

Article

Impact of Teaching and Learning Modes on Graduates' Social and Entrepreneurial Skills Development: A Comparative Analysis

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Abstract: There is a growing interest in researching the impact of different modes of learning and teaching on the non-academic outcomes of graduates, such as their employment outcomes. This study examines the impact of teaching and learning modes on the perceived relevance of study programmes in preparing graduates for career entry and the development of social and entrepreneurial skills in six European countries that participated in the Eurograduate pilot survey: Austria, Croatia, Czechia, Lithuania, Malta, and Norway. The study shows that learning and teaching methods have a modest impact on graduates' perceptions that their study programmes provide a good foundation for entering professional life. However, it proves that there is a significant relationship emerging between activating teaching and learning modes and the development of graduates' social and entrepreneurial skills. It, thus, expands on the results of the first European pilot study on the graduate survey and contributes to the current debates in this area.

Keywords: early career outcomes; graduate tracking; teaching and learning modes; transversal skills



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1. Introduction

One of the four purposes of higher education advocated by the Council of Europe is to prepare students for sustainable employment. Higher education institutions are, therefore, expected to consider all four purposes of higher education in the design of their programmes, namely preparation for life as active citizens in democratic societies; personal development; the development and maintenance, through teaching, learning and research, of a broad, advanced knowledge base; and preparation for sustainable employment [1]. It is the responsibility of institutions to ensure the quality of their programmes and the employability of their graduates in line with the four purposes of higher education [2]. With the expansion of higher education, it becomes increasingly important for graduates to have adequate skills to compete in the global labour market. In addition to that, the increasing mobility of graduates across Europe means that competition in today's labour market for graduates in all EU countries is greater than ever before [3]. Furthermore, employers have high expectations for transversal soft skills, and higher education institutions are responding to these demands by integrating soft transversal skills into the curriculum. Yet, many students graduate without "a range of transversal skills they need for resilience in a changing world" [4].

Employability and employability skills have, therefore, attracted the interest of many researchers investigating the factors that have a positive influence on labour-market outcomes upon graduation. Although the construct has evolved and changed in recent years and various models have been offered to explain and predict employability [5], the importance of the transversal skills required by employers, expected by students, and supported by higher education institutions is emphasised in various employability models [6–8].

In this study, we focus our analysis on the impact of ten specific forms of teaching and learning used by higher education institutions in preparing graduates for entry into

the labour market and in developing their social and entrepreneurial skills. The analysis focuses on master-level (MA) graduates who graduated in the academic year 2016/2017 in six European countries (Austria, Croatia, Czechia, Lithuania, Malta, and Norway). The graduates were asked to retrospectively assess the perceived relevance of their study programmes in preparing them for the labour market and in developing their social and entrepreneurial skills.

2. Theoretical Background

The theoretical background for explaining the impact of teaching and learning modes on graduates' social and entrepreneurial skills includes the human capital theory which emphasises the importance of skills and knowledge in graduates' employability, and the constructivist learning theory which explains the role of activating and engaging teaching and learning practices in developing graduates' transversal skills as essential to finding employment upon graduation.

From a human capital theory perspective, developed in the 1960s by Gary Becker and Theodore Schultz, education and training are investments that increase the productivity of individuals and contribute to economic development [9,10]. Empirical research based on human capital theory provides the practical application of theoretical models that put an emphasis on the individual's abilities to achieve good academic and labour-market outcomes. From this perspective, it is indispensable to focus on lifelong learning and the graduates' possession of transferable skills, such as the ability to cooperate, communicate, and solve problems, which are skills assumed to transfer readily across a range of contexts, rather than technical skills, defined by narrow occupational ranges, that form the stabilising characteristic of work [11].

Furthermore, empirical research supports the assumptions that employers have high expectations of the transversal soft skills of graduates [12], often referring to the ability to collaborate with others, communicate, listen and show empathy, maintain a professional attitude, recognise and seize opportunities, take on tasks beyond one's comfort zone, calculate risks, make decisions and take responsibility, have digital competencies, have an intercultural understanding and the ability to identify problems and find effective solutions, and make decisions through innovative and creative thinking [13]. On reviewing the literature on transversal skills required in the labour market, it is possible to find different conceptualisations of transversal skills, such as personal, key, generic, core, and common skills, reflecting differences in definitions and interpretations of their significance [11]. When looking more specifically into the conceptualisation of social skills, the term has a variety of meanings. It usually entails skills in building and using social networks in pursuing one's own personal goals and the specific career skills necessary for finding employment and advancing in a career. Social skills are usually linked with "knowing whom" [14], which includes the different ways in which individuals use their network and social contacts to find a job and manage further their career [15–18] or with interpersonal competencies, such as written and oral communication skills and team-working skills [11].

Equally, graduates report acknowledging the need for developing transversal soft skills for employment [19]. Although they identify discipline-specific skills as being an important and integral part of their portfolio [20], gaining job-related skills alone cannot be enough. Studies suggest that graduates perceive that they lack the skills to present and communicate their knowledge to others [20] and that developing transversal skills should form part of the study programmes [21,22]. This means that higher education is much more than just initiation into a discipline and that students need to go beyond acquiring job-related skills to realise their potential, shape their identities [23] and obtain transversal skills for finding and keeping an employment and managing their careers [20]. Higher education institutions are responding to these expectations by integrating soft transversal skills, such as creativity, interpersonal skills, communication skills, initiative, and critical thinking, into the curricula to equip their graduates for the demands of the market [24].

To support these learning goals, higher education institutions across the European Higher Education Area are exploring innovative learning and teaching approaches that put students at the centre of the learning, teaching, and assessment process. This is in line with the constructivist learning theory that argues for a move away from traditional learning and teaching approaches such as lectures, where the teacher is at the centre of the process, towards activating and engaging teaching and learning practises centred at the student (student-centred learning). According to constructivist theory, knowledge is constructed through interaction with the world and students actively participate in the creation of their knowledge [25]. In such an engaging learning environment, the teacher is perceived as a facilitator of learning rather than a custodian of knowledge and provider of information [26].

Previous research supports the constructivist approach and suggests that students prefer a stimulating learning environment where they engage more and perform better [27]. Students are actively involved in constructing their knowledge through approaches such as project-based learning or problem-based learning [28] and teamwork or collaborative learning involving different departments and disciplines [29], where students learn to work in groups, listen, compromise, and negotiate, and develop interpersonal skills by interacting with a variety of people [30]. Experiential learning and collaboration between students and teachers, between traditionally separate disciplines, and between humans and machines can be supported through methods such as action learning, adventure-based learning, contextual learning, creative workshops, experiential learning, hands-on experimentation, incidental learning, independent learning, learner-centred teaching, learning by doing, service learning, situated learning [31] (pp. 146–147), fieldwork, simulations, learning games, role-playing, peer tutoring, study abroad programmes, etc. [32], and work-based learning has been identified as a valuable learning practice for assisting a smooth transition from higher education to the work environment [20,33,34].

The results of the analysis conducted on the whole sample of Eurograduate individuals graduating in 2016/2017 [35] emphasise the positive impact of activating learning methods in combination with traditional lectures on the respondents' perceptions of their study programmes preparing them to start to work and developing social skills and advanced literacy skills, while a pure problem-based learning style has the most effects on the development of entrepreneurial skills, advanced numeracy skills, and advanced ICT skills. Moreover, a positive impact of a work-related learning environment is mostly found to provide the basis to start to work and develop social skills and entrepreneurial skills.

Building further on these results, in this study, we focus our analysis on the impact of ten specific forms of teaching and learning used by higher education institutions, in particular lectures, group work, participation in research projects, internships, work placement (as a formal part of the degree programme), teacher as the main source of information, project- and/or problem-based learning, written assignments, students' oral presentations, e-learning, self-study, on the perceived relevance of study programmes for preparing graduates for the labour market and developing social and entrepreneurial skills.

3. Method, Sample, and Instrument

In response to the rapid changes in the world of work, which require highly skilled and socially engaged people, and the widespread recognition that education and culture are key to building a cohesive society and strengthening European identity, the European Commission launched a pilot survey of graduates in eight countries (Austria, Czechia, Croatia, Germany, Greece, Lithuania, Malta and Norway). The pilot survey comprised surveys of four distinct types of higher education graduates, which were conducted between October 2018 and February 2019. Bachelor-level (BA) graduates and master-level (MA) graduates from two graduation cohorts (academic years 2012/13 and 2016/17) were surveyed. The aim of the Pilot Survey was to test the implementation of a Europe-wide graduate survey and provide guidelines on how to collect data of the highest attainable quality that is comparable across all EU countries [35].

The data in this study include graduates from six European countries participating in the Eurograduate Pilot Survey: Austria, Czechia, Croatia, Lithuania, Malta, and Norway. The sample is presented in Table 1, and it contains data from individuals who graduated with an MA degree in the academic year 2016/2017 one year after graduation. The sample is described with demographic characteristics: sex (male/female) and age at graduation (grouped in six categories) and academic characteristics: enrolment status (full time/part time), institution type (university/non-university), fields of study programme (education, arts and humanities, social science, journalism and information, business, administration and law, natural sciences, mathematics and statistics, information and communication technology, engineering, manufacturing and construction, agriculture, forestry, fisheries and veterinary, health and welfare, and services).

The analysed dataset was weighted based on population data (the Eurograduate Pilot Study used the so-called “raking procedure” in all countries to guarantee comparability [35] and contains responses from 3731 graduates: 475 from Austria, 476 from Czechia, 1935 from Croatia, 299 from Lithuania, 153 from Malta, and 393 from Norway. The data were centrally collected and anonymised by the Deutsche Zentrum für Hochschul und Wissenschaftsforschung, which made the data available in accordance with the GDPR regulations. For example, names and study programmes are not available, the type of higher education institution is grouped into university/non-university, and study programmes are grouped into broad fields of study according to the European classification ISCED-F (broad fields of education and training).

Table 1. Sample—demographic and academic characteristics.

Student Characteristics		Austria	Czechia	Croatia	Lithuania	Malta	Norway	
Sex	Male	n	215	192	738	110	65	171
		%	14%	13%	49%	7%	4%	11%
	Female	n	259	284	1197	189	88	222
		%	12%	13%	53%	8%	4%	10%
Age at graduation	Up to 24	n	82	134	779	128	57	76
		%	7%	11%	62%	10%	5%	6%
	25 to 29	n	281	262	845	106	47	192
		%	16%	15%	49%	6%	3%	11%
	30 to 34	n	69	24	134	27	16	45
		%	22%	8%	43%	9%	5%	14%
	35 to 39	n	16	15	61	9	8	19
		%	13%	12%	48%	7%	6%	15%
	40 to 49	n	15	24	77	25	13	38
		%	8%	13%	40%	13%	7%	20%
	50 plus	n	1	4	14	1	10	22
		%	2%	8%	27%	2%	19%	42%
Enrolment status	Full-time student	n	475	366	1572	250	93	321
		%	15%	12%	51%	8%	3%	10%
	Part-time student	n	0	109	363	49	59	72
		%	0%	17%	56%	8%	9%	11%

Table 1. Cont.

Student Characteristics		Austria	Czechia	Croatia	Lithuania	Malta	Norway	
Type of HEI	University	n	362	452	1624	299	271	
		%	11%	14%	51%	9%	5%	9%
	Non-university	n	113	24	311	0	1	122
		%	20%	4%	54%	0%	0%	21%
ISCED broad field	Education	n	64	57	145	20	16	35
		%	19%	17%	43%	6%	5%	10%
	Arts and Humanities	n	43	33	196	27	11	31
		%	13%	10%	57%	8%	3%	9%
	Social Sciences, Journalism, and Information	n	45	62	138	46	13	67
		%	12%	17%	37%	12%	4%	18%
	Business, Administration, and Law	n	128	99	618	93	63	102
		%	12%	9%	56%	8%	6%	9%
	Natural Sciences, Mathematics, and Statistics	n	38	24	94	19	4	25
		%	19%	12%	46%	9%	2%	12%
	Information and Communication Technology	n	21	23	91	8	4	15
		%	13%	14%	56%	5%	2%	9%
	Engineering, Manufacturing, and Construction	n	80	85	276	57	10	56
		%	14%	15%	49%	10%	2%	10%
	Agriculture, Forestry, Fisheries, and Veterinary	n	7	16	86	5	0	5
		%	6%	13%	72%	4%	0%	4%
	Health and Welfare	n	46	51	195	25	33	47
		%	12%	13%	49%	6%	8%	12%
	Services	n	4	25	97	1	0	9
		%	3%	18%	71%	1%	0%	7%
Total (n = 3731)		n	475	476	1935	299	153	393
		%	13%	13%	52%	8%	4%	11%

3.1. Variables

Dependent variables measure the extent to which the respondents perceived that their study programmes were a good basis for starting to work (H1), developing social skills (H2), or developing entrepreneurial skills (H3). Independent variables describe the main characteristics of the learning environments, study programmes provided, measured by the respondents' estimation of "to what extent were the following modes of teaching and learning emphasised in their study programme":

1. Lectures;
2. Group assignments;
3. Participation in research projects;
4. Internships and work placement (as a formal part of your study programme);
5. Teacher as the main source of information;
6. Project- and/or problem-based learning (PBL);
7. Written assignments;
8. Oral presentations by students;
9. E-learning;
10. Self-study.

In order to explore the effect of the teaching and learning modes on the perceived benefits of the study programmes, two groups of controlling variables were employed:

1. Graduate attitudes measured by three indicators: “extra work above exam requirements”, “striving for highest marks”, “focus on personal study interests”;
2. Five different types of working experience: “non-study-related work experience in the country of studies”, “non-study-related work experience abroad”, “labour market experience before study programme (at least 6 months)”, “study related work experience or internship during the study in the country of studies”, and “study related work experience or internship during study time abroad”.

All the answers related to dependent, independent, and controlling variables were measured on a 5-point Likert scale with 1 (“to a very high extent”) to 5 (“not at all”).

3.2. Hypotheses

Based on the results of the previous research and the findings of the pilot European graduate survey [35], three hypotheses were formulated to investigate the impact of teaching and learning modes on graduates’ preparation for career entry and the development of their social and entrepreneurial skills.

H1. *Activating teaching and learning, modes which are emphasised in higher education, create a good basis for starting to work after graduation.*

H2. *Activating modes of teaching and learning have a positive effect on the development of graduates’ social skills.*

H3. *Activating modes of teaching and learning have a positive effect on the development of graduates’ entrepreneurial skills.*

In order to test the three hypotheses, descriptive statistics and ordinal logistic regression analyses were used. Descriptive statistics were used to examine the demographic and academic characteristics of graduates across the six participating countries. Logistic ordinal regression analyses were used to analyse the extent to which the effects of the teaching modes explain graduates’ assessment of their study programme and the probability to which respondents indicated that the study programme provided a (very) good basis for starting to work and for developing social and entrepreneurial skills.

First, a test of parallel lines was conducted to test the proportional odds assumption for each dependent variable and for each country separately. The test of parallel lines examined if the relationship between the independent variables and the log odds of being in a certain category of the ordinal dependent variable were the same across all categories of the dependent variable. When the significance of the chi-square statistic was >0.05 , the proportional odds assumption appeared to hold, and the validity and reliability of the model’s results were ensured. The test results assured that the model was valid to be applied on the dependent-variable predictors of a study programme being a good basis for starting to work (H1) for three countries: Austria ($p = 0.217$), Czechia ($p = 0.928$), and Malta ($p = 0.974$); for development of social skills (H2) for four countries: Czechia ($p = 0.117$), Lithuania ($p = 0.715$), Malta ($p = 0.149$), and Norway ($p = 0.942$), and for four countries to test the predictors of study programme being a good basis for the development of entrepreneurial skills (H3): Czechia ($p = 0.411$), Croatia ($p = 0.111$), Lithuania ($p = 0.823$), and Norway ($p = 0.954$).

Second, logistic ordinal regression analyses were used to test the hypothesis where the model was assured to be valid and reliable. The analyses controlled for demographic characteristics (age and gender), academic profiles (type of institution, field of study, and student status), attitudes towards studying, and working experience. The analysis was conducted for each country separately and the results were interpreted comparatively.

4. Results and Discussion

The results presented in this section confirm the three hypotheses. First, the extent to which activating learning environments and work-related learning environments (independent variables) are presented in the comparison between the countries, and second, the three measured outcomes of the study programmes (dependent variables) are described. The descriptive and comparative analysis is then complemented by a multivariate analysis that establishes a relationship between the independent variables and the dependent (outcome) variables. The results are then discussed in terms of the effects of different teaching and learning approaches on the readiness of graduates to start their careers after graduation.

4.1. Descriptive and Comparative Analysis

A comparative analysis between the countries provides an overview of the perceptions of graduates and shows that different modes of teaching and learning are applied to a (very) high extent (the proportion of respondents who answered the question with “4” or “5” on the Likert scale 1–5) in study programmes they completed about a year ago. The results (Figure 1) show the extent to which graduates perceived lectures and self-study (the least activating modes of teaching and learning) predominating in their study programmes. If this is compared with the use of project- or problem-based learning as an activating teaching and learning method, a significant difference can be observed between the countries. In Austria, 85% of the graduates rate the presence of lectures to a (very) high extent in their study programme in comparison to Lithuania, where lectures are present to a (very) high extent according to 53% of graduates. To complement these findings, it is noticeable that in Austria only 34% of the graduates rate project- or problem-based learning as a teaching mode applied to a (very) high extent, according to 54% of respondents. Self-study as another traditional mode of learning is used to a (very) high extent in Czechia (77%) and Malta (72%), with lectures also scoring high, with 65% in Czechia and 71% in Malta. The extent to which the study programme promotes a close link between learning and work is measured by the extent to which the mode of teaching and learning, defined as “internships, work placement (as a formal part of your study programme)”, is applied in the study programme. This type of learning environment is applied, according to the respondents, in less than half of the study programmes to a (very) high extent. The graduates in Malta (27%), Austria (27%), and Czechia (31%) often did not study in such a learning environment, while graduates in Lithuania reported in nearly half of the cases that a work-learning environment applied to their study programme.

Figure 2 shows a comparative description of three measured outcomes of the study programmes (dependent variables). Graduates were asked to rate the extent to which the study programme provided a good basis for starting to work, developing social skills, and developing entrepreneurial skills. The results show that the proportion of graduates who stated that the study programme provided them with a (very) good basis to start to work ranges from 41% to 55% in the six Eurograduate countries. In other words, around half of graduates do not feel equipped for employment after graduation, meaning that their degree programme has barely prepared them for the world of work. Looking specifically at the two groups of transversal skills observed in this analysis, i.e., social skills and entrepreneurial skills, the results in all countries show that, in almost all cases, less than half of graduates state that the study programme provided a (very) good basis for developing their social or entrepreneurial skills. The highest proportion of graduates who see a stronger link between the degree programme and their level of social skills is in Austria (51%), and the lowest is in Norway (35%). Meanwhile, the perceived link between the study programmes and a (very) high level of entrepreneurial skills is highest in Lithuania (35%) and Malta (34%) and lowest in Czechia (14%).

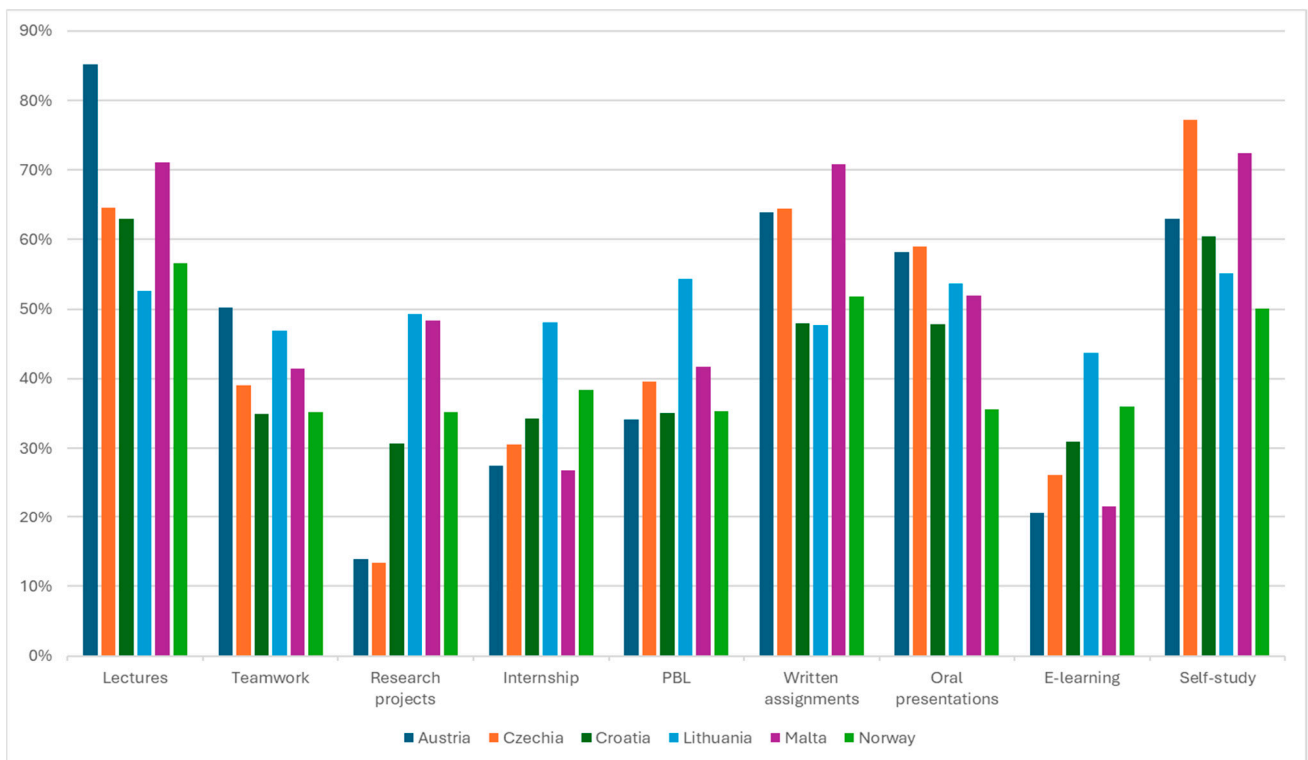


Figure 1. Learning and teaching modes.

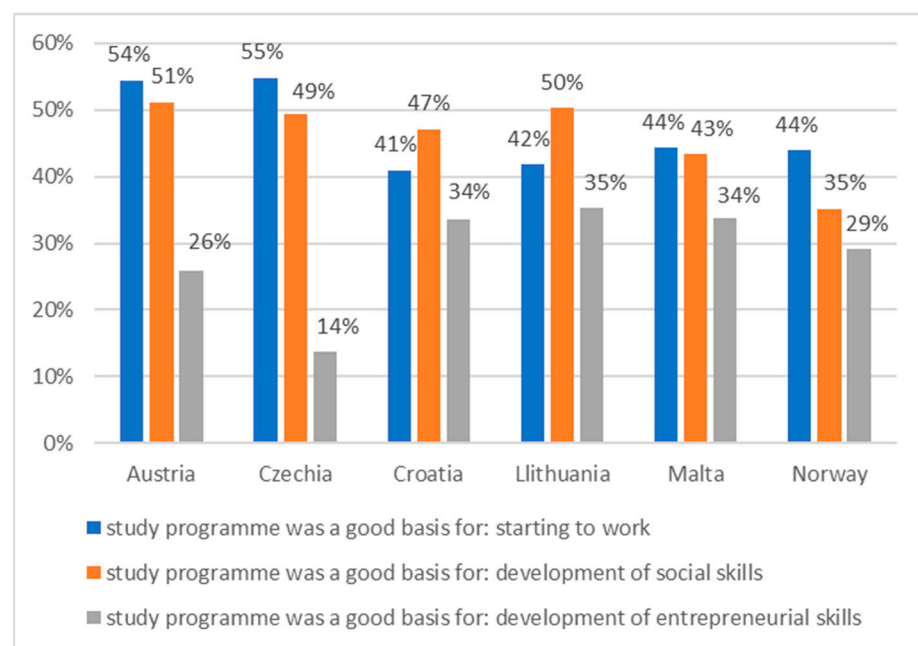


Figure 2. Perceived outcomes of the study programmes.

However, in order to better understand the relationship between the estimated prevalence of the modes of teaching and learning in the study programmes and the early career outcomes, a multivariate analysis was carried out. The results show the effects on graduates' perceptions measured by three indicators, namely readiness to start to work after graduation (Table 2), self-assessment of social skills (Table 3), and self-assessment of entrepreneurial skills (Table 4).

Table 2. Study programmes as a good basis for starting to work.

	AUSTRIA		CZECHIA		CROATIA		LITHUANIA		MALTA		NORWAY	
	Estimate	S.E.	Estimate	S.E.	Estimate	S.E.	Estimate	S.E.	Estimate	S.E.	Estimate	S.E.
Sex	−0.575	0.185	−0.110	0.192	−0.198	0.090	0.207	0.257	−0.193	0.385	0.132	0.197
Age	−0.120	0.110	0.007	0.113	−0.064	0.053	−0.220	0.126	−0.315	0.138	−0.363	0.111
Enrolment status	0 ^b		−0.408	0.298	0.009	0.137	0.393	0.362	−0.569	0.462	0.212	0.381
Type of institution	0.131	0.243	0.177	0.412	0.048	0.128	0 ^b		−17.828	0.000	0.167	0.220
Field of study	0.010	0.043	−0.014	0.035	0.033	0.017	0.022	0.054	−0.092	0.082	−0.003	0.040
Lectures	0.223	0.103	0.053	0.085	0.148	0.045	0.127	0.125	−0.083	0.185	0.426	0.102
Teamwork	0.030	0.101	0.133	0.088	0.114	0.050	0.227	0.125	−0.122	0.149	−0.052	0.100
Research projects	−0.089	0.093	−0.026	0.086	−0.085	0.047	0.009	0.127	0.123	0.141	−0.131	0.092
Internship	0.093	0.068	0.050	0.071	0.119	0.034	0.119	0.098	0.199	0.154	0.197	0.081
Problem-based learning	0.285	0.090	0.307	0.082	0.299	0.045	−0.025	0.129	0.122	0.154	0.123	0.091
Written assignments	−0.130	0.095	−0.163	0.084	−0.003	0.043	−0.150	0.125	−0.046	0.170	−0.346	0.109
Oral presentations	−0.024	0.109	0.151	0.091	−0.146	0.047	−0.091	0.129	0.052	0.152	−0.072	0.095
E-learning	0.008	0.078	−0.021	0.074	0.138	0.037	0.020	0.091	0.186	0.140	−0.011	0.089
Self-study	0.148	0.084	0.212	0.094	0.274	0.040	0.200	0.106	0.339	0.172	0.117	0.094
Extra work	−0.077	0.101	0.204	0.091	0.108	0.046	0.141	0.115	0.308	0.213	0.115	0.107
Striving for highest marks	0.155	0.094	0.047	0.077	0.092	0.041	0.166	0.105	−0.469	0.221	0.377	0.115
Focus on personal study interests	0.065	0.083	0.128	0.081	0.005	0.038	−0.120	0.102	0.224	0.172	0.026	0.088
Non-study related work (in country)	−0.286	0.189	0.033	0.183	−0.185	0.087	−0.197	0.242	0.690	0.359	−0.014	0.207
Non-study related work (abroad)	−0.548	0.320	0.233	0.298	−0.043	0.195	−0.442	0.515	1.140	1.120	−0.191	0.554
Study-related work (in country)	0.313	0.188	0.429	0.195	0.199	0.088	0.760	0.249	0.259	0.428	0.279	0.200
Study-related work (abroad)	−0.217	0.243	0.065	0.251	−0.049	0.183	0.060	0.402	0.050	0.586	−0.421	0.352
Labour-market experience	−0.091	0.197	0.061	0.191	0.088	0.114	−0.422	0.273	1.147	0.480	−0.093	0.226

$p < 0.05$ (for numerals in bold). 0^b—Data are available only for full-time students in Austria and only for one type of institution (university) in Lithuania.

Table 3. Study programmes as a good basis for social-skills development.

	AUSTRIA		CZECHIA		CROATIA		LITHUANIA		MALTA		NORWAY	
	Estimate	S.E.	Estimate	S.E.	Estimate	S.E.	Estimate	S.E.	Estimate	S.E.	Estimate	S.E.
Sex	0.208	0.186	0.332	0.194	0.126	0.090	0.699	0.262	−0.161	0.390	0.146	0.193
Age	−0.032	0.111	0.181	0.116	−0.062	0.054	0.335	0.135	−0.033	0.138	−0.015	0.108
Enrolment status	0 ^b		0.435	0.304	−0.024	0.139	−0.075	0.374	0.442	0.468	0.381	0.376
Type of institution	0.162	0.246	0.297	0.419	−0.126	0.130	0 ^b		3.739	2.324	0.235	0.216
Field of study	−0.060	0.043	−0.079	0.035	−0.043	0.017	0.087	0.056	0.102	0.082	−0.004	0.039
Lectures	0.093	0.104	−0.021	0.086	0.219	0.045	0.073	0.126	−0.249	0.189	0.129	0.098
Teamwork	0.411	0.103	0.261	0.090	0.069	0.051	0.308	0.126	0.794	0.165	0.172	0.098
Research projects	0.168	0.094	−0.060	0.087	0.109	0.048	−0.240	0.130	0.014	0.139	−0.066	0.090
Internship	0.039	0.068	0.255	0.073	0.135	0.035	0.034	0.100	−0.268	0.156	0.334	0.079
Problem-based learning	0.253	0.091	0.243	0.083	−0.045	0.045	0.238	0.132	−0.336	0.159	0.216	0.089
Written assignments	0.087	0.095	0.030	0.085	−0.008	0.043	0.073	0.126	−0.308	0.174	−0.058	0.102
Oral presentations	0.267	0.110	0.372	0.093	0.336	0.048	0.360	0.131	−0.128	0.155	0.036	0.092
E-learning	0.043	0.079	0.093	0.075	0.041	0.037	−0.076	0.092	0.170	0.142	−0.075	0.087
Self-study	−0.034	0.085	0.055	0.094	0.294	0.040	−0.019	0.108	−0.015	0.166	0.110	0.090
Extra work	−0.097	0.102	0.211	0.092	0.127	0.047	0.039	0.117	0.107	0.216	0.094	0.105
Striving for highest marks	−0.016	0.095	0.012	0.077	0.107	0.042	0.247	0.107	0.535	0.222	0.180	0.112
Focus on personal study interests	0.017	0.084	−0.056	0.083	0.064	0.039	0.217	0.105	0.365	0.175	0.141	0.087
Non-study related work (in country)	−0.191	0.191	−0.013	0.185	−0.137	0.088	−0.152	0.247	−0.784	0.360	0.285	0.203
Non-study related work (abroad)	−0.250	0.325	0.851	0.304	−0.308	0.199	0.155	0.526	−3.381	1.317	0.019	0.541
Study-related work (in country)	0.026	0.191	0.057	0.197	−0.006	0.089	0.172	0.251	0.042	0.429	0.005	0.196
Study-related work (abroad)	0.727	0.250	0.214	0.254	−0.163	0.185	−0.181	0.408	−1.304	0.596	0.028	0.337
Labour-market experience	−0.175	0.200	0.037	0.193	0.211	0.116	0.056	0.274	0.905	0.478	−0.370	0.221

$p < 0.05$ (for numerals in bold). 0^b—Data are available only for full-time students in Austria and only for one type of institution (university) in Lithuania.

Table 4. Study programme as a good basis for the development of entrepreneurial skills.

	AUSTRIA		CZECHIA		CROATIA		LITHUANIA		MALTA		NORWAY	
	Estimate	S.E.	Estimate	S.E.	Estimate	S.E.	Estimate	S.E.	Estimate	S.E.	Estimate	S.E.
Sex	−0.075	0.188	0.207	0.200	−0.034	0.090	0.315	0.260	−0.569	0.407	−0.100	0.198
Age	−0.201	0.112	−0.040	0.117	−0.037	0.053	0.046	0.127	−0.247	0.141	0.104	0.111
Enrolment status	0 ^b		1.068	0.308	0.074	0.137	0.719	0.363	0.935	0.485	−0.198	0.386
Type of institution	1.536	0.255	0.148	0.416	0.536	0.128	0 ^b		−2.349	2.490	−0.237	0.222
Field of study	0.012	0.044	−0.003	0.036	−0.017	0.017	−0.061	0.055	0.163	0.088	0.006	0.040
Lectures	−0.044	0.105	−0.208	0.089	−0.107	0.045	0.193	0.128	−0.450	0.191	−0.296	0.101
Teamwork	−0.004	0.105	0.318	0.093	0.306	0.050	0.254	0.126	0.787	0.170	0.053	0.101
Research projects	0.240	0.094	−0.007	0.088	0.218	0.047	0.028	0.130	0.076	0.144	0.215	0.092
Internship	−0.119	0.069	0.028	0.073	0.041	0.034	−0.124	0.099	−0.078	0.170	−0.141	0.080
Problem-based learning	0.446	0.094	0.433	0.087	0.163	0.044	0.182	0.131	0.009	0.154	0.185	0.092
Written assignments	0.222	0.098	0.046	0.088	0.058	0.043	−0.076	0.127	−0.002	0.184	−0.134	0.105
Oral presentations	0.042	0.112	0.257	0.096	−0.002	0.047	−0.031	0.130	0.288	0.158	0.088	0.095
E-learning	0.083	0.079	0.088	0.076	0.124	0.037	0.244	0.093	0.198	0.147	0.397	0.090
Self-study	−0.023	0.086	−0.183	0.097	0.027	0.040	−0.392	0.112	−0.170	0.174	−0.156	0.093
Extra work	−0.168	0.103	0.084	0.095	0.089	0.046	0.305	0.117	0.084	0.218	0.131	0.109
Striving for highest marks	0.028	0.096	0.090	0.081	0.035	0.041	−0.065	0.106	0.301	0.229	−0.177	0.114
Focus on personal study interests	0.051	0.085	−0.054	0.085	−0.025	0.038	−0.016	0.104	−0.207	0.177	0.091	0.090
Non-study related work (in country)	0.446	0.195	−0.187	0.190	−0.210	0.087	−0.392	0.245	−0.139	0.368	−0.117	0.209
Non-study related work (abroad)	−0.574	0.345	0.369	0.306	−0.119	0.195	0.492	0.529	1.362	1.120	−0.366	0.562
Study-related work (in country)	0.183	0.193	−0.185	0.201	0.001	0.088	0.031	0.248	−0.237	0.458	0.116	0.202
Study-related work (abroad)	−0.086	0.252	0.464	0.259	−0.139	0.183	−0.350	0.414	−0.028	0.595	−0.390	0.351
Labour-market experience	0.450	0.202	−0.055	0.199	0.304	0.115	0.072	0.274	1.112	0.497	−0.045	0.227

$p < 0.05$ (for numerals in bold). 0^b—Data are available only for full-time students in Austria and only for one type of institution (university) in Lithuania.

4.2. Multivariate Analysis

In Austria, the probability of graduates estimating that their study programmes were a good basis for starting to work increases by 22.3% ($\beta = 0.223$; S.E. = 0.103) if their assessment of the extent to which lectures were emphasised as a mode of teaching and learning in their study programmes increases by one unit. Conversely, lecture-based study programmes do not appear to have an impact on the level of graduates' perceived social skills in any of the Eurograduate countries, while in Czechia, Croatia, and Norway, they have a negative impact on graduates' self-assessment of their entrepreneurial skills (Czechia: $\beta = -0.208$; S.E. = 0.103; Croatia: $\beta = -0.107$; S.E. = 0.045; and Norway: $\beta = -0.296$; S.E. = 0.101).

The higher rating of the extent to which teamwork was emphasised as a mode of teaching and learning in the study programmes increases the likelihood of graduates' better self-assessment of their social skills by 26.1% in Czechia ($\beta = 0.261$; S.E. = 0.040), by 79.4% in Malta ($\beta = 0.794$; S.E. = 0.165), and by 30.8% in Lithuania ($\beta = 0.308$; S.E. = 0.126). In addition to that, activating the modes of learning and teaching experienced during studies, such as teamwork, research projects, and problem-based learning, has positive effects on the estimated level of entrepreneurial skills of graduates in several Eurograduate countries. The probability that graduates state that their study programmes were a good basis for developing entrepreneurial skills increases by 31.8% ($\beta = 0.318$; S.E. = 0.093) in Czechia, 30.6% ($\beta = 0.306$; S.E. = 0.050) in Croatia, and 25.4% ($\beta = 0.254$; S.E. = 0.126) in Lithuania if their assessment of the extent to which teamwork was emphasised as a mode of teaching and learning in the study programmes increases. The same probability increases by 21.8% ($\beta = 0.218$; S.E. = 0.047) in Croatia and by 21.5% ($\beta = 0.215$; S.E. = 0.092) in Norway if the graduates' assessment of the extent to which research projects were emphasised as a mode of learning and teaching in the study programmes increases. A high level of self-assessment of entrepreneurial skills can be further positively associated with problem-based learning as a perceived prevalent mode of teaching and learning in Czechia, Croatia, and Norway and with e-learning in Croatia, Lithuania, and Norway. There is a 43.3% ($\beta = 0.433$; S.E. = 0.087) higher probability that the graduates in Czechia estimate higher their entrepreneurial skills if their assessment of the extent to which problem-based learning was emphasised as a mode of teaching and learning in the study programmes increases. The odds for higher self-assessment of entrepreneurial skills are increased by 16.3% ($\beta = 0.163$; S.E. = 0.044) in Croatia and 18.5% ($\beta = 0.185$; S.E. = 0.092) in Norway. Moreover, problem-based learning as a mode prevailing in the study programmes of graduates in Austria and Czechia increases the odds of graduates estimating that the study programme was a good basis for starting to work by 28.5% ($\beta = 0.285$; S.E. = 0.090) in Austria and by 30.7% ($\beta = 0.307$; S.E. = 0.082) in Czechia.

Self-study as a dominant mode of learning and teaching has positive effects on graduates estimating the study programme as being a good basis for starting to work, with the odds increasing by 21.2% ($\beta = 0.212$; S.E. = 0.094) in Czechia and with the odds increasing by 33.9% ($\beta = 0.339$; S.E. = 0.172) in Malta, while it negatively impacts the self-assessment of entrepreneurial skills of graduates in Lithuania.

The likelihood of graduates rating their self-assessed social skills higher increases by 25.5% ($\beta = 0.255$; S.E. = 0.073) in Czechia and by 33.4% ($\beta = 0.334$; S.E. = 0.079) in Norway if their assessment of the extent to which internship was emphasised in the study programmes increases. Moreover, it increases by 24.3% ($\beta = 0.243$; S.E. = 0.083) in Czechia and by 21.6% ($\beta = 0.216$; S.E. = 0.089) in Norway if the graduates' assessment of the extent to which problem-based learning was emphasised in the study programmes increases. In Malta, on the other side, problem-based learning as a prevailing learning and teaching mode has a negative effect on the self-assessment of the graduates' social skills, while self-study has a negative effect on the self-assessment of the graduates' entrepreneurial skills in Lithuania.

5. Results and Discussion

The analysis presented in this study examines the impact of the different modes of teaching and learning emphasised in study programmes on graduates' perceptions that their study programme was a good foundation for entering the labour market and on their self-assessment of social and entrepreneurial skills. The results of the analysis support the three hypotheses. The first hypothesis, which states that activating forms of teaching and learning, such as problem-based learning, provides a good basis for entering the labour market, was confirmed in two countries. On the other hand, more traditional approaches such as lecture-based study programmes provide a good basis for entering the labour market in one country. This finding is in line with the conclusions of the report on the Eurograduate pilot study [35] which says a balanced approach between activating learning environments and traditional lecture-based approaches is needed to prepare students for different outcomes. However, when looking at the development of specific transversal competencies, the results of the analysis show that activating learning and teaching modes has positive effects, while lecture-based programmes are found to have a negative impact on graduates' self-assessed entrepreneurial skills and no significant impact on graduates' self-assessed social skills. These results support the other two hypotheses that activating modes of teaching and learning have a positive impact on the development of graduates' social and entrepreneurial skills. A greater emphasis on activating learning and teaching modes, such as teamwork, research projects and problem-based learning, has a positive effect on graduates' perception of their studies as beneficial for the development of social and entrepreneurial skills in several cases, with the exception of a negative effect of problem-based learning on the development of social skills in one country. Internships have positive but modest effects observed only in two countries and only on the development of social skills.

Although the results of this study suggest that activating forms of teaching and learning emphasised in higher education have a positive impact on the development of graduates' social and entrepreneurial skills, further research is needed to establish a clearer link between the different pedagogical approaches and graduates' skills development. Additional and further analyses could consider the specific characteristics of (higher) education systems and learning and teaching cultures in different countries. Furthermore, additional qualitative research could help to triangulate the results in order to better understand the different perceptions of graduates with regard to the learning and teaching modes included in the Eurograduate survey.

Overall, despite the ambiguity of certain results, this analysis underlines the importance of activating learning and teaching approaches for the development of graduates' transversal skills and their readiness to enter the labour market after graduation. In conclusion, this study suggests that a balanced approach to the use of learning and teaching modes is needed to build readiness for work, while the development of social and entrepreneurial skills is strongly supported by activating teaching and learning styles.

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