sokat tanultam, tapasztaltam.

A saját teljesítményemet .. -re értékelem.

A következő évfolyamnak szívből ajánlom ezt a tárgyat.

Mennyire érzi magát felkészültnek a következő kompetenciák vonatkozásában?

Értékelje a 1 (egyáltalán nem vagyok felkészült) - 5 (teljesen felkészült vagyok) skálán!

Elméleti ismeretek szintje

Komplex összefüggések ismerte, rendszerben gondolkodás

Módszertani ismeretek (eszközök, programok)

Munkahelyi elvárások ismerete

Probléma megoldási készség (kreativitás)

Döntési képesség, határozottság

Precíz, pontos munkavégzés

Kitartó munkavégzés, terhelhető

Hatékony, jól szervezett, intenzív munkavégzés

Utasítások megértése, követése

Önálló munkavégzés, felelősségvállalás

Együttműködés - hallgatótárssal, kollégával

Külső motiváció - siker

Külső motiváció - kudarc kerülés

Belső motiváltság

Alkalmazkodó képesség, nyitottság, rugalmasság

Mennyire érzi magára jellemzőnek?

Önfejlesztés igénye

Megbízhatóság (határidő, feladatvégzés)

Szervezési készség

Online számvitel tanulási kérdőív – Számvitel alapjai – levizsgázott hallgatók

Kedves Hallgatónk! Tanszékünkön kutatás folyik a Számvitel alapjai tárgy keretében különböző tanulási/tanítási módszertanok hatékonyságáról. Kérjük segítse munkánkat pár kérdés megválaszolásával!

Az ön neme

- Férfi
- Nő

Milyen asszociációi vannak a vezetői számvitel tárggyal kapcsolatban? (így félév végén)

- funkcionális
- informatív
- áttekinthető
- számolós
- adatfeldolgozás
- vezetői döntések
- egyéb:

Kérjük a következő kérdéseket a március 15-ét követő távoktatás keretében folytatott számvitel tanulmányaira vonatkoztatva válaszolja meg:
Kérjük jelölje be, hogy az alábbi online módszertanok közül melyik milyen mértékben segítette a tanulási folyamatát? (1-semennyire/nem használta, 5. sokat segített)

- Videó előadás,
- Előadásanyag ppt-ben,
- Számszaki kidolgozások pdf-ben,
- Számszaki kidolgozások hang-alámondásos ppt-ben,
- Egyéb gyakorló feladatok a példatárban - sarokszámmal ellenőrizhető,
- Heti konzultációs lehetőség a Teams platformon a szeminárium vezetőjével,
- Kahoot tesztek az előadás idősávban,
- Moodle tesztek év közben,
- Beadandó házi feladatok

Mennyire volt várakozásának megfelelő a tapasztalt online tanulási lehetőség?

Mennyire valószínű, hogy eddigi tapasztalatai alapján a későbbiekben szeretne majd számvitellel foglalkozni tanulmányai/munkája során?

Változott-e a tanulási stílusa március 15-e után?

- Igen
- Nem
- Részben
- Egyéb:

Kérjük egy pár szóval jellemezze, hogy milyen előnyöket tapasztalt az online tanulással kapcsolatban?

Kérjük egy pár szóval jellemezze, hogy milyen hátrányokat tapasztalt az online tanulással kapcsolatban?

A hagyományos oktatásban mit fogadna szívesen ezekből a módszerekből?

Kérjük ossza meg velünk építő javaslatait, ötleteit, észrevételeit a vezetői számvitel tárgy online módon történt oktatásával kapcsolatban!

Köszönjük, hogy időt szánt a válaszadásra és ezzel segítette munkánkat!

https://docs.google.com/forms/d/1WMqbBIhEP9sx8MK4M7sTCSHUwbeVQnufMd_YfiRyaE0/edit

Online számvitel tanulási kérdőív – Vezetői számvitelből levizsgázott hallgatók

Kedves Hallgatónk! Tanszékünkön kutatás folyik a Vezetői számvitel tárgy keretében különböző tanulási/tanítási módszertanok hatékonyságáról. Kérjük segítse munkánkat pár kérdés megválaszolásával! *Kötelező

Az ön neme *

- Férfi
- Nő

Milyen képzésen tanul? *

- Nappali képzés Budapest (minden szak)
- Nappali képzés Székesfehérvár (minden szak)
- Levelező képzés PSZ szak
- Levelező képzés GM szak
- Levelező képzés EE/KM szak
- MOJ esti képzés
- MOJ levelező képzés

Milyen asszociációi vannak a vezetői számvitel tárggyal kapcsolatban? (így félév végén) *

- funkcionális
- informatív
- áttekinthető
- számolós
- adatfeldolgozás
- vezetői döntések
- egyéb:

Kérjük a következő kérdéseket a március 15-ét követő távoktatás keretében folytatott számvitel tanulmányaira vonatkoztatva válaszolja meg:
Kérjük jelölje be, hogy az alábbi online módszertanok közül melyik milyen mértékben segítette a tanulási folyamatát? (1-semennyire/nem használta, 5. sokat segített)

Jegyzet *

Előadásanyag pdf-ben *

Számszaki kidolgozások pdf-ben *

Számszaki kidolgozások hang-alámondásos ppt-ben *

Egyéb gyakorló feladatok a példatárban - sarokszámmal ellenőrizhető *

Heti konzultációs lehetőség a Moodle vagy Teams platformon a szeminárium vezetőjével *

Mennyire volt várakozásának megfelelő a tapasztalt online tanulási lehetőség? *

Mennyire valószínű, hogy eddigi tapasztalatai alapján a későbbiekben szeretne majd számvitellel foglalkozni tanulmányai/munkája során? *

Változott-e a tanulási stílusa március 15-e után? *

- Igen
- Nem
- Részben
- Egyéb:

Kérjük egy pár szóval jellemezze, hogy milyen előnyöket tapasztalt az online tanulással kapcsolatban?

Kérjük egy pár szóval jellemezze, hogy milyen hátrányokat tapasztalt az online tanulással kapcsolatban?

A hagyományos oktatásban mit fogadna szívesen ezekből a módszerekből?

Kérjük ossza meg velünk építő javaslatait, ötleteit, észrevételeit a vezetői számvitel tárgy online módon történt oktatásával kapcsolatban!

Köszönjük, hogy időt szánt a válaszadásra és ezzel segítette munkánkat!

2. APPENDIX: STATISZTICS, RESULT

Halvel Pszi2 tárgy 2018/19-évi értékelés - részlet

A szemináriumokon igyekeztem aktívan részt venni, az oktatóval együttműködni, a kapott feladatokat minél jobban elvégezni.

	Értékelő válaszok száma	Nem válaszolt	Nem tudja	1	2	3	4	5	Átlag	Szórás
Dr. Polyák Imre	24	0	1	0	0	1	1	22	4,88	0,44
Dr. Mikáczó Éva Ilona	44	0	0	3	0	0	5	36	4,61	1,03
Oktatók értékelése összességében	68	0	1	3	0	1	6	58	4.71	0,88
Összehasonlító adatok										
Tanszéki tárgyak átlaga	2791	129	76	115	130	410	750	1386	4,13	1,09
Kari tárgyak átlaga	19239	1325	890	618	738	2339	4739	10805	4,27	1,03
Egyetemi tárgyak átlaga	63952	4628	2977	2650	3093	8799	16247	33163	4,16	1,09

Tisztában vagyok azzal, hogy miért tanítják ezt a tantárgyat

	Értékelő válaszok száma	Nem válaszolt	Nem tudja	1	2	3	4	5	Átlag	Szórás
Dr. Polyák Imre	24	0	1	0	1	3	0	20	4,63	0,86
Dr. Mikáczó Éva Ilona	44	0	0	3	1	1	5	34	4,50	1,12
Oktatók értékelése összességében	68	0	1	3	2	4	5	54	4.54	1,04
Összehasonlító adatok										
Tanszéki tárgyak átlaga	2875	87	34	31	68	207	453	2116	4,58	0,81
Kari tárgyak átlaga	20721	426	307	579	740	1814	4113	13475	4,41	0,98
Egyetemi tárgyak átlaga	67613	1361	1040	2342	2839	6944	14459	41029	4,32	1,04

A tárgy keretében hasznos dolgokkal foglalkozunk.

	Értékelő válaszok száma	Nem válaszolt	Nem tudja	1	2	3	4	5	Átlag	Szórás
Dr. Polyák Imre	24	0	1	0	1	3	5	15	4,42	0,86
Dr. Mikáczó Éva Ilona	44	0	0	3	1	2	9	29	4,36	1,13
Oktatók értékelése összességében	68	0	1	3	2	5	14	44	4,38	1,05
Összehasonlító adatok										
Tanszéki tárgyak átlaga	2868	86	42	50	100	307	730	1681	4,36	0,93
Kari tárgyak átlaga	20705	436	313	657	1023	2654	5276	11095	4,21	1,05
Egyetemi tárgyak átlaga	67505	1402	1107	2616	4003	9914	17726	33246	4,11	1,10

A tárgy és a kapcsolódó évközi feladatok (ha voltak) élvezetesek voltak számomra.

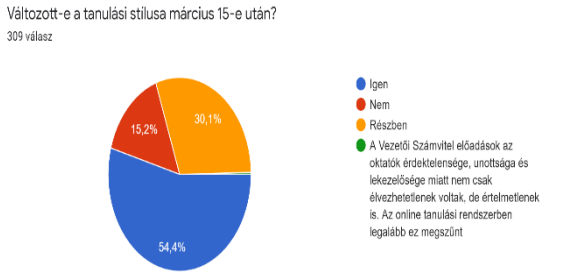
	Értékelő válaszok száma	Nem válaszolt	Nem tudja	1	2	3	4	5	Átlag	Szórás
Dr. Polyák Imre	24	0	1	3	1	4	6	10	3,79	1,35
Dr. Mikáczó Éva Ilona	44	0	0	5	3	8	6	22	3,84	1,40
Oktatók értékelése összességében	68	0	1	8	4	12	12	32	3.82	1,39
Összehasonlító adatok										
Tanszéki tárgyak átlaga	2815	118	63	195	286	686	747	901	3,67	1,22
Kari tárgyak átlaga	20073	755	626	1286	1807	3900	5257	7823	3,82	1,22
Egyetemi tárgyak átlaga	65052	2668	2294	5074	6761	13174	16430	23613	3,72	1,27

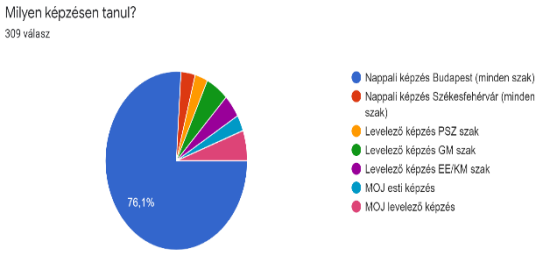
A tananyag mennyiségében és tartalmában megtanulható volt.

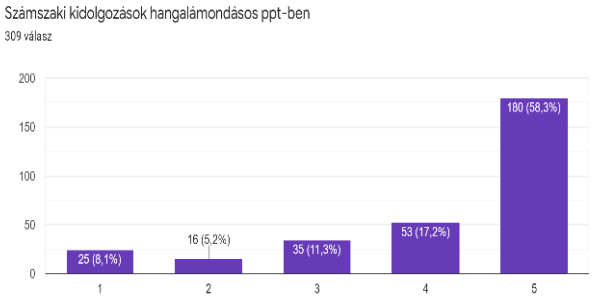
	Értékelő válaszok száma	Nem válaszolt	Nem tudja	1	2	3	4	5	Átlag	Szórás
Dr. Polyák Imre	23	1	1	1	0	5	5	12	4,17	1,05
Dr. Mikáczó Éva Ilona	44	0	0	3	1	5	9	26	4,23	1,17
Oktatók értékelése összességében	67	1	1	4	1	10	14	38	4.21	1,14
Összehasonlító adatok										

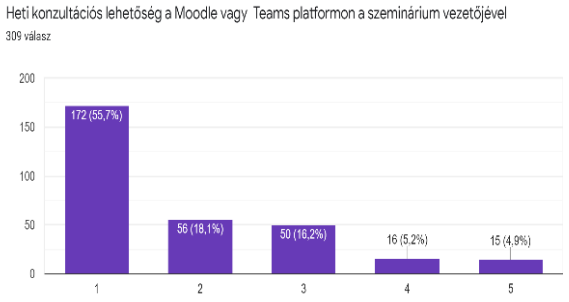
A Vezetői számvitel tárgy távoktatásával kapcsolatos Google Űrlap kiemelt grafikonjai:

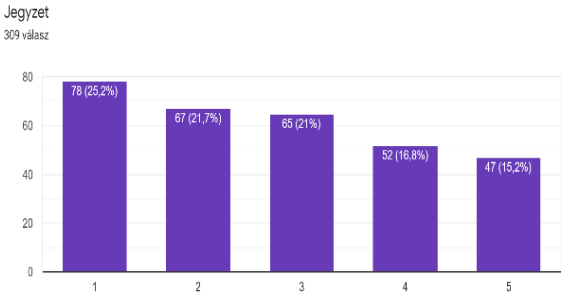
https://docs.google.com/forms/d/1WMqbBIhEP9sx8MK4M7sTCSHUwbeVQnufMd_YfiRyaE0/edit#responses

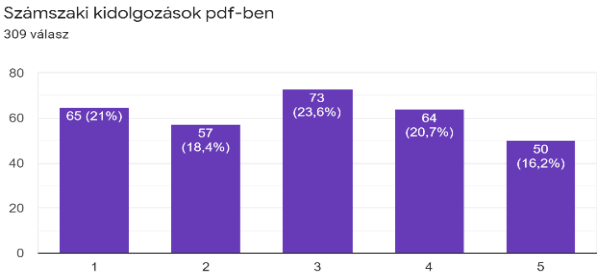












Oktatási anyag minősítés képzésenként – Saját szerkesztés

	szak válaszadók száma	Jegyzet	Előadás-pdf	Kidolgozás pdf	Hangos feladat ppt	Feladat + sarokszám	Heti konzultáció
Teljes	309	2,75	2,68	2,93	4,12	2,89	1,85
Nappali	245	2,71	2,63	2,89	4,14	2,80	1,79
Esti-levelező	64	2,92	2,88	3,05	4,06	3,25	2,09
Nappali képzés Budapest	235	2,72	2,59	2,90	4,14	2,78	1,74
Nappali képzés Székesfehérvár	10	2,30	3,60	2,80	4,20	3,20	3,10
MOJ levelező képzés	17	3,41	3,18	3,00	4,06	3,71	2,53
MOJ esti képzés	9	2,78	3,33	3,67	4,22	3,89	1,89
Levelező képz. EE/KM szak	13	2,46	2,08	2,77	3,38	2,46	1,77
Levelező képzés GM szak	16	2,81	3,19	2,63	4,06	2,75	1,88
Levelező képzés PSZ szak	9	3,00	2,44	3,67	4,89	3,78	2,33

A Vezetői számvitel tárgy távoktatásával kapcsolatos Google Űrlap alapján László Norbert: Tanszéki minőségbiztosítási munkához készített összefoglalójából:

A válaszok eltérése képzésenként:

Segítség	*Nappali*	*Lev.*	*Össz.*	*Eltérés (L-N)*
Számszaki kidolgozások hang-alámondásos ppt-ben	4,14	4,05	4,12	-0,09
Számszaki kidolgozások pdf-ben	2,89	3,02	2,92	0,12
Egyéb gyakorló feladatok a példatárban -sarokszámmal	2,80	3,24	2,89	0,44
Jegyzet	2,71	2,90	2,75	0,20
Előadásanyag pdf-ben	2,63	2,86	2,68	0,22
Heti konzultációs lehetőség a Moodle vagy Teams platformon a szeminárium vezetőjével	1,79	2,06	1,85	0,27

	Nappali		**Levelező**			**MOJ**	
	Bp.	***Szfv.***	***EE+KM***	***GM***	***PSZ***	***esti***	***lev.***
Számszaki kidolgozások hang-alámondásos ppt-ben	0,02	0,08	-0,74	-0,06	0,75	0,10	-0,06
Számszaki kidolgozások pdf-ben	-0,02	-0,12	-0,15	-0,29	0,58	0,75	0,08
Egyéb gyakorló feladatok a pt-ban - sarokszámmal ellenőrizhető	-0,11	0,31	-0,43	-0,14	0,86	1,00	0,82
Jegyzet	-0,02	-0,45	-0,29	0,07	0,13	0,03	0,67
Előadásanyag pdf-ben	-0,09	0,92	-0,60	0,51	-0,43	0,65	0,50
Heti konzultációs lehetőség a Moodle vagy Teams platformon	-0,11	1,25	-0,08	0,03	0,28	0,04	0,68

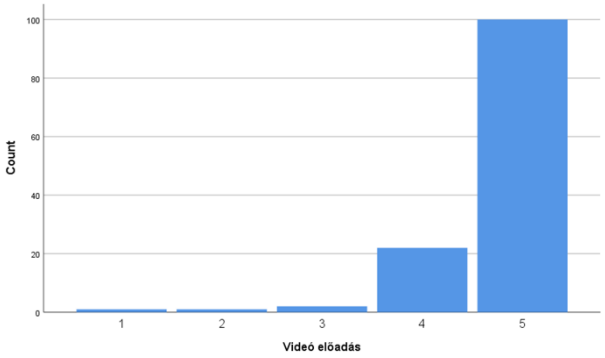
A távoktatás előnyei (szöveges megfogalmazás kulcsszavai):

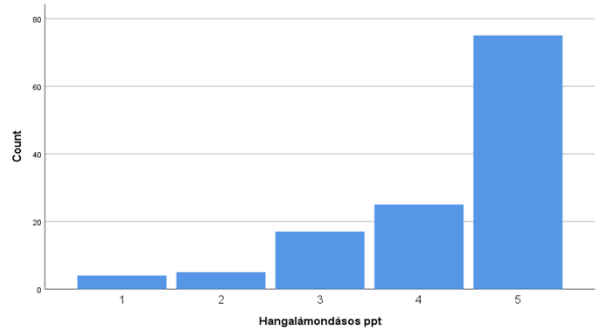
	Nappali	Levelező	Végösszeg
saját időbeosztás	46%	47%	47%
visszanézés	33%	31%	33%
saját tempó	27%	29%	27%
bárhol (idő/ktg. csökk.)	13%	10%	12%
semmi	4%	10%	6%
videó	6%	5%	6%
open-book	2%	0%	2%
próbateszt	1%	3%	1%
több anyag	0%	2%	0%

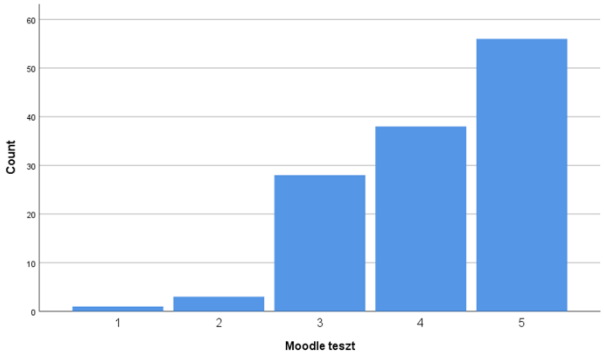
A távoktatás hátrányai (szöveges megfogalmazás kulcsszavai):

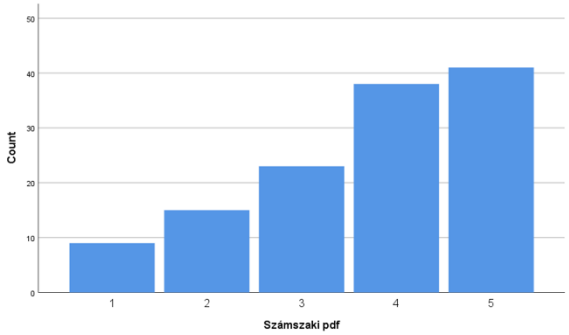
	Nappali	Levelező	Végösszeg
kontakt	44%	42%	43%
vizsga	15%	21%	16%
előadás	17%	7%	15%
motiváció	16%	5%	13%
önállóság	12%	14%	12%
folyamatosság	13%	4%	11%
nehezebb	4%	9%	5%
semmi	3%	12%	5%
videó	2%	0%	1%
visszacsatolás	0%	2%	0%

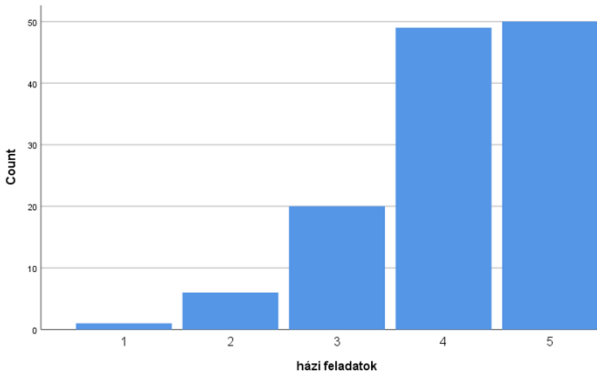
Számvitel alapjai tárgy távoktatásával kapcsolatos Google Űrlap alapján Tarpataki Eleonóra Tanszéki minőségbiztosítási munkához készített összefoglalójából:

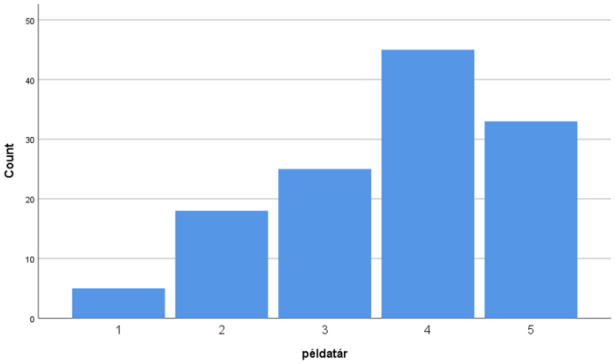


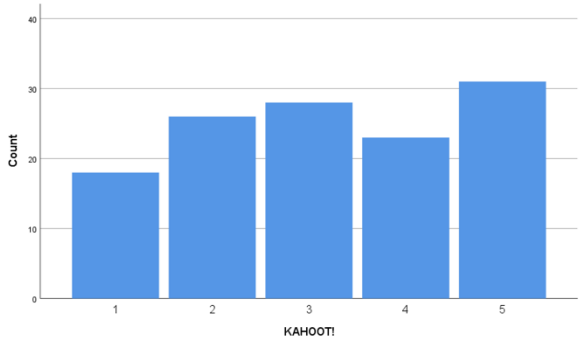


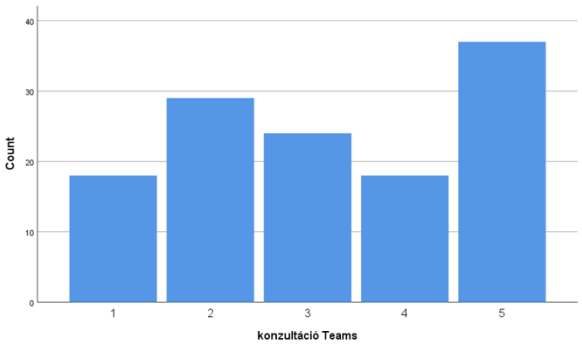




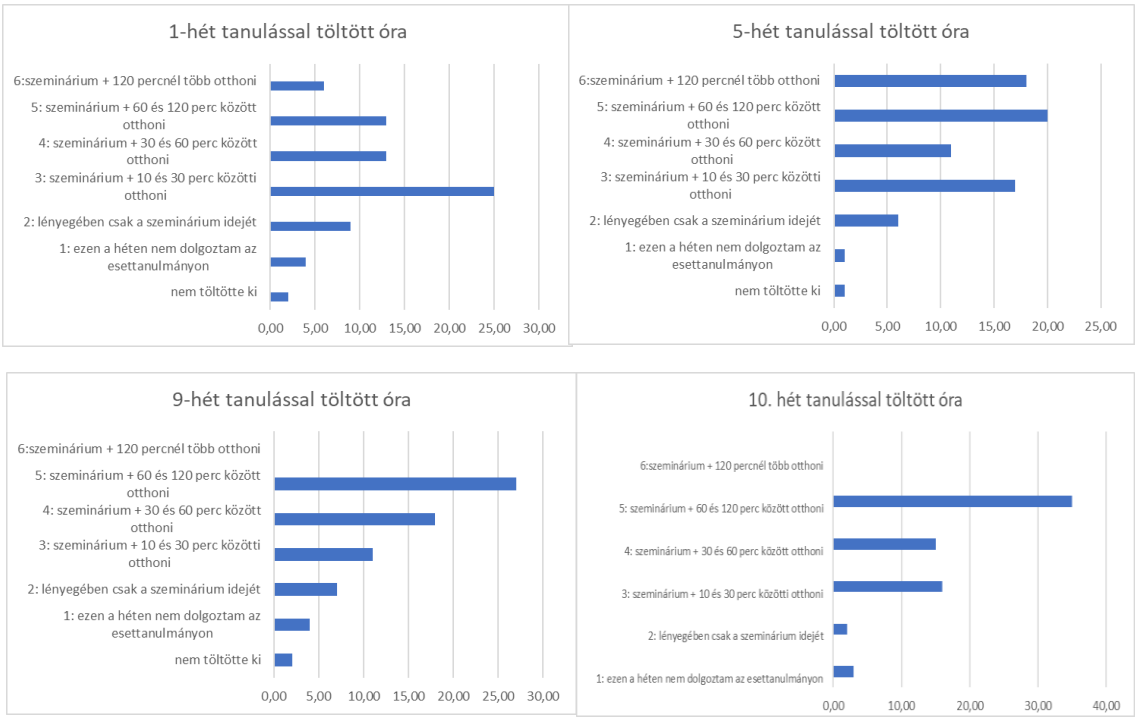








Pszi2- Moodle kérdőív alapján:



Adatok az 1. hipotézis igazolásához: A gyakorlati feldolgozásra épülő, rendszerező tantárgyban való sikeresség az előtanulmányokban szerzett tudás mértékétől és a vele töltött időtől függ.

Bayesian Correlation

Posterior Distribution Characterization for Pairwise Correlations[a]

			pontok teljesítmény %	hallgatók.Idő	össz. előtanulmány
pontok teljesítmény %	Posterior	Mode		,579	,519
		Mean		,569	,508
		Variance		,004	,005
	95% Credible Interval	Lower Bound		,445	,368
		Upper Bound		,685	,645
	N		121	118	107
hallgatók.Idő	Posterior	Mode	,579		,325
		Mean	,569		,316
		Variance	,004		,008
	95% Credible Interval	Lower Bound	,445		,144
		Upper Bound	,685		,485
	N		118	118	104
össz.előtanulmány	Posterior	Mode	,519	,325	
		Mean	,508	,316	
		Variance	,005	,008	
	95% Credible Interval	Lower Bound	,368	,144	
		Upper Bound	,645	,485	
	N		107	104	108

a. The analyses assume reference priors (c = 0).

hallgatók.ldő * pontok teljesítmény %

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4659,927[a]	3312	,000
Likelihood Ratio	755,567	3312	1,000
Linear-by-Linear Association	39,394	1	,000
N of Valid Cases	118		

a. 3431 cells (100,0%) have expected count less than 5. The minimum expected count is ,01.

Symmetric Measures

		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Gamma	,488	,057	8,504	,000
	Spearman Correlation	,630	,068	8,731	,000[c]
Interval by Interval	Pearson's R	,580	,087	7,674	,000[c]
N of Valid Cases		118			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

össz.előtanulmány * pontok teljesítmény %

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2858,400[a]	1890	,000
Likelihood Ratio	629,448	1890	1,000
Linear-by-Linear Association	28,703	1	,000
N of Valid Cases	107		

a. 1984 cells (100,0%) have expected count less than 5. The minimum expected count is ,01.

Symmetric Measures

		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Gamma	,498	,058	8,865	,000
	Spearman Correlation	,640	,071	8,525	,000[c]
Interval by Interval	Pearson's R	,520	,064	6,244	,000[c]
N of Valid Cases		107			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Adatok az 2. hipotézis igazolásához: A tanulási stílus és a tárgy értékelése közötti kapcsolat - korreláció

Correlation between Vectors of Values

	Auditív - aktív	Auditív-befogadó	Vizuális-ábra	Vizuális-szöveg	Mozgás	Csend	Társas	Értelmes	Intuitív	Előzetes várakozásaimnak megfelelő volt a tárgy tartalma.	Előzetes várakozásaimnál több időt töltöttem a tárgyal.	A tananyag mennyiségében és tartalmában feldolgozható volt számomra.	A tárgy és az évközi feladatok érdekesek voltak számomra.	Az oktató felkészülten tartotta az órát.	Az oktató számomra érthetően, élvezhetően vezette az órákat.	A tárgy keretében hasznos dolgokkal foglalkoztunk.	A tárgy keretében sokat tanultam, tapasztaltam.	A saját teljesítményemet .. -re értékelem.	A következő évfolyamnak szívből ajánlom ezt a tárgyat.
Auditív - aktív		***-0,362***	0,566	0,263	0,641	0,249	0,084	0,155	0,075	***-0,472***	0,245	-0,092	-0,123	0,177	0,074	***-0,232***	-0,101	0,322	-0,090
Auditív-befogadó	***-0,362***		-0,083	-0,121	***-0,442***	***-0,334***	0,161	-0,181	0,055	0,373	***-0,275***	0,341	0,321	0,124	-0,040	0,235	0,270	0,069	0,153
Vizuális-ábra	0,566	-0,083		0,511	0,701	0,276	0,076	0,324	-0,008	***-0,440***	-0,148	0,087	0,072	0,122	-0,188	-0,196	-0,101	0,183	-0,149
Vizuális-szöveg	0,263	-0,121	0,511		0,448	0,005	0,019	0,265	0,105	***-0,295***	-0,040	-0,080	-0,091	-0,016	-0,115	***-0,250***	***-0,273***	0,057	-0,118
Mozgás	0,641	***-0,442***	0,701	0,448		0,287	0,066	0,382	-0,063	***-0,518***	0,161	-0,098	-0,131	-0,020	-0,139	***-0,286***	***-0,341***	0,165	-0,138
Csend	0,249	***-0,334***	0,276	0,005	0,287		-0,072	0,201	0,112	-0,084	0,160	-0,090	-0,090	0,146	-0,001	***-0,226***	-0,104	0,169	***-0,216***
Társas	0,084	0,161	0,076	0,019	0,066	-0,072		-0,089	***-0,223***	-0,149	-0,026	-0,015	0,044	0,466	0,293	0,349	0,354	-0,126	0,368
Értelmes	0,155	-0,181	0,324	0,265	0,382	0,201	-0,089		0,065	-0,162	0,030	0,097	0,074	0,052	0,114	-0,138	-0,180	0,222	0,090
Intuitív	0,075	0,055	-0,008	0,105	-0,063	0,112	***-0,223***	0,065		0,341	0,026	***-0,232***	-0,108	0,310	0,238	-0,186	0,141	-0,073	0,203
Záró.z-01	***-0,472***	0,373	***-0,440***	***-0,295***	***-0,518***	-0,084	-0,149	-0,162	0,341		-0,177	0,433	0,338	0,213	0,325	0,362	0,214	0,244	0,399
Záró.z-02	0,245	***-0,275***	-0,148	-0,040	0,161	0,160	-0,026	0,030	0,026	-0,177		-0,063	0,089	-0,156	0,231	0,070	0,120	0,119	0,028
Záró.z-03	-0,092	0,341	0,087	-0,080	-0,098	-0,090	-0,015	0,097	***-0,232***	0,433	-0,063		0,710	0,322	0,474	0,569	0,261	0,629	0,479
Záró.z-04	-0,123	0,321	0,072	-0,091	-0,131	-0,090	0,044	0,074	-0,108	0,338	0,089	0,710		0,462	0,501	***0,749***	0,625	0,430	0,676
Záró.z-05	0,177	0,124	0,122	-0,016	-0,020	0,146	0,466	0,052	0,310	0,213	-0,156	0,322	0,462		0,724	0,541	0,670	0,322	***0,785***
Záró.z-06	0,074	-0,040	-0,188	-0,115	-0,139	-0,001	0,293	0,114	0,238	0,325	0,231	0,474	0,501	0,724		0,713	0,658	0,412	***0,822***
Záró.z-07	***-0,232***	0,235	-0,196	***-0,250***	***-0,286***	***-0,226***	0,349	-0,138	-0,186	0,362	0,070	0,569	***0,749***	0,541	0,713		***0,790***	0,344	***0,810***
Záró.z-08	-0,101	0,270	-0,101	***-0,273***	***-0,341***	-0,104	0,354	-0,180	0,141	0,214	0,120	0,261	0,625	0,670	0,658	***0,790***		0,252	0,729
Záró.z-09	0,322	0,069	0,183	0,057	0,165	0,169	-0,126	0,222	-0,073	0,244	0,119	0,629	0,430	0,322	0,412	0,344	0,252		0,350
Záró.z-10	-0,090	0,153	-0,149	-0,118	-0,138	***-0,216***	0,368	0,090	0,203	0,399	0,028	0,479	0,676	***0,785***	***0,822***	***0,810***	0,729	0,350	

Adatok a 3. 4. hipotézis igazolásához: tanulási stílus és preferált segédanyagok közötti kapcsolat - korreláció

	Correlation between Vectors of Values																		
	Auditív-aktív	Auditív - befogadó	Vizuális-ábra	Vizuális - szöveg	Mozgás	Csend	Társas	Értelmes	Intuitív	Bizonylat	Help	Előtanulmány	Korábbi tárgy	Esemény szöveg	Szabályzatok	Órai magyarázat	Hallgatótárs	Oktatói konzultáció	Jogszabály
Auditív-aktív		0,16	0,266	0,029	0,303	0,271	-0,024	0,143	0,316	***-0,336***	***-0,224***	-0,012	0,016	***-0,341***	-0,085	***-0,289***	***-0,354***	***-0,174***	-0,046
Auditív - befogadó	0,16		0,237	-0,096	-0,06	-0,097	0,101	0,104	0,085	-0,054	0,083	-0,031	0,07	0,078	0,15	-0,029	0,019	***-0,129***	0,06
Vizuális- ábra	0,266	0,237		***0,479***	0,342	0,1	0,209	0,334	0,233	0,024	-0,107	0,22	0,239	0,035	0,197	0,08	-0,03	0,108	0,174
Vizuális - szöveg	0,029	-0,096	***0,479***		0,032	0,027	0,175	0,03	0,29	0,146	0,153	0,374	0,361	0,24	0,239	0,148	0,06	0,188	0,212
Mozgás	0,303	-0,06	0,342	0,032		0,181	0,196	0,192	0,18	***-0,373***	***-0,321***	0,022	-0,031	***-0,274***	***-0,169***	-0,074	-0,097	-0,073	-0,026
Csend	0,271	-0,097	0,1	0,027	0,181		0,106	-0,058	0,198	-0,051	0,005	0,069	0,063	0,005	0	0,046	-0,048	0,152	0,065
Társas	-0,024	0,101	0,209	0,175	0,196	0,106		***-0,194***	0,118	0,123	-0,012	0,221	0,06	0,107	0,107	0,104	0,14	0,129	0,195
Értelmes	0,143	0,104	0,334	0,03	0,192	-0,058	***-0,194***		-0,022	***-0,138***	***-0,278***	0,018	***-0,185***	***-0,181***	0	-0,114	***-0,268***	-0,087	-0,083
Intuitív	0,316	0,085	0,233	0,29	0,18	0,198	0,118	-0,022		0,089	-0,016	0,344	0,298	0,163	0,304	0,019	-0,1	0,117	0,273
Bizonylat	***-0,336***	-0,054	0,024	0,146	***-0,373***	-0,051	0,123	***-0,138***	0,089		0,426	0,145	0,196	***0,73***	0,293	***0,642***	***0,46***	0,436	0,158
Help	***-0,224***	0,083	-0,107	0,153	***-0,321***	0,005	-0,012	***-0,278***	-0,016	0,426		0,247	0,367	***0,48***	0,302	***0,562***	0,355	0,365	0,244
Előtanulmány	-0,012	-0,031	0,22	0,374	0,022	0,069	0,221	0,018	0,344	0,145	0,247		***0,818***	0,321	***0,731***	0,197	0,064	0,276	***0,767***
Korábbi tárgy	0,016	0,07	0,239	0,361	-0,031	0,063	0,06	***-0,185***	0,298	0,196	0,367	***0,818***		0,397	***0,688***	0,318	0,168	0,319	***0,749***
Esemény szöveg	***-0,341***	0,078	0,035	0,24	***-0,274***	0,005	0,107	***-0,181***	0,163	***0,73***	***0,48***	0,321	0,397		0,425	***0,619***	***0,467***	0,399	0,328
Szabályzatok	-0,085	0,15	0,197	0,239	***-0,169***	0	0,107	0	0,304	0,293	0,302	***0,731***	***0,688***	0,425		0,303	0,153	0,332	***0,778***
Órai magyarázat	***-0,289***	-0,029	0,08	0,148	-0,074	0,046	0,104	-0,114	0,019	***0,642***	***0,562***	0,197	0,318	***0,619***	0,303		***0,579***	***0,638***	0,292
Hallgatótárs	***-0,354***	0,019	-0,03	0,06	-0,097	-0,048	0,14	***-0,268***	-0,1	***0,46***	0,355	0,064	0,168	***0,467***	0,153	***0,579***		***0,541***	0,186
Oktatói konzultáció	***-0,174***	***-0,129***	0,108	0,188	-0,073	0,152	0,129	-0,087	0,117	0,436	0,365	0,276	0,319	0,399	0,332	***0,638***	***0,541***		0,434
Jogszabály	-0,046	0,06	0,174	0,212	-0,026	0,065	0,195	-0,083	0,273	0,158	0,244	***0,767***	***0,749***	0,328	***0,778***	0,292	0,186	0,434	
This is a similarity matrix																			

Adatok az 5. hipotézis igazolásához: A tárgyban elért eredmény (teljesítmény%) és a hallgatói vélemény záró kérdőívben megfogalmazott kérdéseinek kapcsolata.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Mennyiben felel meg a tartalmi várakozásnak * pontok teljesítmény %	39	32,2%	82	67,8%	121	100,0%
Mennyiben felel meg az időbeli várakozásnak * pontok teljesítmény %	39	32,2%	82	67,8%	121	100,0%
Feldolgozható volt az anyagmennyiség * pontok teljesítmény %	39	32,2%	82	67,8%	121	100,0%
Érdekesek voltak a feladatok * pontok teljesítmény %	39	32,2%	82	67,8%	121	100,0%
Az oktató felkészült * pontok teljesítmény %	39	32,2%	82	67,8%	121	100,0%
Az oktató érdekesen tartotta * pontok teljesítmény %	39	32,2%	82	67,8%	121	100,0%
A tárgy hasznos * pontok teljesítmény %	39	32,2%	82	67,8%	121	100,0%
Sokat tanultam * pontok teljesítmény %	38	31,4%	83	68,6%	121	100,0%
Saját teljesítményemet. * pontok teljesítmény %	39	32,2%	82	67,8%	121	100,0%
Ajánlanám a következő évfolyamnak * pontok teljesítmény %	39	32,2%	82	67,8%	121	100,0%

Mennyiben felel meg a tartalmi várakozásnak * pontok teljesítmény %

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	156,000[a]	96	0,000
Likelihood Ratio	98,466	96	0,411
Linear-by-Linear Association	1,323	1	0,250
N of Valid Cases	39		

a. 125 cells (100,0%) have expected count less than 5. The minimum expected count is ,03.

Symmetric Measures

		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Gamma	0,213	0,113	1,805	0,071
	Spearman Correlation	0,219	0,130	1,365	,181[c]
Interval by Interval	Pearson's R	0,187	0,087	1,155	,255[c]
N of Valid Cases		39			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Mennyiben felel meg az időbeli várakozásnak * pontok teljesítmény %

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	117,000[a]	72	0,001
Likelihood Ratio	75,449	72	0,368
Linear-by-Linear Association	0,765	1	0,382
N of Valid Cases	39		
a. 99 cells (99,0%) have expected count less than 5. The minimum expected count is ,03.			

Symmetric Measures					
		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Gamma	0,295	0,152	1,971	0,049
	Spearman Correlation	0,298	0,139	1,901	,065[c]
Interval by Interval	Pearson's R	0,142	0,125	0,872	,389[c]
N of Valid Cases		39			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Feldolgozható volt az anyagmennyiség * pontok teljesítmény %

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	117,000[a]	72	0,001
Likelihood Ratio	90,241	72	0,072
Linear-by-Linear Association	9,747	1	0,002
N of Valid Cases	39		
a. 100 cells (100,0%) have expected count less than 5. The minimum expected count is ,03.			

Symmetric Measures					
		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Gamma	0,467	0,116	3,851	0,000
	Spearman Correlation	0,515	0,118	3,652	,001[c]
Interval by Interval	Pearson's R	0,506	0,085	3,573	,001[c]
N of Valid Cases		39			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Érdekesek voltak a feladatok * pontok teljesítmény %

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	113,471[a]	72	0,001
Likelihood Ratio	91,736	72	0,058
Linear-by-Linear Association	0,862	1	0,353
N of Valid Cases	39		
a. 100 cells (100,0%) have expected count less than 5. The minimum expected count is ,10.			

Symmetric Measures					
		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Gamma	0,183	0,114	1,545	0,122

	Spearman Correlation	0,217	0,134	1,352	,185[c]
Interval by Interval	Pearson's R	0,151	0,091	0,926	,360[c]
N of Valid Cases		39			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Az oktató felkészült * pontok teljesítmény %

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	78,000[a]	48	0,004
Likelihood Ratio	66,392	48	0,040
Linear-by-Linear Association	1,993	1	0,158
N of Valid Cases	39		
a. 75 cells (100,0%) have expected count less than 5. The minimum expected count is ,05.			

Symmetric Measures					
		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Gamma	0,015	0,188	0,078	0,938
	Spearman Correlation	0,007	0,173	0,045	,964[c]
Interval by Interval	Pearson's R	0,229	0,221	1,431	,161[c]
N of Valid Cases		39			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Az oktató érdekesen tartotta * pontok teljesítmény %

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	152,518[a]	96	0,000
Likelihood Ratio	95,049	96	0,508

Linear-by-Linear Association	2,798	1	0,094
N of Valid Cases	39		
a. 125 cells (100,0%) have expected count less than 5. The minimum expected count is ,03.			

Symmetric Measures					
		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Gamma	0,070	0,156	0,448	0,654
	Spearman Correlation	0,059	0,168	0,361	,720[c]
Interval by Interval	Pearson's R	0,271	0,251	1,715	,095[c]
N of Valid Cases		39			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

A tárgy hasznos * pontok teljesítmény %

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	111,704[a]	72	0,002
Likelihood Ratio	66,368	72	0,665
Linear-by-Linear Association	1,113	1	0,291
N of Valid Cases	39		
a. 99 cells (99,0%) have expected count less than 5. The minimum expected count is ,03.			

Symmetric Measures					
		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Gamma	0,267	0,147	1,824	0,068
	Spearman Correlation	0,267	0,136	1,688	,100[c]
Interval by Interval	Pearson's R	0,171	0,088	1,057	,297[c]
N of Valid Cases		39			
a. Not assuming the null hypothesis.					

b. Using the asymptotic standard error assuming the null hypothesis.
c. Based on normal approximation.

Sokat tanultam * pontok teljesítmény %

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	110,728[a]	69	0,001
Likelihood Ratio	81,172	69	0,150
Linear-by-Linear Association	0,057	1	0,811
N of Valid Cases	38		
a. 96 cells (100,0%) have expected count less than 5. The minimum expected count is ,03.			

Symmetric Measures					
		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Gamma	-0,072	0,167	-0,434	0,664
	Spearman Correlation	-0,085	0,179	-0,510	,613[c]
Interval by Interval	Pearson's R	0,039	0,164	0,236	,814[c]
N of Valid Cases		38			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Saját teljesítményemet. * pontok teljesítmény %

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	78,000[a]	48	0,004
Likelihood Ratio	59,318	48	0,127
Linear-by-Linear Association	22,751	1	0,000
N of Valid Cases	39		
a. 75 cells (100,0%) have expected count less than 5. The minimum expected count is ,03.			

Symmetric Measures					
		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Gamma	0,802	0,110	5,766	0,000
	Spearman Correlation	0,685	0,100	5,721	,000[c]
Interval by Interval	Pearson's R	0,774	0,083	7,430	,000[c]
N of Valid Cases		39			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

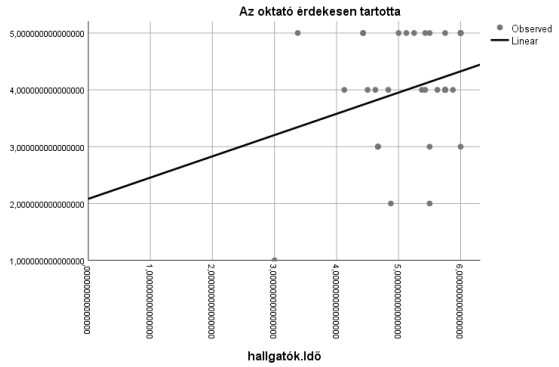
Ajánlanám a következő évfolyamnak * pontok teljesítmény %

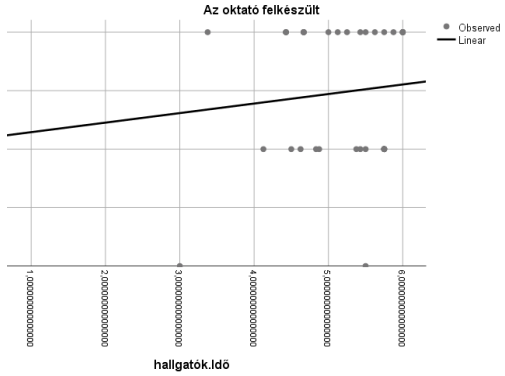
Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	152,192[a]	96	0,000
Likelihood Ratio	95,116	96	0,506
Linear-by-Linear Association	3,705	1	0,054
N of Valid Cases	39		
a. 125 cells (100,0%) have expected count less than 5. The minimum expected count is ,03.			

Symmetric Measures					
		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Gamma	0,289	0,156	1,810	0,070
	Spearman Correlation	0,291	0,166	1,850	,072[c]
Interval by Interval	Pearson's R	0,312	0,172	1,999	,053[c]
N of Valid Cases		39			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Adatok a 6. hipotézis igazolásához: A hallgató bevonódás – tárggyal töltött idő és az oktató értékelésének kapcsolata

A kapcsolatot a gyakoriság ábrázolásával:





Korreláció elemzés eredményei:

Directional Measures

			Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Nominal by Nominal	Lambda	Symmetric	,396	,086	4,075	,000
		Az oktató felkészült Dependent	,778	,117	3,618	,000
		hallgatók.Idő Dependent	,167	,081	1,983	,047
	Goodman and Kruskal tau	Az oktató felkészült Dependent	,773	,073		,010[c]
		hallgatók.Idő Dependent	,122	,035		,000[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on chi-square approximation

Directional Measures

			Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Nominal by Nominal	Lambda	Symmetric	,509	,080	4,904	,000
		Az oktató érdekesen tartotta Dependent	,783	,086	5,782	,000
		hallgatók.Idő Dependent	,300	,092	3,013	,003
	Goodman and Kruskal tau	Az oktató érdekesen tartotta Dependent	,758	,066		,001[c]
		hallgatók.Idő Dependent	,222	,050		,000[c]

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on chi-square approximation