The Future Professionals

This project has been founded with support from the European Commission under the Erasmus+ Programme
Strategic Partnerships for higher education
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Summary of research conducted within the project

Within the project we planned two types of research:

- Qualitative primary research carried out in the form of individual in-depth interviews with experts who specialise in the fields of study indicated in the project. The research was conducted in the period of November 2021 - February 2022.
- Primary quantitative research planned within the project as questionnaire surveys on a sample of students of selected fields of study and attendees of the Adult Education Centre (in Finland). The research was conducted in the period of October - December 2021.

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1 Background information

The main objective of the qualitative research was to obtain information on the demand for competences necessary to perform the professions which the fields of study selected in the project potentially prepare candidates for. The collected data will be used to develop a tool for remote competence assessment of students of the selected fields of study.

The research was addressed to 2 target groups:

1. Employees of higher/vocational education sector – people responsible for a given field of study, cooperating with the economic environment and responsible for defining educational results.
2. Practitioners - people in managerial positions, responsible for hiring employees, assessing the level of employees' competences and planning employee development.

The selected fields of study:

Economic analytics

Management

Tourism

Automotive

Preliminary assumptions: N=40 people

The research was conducted with the use of a specially prepared interview scenario in English and translated into the national languages of the project partners.

The quantitative research has two objectives. The first one is students' awareness of desirable competences and the self-assessment of their level. The second one concerns gaining information on the experience of distance learning. The results of this research are supposed to help to develop solutions improving the quality of distance learning. The group of survey participants consisted of students of the previously indicated fields of study from Poland, Hungary and Greece, as well as those attending the Adult Education Centre in Finland.

Preliminary assumptions: N=600 respondents

The survey was carried out using the CAWI method, with specially prepared questionnaire forms and interviews (10 minutes each). The questionnaire form was prepared in English and then translated into the national languages of the project partners. It is worth nothing that the questionnaire form used for the Finnish students differed slightly from the questionnaire form used for those attending university.

2 Qualitative research

The summary of the conducted qualitative research is presented in Table 1.

Table 1 The number of interviews conducted with experts in the area of selected fields of study

Field of study/ country	Poland	Hungary	Greece	Finland	**Total**
Economic analytics	8 (4/4)	0	0	0	**8 (4/4)**
Management	3 (3/0)	0	6 (4/2)	0	**9 (7/2)**
Tourism	3 (1/2)	10 (5/5)	4 (2/2)	5 (2/3)	**22 (10/12)**
Automotive	0	0	0	6 (1/5)	**6 (1/5)**
Total	**14 (8/6)**	**10 (5/5)**	**10 (6/4)**	**11 (3/8)**	**45 (22/23)**

Field of study: Economic analytics

The most common professions/positions in which graduates are employed:

- Analysts of all kinds (Financial Analyst, Banking Analyst, Systems Analyst, Marketing Data Analyst)
- Data Scientist
- Public administration: taxpayer analysis, fraud detection
- Own business

There is a high market demand for occupations/positions for which Economic Analytics educates students for. A review of available job offers shows that the demand for EA graduates is going to increase. Regardless of the type or the size of the company, we deal with electronic records which contain more and more information about the company that needs to be analysed and based on the results of the analysis it is necessary to develop e.g. incentive or remuneration systems. The analysis of data shifts strongly from economic sciences towards technical issues (e.g. database mechanisms, programming). The job positions of the future will be related to programming and managing large databases, which means that we might witness “dehumanisation of analytics”. It is important to be able to show a broader context (trade-off), that is, to be able to look at data and its interpretation in a wider context, and to be able to see correlations between phenomena and scientific disciplines. Data analytics moves towards narrow technical methods, which is difficult to reconcile with the general knowledge provided by the interpretive context for the results. Graduates must be aware of the need for further education and training as interdisciplinarity – the ability to combine and use many different skills – is going to play an important role in the future.

Modification of the curriculum - based on ongoing monitoring, e.g. introducing Python, SQL database processing, machine learning etc. No assessment of soft skills.

In the future - more emphasis on technical/IT issues - data analysis using different technologies, tools. There will be an increased demand for the ability to "cooperate" with artificial intelligence in data processing and with programmers who will build artificial intelligence competencies, and to use the data obtained. Data visualisation, reporting and the knowledge of statistical software. Increasing importance of data interpretation. Very strong influence of technology on the desirable competences, especially in terms of searching for information, finding new sources of information, Big Data, ability to combine IT skills with knowledge of a specific industry.

Practitioners - graduates lack accuracy in what they do and they are not particularly open to challenges. They also lack public speaking skills, they are not able to prepare an interesting presentation from a project, and they do not know how to present their skills to a potential employer in a proper way.

The impact of the pandemic - reduced mobility requirements, introduction of remote work (rather permanently).

Field of study: Management

The most common professions/positions in which graduates are employed:

- Management positions (HR, logistics, marketing, training)
- Administrative positions
- IT positions (business analysts, IT analysts)
- Positions connected with the development of soft skills (organisational psychology, people management, multiculturalism)

The occupational barometer shows a decline in demand for economists, while demand for specialists in more narrow fields is increasing.

In the future - less demand for administrative positions, but more emphasis on process automation, specialist positions (business analysts with broad competencies), **green economy managers,** CSR, **diversity management**, design thinking, IT (broadly defined) - Big Data Analyst (?!). Greece - demand for Agrofood, health and innovation. Strong emphasis on **technology literacy**, ability to adapt to change. Ability to communicate remotely, critical thinking and emphasis on practical skills.

Greece – main challenges: four main development challenges for the professions of the future:

- lifelong learning
- the use of ICT and digitisation of procedures and processes.
- adapting to the climate change and sustainable development.
- diverse challenges depending on the profession.

The impact of the pandemic – the ability to organise one's individual work and work in a team while working remotely/in a hybrid mode, the development of digital skills (e.g. the use of communicators), maintaining work-life balance, the need to make work more flexible, the ability to adapt to different conditions and resistance to stress. An ambiguous attitude towards the durability of the observed changes.

The field of management is a general subject, and all universities in Greece offer almost the same curriculum in this major. This means that the difference between graduates lies in their

personalities and additional skills, competences and qualities, and motivation to succeed. This probably applies to the remaining countries as well.

Field of study: Tourism

The most common professions/positions in which graduates are employed:

- Middle management level in companies operating in the tourism sector – a specialist
- Customer service specialists (including logistics)
- Hotels, restaurants, travel agencies, non-tourism activities
- Receptionists, tour operators
- Marketing specialists
- Own business

Generally: a very high demand – customer service specialists, event organisation specialists, etc. The Covid-19 pandemic was not conducive to hiring new employees in the tourism industry. Not necessarily a master's degree - a bachelor's degree is probably enough. Post-pandemic boom. High employee turnover. There may be differences in job titles, but generally candidates that are sought should have various skills. Their work is often fragmented.

Poor practical but good theoretical preparation. Lack of knowledge of company culture. Feeling surprised that one has to work at weekends and the necessity to learn humility in the workplace. Finland - not enough candidates, they are susceptible to seasonality of the industry. Digitisation is proceeding so fast that teachers cannot keep up with the changes and need further training. Young people do not understand how difficult it is to recruit staff and how much it takes to train an employee to work at a normal level. It would be nice if the level of commitment could be increased. Entrepreneurship is necessary. In this industry, employees work with their customers face to face and they need to be able to read their thoughts or desires.

In the future – job positions combining tourism with other industries. ICT literacy, searching for information and moving in the virtual world. A specialist for building company's position on the Internet. Ability to make decisions independently, multi-tasking. Front office, marketing, management, statistics and analytics. Hospitality is still the most important sector. Risks include automation and uncertainty of travel. High digital competences required. Flexibility, resilience to stress and risks. Tourism is not very sensitive to changes in the environment, logical thinking, understanding of information or multi-tasking. An audio-guide will not replace a human being. High demand for coordinators. Flexibility, the knowledge of the market, e-tourism marketing, e-commerce and e-procurement. Sustainability, market observation, keeping up with trends, anticipating them, green skills, promotion of experiential learning. Multitasking even more strongly emphasised. It is more important to learn to find information than to remember it.

Greece – most important professions connected with tourism management will not change in the next 10 years. The only change that may occur is in the way the tourism business will offer its services through the use of digital tools and applications, and therefore the services provided should be characterised as more technology-intensive.

Increasing opportunities - soft skills, language skills, communication skills, teamwork, adaptability, cultural differences, creativity, resilience to stress, openness to training, empathy and humility. New teaching methods.

The pandemic - coping with stress, **dealing with fear experienced by visitors**, digital skills, tolerance, adaptation and flexibility. New needs have emerged - the requirement for online remote employment skills and the ability to carry out all conventional procedures digitally. These new conditions have created the possibility of providing services in an alternative way, that is, digitally. This situation has created new standardised processes that all employees have to learn and follow. A lot has been invested in digital equipment/ training/ development of tools and applications, and it is expected that the changes that took place will stay with us. **The pandemic has increased the importance of responsible tourism** and should be included in the research. Safety instructions and how people perceive the situation.

Academic authorities do not respond to the proposals for changes taking into account the needs of the labour market (e.g. extending the internship and acquiring practical skills), which is why many graduates took up jobs below their qualifications or gave up working in this sector in favour of a better paid job offered in another industry.

It is easier to develop a new postgraduate programme than to change the whole curriculum of, for example, an undergraduate course.

Field of study: Automotive

The most common professions/positions in which graduates are employed:

- car mechanics
- spare parts salesmen
- car painters
- tinsmiths
- heavy vehicle mechanics

Key challenges – multiple skills, digitalisation, electric cars, alternative fuels and power, hydrogen and gas, both mechanical and soft skills are needed. The ability to learn and motivation to develop. Diagnostics and customer service.

The current curriculum teaches only basic skills. In the future, there will be a higher demand for testers and mechanics knowledgeable about new technologies.

General remarks:

Participation in research - high level experts from the academic environment and practitioners.

Assessment of soft skills - usually poor, some special …., exams, but nobody really knows exactly what works and how.

Further training - yes, mainly through EU funded projects. Case studies, summer courses, the combination of theory and practice.

Practitioners cooperate with academic institutions - yes, but probably on an ongoing basis, without a change strategy.

Monitoring the demand for professions - yes, but in a very limited manner, if any.

A different approach to the knowledge of technical or technological solutions of graduates presented by experts from various fields. Data analysis methods and modern technologies are rather the domain of economics than management.

3 Quantitative research

A total of 769 people took part in the survey. The results by country and field of study are presented in Table 2.

Table 1 The number of respondents participating in the survey in the area of selected fields of study

Field of study/ country	Poland	Hungary	Greece	Finland	**Total**
Economic analytics	58	47	16	1	**122**
Management	153	39	72	0	**264**
Tourism	1	81	16	0	**98**
Automotive	0	0	0	26	**26**
Total	126	64	2	67	**259**
Economic analytics	**338**	**231**	**106**	**94**	**769**

The number of respondents studying in each partner country is presented in Figure 1 and those studying the different fields of study - in Figure 2. In addition to the four fields of study distinguished in the project, a large number of graduates also chose the "Other" option. A detailed analysis showed that these were mostly courses similar to Management. For example, in Poland a large group of respondents studied *Management and Production Engineering*, that is, a field of study generically related to management, but dedicated to manufacturing companies, especially in the chemical and food industry.

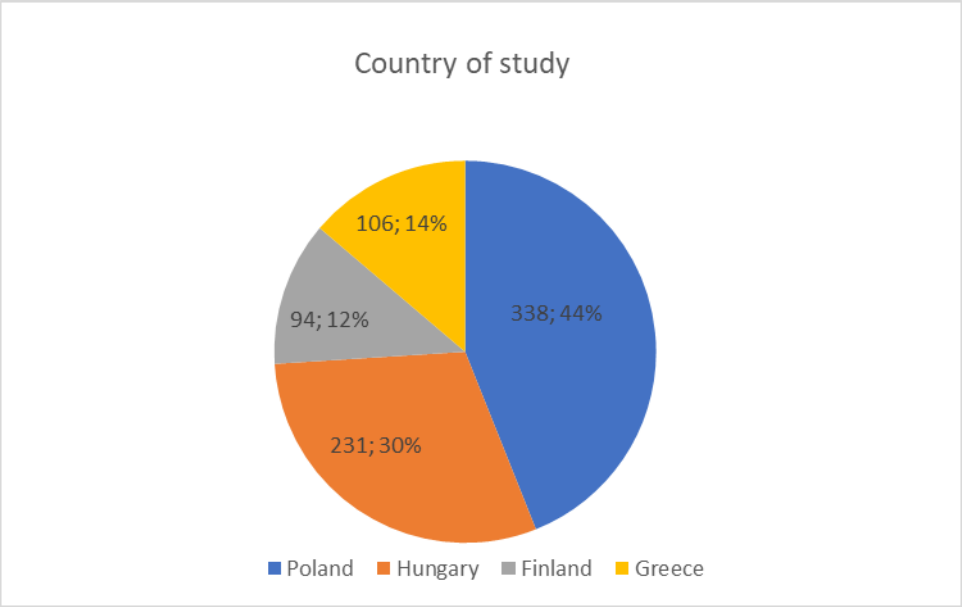


Figure 1 Respondents participating in the survey by country of study

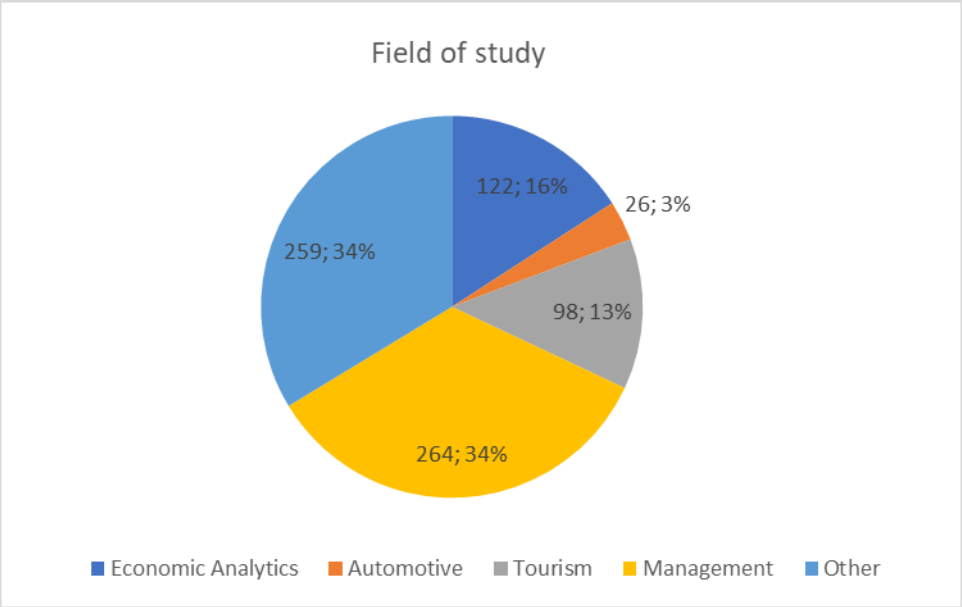


Figure 2 Respondents participating in the survey and their fields of study

Among the respondents, 675 people (88%) were the students of different fields of study and 94 people (12%) attended the Adult Education Centre in Kouvola (Finland). Figures 3 and 4 present the remaining metric characteristics of the respondents participating in the quantitative research.

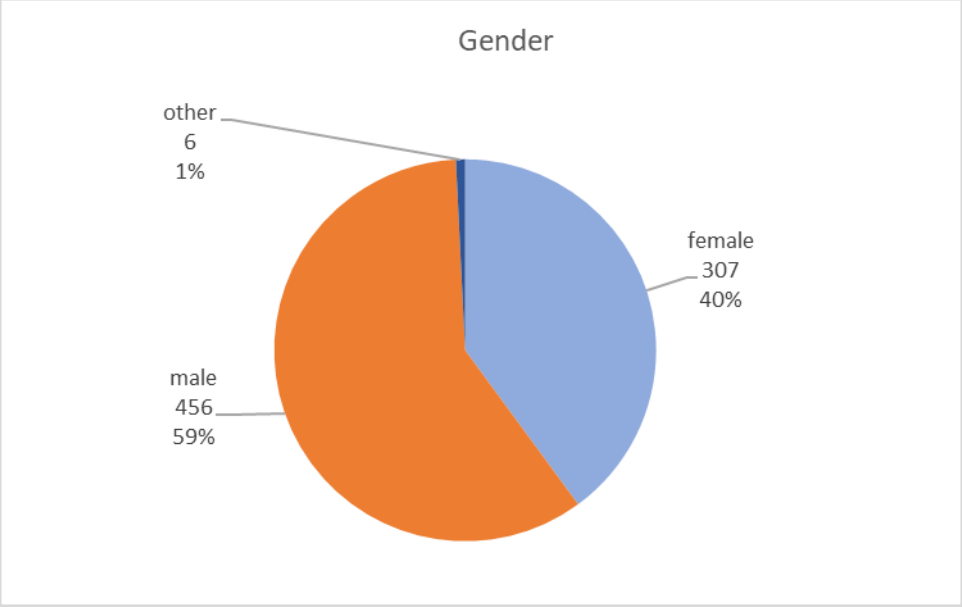


Figure 3 Respondents participating in the research by gender

The male respondents constituted 59% of research participants, whereas the female ones - 40%. Six people (1% of respondents) ticked the "Other" option.

Figure 4 presents information on the degree and year of studies of research participants. Interestingly, there was a predominance of first-year students who accounted for up to 95% of the research participants. As for the attendees of the Adult Education Centre, 70% were first-year students, 20% second-year and 10% third-year. Among the respondents

participating in the research there were more people doing a full-time course (70% of students doing a full-time course and 96% of students attending the Adult Education Centre).

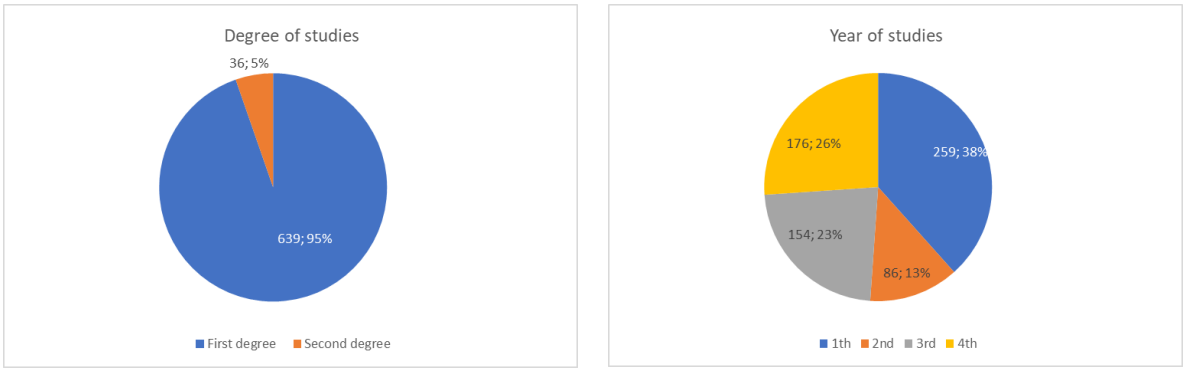


Figure 4 Students participating in the research - by degree and year of studies

In the content-related part, the questionnaire covered several areas - the importance of different types of competences and self-assessment when preparing for entering the labour market, as well as the evaluation of the period of distance learning forced by the Covid-19 pandemic. Later in the report, synthetic results are presented.

3.1 Competences

First, the respondents were asked to assess the importance of the 11 types of competences for the employment of graduates of a given field of study, and next - to assess the level of these competences in themselves.

Question 1. In your opinion, how important are the following competences for the employment of a graduate of your field of study? Grade on a scale from „1" (Not important at all) to „5" (Very important)

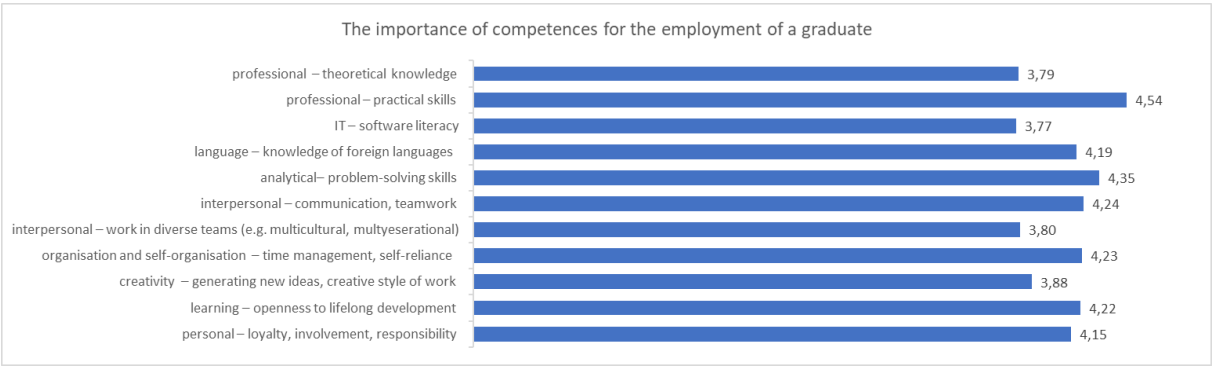


Figure 5 Importance of competences when employing graduates

The respondents assessed all the listed competences as important, with the average evaluation ranging from 3,77 for IT software literacy to 4,54 for professional practical skills. It is also worth noting that high evaluations were also assigned to soft skills such as self-organisation (4,23), openness to lifelong development (4,22) or personal skills related to loyalty, commitment and responsibility (4,15).

When answering the second question, the respondents were asked to assess their own level of these competences.

Question 2. How do you assess your level of the following competences? Grade on a scale from „1" (Insufficient) to „5" (Fully sufficient)

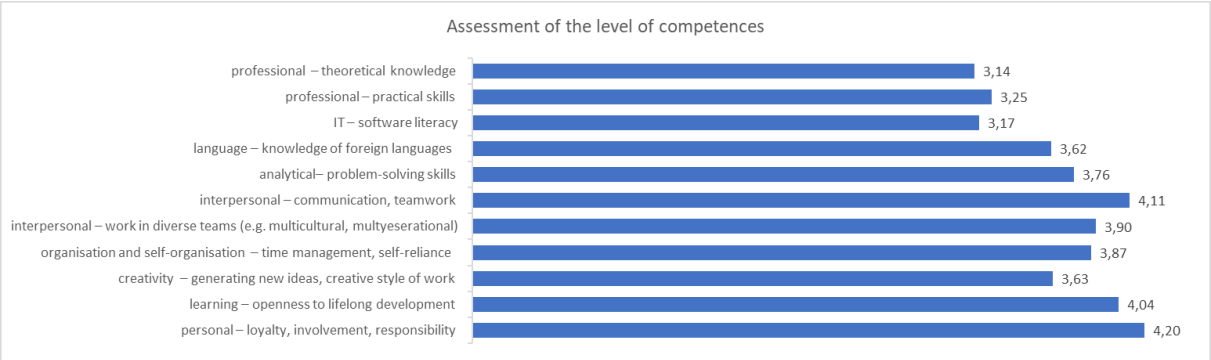


Figure 6 Self-assessment of the level of competences performed by the respondents

The mean evaluations of the self-assessed level of competences are usually lower than those of their importance. This applies mainly to practical vocational skills (3,25 with an importance level of 4,54), whereas selected soft skills appeared to be exceptions because their self-assessment is similar to the level of their importance obtained in Question 1. For example, "communication and teamwork" – importance 4,24 and self-assessment 4,11, whereas "personal competence" – importance 4,15 and self-assessment 4,20. However, it is worth pointing out that these aggregate results are at odds with the employers' perceptions of generation "Z" graduates, especially when it comes to their loyalty, commitment and responsibility towards employers.

A detailed comparison of the different types of competences and the self-assessment of their level among the respondents is as follows:

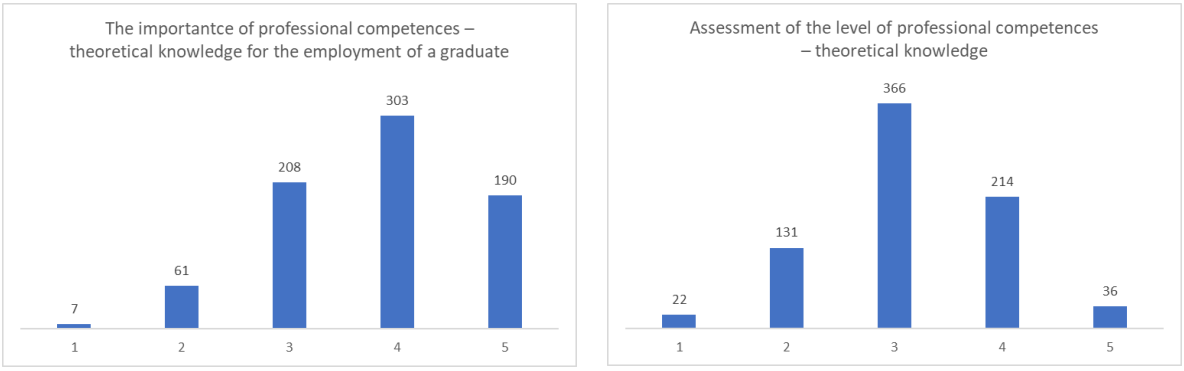


Figure 7 Importance and self-assessment - professional competences - theoretical knowledge

Theoretical knowledge was one of the areas of competence assessed as the least important for employment (3,79); a similar result was obtained in the case of self-assessment (3,14). As regards the importance of this competence, the most frequently selected category was 4 (39% of respondents), while for the self-assessment it was 3 (48%). The Pearson's Chi-squared tests showed significant differences between women's and men's perception of this competence (the Pearson's Chi-squared test 19,4; α = 0,001), proving that the female respondents statistically more often attribute higher importance to this competence than male ones. There was also a statistically significant relationship between the self-assessment of the level of this competence and gender (the Pearson's Chi-squared 14,5; α = 0,006) – the female respondents assess their level of this competence better than men.

Statistically significant differences were also found in the perception and self-assessment of this competence by students studying in different countries (perception – the Pearson's Chi-squared test 141,8; α= 0,000; self-assessment – the Pearson's Chi-squared test 33,0 α= 0,001). Detailed results are presented in Table 3.

Table 2 Perception and self-assessment of professional competences in specific countries - theoretical knowledge

Perception		Country				Total
		Finland	Greece	Poland	Hungary	
1_1	1		1,0%	1,5%	0,4%	0,9%
	2		1,0%	16,6%	1,7%	8,0%
	3	24,5%	18,1%	37,0%	17,8%	27,1%
	4	47,9%	42,9%	34,9%	40,9%	39,4%
	5	27,7%	37,1%	10,1%	39,1%	24,6%
Total		100,0%	100,0%	100,0%	100,0%	100,0%
Self-assessment		Country				Total
		Finland	Greece	Poland	Hungary	
2_1	1	3,2%	2,9%	3,6%	1,7%	2,9%
	2	13,8%	24,8%	17,5%	13,9%	16,9%
	3	39,4%	31,4%	51,5%	53,0%	47,7%
	4	37,2%	30,5%	25,1%	26,5%	27,8%
	5	6,4%	10,5%	2,4%	4,8%	4,7%
Total		100,0%	100,0%	100,0%	100,0%	100,0%

Statistically significant differences for the perception and self-assessment of this competence were also observed for the type of studies (perception - the Pearson's Chi-squared test 20,6; α= 0,008; self-assessment – the Pearson's Chi-squared test 28,9 α= 0,000). In both cases, this competence was evaluated higher by the students of second-degree studies rather than those of first-degree. No statistically significant differences were found in the perception of this competence by full-time and part-time students. However, such differences appeared in the case of this characteristic and the self-assessment of the level of competence (the Pearson's Chi-squared test 20,3; α= 0.000) – part-time students evaluated the level of their theoretical knowledge in a more positive manner than full-time ones. The field of study did not cause any statistically significant differences in the case of answers regarding this area of competence.

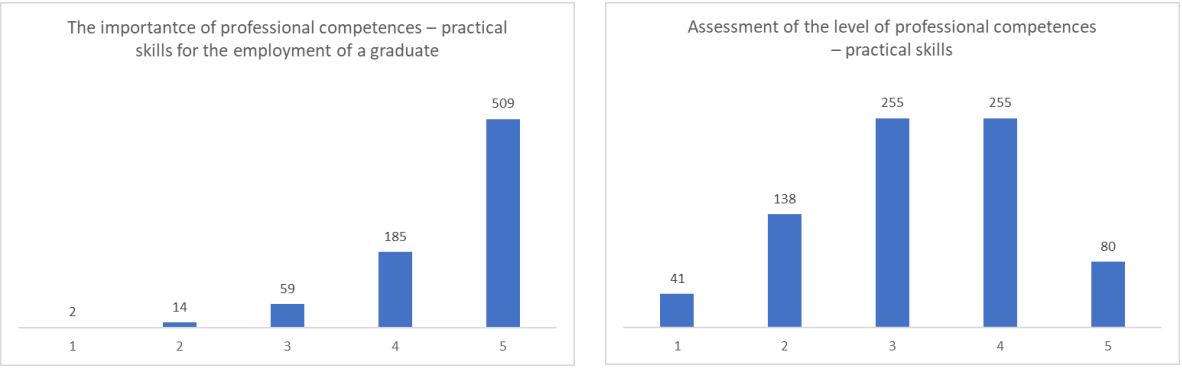


Figure 8 Importance and self-assessment - professional competences – practical skills

Practical skills are the area in which we noticed the greatest differences between the importance for employment and the self-assessment of the level of this competence (4,54 and 3,25, respectively). The dominant value for perceived importance was 5 (66%), whereas for self-assessment the highest response rate was observed for 3 and 4 (33% of respondents' answers for each value). Statistically significant differences were observed in this competence area in relation to gender (perception – the Pearson's Chi-squared test 28,2; α= 0,000; self-assessment – the Pearson's Chi-squared test 12,0 α= 0,017). In both cases, this competence was given higher evaluations by female employees. Statistically significant differences were also observed in the case of students studying in different countries (perception – the Pearson's Chi-squared test 34,3; α = 0,001; self-assessment – the Pearson's Chi-squared test 43,7 α = 0,000). Details are presented in Table 4.

Table 3 Perception and self-assessment of professional competences in specific countries - practical skills

Perception		Country				Total
		Finland	Greece	Poland	Hungary	
1_2	1		1,0%		0,4%	0,3%
	2	1,1%	1,0%	3,3%	0,4%	1,8%
	3	5,3%	5,7%	10,9%	4,8%	7,7%
	4	16,0%	24,8%	28,7%	20,0%	24,0%
	5	77,7%	67,6%	57,1%	74,3%	66,2%
Total		100,0%	100,0%	100,0%	100,0%	100,0%
Self-assessment		Country				Total
		Finland	Greece	Poland	Hungary	
2_2	1	1,1%	10,5%	5,3%	4,8%	5,3%
	2	10,6%	21,0%	19,5%	17,0%	17,9%
	3	28,7%	20,0%	38,5%	33,5%	33,2%
	4	46,8%	28,6%	30,5%	33,5%	33,1%
	5	12,8%	20,0%	6,2%	11,3%	10,4%
Total		100,0%	100,0%	100,0%	100,0%	100,0%

As far as the perception of practical skills is concerned, no statistically significant differences were found for the degree or type of studies. However, they did appear for the self-assessment (degree of studies - the Pearson's Chi-squared test 51,8; α = 0,000) – second-degree students assessed their practical skills significantly better than first-degree students, and the type of studies (the Pearson's Chi-squared test 20,3; α = 0,000) - part-time students evaluated their skills significantly better than full-time ones. No statistically significant differences were found for the field of study.

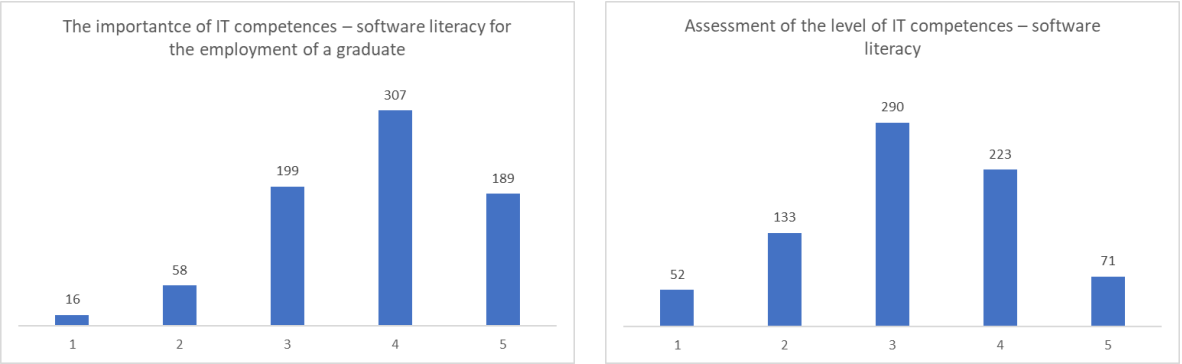


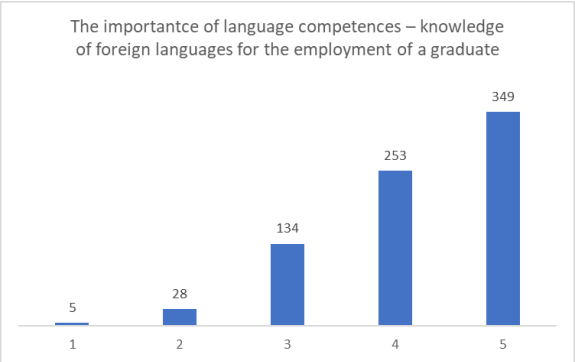
Figure 9 Importance and self-assessment – IT competences – software literacy

Figure 9 presents the results for IT competences in the case of lack of software literacy. This is one of the competences with the lowest mean values - for perception it obtained the value of 3,77 (a dominant value of 4), whereas for self-assessment - 3.17 (a dominant value of 3). When it comes to gender, no statistically significant differences were found for this competence area. However, they did appear for specific countries where the respondents' study (perception – the Pearson's Chi-squared test 28,0; α = 0,006; self-assessment - the Pearson's Chi-squared test 51,3 α= 0, 000). Details are presented in Table 5.

Table 4 Perception and self-assessment of IT competences in specific countries - software literacy

Perception		Country				Total
		Finland	Greece	Poland	Hungary	
1_3	1	1,1%	2,9%	1,8%	2,6%	2,1%
	2	7,4%	5,7%	7,1%	9,1%	7,6%
	3	35,1%	15,2%	24,6%	28,7%	25,8%
	4	31,9%	36,2%	42,0%	41,7%	39,9%
	5	24,5%	40,0%	24,6%	17,8%	24,6%
Total		100,0%	100,0%	100,0%	100,0%	100,0%
Self-assessment		Country				Total
		Finland	Greece	Poland	Hungary	
2_3	1	2,1%	10,5%	6,5%	7,0%	6,6%
	2	10,6%	8,6%	21,9%	17,4%	17,3%
	3	29,8%	33,3%	42,9%	35,7%	37,8%
	4	45,7%	28,6%	23,4%	30,4%	28,9%
	5	11,7%	19,0%	5,3%	9,6%	9,3%
Total		100,0%	100,0%	100,0%	100,0%	100,0%

Statistically significant differences were also observed in relation to the degree of studies (perception – the Pearson's Chi-squared test 33.5; α = 0,000; self-assessment - the Pearson's Chi-squared test 38,3 α = 0,000). However, no significant differences were observed in relation to the type or field of study.



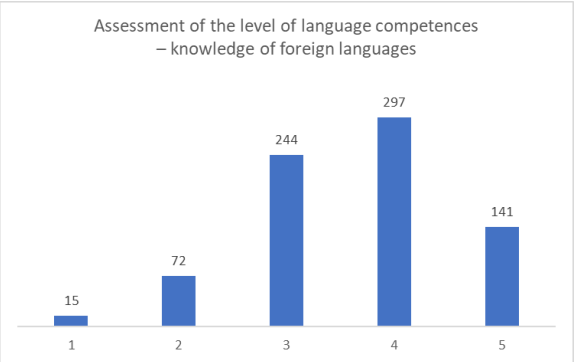


Figure 10 Importance and self-assessment – language competences – knowledge of foreign languages

Figure 10 presents the answers concerning language competences. When it comes to perception, this competence obtained high results (mean 4,19, a dominant value of 5 - 45% of respondents). In the self-assessment of its level, there results were poorer (mean 3,62, a dominant value of 4 - 39% of respondents). We did not notice any significant differences in relation to gender. As far as the country of study is concerned, significant differences were observed only for perception (the Pearson's Chi-squared test 53,5 α= 0,000). Details are presented in Table 6. Also in the case of perception did we notice statistically significant differences for the degree of studies (the Pearson's Chi-squared test 54,0 α= 0,000). As far as the type of studies is concerned, statistically significant differences were observed for the level of self-assessment (the Pearson's Chi-squared test 20,0 α= 0,000). For the field of study, statistically significant differences were observed for perceived importance (the Pearson's Chi-squared test 77,8 α= 0,000).

Table 5 Perception of language competences in specific countries and fields of study - foreign language skills

Perception		Country				Total
		Finland	Greece	Poland	Hungary	
1_4	1		1,9%	0,6%	0,4%	0,7%
	2	8,5%	4,8%	3,0%	2,2%	3,7%
	3	36,2%	14,3%	15,1%	14,3%	17,3%
	4	35,1%	35,2%	34,9%	28,3%	33,0%
	5	20,2%	43,8%	46,4%	54,8%	45,4%
Total		100,0%	100,0%	100,0%	100,0%	100,0%

Perception		Field of study					Total
		Economic analytics	Automotive	Other	Tourism	Management	
1_4	1	2,5%			1,0%	0,4%	0,7%
	2	3,3%		6,6%	1,0%	2,3%	3,6%
	3	20,5%	30,8%	21,2%	6,1%	15,2%	17,4%
	4	29,5%	42,3%	35,1%	13,3%	38,6%	32,9%
	5	44,3%	26,9%	37,1%	78,6%	43,6%	45,4%
Total		100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

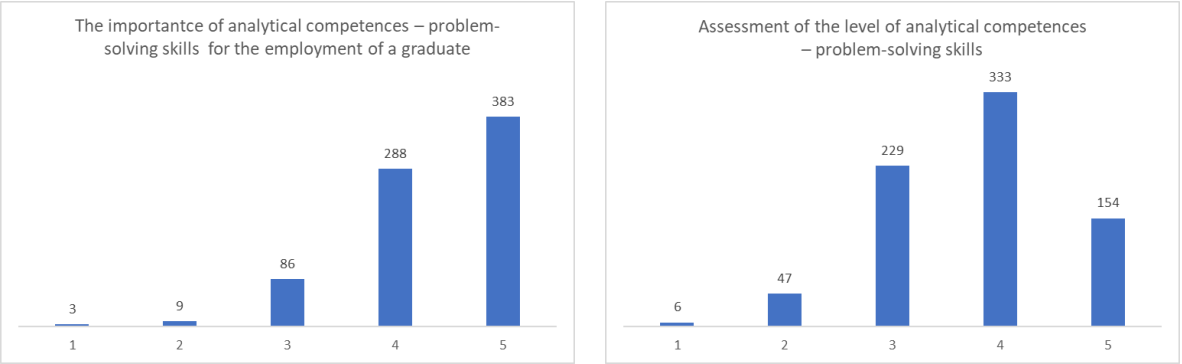
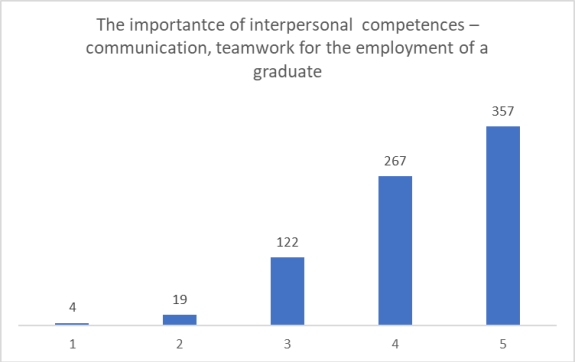


Figure 11 Importance and self-assessment – analytical competences – problem-solving skills

Figure 11 shows the results for analytical competences - problem solving skills. As in the case of language skills, this area obtained high evaluations in terms of importance for employment (mean 4,35; a dominant value of 5) but much lower in terms of the self-assessed level (mean 3,76; a dominant value of 4). As far as gender is concerned, we did not observe any significant differences, but we found some concerning the country where one studies (perception – the Pearson's Chi-squared test 36,8; α= 0,000; self-assessment – the Pearson's Chi-squared test 36,0 α= 0,000). Details are presented in Table 7. As for the degree of studies, we noticed statistically significant differences for the self-assessment of the level of competence – students of second-degree studies assessed their analytical competence in this area significantly better. In the case of the perception of importance, we did not observe statistically significant differences for the type of studies, but we did for the field of study (the Pearson's Chi-squared test 36,6 α= 0,002, by far the highest values for economic analytics). We noted significant differences for the self-assessment of the competency level in the case of the type of studies (the Pearson's Chi-squared test 12,5; α= 0,014, with higher evaluations given by part-time students).

Table 6 Perception and self-assessment of analytical competences in specific countries - problem solving skills

Perception		Country				Total
		Finland	Greece	Poland	Hungary	
1_5	1		1,9%		0,4%	0,4%
	2	1,1%	1,9%	1,5%	0,4%	1,2%
	3	16,0%	12,4%	11,2%	8,7%	11,2%
	4	50,0%	43,8%	37,9%	28,7%	37,4%
	5	33,0%	40,0%	49,4%	61,7%	49,8%
Total		100,0%	100,0%	100,0%	100,0%	100,0%
Self-assessment		Country				Total
		Finland	Greece	Poland	Hungary	
2_5	1	1,1%	2,9%		0,9%	0,8%
	2	6,4%	9,5%	6,8%	3,5%	6,1%
	3	41,5%	34,3%	29,3%	23,5%	29,7%
	4	38,3%	37,1%	46,4%	43,9%	43,4%
	5	12,8%	16,2%	17,5%	28,3%	19,9%
Total		100,0%	100,0%	100,0%	100,0%	100,0%



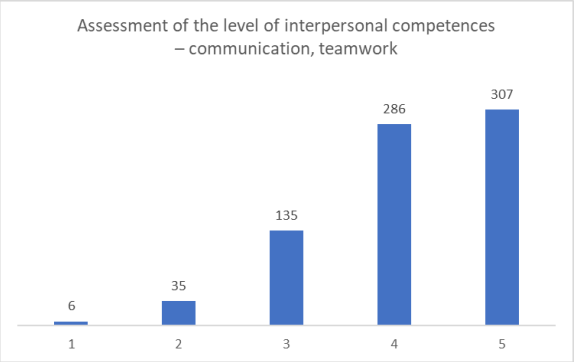


Figure 12 Importance and self-assessment – interpersonal competences – communication, teamwork

Figure 12 shows the answers obtained for interpersonal competences in the area of communication and teamwork. This is one of the few areas of competence where the perception of importance and the self-assessment of level were close to each other (means of 4,24 and 4,11 respectively; dominant values of 5 in both cases). In the case of gender, significant differences were only found for self-assessment (the Pearson's Chi-squared test 21,9; α = 0,000) – female respondents better evaluated their competences in this area. As far as the country of study is concerned, statistically significant differences were found for the perceived importance of competence (the Pearson's Chi-squared test 51,4; α = 0,000). Details are presented in Table 8. When it comes to the degree of studies, we observed significant differences for self-assessment (the Pearson's Chi-squared test 19,2; α = 0,014) – the students of second-degree studies evaluated their competences in this area significantly better. We did not notice any significant differences for the type of studies. As far as the field of study is concerned, we observed differences for the perceived importance of competences (the Pearson's Chi-squared test 37,5; α = 0,002), with the highest values for tourism.

Table 7 Perception of interpersonal competences by country – communication and teamwork

Perception		Country				Total
		Finland	Greece	Poland	Hungary	
1_6	1		1,0%		1,3%	0,5%
	2	1,1%	4,8%	3,6%	0,4%	2,5%
	3	22,3%	7,6%	19,5%	11,7%	15,9%
	4	36,2%	28,6%	40,5%	28,3%	34,7%
	5	40,4%	58,1%	36,4%	58,3%	46,4%
Total		100,0%	100,0%	100,0%	100,0%	100,0%

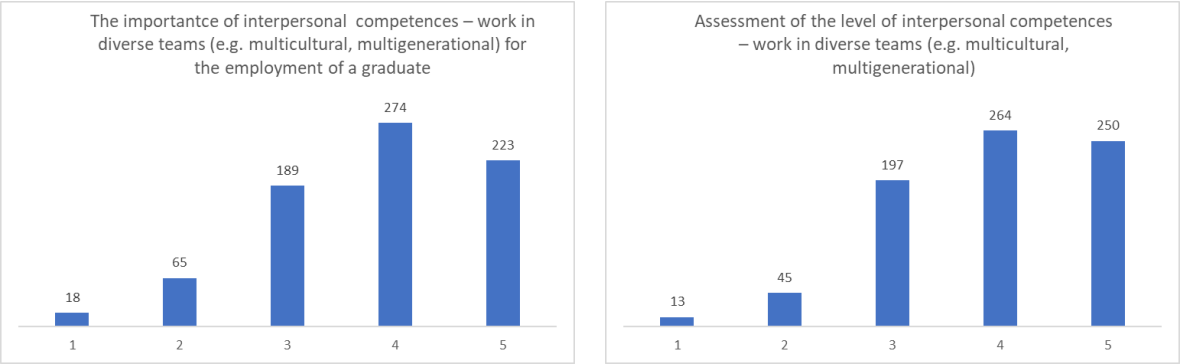


Figure 13 Importance and self-assessment – interpersonal competences – work in diverse teams

Figure 13 shows the results obtained for interpersonal competences in the area of working in a diverse team. As with the previous area of interpersonal competence, the perception of importance and self-assessment were similar (means of 3,80 and 3,90, respectively; a dominant value of 4 in both cases 4). We noticed statistically significant differences in the case of gender for both perception and self-assessment (perception – the Pearson's Chi-squared test 23,9; α = 0,000; self-assessment the Pearson's Chi-squared test 20,5; α = 0,000). In both cases, female respondents gave higher evaluations to this competence. We did not observe any statistically significant differences by the country of study, the degree of studies, the type of studies or the field.

Figure 14 shows the answers obtained for competences in the area of organisation and self-organisation. This area obtained high evaluations in terms of importance for employment (mean 4,23; a dominant value of 4) but slightly worse in the case of self-assessment (mean 3,87; a dominant value of 4). We found statistically significant differences for gender in the case of perceived importance (the Pearson's Chi-squared test 12,4; α = 0,015) and self-assessment (the Pearson's Chi-squared test 12,6; = 0,014). In both cases, higher evaluations were given by female respondents. When it comes to the country of study, statistically significant differences were found for self-assessment (the Pearson's Chi-squared test 36,2; α = 0,000). Detailed results are presented in Table 9. As in the case of degree and type of studies, statistically significant differences were observed only for the self-assessed level (the degree of studies - the Pearson's Chi-squared test 28,7; α = 0,000, the type of studies- the Pearson's Chi-square 22.1; α = 0.000). Significantly higher evaluations were given by second-degree and full-time students. No significant differences were found for the field of study.

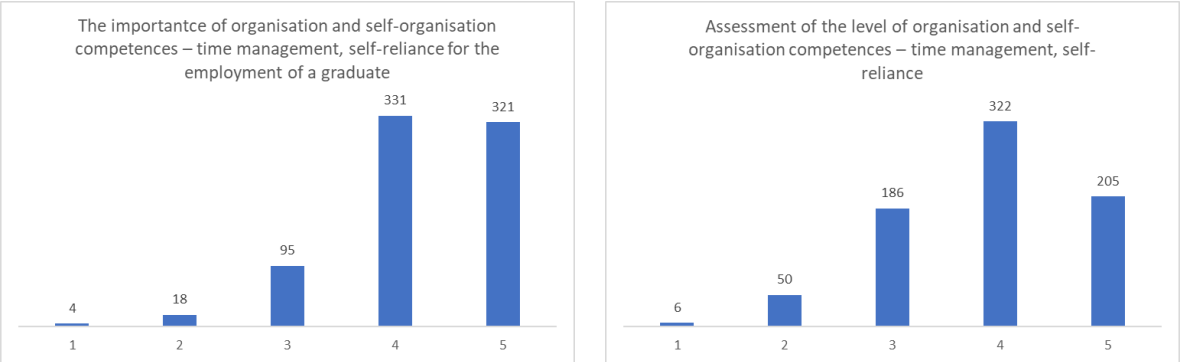
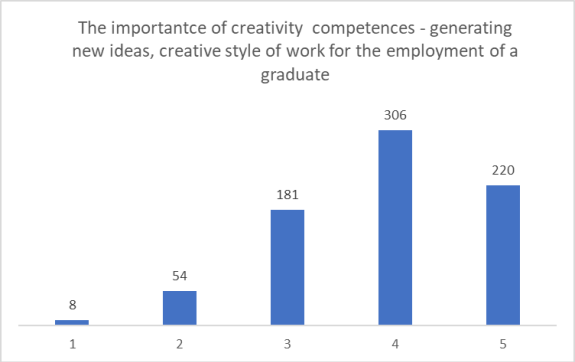


Figure 14 Importance and self-assessment – organisation and self-organisation competences – time management, self-reliance

Table 8 Self-assessment of the level of competence in organisation and self-organisation by country

Self-assessment		Country				Total
		Finland	Greece	Poland	Hungary	
2_8	1		1,0%		2,2%	0,8%
	2	8,5%	10,5%	5,3%	5,7%	6,5%
	3	33,0%	25,7%	19,8%	26,1%	24,1%
	4	45,7%	41,0%	40,5%	43,0%	42,0%
	5	12,8%	21,9%	34,3%	23,0%	26,6%
Total		100,0%	100,0%	100,0%	100,0%	100,0%



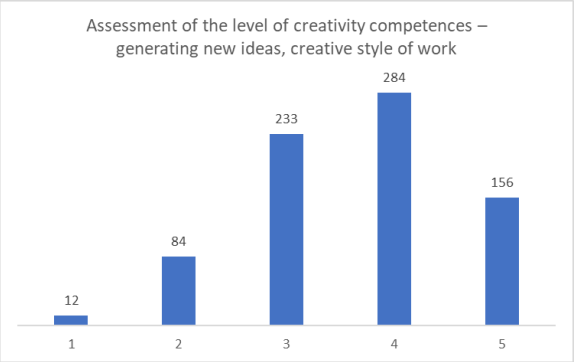


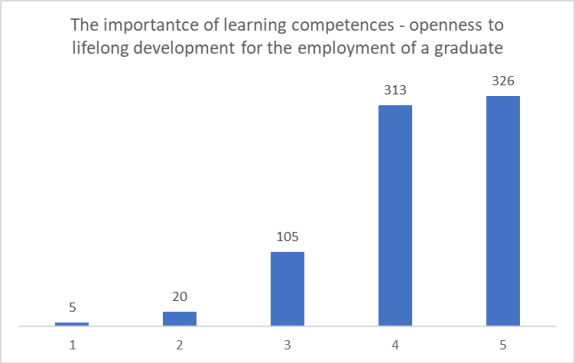
Figure 15 Importance and self-assessment – creativity competences – generating new ideas, creative style of work

Figure 15 presents the answers obtained for creativity competences. The results obtained for perceived importance and self-assessed level do not differ a lot from each other (mean values of 3,88 and 3,63 respectively; dominant values of 4 in both cases). We did not observe any statistically significant differences for gender. However, the differences were noted for the country of study (perceived importance – the Pearson's Chi-squared test 42,8; α = 0,000; self-assessed level – the Pearson's Chi-squared test 29,1; α = 0,004). Detailed results are presented in Table 10. When it comes to the degree and type of studies, we observed statistically significant differences for the self-assessed level (degree of studies - the Pearson's Chi-squared test 18,6; α = 0,017; type of studies - the Pearson's Chi-squared test 32,5; α = 0,000). No statistically significant differences were observed for the field of study.

Table 9 Perception and self-assessment of the level of creativity competences by country

Perception		Country				Total
		Finland	Greece	Poland	Hungary	
1_9	1	1,1%	1,0%	1,5%	0,4%	1,0%
	2	3,2%	1,9%	10,4%	6,1%	7,0%
	3	30,9%	15,2%	27,5%	18,7%	23,6%
	4	40,4%	40,0%	40,2%	38,3%	39,6%
	5	24,5%	41,9%	20,4%	36,5%	28,7%
Total		100,0%	100,0%	100,0%	100,0%	100,0%
Self-assessment		Country				Total

		Finland	Greece	Poland	Hungary	
2_9	1	2,1%	1,0%	1,2%	2,2%	1,6%
	2	10,6%	16,2%	12,4%	6,1%	10,8%
	3	35,1%	30,5%	29,3%	30,0%	30,4%
	4	41,5%	37,1%	39,1%	32,2%	37,0%
	5	10,6%	15,2%	18,0%	29,6%	20,2%
Total		100,0%	100,0%	100,0%	100,0%	100,0%



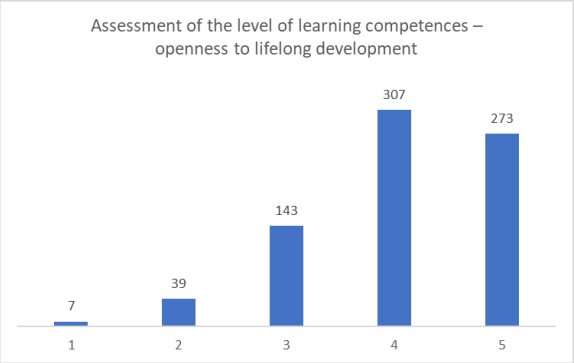


Figure 16 Importance and self-assessment – learning competences – openness to lifelong development

Figure 16 presents the results obtained for learning competences. This area received high evaluations both in terms of its importance for employment (mean 4,22; a dominant value of 5) and the self-assessment of its level (mean 4,04; a dominant value of 4). We observed statistically significant differences in the case of gender (perception - the Pearson's Chi-squared test 29,1; α = 0.003; self-assessment - the Pearson's Chi-squared test 18,3; α = 0.001). In both cases, higher evaluations were given by female respondents. For the country of study, statistically significant differences were observed in the case of self-assessment (the Pearson's Chi-squared test 35,5; α = 0,000). Detailed results are presented in Table 11. No statistically significant differences were observed for the degree of studies, but there were some for the type of studies in self-assessment (the Pearson's Chi-squared test 14,2; α = 0,007), with higher evaluations given by part-time studies. Differences were also observed for self-assessment in the case of field of study (the Pearson's Chi-squared test 31,5; α = 0,012). Detailed results are presented in Table 11.

Table 10 Self-assessment of the level of learning competences by country and field of study

Self-assessment		Country				Total
		Finland	Greece	Poland	Hungary	
2_10	1	1,1%	1,0%		2,2%	0,9%
	2	3,2%	13,3%	3,6%	3,9%	5,0%
	3	19,1%	26,7%	18,6%	14,8%	18,6%
	4	41,5%	35,2%	40,2%	40,9%	39,9%
	5	35,1%	23,8%	37,6%	38,3%	35,6%
Total		100,0%	100,0%	100,0%	100,0%	100,0%

	Field of study	Total

Self-assessment		Economic analytics	Automotive	Other	Tourism	Management	
2_10	1	0,8%		0,4%	4,1%	0,4%	0,9%
	2	4,1%	3,8%	3,5%	4,1%	7,6%	5,1%
	3	18,9%	26,9%	13,5%	23,5%	20,8%	18,6%
	4	41,8%	42,3%	46,7%	30,6%	35,6%	39,9%
	5	34,4%	26,9%	35,9%	37,8%	35,6%	35,5%
Total		100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Figure 17 Importance and self-assessment – personal competences – loyalty, involvement, responsibility

Figure 17 presents the results obtained for personal competences such as loyalty, commitment and responsibility. This is one of the very few areas of competences which received higher evaluations in self-assessment than in perceived importance (perceived importance - mean 4,15; a dominant value of 5; self-assessment - mean 4,20; a dominant value of 4). We observed statistically significant differences in the case of gender (perception - the Pearson's Chi-squared test 12,3; α = 0,015; self-assessment - the Pearson's Chi-squared test 20,0; α = 0,001). Significant differences were also observed for the country of study (perception – the Pearson's Chi-squared test 69,7; α = 0,000). Detailed results are presented in Table 12. Differences in self-assessment were observed for the degree of studies (the Pearson's Chi-squared test 24,2; α = 0,002), with higher evaluations for second-degree studies. Differences in self-assessment were also observed for the type of studies (the Pearson's Chi-squared test 12,7; α = 0,013), with higher values obtained for part-time studies, and for the field of study (the Pearson's Chi-squared test 40,7; α = 0,001). Detailed results are presented in Table 12.

Table 11 Perception of the level of personal competences by country and self-assessment of the level of these competences by the field of study.

Perception		Country				Total
		Finland	Greece	Poland	Hungary	
1_11	1		1,0%	2,1%	0,4%	1,2%
	2	2,1%		4,4%	1,7%	2,7%
	3	9,6%	5,7%	28,4%	12,2%	18,1%
	4	43,6%	35,2%	32,8%	37,8%	36,0%
	5	44,7%	58,1%	32,2%	47,8%	42,0%

Total		100,0%	100,0%	100,0%	100,0%	100,0%	
Self-assessment		Field of study					Total
		Economic analytics	Automotive	Other	Tourism	Management	
2_11	1				2,0%	0,4%	0,4%
	2	1,6%	11,5%	2,3%	4,1%	1,1%	2,3%
	3	13,1%	7,7%	11,6%	16,3%	17,8%	14,4%
	4	47,5%	53,8%	49,8%	32,7%	35,2%	42,4%
	5	37,7%	26,9%	36,3%	44,9%	45,5%	40,4%
Total		100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

In conclusion, the survey has delivered interesting information on the perception of the importance of different types of competences and the self-assessment of their level in the group of students and attendees of the Adult Education Centre. The main differentiating characteristic is the country of study, followed by gender and degree of studies (analysed only in the case of students). The field of study is relatively less significant than the above-mentioned characteristics of the respondents.

3.2 Further education

The respondents were asked about participation in various forms of further education. The results are presented in Figure 18.

Question 3. In addition to your studies, do you learn anything else/develop in order to obtain additional professional qualifications? If yes, in what form/how do you do that?

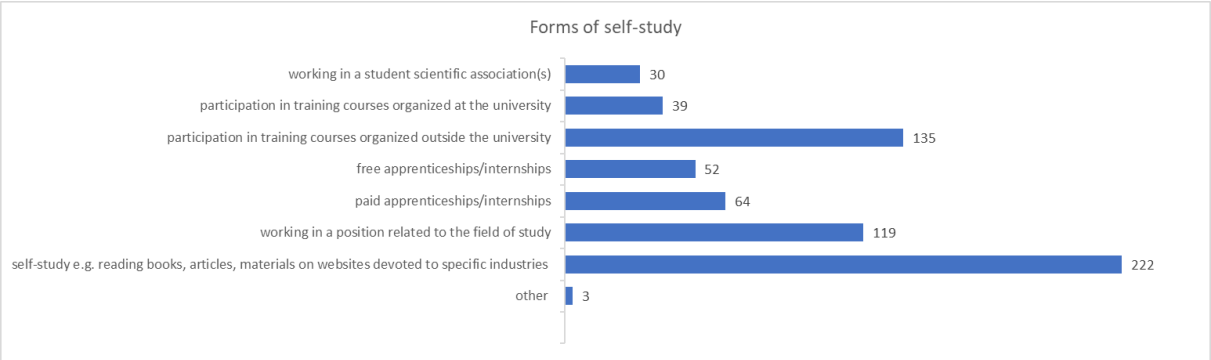


Figure 18 Participation in different forms of further education

According to the research results, 45% of young students undertake further education outside the formal education system. In most cases, they do that by self-study (e.g. they read books, scientific articles, etc.), they participate in training organised by universities, and they also undertake professional work in sectors related to their fields of study We did not observe any statistically significant differences when it comes to gender, but we did notice differences by the country of study (the Pearson's Chi-squared test 30,3; α = 0,000). Details are presented in Table 13.

Table 12 Further training outside the formal education system

Further education		Country				Total
		Finland	Greece	Poland	Hungary	
@3	No	52,1%	54,3%	45,9%	69,1%	54,8%
	Yes	47,9%	45,7%	54,1%	30,9%	45,2%
Total		100,0%	100,0%	100,0%	100,0%	100,0%

Significant differences were also observed in terms of degree of studies (the Pearson's Chi-squared test 29,8; α = 0,000) – the students of second-degree studies are more active in pursuing further education. For other characteristics we did not observe any significant differences.

3.3 Professional career

In the following questions, the respondents were asked to evaluate their preparation for entering the labour market and share their ideas about their future work (in the next 10 years).

Question 4. How do you assess your current preparation for work after graduation? Grade on a scale from „1" (Insufficient) to „5" (Fully sufficient)

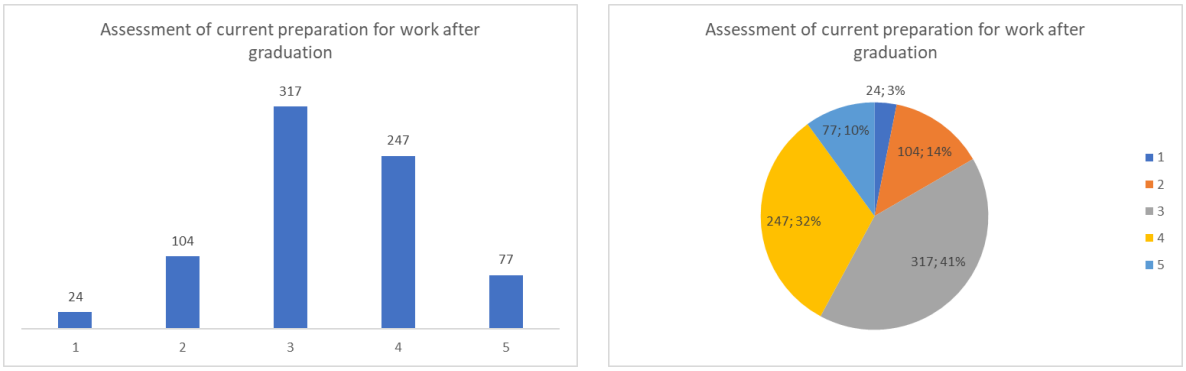


Figure 19 Self-assessment of preparation for professional career

Figure 19 shows the answers to the question about respondents' assessment of their preparation for professional work (mean 3,32; a dominant value of 3), but the results are not optimistic. Only 42% of respondents chose 4 (sufficient) or 5 (fully sufficient). We did not notice any statistically significant differences in terms of gender or field of study, but we did for the other characteristics (the country of study - the Pearson's Chi-squared test 83,0; α = 0,000; the degree of studies - the Pearson's Chi-squared test 42,1; α = 0,000; the type of studies - the Pearson's Chi-squared test 15,5; α = 0,004). Details concerning each country are presented in Table 14. Interestingly, significantly higher evaluations were given by the students of second-degree studies and part-time ones.

Table 13 Assessment of preparation for professional career – by country

		Country				Total
		Finland	Greece	Poland	Hungary	
@4	1	4,3%	4,8%	3,8%	0,9%	3,1%
	2	9,6%	14,3%	18,6%	7,0%	13,4%
	3	27,7%	27,6%	49,7%	40,9%	41,3%
	4	35,1%	37,1%	23,1%	42,2%	32,2%
	5	23,4%	16,2%	4,7%	9,1%	9,9%
Total		100,0%	100,0%	100,0%	100,0%	100,0%

Question 5. How do you assess the difficulty in finding a job in line with your expectations? Grade on a scale from „1" (Very easy) to „5" (Very difficult).

Figure 20 presents the results obtained for the question on difficulties in finding a job in line with one's expectations (mean 3,40; a dominant value of 3). We did not observe any statistically significant differences due to any of the analysed characteristics of the respondents.

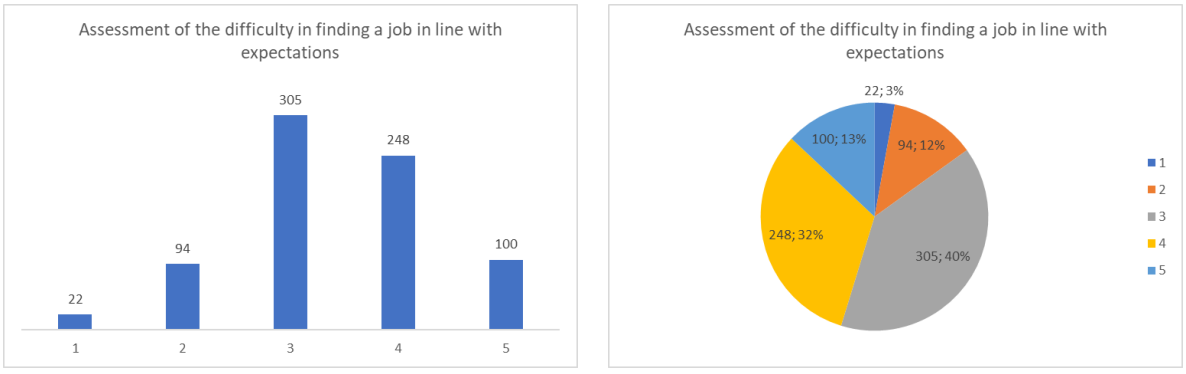


Figure 20 Assessment of the difficulty in finding a job in line with expectations

3.4 Evaluation of the professional situation in the future

The next three questions concerned the evaluation of changes which the respondents are likely to see in 10 years' time.

Question 6. In your opinion, how will the scope of necessary competencies to work in the professions related to the current field of study change in the next 10 years? Grade on a scale from „1" (It won't change a lot) to „5" (It will change a lot).

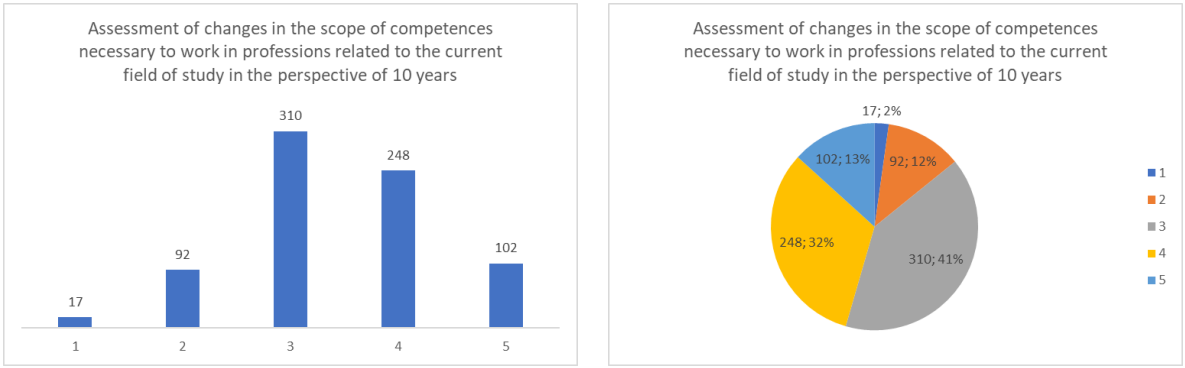


Figure 21 Assessment of changes in the scope of competences in the perspective of 10 years

Figure 21 presents the answers to the question concerning the evaluation of changes in the scope of competences in the perspective of 10 years. Nearly half of the respondents (45%) stated that these changes will be big or very big (mean 3,42; a dominant value of 3). Like in question 5, we did not observe any statistically significant differences due to any of the analysed characteristics of the respondents.

Question 7. What do you think of the development of automation (e.g. new IT systems or applications) and the resulting possible reduction of the demand for employees working in professions related to your field of study? Grade on a scale from „1" (It mainly raises my concerns) to „5" (It mainly inspires my development).

Figure 22 presents the answers to the question concerning the evaluation of automation development (mean 3,53; a dominant value of 3). More than half of the respondents (51%) stated that the changes associated with developing automation mainly inspire them to develop. Only in the case of the type of studies did we notice statistically significant differences (the Pearson's Chi-squared test 19,7; α = 0,001) – part-time students gave higher evaluations.

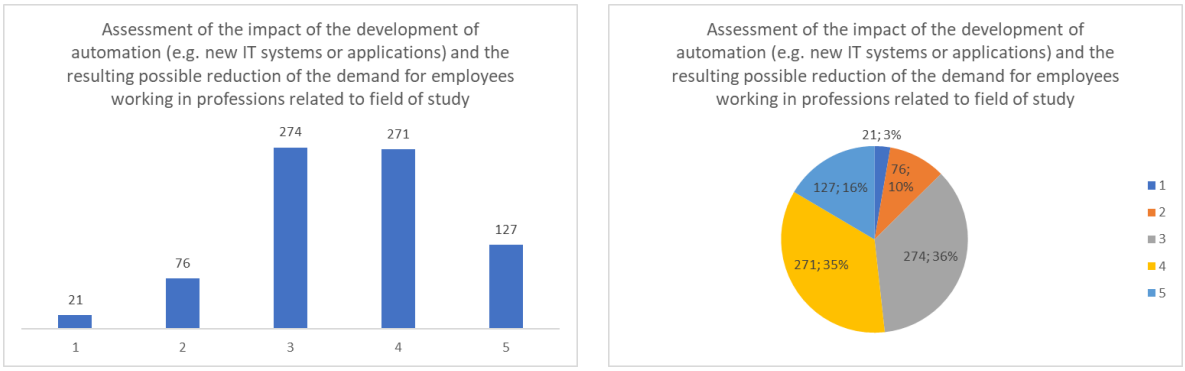


Figure 22 Assessment of the impact of the development of automation on professions connected with a given field of study

Question 8. In your opinion, to what extent will future work in professions related to your field of study depend on acquiring new competences and developing the existing ones? Grade on a scale from „1" (To a minor extent) to „5" (To a large extent).

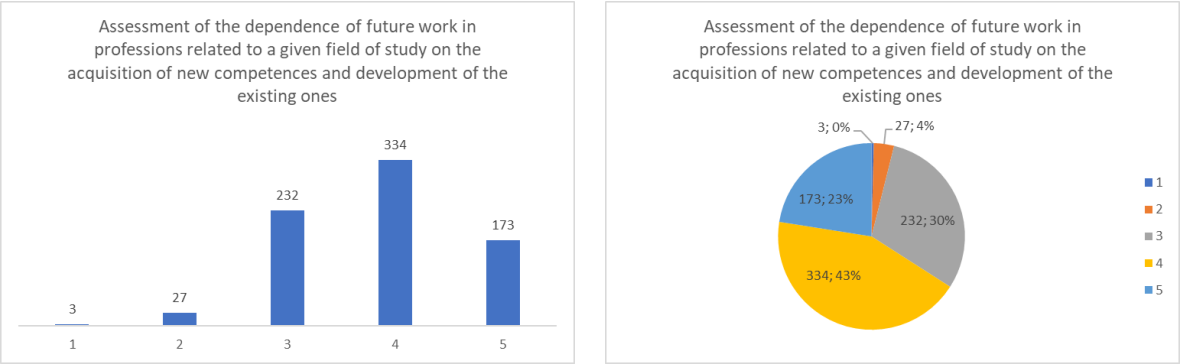


Figure 23 Assessment of the dependence of future work on the acquisition of new competences and development of the existing ones

Figure 23 presents the answers to questions concerning the dependence of future work on further development (mean 3,84; a dominant value of 4). We did not observe any statistically significant differences for gender or type of studies, but we did for other characteristics (the country of study – the Pearson's Chi-squared test 37,0; α = 0,000; the degree of studies - the Pearson's Chi-squared test 21,7; α = 0,005; the field of study - the Pearson's Chi-squared test 47,8; α = 0,000). According to the results, the students of second-degree studies do notice such a dependence to a greater extent. Details of differentiation for the country of study and the field of study are presented in Table 15

Table 14 Assessment of the dependence of future work on the acquisition of new competences and development of the existing ones – by country and field of study

		Country				Total
		Finland	Greece	Poland	Hungary	
@8	1				1,3%	0,4%
	2	7,4%	1,0%	2,1%	5,2%	3,5%
	3	38,3%	23,8%	27,5%	33,5%	30,1%
	4	38,3%	40,0%	46,2%	43,5%	43,5%
	5	16,0%	35,2%	24,3%	16,5%	22,4%
Total		100,0%	100,0%	100,0%	100,0%	100,0%

		Field of study					Total
		Economic analytics	Automotive	Other	Tourism	Management	
@8	1				2,0%	0,4%	0,4%
	2	1,6%	15,4%	3,9%	6,1%	1,9%	3,5%
	3	18,0%	30,8%	37,1%	35,7%	26,9%	30,2%
	4	51,6%	46,2%	40,2%	37,8%	44,7%	43,4%
	5	28,7%	7,7%	18,9%	18,4%	26,1%	22,5%
Total		100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

3.5 Evaluation of distance learning

Another part of the questionnaire concerned the evaluation of different aspects of distance learning as a consequence of lockdown introduced due to the Covid-19 pandemic.

Question 1. Please assess your preferred way of learning within the following forms of classes. Grade on a scale from 1 (Definitely a traditional form) to 10 (Definitely a remote form)

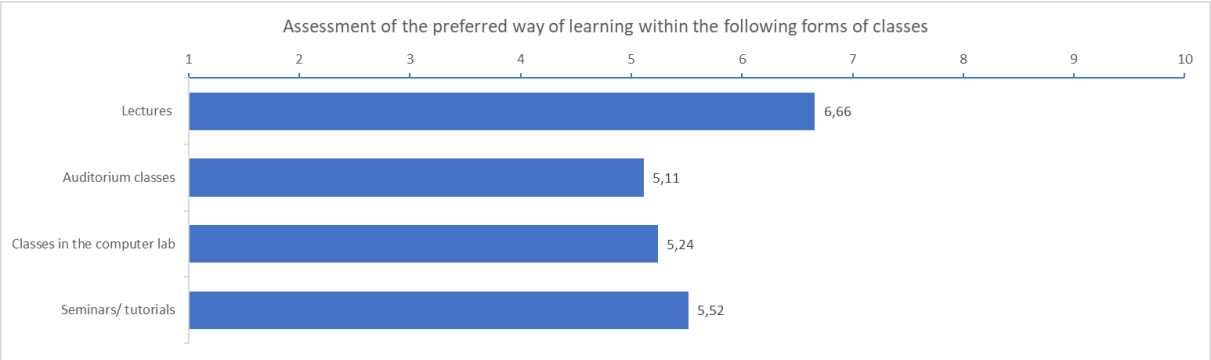
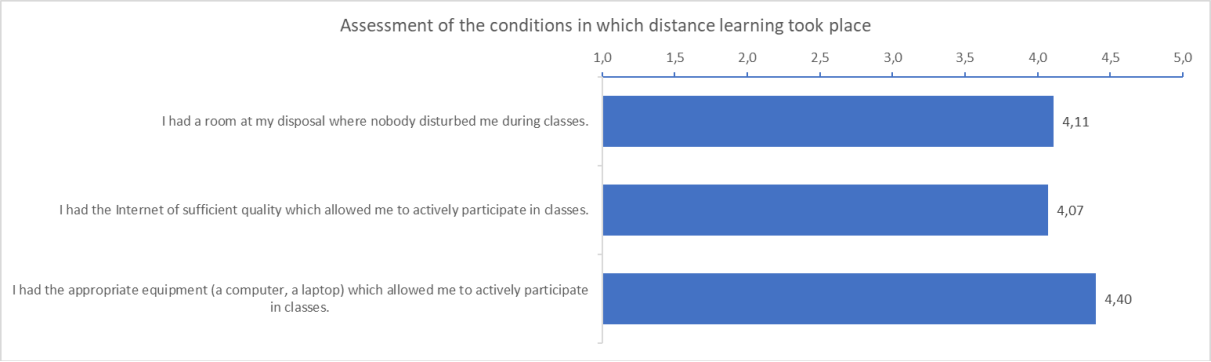
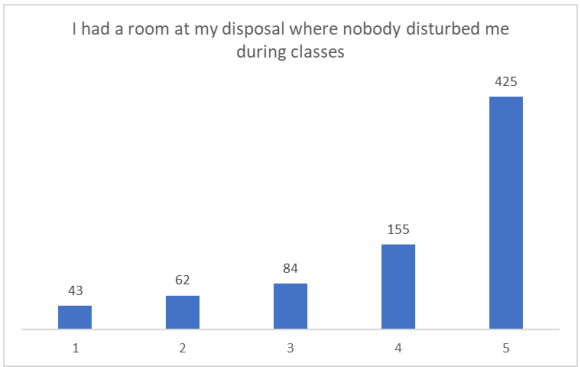


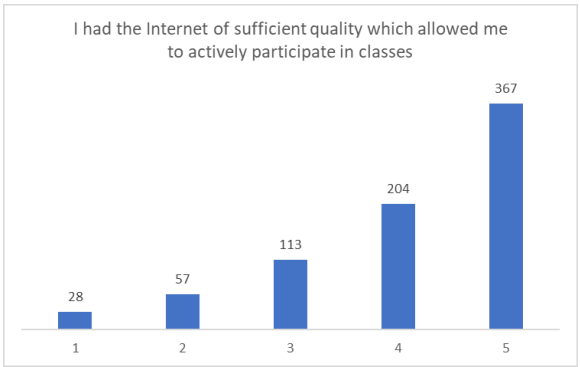
Figure 24 Assessment of the preferred way of learning

The respondents opted for the remote form of conducting lectures. In other cases, the result should be considered ambiguous (the values oscillate around 5, which may refer to both ways of learning - traditional and remote - with a slight error).

Question 2. How would you assess the conditions in which your distance learning took place? Please evaluate the following statements. Grade on a scale from „1" (Definitely no) to „5" (Definitely yes)







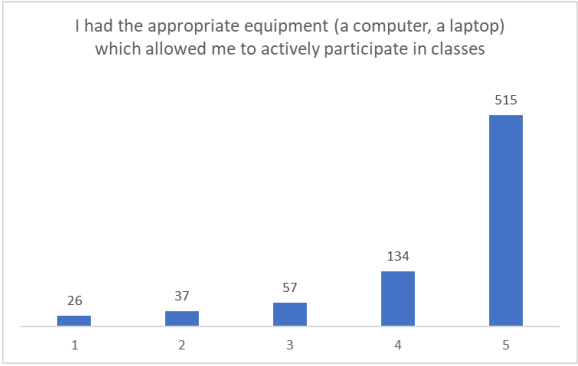


Figure 25 Assessment of distance learning conditions

The respondents evaluated the conditions under which they participated in distance learning in a positive way. The mean evaluation value for all the questions exceeded 4 on the 5-point scale.

Question 3. In general, how would you assess your experiences with distance learning? Grade on a scale from „1" (Very badly) to „5" (Very well)

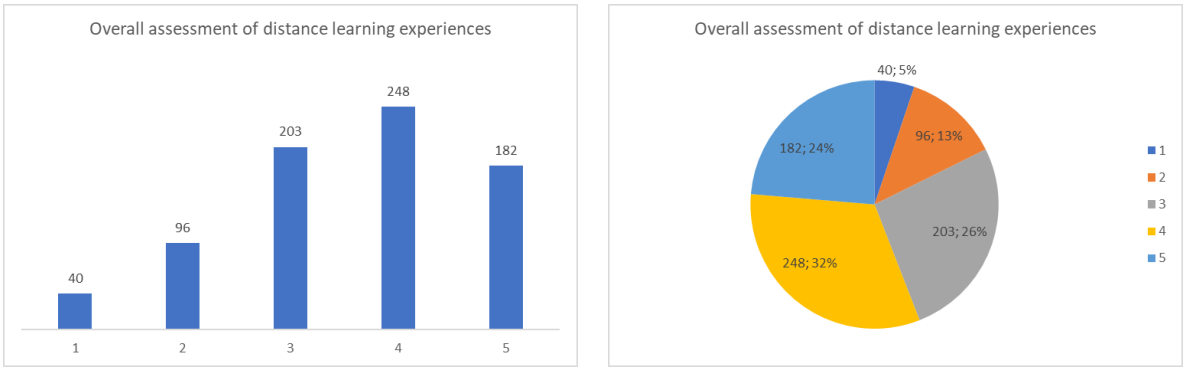


Figure 26 General assessment of distance learning

Most of the respondents evaluated the period of distance learning in a positive way- 56% chose 4 or 5 on the scale (mean 3,457, a dominant value of 4).

Question 4. In your opinion, the preparation of the lecturers was adequate for the requirements of distance learning. Grade on a scale from „1" (Definitely not) to „5" (Definitely yes)

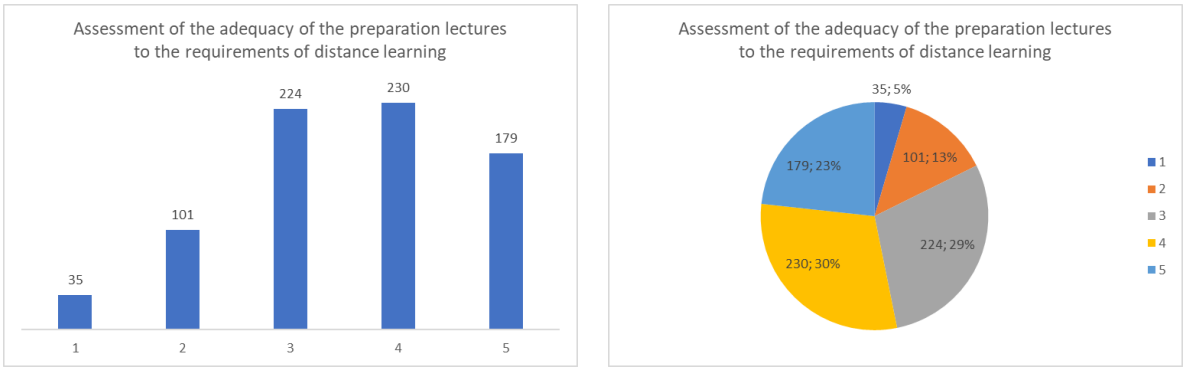
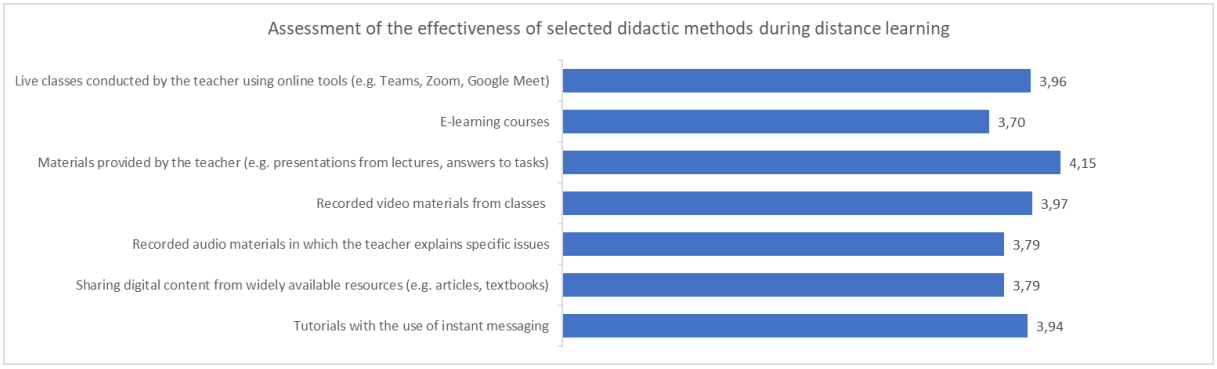
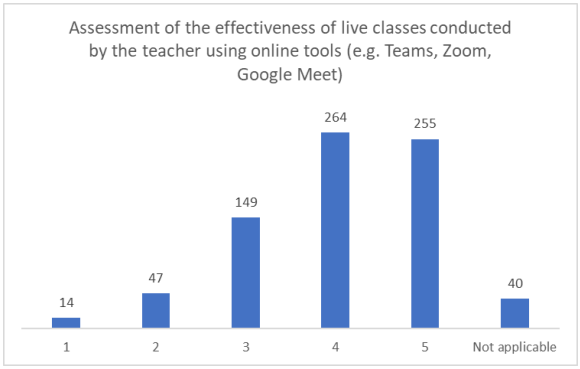


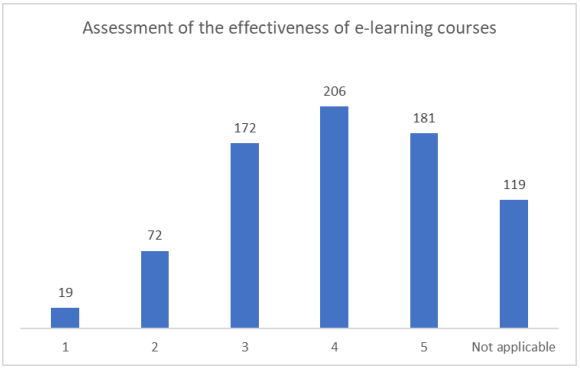
Figure 27 Assessment of the adequacy of lecturers' preparation for the requirements of distance learning

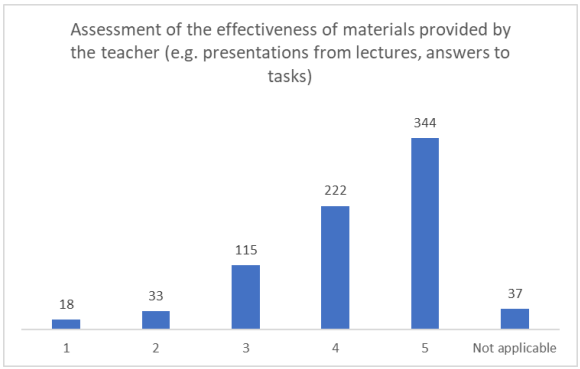
The respondents evaluated the preparation of lecturers in a similar way - 53% of them chose 4 or 5 on the scale (mean 3,54; a dominant value of 4).

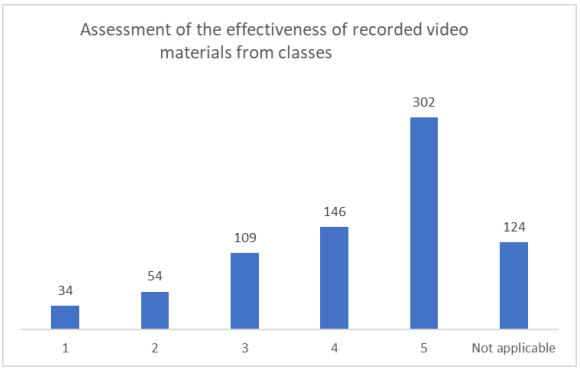
Question 5. In your opinion, how effective were the following didactic methods during distance learning? Grade on a scale from „1" (Totally ineffective) to „5" (Fully effective). If you have no experience with a given method, please select „Not applicable".

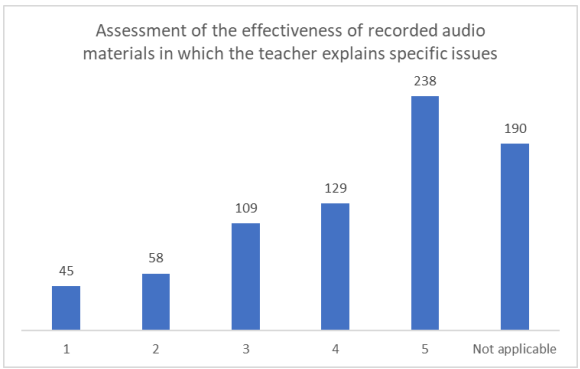


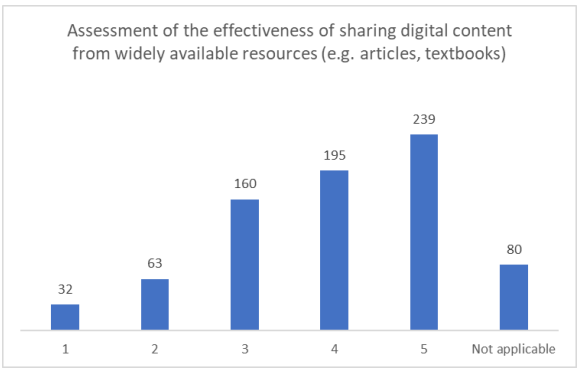












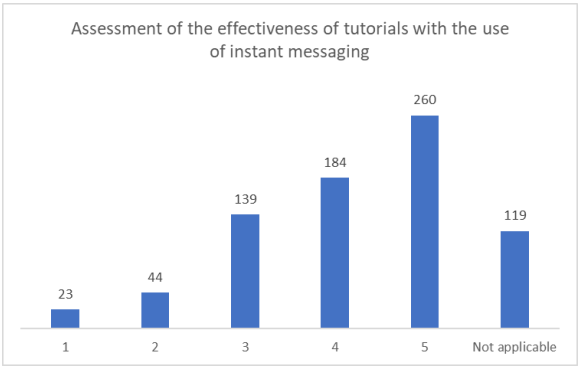
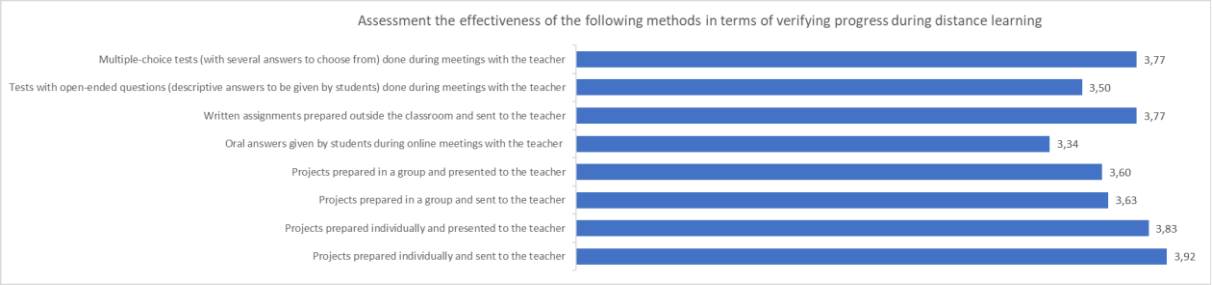
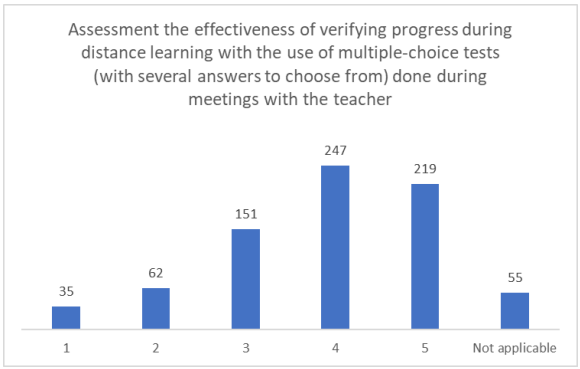


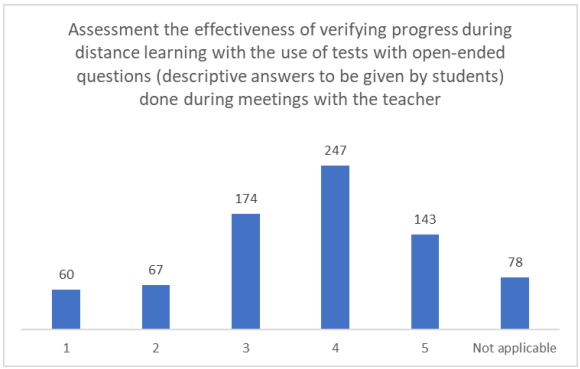
Figure 28 Assessment of the effectiveness of didactic methods

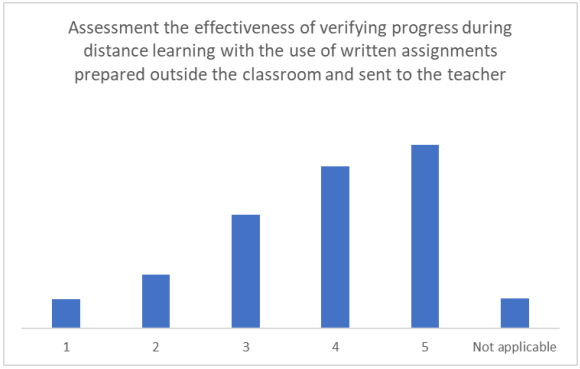
The respondents evaluated the materials provided by lecturers in a very positive way (e.g. presentations from lectures, solutions to exercises), with the mean of 4.15 and the dominant value of 5.

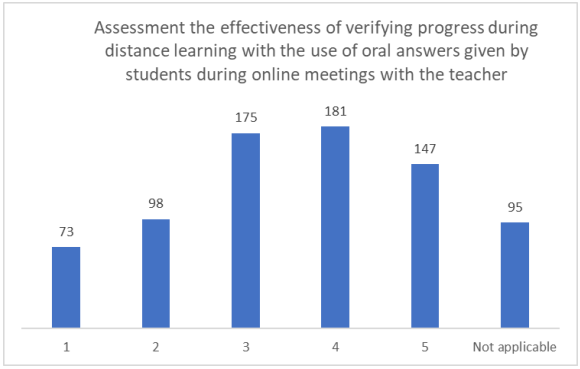
Question 6. How would you assess the effectiveness of the following methods in terms of verifying your progress during distance learning? Grade on a scale from „1" (They do not verify my knowledge or skills at all) to „5" (They verify my knowledge and skills very well). ". If you have no experience with a given method, please select "Not applicable".











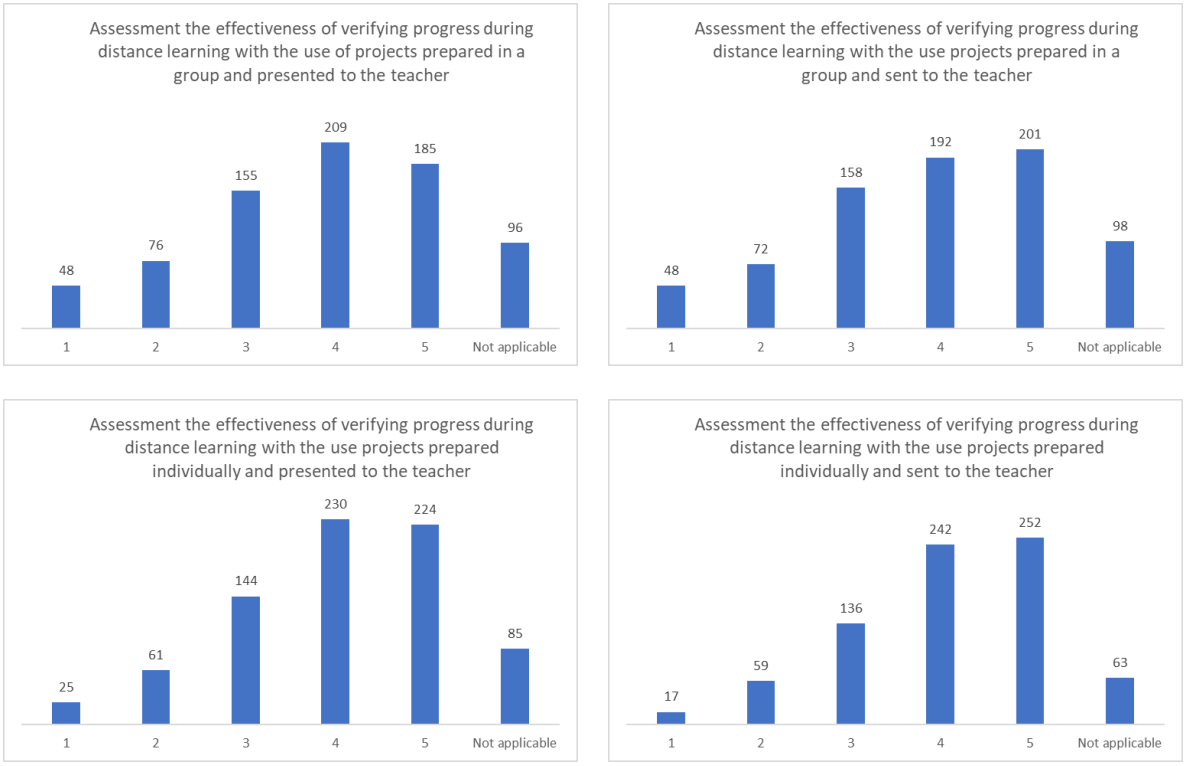
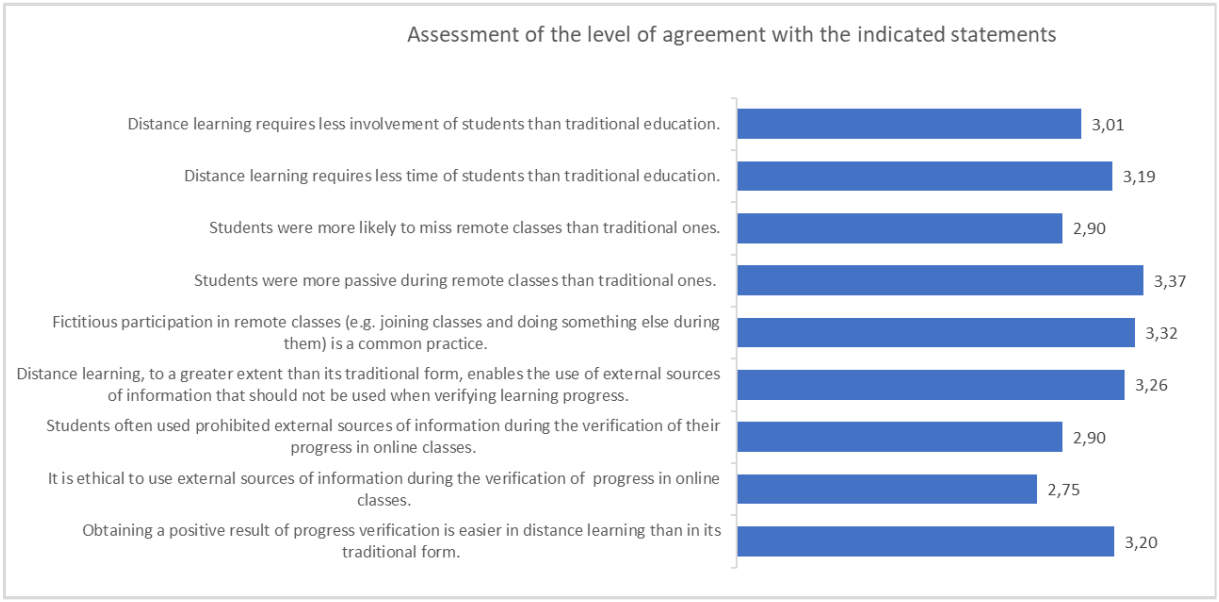
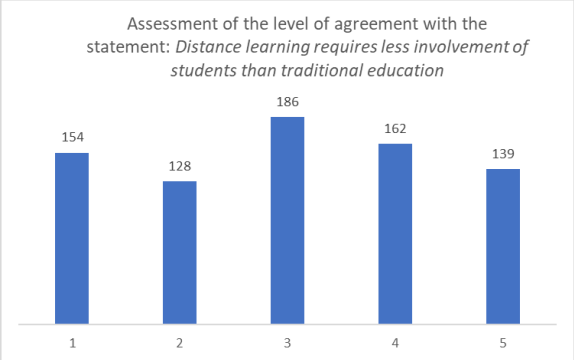


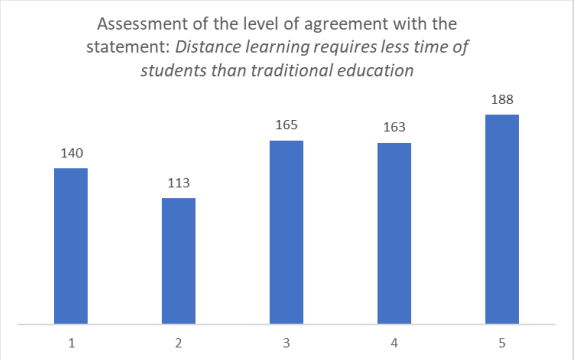
Figure 29 Assessment of the effectiveness of verifying progress in learning

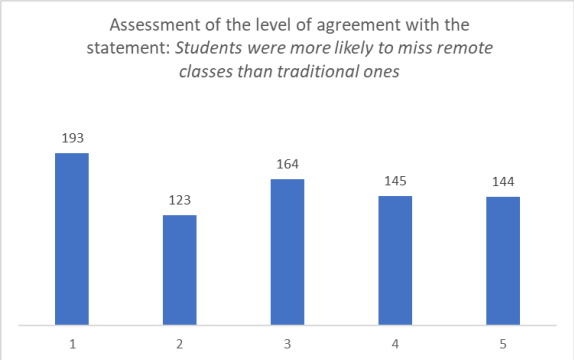
The respondents evaluated projects prepared individually and sent to the teacher in a very positive way (mean 3,92; a dominant value of 5).

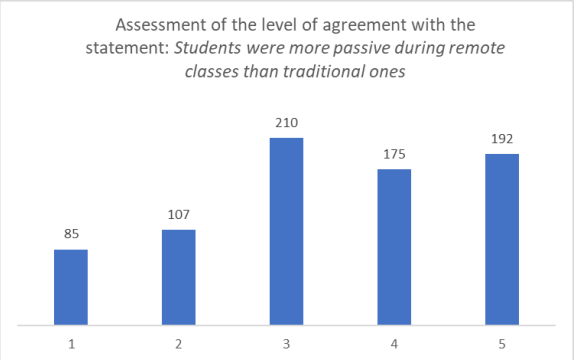
Question 7. To what extent do you agree with the following statements? Grade on a scale from „1" (I definitely disagree) to „5" (I definitely agree)

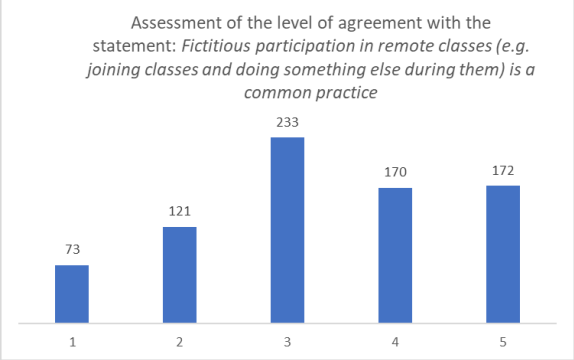


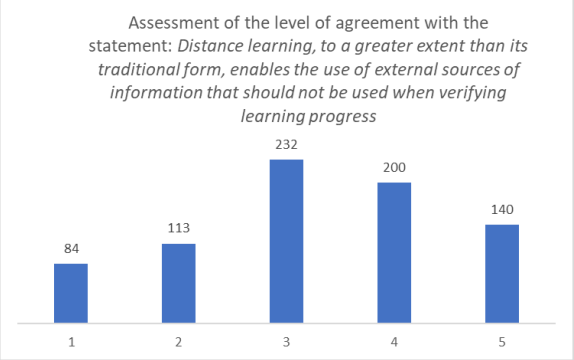

Assessment of the level of agreement with the statement: Distance learning requires less involvement of students than traditional education
154
128
186
162
139
1
2
3
4
5

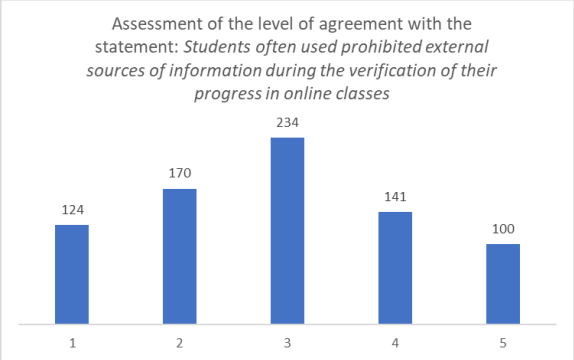

Assessment of the level of agreement with the statement: Distance learning requires less time of students than traditional education
140
113
165
163
188
1
2
3
4
5

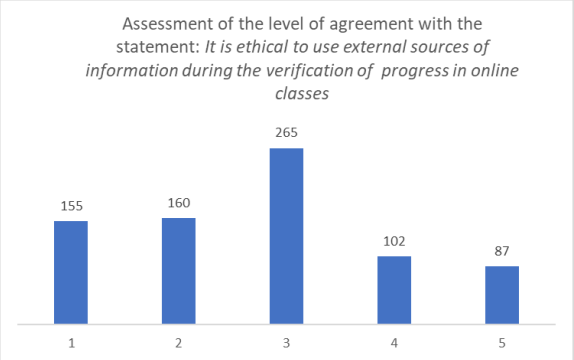

Assessment of the level of agreement with the statement: Students were more likely to miss remote classes than traditional ones
193
123
164
145
144
1
2
3
4
5


Assessment of the level of agreement with the statement: Students were more passive during remote classes than traditional ones
85
107
210
175
192
1
2
3
4
5


Assessment of the level of agreement with the statement: Fictitious participation in remote classes (e.g. joining classes and doing something else during them) is a common practice
73
121
233
170
172
1
2
3
4
5


Assessment of the level of agreement with the statement: Distance learning, to a greater extent than its traditional form, enables the use of external sources of information that should not be used when verifying learning progress
84
113
232
200
140
1
2
3
4
5


Assessment of the level of agreement with the statement: Students often used prohibited external sources of information during the verification of their progress in online classes
124
170
234
141
100
1
2
3
4
5


Assessment of the level of agreement with the statement: It is ethical to use external sources of information during the verification of progress in online classes
155
160
265
102
87
1
2
3
4
5

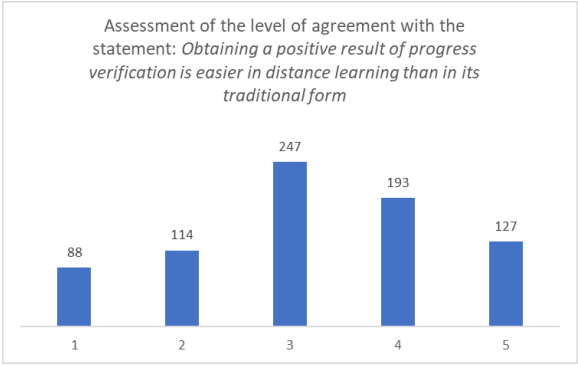
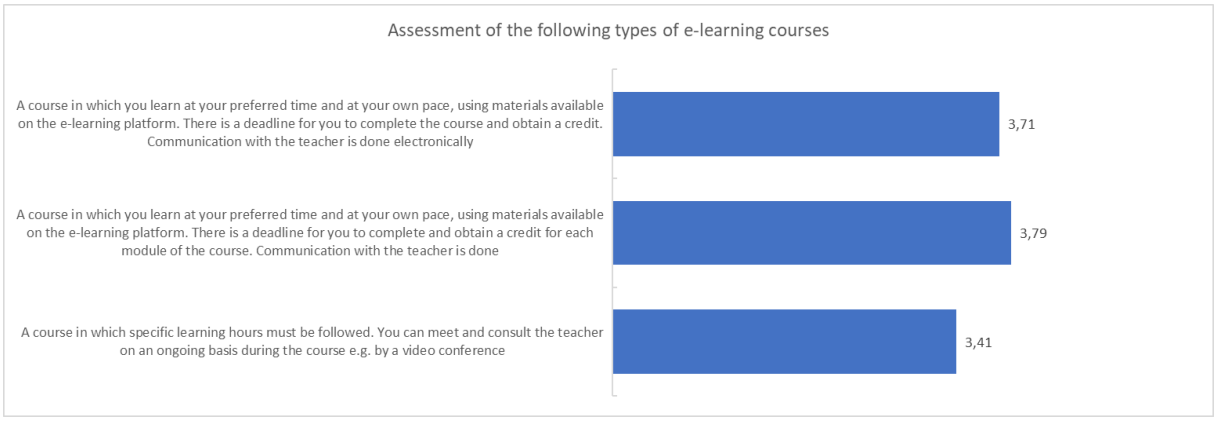
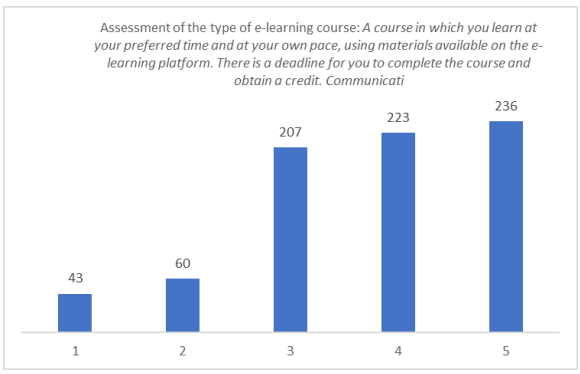


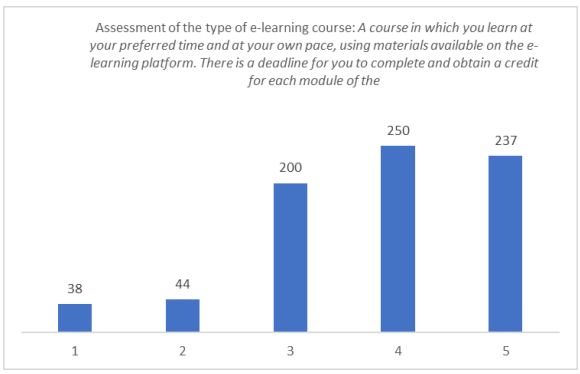
Figure 30 Traditional vs. distance learning – comparison

Most of the respondents agreed with the statements (all means higher than 2,70). The statement they mostly agreed with was the following: Students were more passive during remote classes than traditional ones (mean 3,37). The statements they agreed with the least was the following: It is ethical to use external sources of information during the verification of progress in online classes (mean 2,75).

Question 8. Please assess the following types of e-learning courses in terms of your expectations regarding this form of education. The issues concern various aspects of the courses. Grade on a scale from „1" (It doesn't suit me at all) to „5" (It fully suits me).







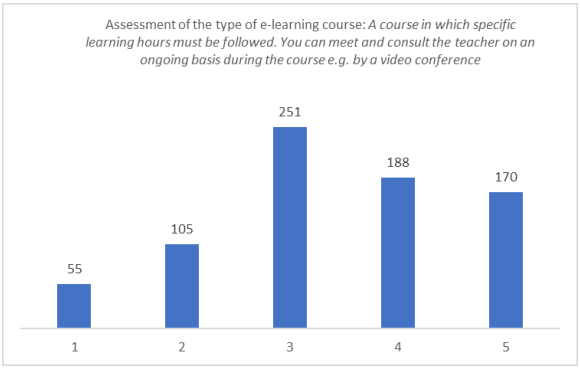
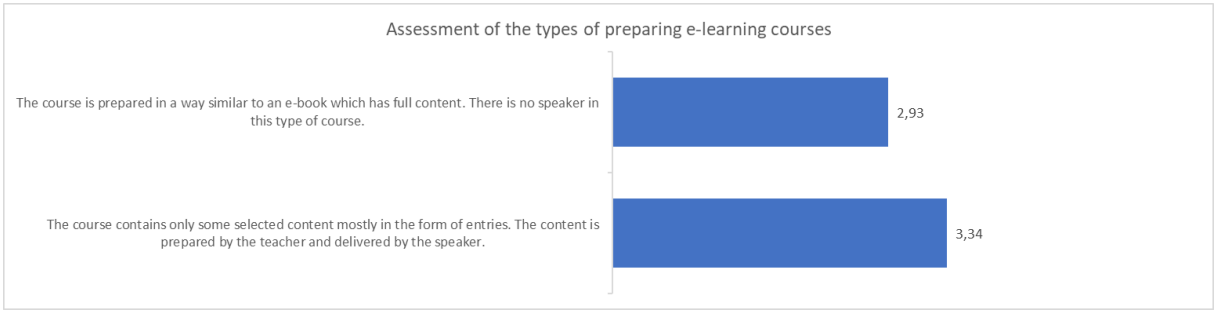
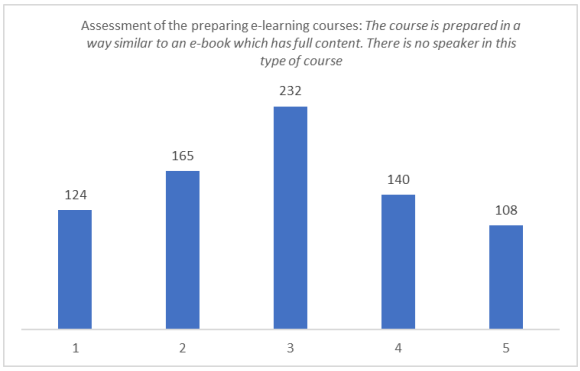


Figure 31 Assessment of the organisation of e-learning courses





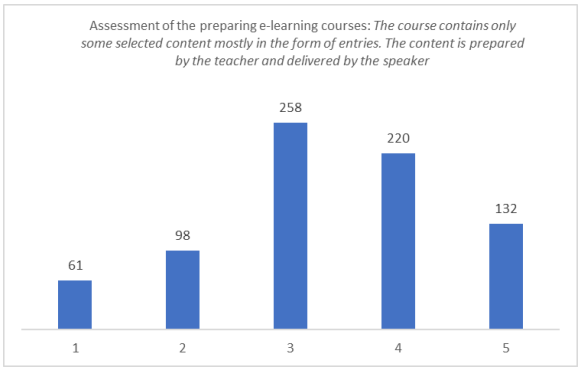
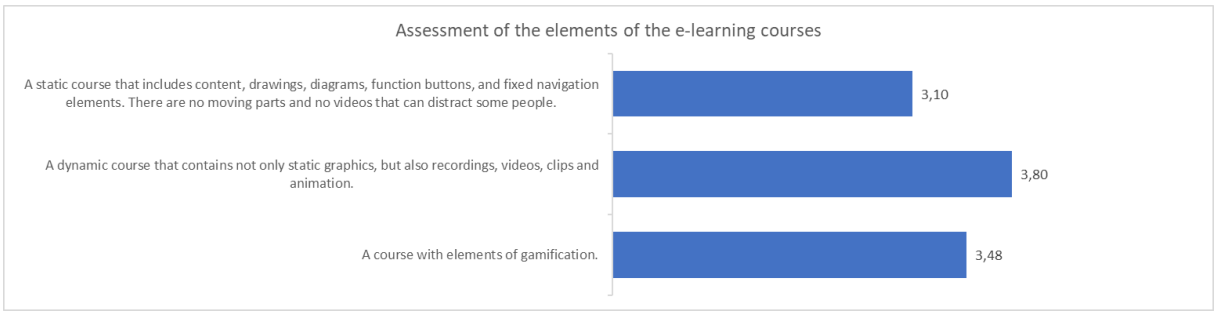


Figure 32 Assessment of the preparation of e-learning courses



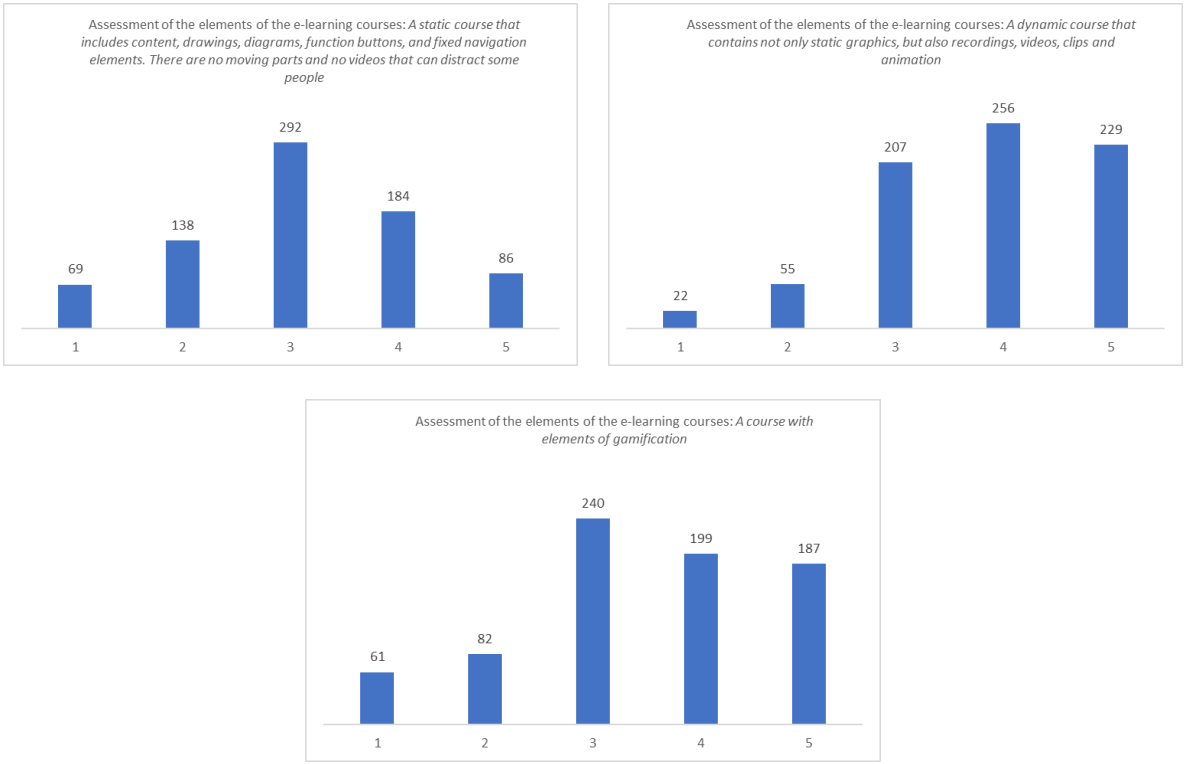


Figure 33 Assessment of the e-learning course elements

Tables 16 - 20 present the results of one-way analysis of variance (ANOVA) for statistically significant differences in respondents' answers in relation to the selected characteristics. It is worth emphasising that for the majority of those characteristics we observed statistically significant differences in respondents' answers (the significant cases are presented in tables and marked in red). In order to ensure the legibility of conclusions, the tables include the mean values obtained for particular categories of characteristics.

Table 15 Differentiation of answers to the questions about distance learning - gender

Analysed area/ questions		F	p - value	Mean	
				Female	Male
II_1	Preferred way of learning				
II_1_1	Lectures	3,566	0,059	6,86	6,41
II_1_2	Auditorium classes	2,930	0,087	5,27	4,87
II_1_3	Classes in the computer lab	1,014	0,314	5,15	5,40
II_1_4	Seminars/ tutorials	0,144	0,704	5,49	5,59
II_2	Conditions for distance learning				
II_2_1	Separate room	0,002	0,961	4,11	4,11
II_2_2	Internet quality	4,069	0,044	4,01	4,18
II_2_3	Appropriate equipment	3,835	0,051	4,46	4,32
II_3	General distance learning experience	1,157	0,282	3,61	3,52
II_4	Preparation of lecturers for distance learning	5,686	0,017	3,62	3,43
II_5	Effectiveness of didactic methods during distance learning				
II_5_1	Live classes	8,413	0,004	4,05	3,83
II_5_2	E-learning courses	0,712	0,399	3,74	3,67

Analysed area/ questions		F	p - value	Mean	
				Female	Male
II_5_3	Materials provided by the teacher	11,638	0,001	4,26	4,00
II_5_4	Recorded video materials from classes	5,509	0,019	4,07	3,84
II_5_5	Recorded audio materials	9,767	0,002	3,92	3,58
II_5_6	Sharing digital content	1,126	0,289	3,84	3,75
II_5_7	Tutorials with the use of instant messaging	5,520	0,019	4,04	3,83
II_6	Effectiveness of methods of verifying learning progress during distance learning				
II_6_1	Multiple-choice tests	5,650	0,018	3,86	3,66
II_6_2	Tests with open-ended questions	0,313	0,576	3,53	3,47
II_6_3	Written assignments prepared outside the classroom and sent to the teacher	10,988	0,001	3,89	3,60
II_6_4	Oral answers	0,427	0,514	3,32	3,39
II_6_5	Projects prepared in a group and presented to the teacher	0,001	0,979	3,60	3,60
II_6_6	Projects prepared in a group and sent to the teacher	2,748	0,098	3,70	3,54
II_6_7	Projects prepared individually and presented to the teacher	0,000	0,983	3,84	3,84
II_6_8	Projects prepared individually and sent to the teacher	5,419	0,020	4,01	3,82
II_7	Distance learning and traditional education - in line with the statements				
II_7_1	Distance learning requires less involvement of students than traditional education	0,827	0,363	2,97	3,06
II_7_2	Distance learning requires less time of students than traditional education	1,361	0,244	3,14	3,27
II_7_3	Students were more likely to miss remote classes than traditional ones	0,590	0,443	2,93	2,85
II_7_4	Students were more passive during remote classes than traditional ones	1,295	0,255	3,41	3,30
II_7_5	Fictitious participation in remote classes (e.g. joining classes and doing something else during them) is a common practice	2,820	0,094	3,38	3,23
II_7_6	Distance learning, to a greater extent than its traditional form, enables the use of external sources of information that should not be used when verifying learning progress	0,811	0,368	3,22	3,30
II_7_7	Students often used prohibited external sources of information during the verification of their progress in online classes	0,573	0,449	2,87	2,94
II_7_8	It is ethical to use external sources of information during the verification of progress in online classes	0,875	0,350	2,71	2,79
II_7_9	Obtaining a positive result of progress verification is easier in distance learning than in its traditional form	0,504	0,478	3,18	3,24
II_8	Expectations for e-learning courses				
II_8_1	Learning at the specific time, completing the entire course, communicating with the teacher electronically	8,104	0,005	3,81	3,57
II_8_2	Learning at the specific time, completing course modules, communicating with the teacher electronically	4,634	0,032	3,86	3,69
II_8_3	Learning at the specific time, the possibility of ongoing consultations with the teacher	6,257	0,013	3,50	3,29
II_8_4	The course is prepared similarly to an e-book with full content, there is no teacher	0,469	0,494	2,90	2,97
II_8_5	The course contains only selected content, presented in a slogan, and the complete content is provided by the teacher	0,948	0,331	3,38	3,29

Analysed area/ questions		F	p - value	Mean	
				Female	Male
II_8_6	A static course that includes content, drawings, diagrams, function buttons, and fixed navigation elements	2,056	0,152	3,16	3,04
II_8_7	A dynamic course that contains not only static graphics, but also recordings, videos, clips and animation	2,545	0,111	3,86	3,74
II_8_8	A course with the elements of gamification	3,961	0,047	3,55	3,38

Table 16 Differentiation of answers to the questions about distance learning – the country of study

Analysed area/ questions		F	p - value	Mean			
				Finland	Greece	Poland	Hungary
II_1	Preferred way of learning						
II_1_1	Lectures	106,415	0,000	4,07	4,67	8,54	5,87
II_1_2	Auditorium classes	16,839	0,000	3,68	3,97	5,33	5,88
II_1_3	Classes in the computer lab	15,137	0,000	4,17	4,28	6,11	4,83
II_1_4	Seminars/ tutorials	82,162	0,000	3,48	4,95	7,43	3,80
II_2	Conditions for distance learning						
II_2_1	Separate room	13,863	0,000	3,81	3,71	4,41	4,00
II_2_2	Internet quality	1,442	0,229	3,95	3,92	4,12	4,13
II_2_3	Appropriate equipment	15,381	0,000	3,90	4,12	4,46	4,65
II_3	General distance learning experience	8,665	0,000	3,20	3,32	3,77	3,55
II_4	Preparation of lecturers for distance learning	3,525	0,015	3,40	3,34	3,54	3,72
II_5	Effectiveness of didactic methods during distance learning						
II_5_1	Live classes	5,631	0,001	3,77	3,70	4,11	3,92
II_5_2	E-learning courses	4,031	0,007	3,64	3,41	3,70	3,87
II_5_3	Materials provided by the teacher	13,125	0,000	3,71	3,84	4,36	4,11
II_5_4	Recorded video materials from classes	18,869	0,000	3,48	3,20	4,25	3,94
II_5_5	Recorded audio materials	6,480	0,000	3,41	3,20	3,92	3,86
II_5_6	Sharing digital content	4,026	0,007	3,51	3,58	3,93	3,77
II_5_7	Tutorials with the use of instant messaging	16,150	0,000	3,40	3,31	4,10	4,06
II_6	Effectiveness of methods of verifying learning progress during distance learning						
II_6_1	Multiple-choice tests	6,493	0,000	3,41	3,93	3,66	3,98
II_6_2	Tests with open-ended questions	1,579	0,193	3,53	3,32	3,59	3,44
II_6_3	Written assignments prepared outside the classroom and sent to the teacher	13,311	0,000	3,62	3,75	3,55	4,16
II_6_4	Oral answers	1,758	0,154	3,33	3,57	3,36	3,21
II_6_5	Projects prepared in a group and presented to the teacher	7,225	0,000	3,13	3,34	3,80	3,51
II_6_6	Projects prepared in a group and sent to the teacher	3,727	0,011	3,12	3,47	3,71	3,69
II_6_7	Projects prepared individually and presented to the teacher	6,438	0,000	3,30	3,65	3,87	3,99
II_6_8	Projects prepared individually and sent to the teacher	9,881	0,000	3,51	3,87	3,82	4,21
II_7	Distance learning and traditional education - in line with the statements						
II_7_1	Distance learning requires less involvement of students than traditional education	6,248	0,000	2,95	3,03	2,80	3,30
II_7_2	Distance learning requires less time of students than traditional education	3,350	0,019	2,88	3,34	3,10	3,36
II_7_3	Students were more likely to miss remote classes than traditional ones	42,949	0,000	3,43	2,67	2,37	3,57
II_7_4	Students were more passive during remote classes than traditional ones	13,560	0,000	3,37	3,26	3,11	3,79
II_7_5	Fictitious participation in remote classes (e.g. joining classes and doing	9,901	0,000	3,53	3,46	3,05	3,57

Analysed area/ questions		F	p - value	Mean			
				Finland	Greece	Poland	Hungary
	something else during them) is a common practice						
II_7_6	Distance learning, to a greater extent than its traditional form, enables the use of external sources of information that should not be used when verifying learning progress	9,030	0,000	3,68	3,42	3,03	3,35
II_7_7	Students often used prohibited external sources of information during the verification of their progress in online classes	11,372	0,000	3,07	3,30	2,62	3,05
II_7_8	It is ethical to use external sources of information during the verification of progress in online classes	13,140	0,000	2,79	2,83	2,46	3,11
II_7_9	Obtaining a positive result of progress verification is easier in distance learning than in its traditional form	4,202	0,006	3,13	3,27	3,06	3,41
II_8	Expectations for e-learning courses						
II_8_1	Learning at the specific time, completing the entire course, communicating with the teacher electronically	4,527	0,004	3,34	3,63	3,79	3,80
II_8_2	Learning at the specific time, completing course modules, communicating with the teacher electronically	5,809	0,001	3,36	3,76	3,88	3,84
II_8_3	Learning at the specific time, the possibility of ongoing consultations with the teacher	7,196	0,000	3,24	3,59	3,24	3,65
II_8_4	The course is prepared similarly to an e-book with full content, there is no teacher	16,491	0,000	2,74	2,52	3,27	2,67
II_8_5	The course contains only selected content, presented in a slogan, and the complete content is provided by the teacher	8,931	0,000	3,11	3,72	3,19	3,50
II_8_6	A static course that includes content, drawings, diagrams, function buttons, and fixed navigation elements	7,250	0,000	2,77	2,91	3,28	3,07
II_8_7	A dynamic course that contains not only static graphics, but also recordings, videos, clips and animation	14,137	0,000	3,17	3,90	3,92	3,84
II_8_8	A course with the elements of gamification	23,872	0,000	2,72	3,69	3,37	3,85

Table 17 Differentiation of answers to the questions about distance learning – the degree of studies

Analysed area/ questions		F	p - value	Mean	
				1st degree	2nd degree
II_1	Preferred way of learning				
II_1_1	Lectures	1,112	0,292	6,98	7,56
II_1_2	Auditorium classes	1,479	0,224	5,27	5,94
II_1_3	Classes in the computer lab	9,160	0,003	5,29	7,08
II_1_4	Seminars/ tutorials	24,258	0,000	5,64	8,64
II_2	Conditions for distance learning				
II_2_1	Separate room	0,232	0,630	4,15	4,25
II_2_2	Internet quality	3,400	0,066	4,07	4,42
II_2_3	Appropriate equipment	2,149	0,143	4,45	4,69
II_3	General distance learning experience	21,397	0,000	3,57	4,44
II_4	Preparation of lecturers for distance learning	18,380	0,000	3,52	4,33
II_5	Effectiveness of didactic methods during distance learning				
II_5_1	Live classes	15,283	0,000	3,94	4,62
II_5_2	E-learning courses	5,541	0,019	3,69	4,16
II_5_3	Materials provided by the teacher	12,149	0,001	4,17	4,75
II_5_4	Recorded video materials from classes	1,653	0,199	4,01	4,33
II_5_5	Recorded audio materials	1,704	0,192	3,81	4,20
II_5_6	Sharing digital content	8,654	0,003	3,79	4,38
II_5_7	Tutorials with the use of instant messaging	6,820	0,009	3,96	4,52
II_6	Effectiveness of methods of verifying learning progress during distance learning				
II_6_1	Multiple-choice tests	4,569	0,033	3,78	4,21
II_6_2	Tests with open-ended questions	4,614	0,032	3,48	3,94
II_6_3	Written assignments prepared outside the classroom and sent to the teacher	8,401	0,004	3,75	4,34
II_6_4	Oral answers	8,152	0,004	3,31	3,97
II_6_5	Projects prepared in a group and presented to the teacher	2,125	0,145	3,62	3,94
II_6_6	Projects prepared in a group and sent to the teacher	4,943	0,027	3,64	4,12
II_6_7	Projects prepared individually and presented to the teacher	9,146	0,003	3,84	4,41
II_6_8	Projects prepared individually and sent to the teacher	13,178	0,000	3,92	4,57
II_7	Distance learning and traditional education - in line with the statements				
II_7_1	Distance learning requires less involvement of students than traditional education	10,096	0,002	3,05	2,31
II_7_2	Distance learning requires less time of students than traditional education	0,272	0,602	3,24	3,11
II_7_3	Students were more likely to miss remote classes than traditional ones	9,250	0,002	2,87	2,11
II_7_4	Students were more passive during remote classes than traditional ones	2,961	0,086	3,39	3,00
II_7_5	Fictitious participation in remote classes (e.g. joining classes and doing something else during them) is a common practice	2,007	0,157	3,31	3,00
II_7_6	Distance learning, to a greater extent than its traditional form, enables the use of external sources of information that should not be used when verifying learning progress	1,482	0,224	3,19	3,44

Analysed area/ questions		F	p - value	Mean	
				1st degree	2nd degree
II_7_7	Students often used prohibited external sources of information during the verification of their progress in online classes	3,299	0,070	2,90	2,50
II_7_8	It is ethical to use external sources of information during the verification of progress in online classes	0,257	0,612	2,75	2,64
II_7_9	Obtaining a positive result of progress verification is easier in distance learning than in its traditional form	0,351	0,554	3,21	3,33
II_8	Expectations for e-learning courses				
II_8_1	Learning at the specific time, completing the entire course, communicating with the teacher electronically	1,259	0,262	3,75	3,97
II_8_2	Learning at the specific time, completing course modules, communicating with the teacher electronically	1,107	0,293	3,83	4,03
II_8_3	Learning at the specific time, the possibility of ongoing consultations with the teacher	5,771	0,017	3,40	3,89
II_8_4	The course is prepared similarly to an e-book with full content, there is no teacher	0,089	0,765	2,95	2,89
II_8_5	The course contains only selected content, presented in a slogan, and the complete content is provided by the teacher	4,552	0,033	3,35	3,78
II_8_6	A static course that includes content, drawings, diagrams, function buttons, and fixed navigation elements	0,304	0,581	3,15	3,25
II_8_7	A dynamic course that contains not only static graphics, but also recordings, videos, clips and animation	9,467	0,002	3,86	4,39
II_8_8	A course with the elements of gamification	0,745	0,388	3,58	3,75

Table 18 Differentiation of answers to the questions about distance learning – the type of studies

Analyses area/ questions		F	p - value	Mean	
				Part-time	Full-time
II_1	Preferred way of learning				
II_1_1	Lectures	20,389	0,000	7,85	6,66
II_1_2	Auditorium classes	47,041	0,000	6,58	4,77
II_1_3	Classes in the computer lab	37,047	0,000	6,61	4,87
II_1_4	Seminars/ tutorials	28,821	0,000	6,93	5,33
II_2	Conditions for distance learning				
II_2_1	Separate room	1,738	0,188	4,25	4,12
II_2_2	Internet quality	16,397	0,000	4,35	3,98
II_2_3	Appropriate equipment	2,698	0,101	4,56	4,43
II_3	General distance learning experience	62,517	0,000	4,12	3,41
II_4	Preparation of lecturers for distance learning	46,119	0,000	4,00	3,38
II_5	Effectiveness of didactic methods during distance learning				
II_5_1	Live classes	28,751	0,000	4,29	3,85
II_5_2	E-learning courses	35,091	0,000	4,11	3,55
II_5_3	Materials provided by the teacher	13,135	0,000	4,41	4,11
II_5_4	Recorded video materials from classes	13,285	0,000	4,29	3,90
II_5_5	Recorded audio materials	12,600	0,000	4,12	3,69
II_5_6	Sharing digital content	29,959	0,000	4,20	3,66
II_5_7	Tutorials with the use of instant messaging	21,876	0,000	4,30	3,86
II_6	Effectiveness of methods of verifying learning progress during distance learning				
II_6_1	Multiple-choice tests	29,593	0,000	4,16	3,65
II_6_2	Tests with open-ended questions	12,899	0,000	3,76	3,39
II_6_3	Written assignments prepared outside the classroom and sent to the teacher	9,366	0,002	4,00	3,70
II_6_4	Oral answers	6,080	0,014	3,54	3,26
II_6_5	Projects prepared in a group and presented to the teacher	5,325	0,021	3,81	3,57
II_6_6	Projects prepared in a group and sent to the teacher	7,984	0,005	3,88	3,58
II_6_7	Projects prepared individually and presented to the teacher	13,558	0,000	4,11	3,77
II_6_8	Projects prepared individually and sent to the teacher	14,079	0,000	4,19	3,86
II_7	Distance learning and traditional education - in line with the statements				
II_7_1	Distance learning requires less involvement of students than traditional education	57,682	0,000	2,42	3,27
II_7_2	Distance learning requires less time of students than traditional education	8,540	0,004	2,99	3,34
II_7_3	Students were more likely to miss remote classes than traditional ones	20,052	0,000	2,45	2,99
II_7_4	Students were more passive during remote classes than traditional ones	67,569	0,000	2,76	3,62
II_7_5	Fictitious participation in remote classes (e.g. joining classes and doing something else during them) is a common practice	59,229	0,000	2,74	3,53
II_7_6	Distance learning, to a greater extent than its traditional form, enables the use of external sources of information that should not be used when verifying learning progress	58,642	0,000	2,66	3,43

Analyses area/ questions		F	p - value	Mean	
				Part-time	Full-time
II_7_7	Students often used prohibited external sources of information during the verification of their progress in online classes	48,621	0,000	2,37	3,09
II_7_8	It is ethical to use external sources of information during the verification of progress in online classes	0,697	0,404	2,68	2,77
II_7_9	Obtaining a positive result of progress verification is easier in distance learning than in its traditional form	37,277	0,000	2,78	3,40
II_8	Expectations for e-learning courses				
II_8_1	Learning at the specific time, completing the entire course, communicating with the teacher electronically	11,779	0,001	4,00	3,67
II_8_2	Learning at the specific time, completing course modules, communicating with the teacher electronically	7,222	0,007	4,02	3,77
II_8_3	Learning at the specific time, the possibility of ongoing consultations with the teacher	0,178	0,673	3,40	3,44
II_8_4	The course is prepared similarly to an e-book with full content, there is no teacher	4,381	0,037	3,11	2,88
II_8_5	The course contains only selected content, presented in a slogan, and the complete content is provided by the teacher	7,959	0,005	3,57	3,29
II_8_6	A static course that includes content, drawings, diagrams, function buttons, and fixed navigation elements	0,807	0,369	3,21	3,13
II_8_7	A dynamic course that contains not only static graphics, but also recordings, videos, clips and animation	0,504	0,478	3,93	3,87
II_8_8	A course with the elements of gamification	0,616	0,433	3,64	3,56

Table 19 Differentiation of answers to the questions about distance learning – the field of study

Analysed area/ questions		F	p - value	Mean				
				Economic analytics	Automotive	Tourism	Management	Other
II_1	Preferred way of learning							
II_1_1	Lectures	8,906	0,000	6,56	3,69	5,80	7,04	6,93
II_1_2	Auditorium classes	6,855	0,000	4,84	3,46	5,66	4,60	5,71
II_1_3	Classes in the computer lab	8,346	0,000	4,81	3,65	4,82	4,83	6,17
II_1_4	Seminars/ tutorials	8,618	0,000	5,46	3,27	4,08	5,87	5,96
II_2	Conditions for distance learning							
II_2_1	Separate room	1,719	0,144	4,22	3,62	4,01	4,09	4,18
II_2_2	Internet quality	5,145	0,000	4,24	3,31	4,01	3,98	4,19
II_2_3	Appropriate equipment	11,092	0,000	4,52	3,15	4,53	4,35	4,46
II_3	General distance learning experience	6,138	0,000	3,50	2,88	3,62	3,43	3,79
II_4	Preparation of lecturers for distance learning	6,868	0,000	3,63	3,19	3,69	3,29	3,74
II_5	Effectiveness of didactic methods during distance learning							
II_5_1	Live classes	2,186	0,069	3,91	3,56	3,96	3,88	4,09
II_5_2	E-learning courses	4,012	0,003	3,60	3,09	3,78	3,58	3,91
II_5_3	Materials provided by the teacher	2,065	0,084	4,20	3,50	4,18	4,11	4,20
II_5_4	Recorded video materials from classes	7,240	0,000	4,13	3,21	3,89	3,72	4,24
II_5_5	Recorded audio materials	1,748	0,138	3,70	3,17	3,82	3,71	3,95
II_5_6	Sharing digital content	2,303	0,057	3,68	3,31	3,71	3,74	3,96
II_5_7	Tutorials with the use of instant messaging	5,347	0,000	3,80	3,00	4,10	3,81	4,14
II_6	Effectiveness of methods of verifying learning progress during distance learning							
II_6_1	Multiple-choice tests	2,270	0,060	3,77	3,12	3,93	3,71	3,83
II_6_2	Tests with open-ended questions	0,960	0,429	3,54	3,20	3,37	3,47	3,59
II_6_3	Written assignments prepared outside the classroom and sent to the teacher	5,323	0,000	3,77	3,41	4,13	3,56	3,87
II_6_4	Oral answers	3,130	0,014	3,05	3,00	3,19	3,50	3,39
II_6_5	Projects prepared in a group and presented to the teacher	3,630	0,006	3,79	3,00	3,37	3,51	3,76
II_6_6	Projects prepared in a group and sent to the teacher	4,376	0,002	3,89	2,50	3,57	3,52	3,72
II_6_7	Projects prepared individually and presented to the teacher	4,873	0,001	3,94	2,71	3,80	3,76	3,94
II_6_8	Projects prepared individually and sent to the teacher	6,224	0,000	4,09	2,93	4,08	3,77	4,00
II_7	Distance learning and traditional education - in line with the statements							
II_7_1	Distance learning requires less involvement of students than traditional education	7,292	0,000	3,23	2,96	3,30	3,15	2,64

Analysed area/ questions		F	p - value	Mean				
				Economic analytics	Automotive	Tourism	Management	Other
II_7_2	Distance learning requires less time of students than traditional education	3,875	0,004	3,36	2,85	3,42	3,30	2,94
II_7_3	Students were more likely to miss remote classes than traditional ones	2,797	0,025	3,13	3,31	3,08	2,72	2,87
II_7_4	Students were more passive during remote classes than traditional ones	5,871	0,000	3,53	3,35	3,69	3,46	3,07
II_7_5	Fictitious participation in remote classes (e.g. joining classes and doing something else during them) is a common practice	2,214	0,066	3,35	3,42	3,46	3,42	3,14
II_7_6	Distance learning, to a greater extent than its traditional form, enables the use of external sources of information that should not be used when verifying learning progress	1,945	0,101	3,36	3,27	3,31	3,36	3,09
II_7_7	Students often used prohibited external sources of information during the verification of their progress in online classes	3,867	0,004	2,89	2,96	3,04	3,07	2,67
II_7_8	It is ethical to use external sources of information during the verification of progress in online classes	2,866	0,022	2,97	2,81	2,95	2,58	2,73
II_7_9	Obtaining a positive result of progress verification is easier in distance learning than in its traditional form	5,441	0,000	3,34	3,38	3,29	3,37	2,92
II_8	Expectations for e-learning courses							
II_8_1	Learning at the specific time, completing the entire course, communicating with the teacher electronically	0,906	0,460	3,73	3,31	3,70	3,75	3,71
II_8_2	Learning at the specific time, completing course modules, communicating with the teacher electronically	1,766	0,134	3,79	3,31	3,74	3,88	3,76
II_8_3	Learning at the specific time, the possibility of ongoing consultations with the teacher	2,094	0,080	3,45	3,04	3,52	3,50	3,28
II_8_4	The course is prepared similarly to an e-book with full content, there is no teacher	4,674	0,001	2,81	2,73	2,50	3,10	2,98
II_8_5	The course contains only selected content, presented in a slogan, and the complete content is provided by the teacher	2,941	0,020	3,22	2,85	3,56	3,29	3,42
II_8_6	A static course that includes content, drawings, diagrams, function buttons, and fixed navigation elements	3,573	0,007	3,15	2,50	2,90	3,11	3,22
II_8_7	A dynamic course that contains not only static graphics, but also recordings, videos, clips and animation	8,460	0,000	3,98	2,81	3,82	3,90	3,70

Analysed area/ questions		F	p - value	Mean				
				Economic analytics	Automotive	Tourism	Management	Other
II_8_8	A course with the elements of gamification	8,026	0,000	3,54	2,65	3,92	3,53	3,32

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