Fonden for Entreprenørskab

EUROPEAN ENTRE PRE NEURIAL SKILLS MONITOR

Analysis

June 2025

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1 Introduction

As societies across Europe contend with accelerating technological change, the green transition, and growing socio-economic complexity, the skills required for success in life and work are evolving rapidly. Adaptability, creativity, resilience, and an entrepreneurial mindset are among the key competencies highlighted as critical for future employment and social engagement. In recognition of this, the European Commission has designated entrepreneurship as one of its eight Key Competences for Lifelong Learning (LLL). A programme that aims to foster entrepreneurial competencies is the Entrepreneurial Skills Pass (ESP).

ESP is an initiative developed under the umbrella of JA (Junior Achievement) Worldwide and offered to upper-secondary students across more than 40 countries in Europe alone. During the programme, students collaboratively create, launch, and manage a real mini-company, navigating tasks such as ideation, budgeting, marketing, and pitching. Through the programme, participants not only gain practical business insights but also cultivate broader entrepreneurial competencies.

As part of the programme, the ESP includes two core assessment components: a formal multiple-choice exam that evaluates knowledge of business operations, and a self-assessment through which students evaluate their personal development in a set of key entrepreneurial competences. The competencies are operationalised into eleven constructs, such as *creativity, resourcefulness, financial literacy, mobilising others*, and *new venture creation*, and derived from the EntreComp Framework, developed by the European Commission. The tests completed during the ESP provide an excellent tool to investigate the skills students learn during the programme.

This report presents the first analysis of ESP outcomes across European countries. The first part of the analysis investigates differences in the exam performance between countries. The second part investigates the self-assessments, including self-reported learning gains. The findings inform broader discussions on entrepreneurship education policy and the role of competences in preparing youth for uncertain futures.

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The assessments and conclusions presented in the analysis are the sole responsibility of Fonden for Entreprenørskab.

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1.1 Executive Summary

Som Europa står over for hurtige teknologiske, miljømæssige og socioøkonomiske forandringer, vokser behovet for entreprenørielle færdigheder. Entrepreneurial Skills Pass (ESP) og Company Programme, udviklet af Junior Achievement Worldwide imødekommer dette behov ved at hjælpe elever i på ungdomsuddannelser i over 40 europæiske lande med at opbygge nye virksomheder og udvikle nøglekompetencer som kreativitet, modstandsdygtighed og finansiel forståelse.

Denne rapport præsenterer den første analyse på tværs af lande af ESP-resultater fra 2018–2023, baseret på over 81.000 eksamensgennemførelser og 38.000 elever. Den vurderer både objektive eksamensresultater og subjektive selvevalueringer.

Hovedresultater:

- Betydelige forskelle mellem lande
- Schweiz havde den højeste beståelsesprocent (>95 %).
- Georgien havde den laveste beståelsesprocent (<30 %).
- Disse forskelle antyder betydningen af lokale undervisningsmetoder, alder og implementeringskvalitet.
- Vurderingsmetoden har betydning
- Retrospektive selvevalueringer var mere pålidelige end forhåndsundersøgelser.
- Elever har en tendens til at overvurdere deres færdigheder i forhåndsvurderinger.
- Læringsudbytte varierer mellem lande
- Lande som Ungarn (med lavere indledende selvevalueringer) viste større oplevet forbedring.
- Lande som Luxembourg og Slovenien (med højere indledende vurderinger) viste mindre fremgang.
- Kønsforskelle observeret
- Kvindelige elever klarede sig bedre end mandlige på flere områder.
- Dog vurderede de sig selv lavere i kategorien “At tage ansvar”.
- Moderat sammenhæng mellem selvevaluering og eksamensresultater
- Der er en statistisk signifikant, men moderat korrelation mellem oplevet kompetenceudvikling og faktiske eksamensresultater.
- Dette understreger kompleksiteten i at måle resultaterne af entreprenørskabsundervisning.

Konklusion:
Denne rapport bekræfter værdien af JA Company Programme og ESP certificeringen, som et værdifuldt redskab til at fremme entreprenørielle færdigheder blandt unge. Dog varierer dets effektivitet afhængigt af land og kontekst. Fremtidige forbedringer bør fokusere på løbende tilpasninger, forbedring af pensum, og fortsat engagement i robuste evalueringsmetoder.

2Methods

2.1 Data and sample

The data was provided by JA worldwide and covers the ESP programme from 2018 to 2023. The data includes information at different levels: the organization, test centre (or school), teacher (or trainer or examiner), the student, and tests. The lowest level of information is at the concept or competency level. The next section describes how these concepts for the entrepreneurship competencies assessed in the self-assessments.

2.2 Operationalizing entrepreneurship competences

During the self-assessment, students are asked to rate their level of competence. The aim is not to measure objective knowledge or skill, but rather students' own judgement of their development.

Before 2021, the self-assessment was completed twice by the students, once before the programme and once after the programme. Since 2021, the self-assessment has employed a retrospective pre/post design, allowing participants to evaluate their self-perceived competences before the programme and after the programme. This method reduces some of the biases often associated with traditional pre/post evaluations.

Independent of the type of self-assessment format (pre-only, post-only, or retrospective), each of the competencies is measured using three questions. Students respond to these questions on a seven-point scale, where higher scores indicate greater perceived mastery or ambition.

For example, the competence *'Creativity'* is assessed by asking students to rate their ability to (1) generate original ideas, (2) combine existing ideas in new ways, and (3) build upon the ideas of others. In the case of *teamwork*, the questions address active participation in group work, willingness to express one's own views, and 'listen to what others are saying when working in a group'. *Financial literacy* is measured through students' ability to budget, estimate costs, and make financially informed decisions.

This structure is applied consistently across eleven competences, including *resourcefulness, perseverance, self-efficacy, taking initiative, mobilising others, marshalling resources,* and *new venture creation*. Each statement refers to a concrete behaviour, formulated to be intelligible to upper-secondary students without sacrificing analytical clarity.

A similar logic is applied to the multiple-choice exam. Here, students are presented with around 28 questions from a battery of more than 100 possible questions. Each question can be correct or wrong. Three to five questions are then aggregated to assess a specific ability or competence. To pass the exam, students must have at least 70 percent of the questions correct.

Unfortunately, the data does not include information at the question level. Consequently, the analysis cannot test the validity of the concepts included in the exam and self-assessment. However, similar concepts and question structures have been used and tested elsewhere (e.g., Moberg, 2024).

2.3 Sample

The data includes results from 127,464 self-evaluations and exams (exam executions), corresponding to 4119,949 that can be linked to individual, trainer, test centre, and organization level information. As the analysis aims to provide insights into the entrepreneurial skills developed through the JA-programme in Europe, the dataset is restricted to the 105,237 exam executions (3,143,655 observations, corresponding to 75% of the data) associated with 29 JA organizations in Europe. Data from the remaining 14 European organizations is not available[1]. Exam executions associated with "JA Demo" (86, corresponding to 2,456 observations (0.06% of the data) are also excluded from the data. Data from Ukraine is excluded because it only appeared in 2022 in the data, with very few tests (5, of which 3 are test instances, see below). Excluded are 22 (25 with Ukraine) exam executions (1,164 observations, 1,401 with Ukraine) associated with 14 test centres belonging to 12 organizations that include "Dummy", "Test", "Demonstration", or similar in their name. This restriction does not apply to the test centres in Belgium (Fr), Poland, and Serbia because most of their exam executions (100,056) are linked to these test centres. A similar number of cases would be excluded if exam executions linked to trainers (i.e., examiners or teachers) with comparable elements in their names were excluded (again, this was not applied to Belgium (Fr), Poland, and Serbia). Tests without year information (1,674 self-assessments, 28,456 observations) are excluded. These self-assessments have a significantly lower total score than self-assessments with year information ($M = 147$, $SD = 0.369$ vs. $M = 244$, $SD = 0.260$, $t(77741) = 23.287$, $p < .001$). The resulting dataset includes 103,536 exam executions, corresponding to 3,113,664 observations.

To ensure anonymity, the dataset excludes cases with fewer than eleven exam executions per organization per year (dropping 6 exam executions). Because we are interested in examining the change in individual abilities, the dataset is further restricted to cases where an individual completed both the pre- and post-self-assessment or the retrospective assessment, in cases where a self-assessment was completed. This excludes 19,990 exam executions by 19,620 individuals. These individuals are only excluded from the self-assessment analysis and may appear in the exam analysis. For individuals who completed both the retrospective self-assessment and a pre- or post-assessment, only the retrospective assessment is included (excluding 923 pre- or post-self-assessments). Several individuals (1.3%) completed the exam multiple times. For these individuals, only the first exam is included in the analysis.

The final sample includes 81,549 exam executions by 38,906 individuals associated with 28 JA organizations in Europe. Table 1 shows the number of different tests included in the sample, broken down by the JA organizations.

Around 45% of participants (exams and self-assessment) are female, with the remaining part classified as male[2]. This rate is relatively stable across the years, with only 2023 being an exception (58% female). Since only three countries reported results for this year, this might be driven by the countries that reported the data rather than a shift in the overall participation pattern. Indeed, the share of females participating in the ESP varies between countries (see Table 2). For comparability, 2023 is excluded from the analysis. The countries with the highest share of female participants are Slovenia, Finland, and Denmark. In contrast, the countries with the lowest share of female participants are Poland, Serbia, and Moldova[3].

[1] They might not have used the BitMedia version of the test that is used for the analysis.
[2] The 1.3% that did not specify a gender are classified as male. [3] The Flemish speaking part of Belgium also has a low share of female participants, but the French speaking part has a higher share.

Country	Exam	Retro-spective	PRE	POST	Total
Austria	299	350	172	172	993
Belgium (Fr)	572	356	622	622	2.172
Belgium (Nl)	20	14	52	52	138
Czech Republic	1.077	1.022	722	722	3.543
Denmark	675	394	139	139	1.347
Estonia	746	1.806	1.246	1.246	5.044
Finland	70	0	82	82	234
France	355	273	280	280	1.188
Georgia	4.221	2.801	2.029	2.029	11.080
Greece	1.219	543	1.040	1.040	3.842
Hungary	438	318	150	150	1.056
Italy	1.774	644	2.048	2.048	6.514
Latvia	366	426	0	0	792
Lithuania	1.407	1.204	418	418	3.447
Luxembourg	477	328	197	197	1.199
Macedonia	460	246	362	362	1.430
Malta	245	140	138	138	661
Moldova	630	339	452	452	1.873
Norway	2.401	2.047	1.037	1.037	6.522
Poland	257	233	54	54	598
Romania	1.251	482	3.212	3.212	8.157
Russia	120	0	132	132	384
Serbia	421	164	201	201	987
Slovenia	418	335	201	201	1.155
Spain	1.150	331	1.056	1.056	3.593
Sweden	1.951	641	1.230	1.230	5.052
Switzerland	394	393	147	147	1.081
Turkey	2.064	911	2.247	2.247	7.469
Total	25.478	16.741	19.666	19.666	81.551

Table 1: Exam execution types per country

Low High

Country	Nr of tests	Share of female respondents	SD
Austria	785	37,20%	0,48
Belgium (Fr)	2172	46,13%	0,50
Belgium (Nl)	138	28,26%	0,45
Czech Republic	3543	33,25%	0,47
Denmark	1076	58,74%	0,49
Estonia	5044	48,35%	0,50
Finland	234	56,84%	0,50
France	1188	42,59%	0,49
Georgia	11080	43,62%	0,50
Greece	3842	46,04%	0,50
Hungary	1056	41,29%	0,49
Italy	6514	52,49%	0,50
Latvia	792	41,67%	0,49
Lithuania	3447	48,88%	0,50
Luxembourg	1199	50,04%	0,50
Macedonia	1430	37,06%	0,48
Malta	661	54,46%	0,50
Moldova	1873	32,14%	0,47
Norway	5935	55,43%	0,50
Poland	598	26,92%	0,44
Romania	8157	39,62%	0,49
Russia	384	34,11%	0,47
Serbia	987	29,58%	0,46
Slovenia	1155	61,65%	0,49
Spain	3593	41,64%	0,49
Sweden	5052	48,95%	0,50
Switzerland	1081	58,65%	0,49
Turkey	7469	43,15%	0,50
Total	**80485**	**45,26%**	**0,50**

Table 2: Share of female participants across countries. (Excludes tests from 2023)

3 Analysis

3.1 Exam

Turning to the exam analysis, we first investigate the overall passing rate, i.e., the percentage of students who passed the exam. Table 3 shows the results, broken down by country. Overall, 66.62% of students passed the exam on their first attempt. This number varies between countries, with Switzerland having on average the highest passing rate (95.18%) and Georgia the lowest (28.71%). Figure 1 shows the share of exams passed in each country over the years.

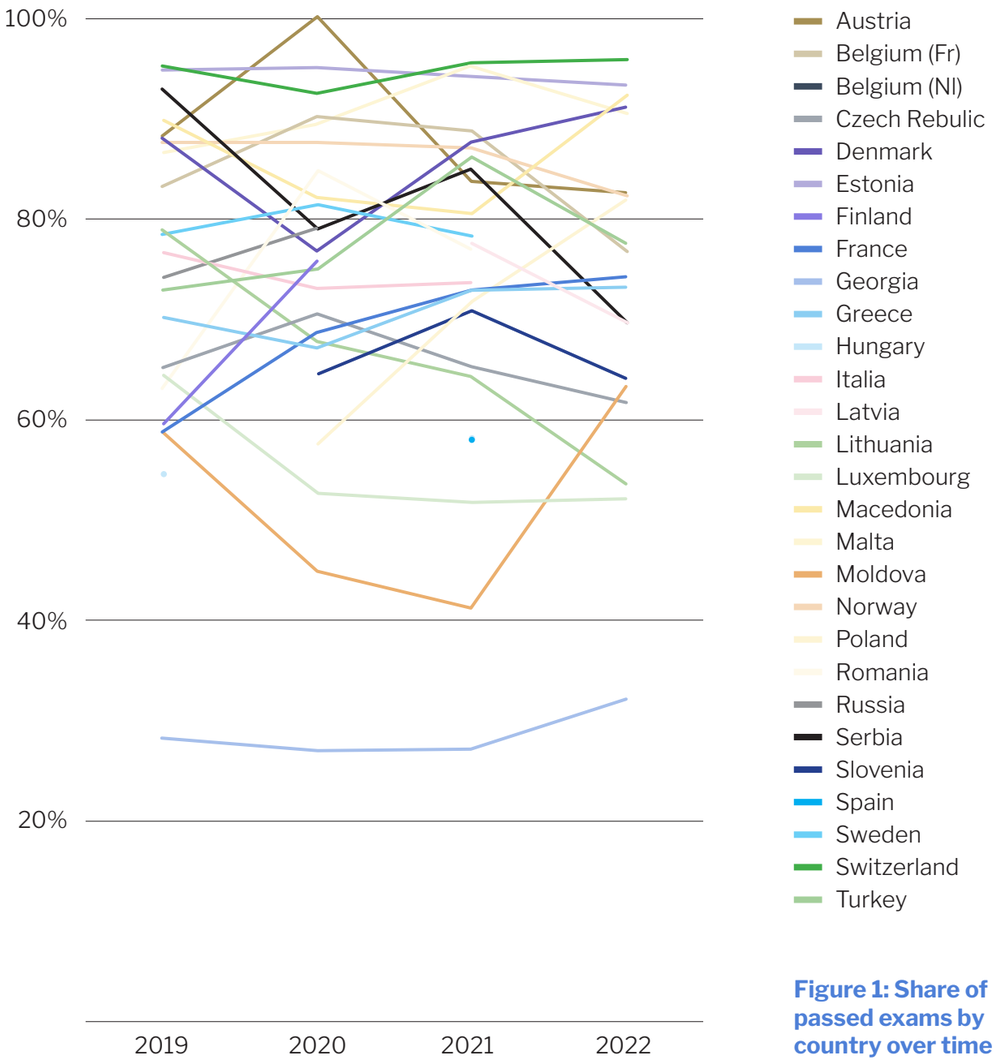

Figure 1: Share of passed exams by country over time

Low High

Country	N	mean	sd
Austria	300	85,33%	0,354
Belgium	592	85,14%	0,356
Czech Republic	1077	65,00%	0,477
Denmark	675	85,33%	0,354
Estonia	746	94,10%	0,236
Finland	70	67,14%	0,473
France	355	70,70%	0,456
Georgia	4222	28,71%	0,452
Greece	1220	70,25%	0,457
Hungary	438	57,08%	0,496
Italy	1775	74,65%	0,435
Latvia	366	71,58%	0,452
Lithuania	1408	60,44%	0,489
Luxembourg	478	54,18%	0,499
Macedonia	460	85,43%	0,353
Malta	245	89,80%	0,303
Moldova	631	48,97%	0,500
Norway	2402	86,09%	0,346
Poland	257	73,15%	0,444
Romania	1252	71,49%	0,452
Russia	120	76,67%	0,425
Serbia	421	82,19%	0,383
Slovenia	418	66,27%	0,473
Spain	1150	55,30%	0,497
Sweden	1951	79,60%	0,403
Switzerland	394	95,18%	0,215
Turkey	2064	76,31%	0,425
Total	**25487**	**66,62%**	**0,472**

Table 3: Share of individuals who passed the exam on their first attempt. (For individuals with multiple exam results, only the first exam is taken into account)

On average, participants answer 71 percent of questions correctly. This number is relatively stable across time and does not meaningfully differ between female and non-female participants, although it is significant (b = - 0.08, p < .001). As with the overall passing rate, the share of correctly answered questions differs between countries, with ranges from 54 percent (Georgia) to 84 percent (Macedonia), followed closely by Estonia, as displayed in Table 4. Note that students in Georgia are, on average, 1 year younger than the participants in other countries, which may explain the lower scores. Slovenia lies closest to the sample average (71%). Figure 2 shows the distribution of the normalised total scores for the full sample.

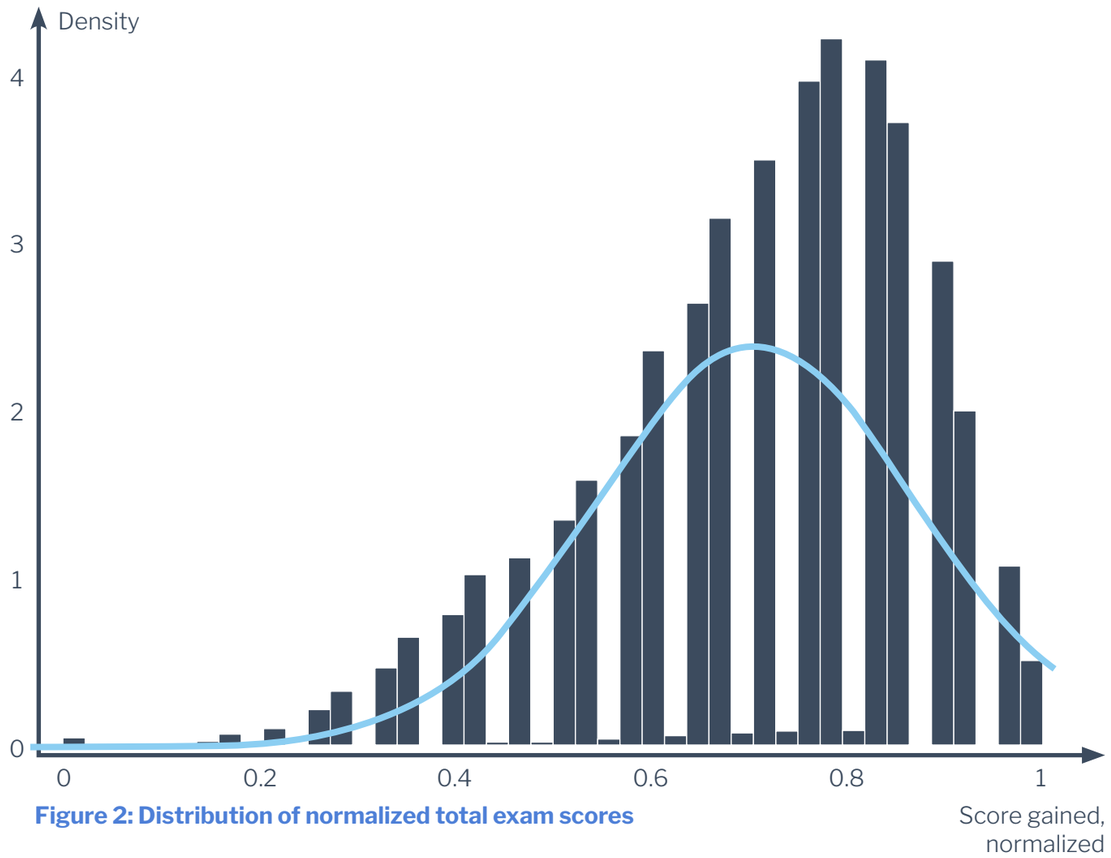

Figure 2: Distribution of normalized total exam scores

Low High

Country	N	mean	sd
Austria	300	77,74%	0,106
Belgium	592	77,62%	0,105
Czech Republic	1077	70,29%	0,129
Denmark	675	76,85%	0,111
Estonia	746	83,36%	0,098
Finland	70	74,74%	0,143
France	355	72,15%	0,123
Georgia	4222	54,42%	0,177
Greece	1220	72,91%	0,139
Hungary	438	66,99%	0,158
Italia	1775	73,94%	0,137
Latvia	366	72,79%	0,134
Lithuania	1408	68,94%	0,142
Luxembourg	478	67,27%	0,148
Macedonia	460	83,77%	0,162
Malta	245	79,46%	0,107
Moldova	631	65,20%	0,154
Norway	2402	79,04%	0,121
Poland	257	73,36%	0,124
Romania	1252	74,12%	0,180
Russia	120	76,19%	0,128
Serbia	421	77,05%	0,135
Slovenija	418	70,76%	0,140
Spain	1150	67,23%	0,147
Sweden	1951	75,42%	0,123
Switzerland	394	82,14%	0,091
Turkey	2064	74,25%	0,137
Total	**25487**	**70,90%**	**0,166**

Table 4: Share of correct exam answers by country

Table 5 shows the standardized passing score of countries over time, where the total mean is set to zero and the standard deviation to one. A standardized passing score of 1 means that the score is one standard deviation above the mean; a standardized passing score of -1 means the score is one standard deviation below the mean. As only data for three countries is available in 2023, the analysis only includes data from 2019 to 2022.

Across years, Georgia has the lowest z-scores, ranging from -0.87 to -.11 standard deviations below the mean. North Macedonia, Estonia, and Switzerland have some of the highest z-scores across the years.

Low High

	2019			2020			2021			2022			Total		
Country	**count**	**mean**	**sd**	**count**	**mean**	**sd**	**count**	**mean**	**sd**	**count**	**mean**	**sd**	**count**	**mean**	**sd**
Austria	34	0,47	0,61	41	0,78	0,46	49	0,43	0,68	86	0,32	0,63	210	0,46	0,63
Belgium	199	0,31	0,63	201	0,52	0,61	106	0,48	0,63	86	0,27	0,66	592	0,41	0,63
Czech Republic	198	-0,04	0,75	193	0,08	0,71	334	-0,05	0,80	352	-0,09	0,81	1077	-0,04	0,78
Denmark	116	0,35	0,67	172	0,23	0,73	160	0,41	0,66	100	0,46	0,64	548	0,35	0,69
Estonia	135	0,80	0,60	161	0,76	0,59	185	0,74	0,57	265	0,74	0,60	746	0,75	0,59
Finland	37	0,03	0,88	33	0,46	0,80							70	0,23	0,87
France	17	0,04	0,80	153	0,04	0,76	123	0,10	0,67	62	0,14	0,81	355	0,08	0,74
Georgia	924	-1,03	1,12	965	-1,11	1,07	1214	-0,99	1,02	1119	-0,87	1,05	4222	-0,99	1,07
Greece	429	0,12	0,83	350	0,09	0,88	195	0,12	0,79	246	0,18	0,83	1220	0,12	0,84
Hungary	141	-0,23	0,88				297	-0,24	0,99				438	-0,24	0,95
Italia	755	0,22	0,79	446	0,13	0,90	574	0,18	0,82				1775	0,18	0,83
Latvia							89	0,37	0,75	277	0,03	0,81	366	0,11	0,81
Lithuania	160	0,24	0,75	252	0,02	0,77	204	0,00	0,88	792	-0,26	0,87	1408	-0,12	0,86
Luxembourg	87	-0,07	0,80	95	-0,25	0,78	170	-0,27	0,94	126	-0,23	0,97	478	-0,22	0,89
Macedonia	146	0,81	0,90	128	0,71	1,00	123	0,69	1,09	63	1,01	0,84	460	0,78	0,98
Malta	75	0,46	0,70	66	0,56	0,63	40	0,60	0,64	64	0,49	0,62	245	0,52	0,65
Moldova	131	-0,13	0,91	264	-0,43	0,93	160	-0,50	0,92	76	-0,08	0,86	631	-0,34	0,93
Norway	451	0,47	0,71	436	0,53	0,65	707	0,53	0,75	548	0,42	0,78	2142	0,49	0,73
Poland				47	-0,19	0,90	106	0,18	0,70	104	0,27	0,69	257	0,15	0,75
Romania	696	-0,06	1,12	361	0,60	0,90	195	0,37	1,02				1252	0,19	1,09
Russia	58	0,34	0,83	62	0,30	0,73							120	0,32	0,78
Serbia	124	0,60	0,61	152	0,31	0,87	66	0,40	0,71	79	0,10	0,99	421	0,37	0,82
Slovenija				121	-0,04	0,86	130	0,06	0,87	167	-0,04	0,82	418	-0,01	0,85
Spain	531	-0,36	0,94	347	-0,06	0,82	272	-0,15	0,81				1150	-0,22	0,89
Sweden	453	0,22	0,74	817	0,34	0,71	681	0,23	0,77				1951	0,27	0,74
Switzerland	61	0,67	0,60	53	0,56	0,56	133	0,73	0,53	147	0,69	0,54	394	0,68	0,55
Turkey	903	0,09	0,87	390	0,20	0,83	316	0,45	0,69	455	0,26	0,78	2064	0,20	0,83
Total	**6861**	**-0,01**	**1,01**	**6306**	**0,03**	**1,00**	**6629**	**0,00**	**1,00**	**5214**	**-0,06**	**0,99**	**25010**	**-0,01**	**1,00**

Table 5: Z-Scores of total exam scores across countries and years (Note: 2023 is excluded from the analysis)

The exam groups questions into four competences, each consisting of three to four sub-questions. Table 6 breaks down the exam into these competences to provide a more fine-grained insight into the learning of the students participating in the programme. The competency with the highest share of correctly answered questions is 'Financial resources and budgeting' (72% correct answers), the part with the lowest is 'Main steps and legal requirements' (64% correct answers). Given that the average share of correct answers is 71%, these are approximately 1% above and 10% below the mean, respectively.

Exam part (competence)	mean	sd
General understanding of organizations	0,721	0,217
Main steps and legal requirements	0,671	0,246
From idea generation to the market	0,710	0,213
Financial resources and budgeting	0,721	0,225
Total	**0,709**	**0,166**

Table 6: Share of correctly answered questions by exam part. (N = 25487, normalized values)

Table 7 breaks down the question groups by countries. To ease comparison between countries within the same question group, the table displays z-scores, with zero as the mean. As all exams are included in the analysis (passed and not), it is not surprising to see that the patterns across countries are similar to the overall passing rates across countries (Table 4). More interesting is the comparison of different competences within the same country. For example, while Finland lies on average 0.23 standard deviations above the mean, it has only an average score (z = 0.01) in the main steps and legal requirements, and even higher above the mean in 'from idea to market' (z = 0.28).

A small difference is also observed between female and non-female participants. Females have, on average, 2.4 percentage points (3.38%) more correct answers in 'Financial resources and budgeting' and around 1.1 percentage points (1.5%) and 1.5 percentage points (2.4%) more correct answers in 'From idea generation to market' and 'General steps and legal requirements', respectively (all $p < .001$). No difference is observed for the 'General understanding of organizations'.

Low — High

	General understanding of organizations		Main steps and legal requirements		From idea generation to the market		Financial resources and budgeting		Total	
Country	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**
Austria	0,25	0,72	0,38	0,83	0,37	0,76	0,23	0,83	0,41	0,64
Belgium	0,32	0,75	0,20	0,84	0,49	0,72	0,18	0,82	0,41	0,63
Czech Rep.	-0,18	0,87	0,05	0,93	-0,17	0,85	0,19	0,86	-0,04	0,78
Denmark	0,20	0,75	0,15	0,91	0,45	0,67	0,23	0,84	0,36	0,67
Estonia	0,68	0,61	0,52	0,79	0,45	0,71	0,59	0,72	0,75	0,59
Finland	0,18	0,79	0,01	0,97	0,28	0,98	0,18	0,96	0,23	0,87
France	0,05	0,86	0,06	0,88	0,29	0,80	-0,16	0,89	0,08	0,74
Georgia	-0,87	1,18	-0,74	1,01	-0,86	1,06	-0,51	1,05	-0,99	1,07
Greece	0,12	0,85	0,14	0,92	0,06	0,93	0,05	0,96	0,12	0,84
Hungary	-0,06	0,98	-0,31	1,00	-0,14	1,00	-0,22	1,02	-0,24	0,95
Italia	0,01	0,85	0,24	0,92	0,15	0,90	0,16	0,94	0,18	0,83
Latvia	0,18	0,81	0,14	0,88	0,05	0,89	0,00	0,97	0,11	0,81
Lithuania	-0,02	0,89	0,00	0,96	-0,17	0,92	-0,13	0,99	-0,12	0,86
Luxembourg	-0,21	0,91	-0,16	0,93	-0,09	0,95	-0,19	0,96	-0,22	0,89
Macedonia	0,67	0,81	0,66	0,86	0,62	0,89	0,40	1,07	0,78	0,98
Malta	0,42	0,70	0,35	0,78	0,56	0,66	0,21	0,85	0,52	0,65
Moldova	-0,15	0,91	-0,15	1,00	-0,30	1,02	-0,38	1,06	-0,34	0,93
Norway	0,37	0,79	0,21	0,83	0,47	0,75	0,37	0,87	0,49	0,73
Poland	0,16	0,84	0,11	0,98	0,01	0,82	0,15	0,90	0,15	0,75
Romania	0,22	1,00	0,25	1,01	0,15	1,06	0,01	1,03	0,19	1,09
Russia	0,33	0,85	0,51	0,87	0,19	0,74	0,02	1,03	0,32	0,78
Serbia	0,32	0,82	0,37	0,83	0,18	0,84	0,26	0,94	0,37	0,82
Slovenija	-0,07	0,94	0,10	0,93	0,11	0,89	-0,13	0,94	-0,01	0,85
Spain	-0,03	0,89	-0,15	0,98	-0,04	0,97	-0,40	1,08	-0,22	0,89
Sweden	0,34	0,79	0,13	0,89	0,23	0,81	0,11	0,89	0,27	0,74
Switzerland	0,40	0,70	0,63	0,79	0,58	0,63	0,43	0,74	0,68	0,55
Turkey	0,18	0,78	0,07	0,93	0,17	0,85	0,14	0,92	0,20	0,83
Total	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**
Normalized values (total)	0,72	0,22	0,67	0,25	0,71	0,21	0,72	0,22	0,71	0,17

Table 7: Z-scores of exam parts by country

3.2 Self-assessments

3.2.1 Difference between survey designs

In 2019 and 2020, the self-assessments were assessed both before and after the programmes. From 2021 onwards, the self-assessments are completed after the programme completion and include questions about a student's ability before and how they evaluate their competencies after the programme. With this change, additional concepts were introduced. This means that the pre-only and post-only surveys do not include the same number of questions as the retrospective surveys. Specifically, the original version contains eight lifelong learning objectives (Citizenship, Communication in a foreign language, Communication in the mother language, Cultural awareness, Digital, Entrepreneurship, Learning to learn, and Mathematical and science), seven Entrepreneurial Skill Pass objectives (Creativity, Perseverance, Resourcefulness, Self-efficacy, Taking initiative, Taking Responsibility, and Teamwork). The retrospective version moreover includes 'Financial Literacy', Marshal resources', 'Mobilise people', 'New venture creation', and 'Entrepreneurial intentions and ambitions'. In addition, the change in survey design can affect the analysis and, ultimately, the conclusions. To analyse this, we focus on the seven entrepreneurial competences that are included in both survey versions, i.e., Creativity, Perseverance, Resourcefulness, Taking initiative, Taking responsibility, and Teamwork. The sample is furthermore restricted to individuals who evaluated these competencies in both the pre- and post-period and lie within the first and 99th percentiles of the normalized total score, to exclude individuals who did not finish the evaluations and extreme outliers. This excludes 1676 self-evaluations, resulting in a sample of 34731 self-evaluations.

Table 8 shows the normalised mean values of individuals before they take part in the programme, reported in the pre-only survey version and the retrospective survey version. These values can be interpreted as percentages or fractions. A value of one would mean full competency (100%); a value of 0.5 would mean a medium level competency or an ability of a competence of 50%. Across the seven competencies, individuals reported that they had an average prior ability of 80.5% when asked before the programme (i.e., pre-survey), and an average prior ability of 58.6% when asked after the programme (i.e., retrospective survey). The difference of 21.9 percentage points is meaningful and significantly different ($p < .001$). Given that the overall mean is 0.708, this means that individuals completing the pre-survey rate their initial abilities across these seven competencies on average about a third higher (approximately 31%).

This difference in initial rating is important because the level of the initial ability reported affects how much a student can learn (or report to have learned). For example, a student who rates her or his initial ability at 50% can learn up to an additional 50% and, as a result, end up at 100%. A student who rates her or his initial ability at 70% can only learn up to an additional 30% and, as a result, end up at 100%. Students with a lower initial rating can, thus, potentially learn more than students with a higher initial rating. However, the post-programme ability of these students might remain lower. The student with the initial ability of 50% learned a remaining 40%, resulting in a post-ability of 90%, while the student with the initial ability of 70% learned the remaining 30%, resulting in a post-ability of 100%. Given this, we would expect the reported learning to differ between the two survey versions. Table 9 shows the results.

Competences	mean (retro)	mean (PRE)	b	se	p
Creativity	0,519	0,766	-0,247	0,002	0,000
Perseverance	0,611	0,810	-0,199	0,002	0,000
Resourcefulness	0,545	0,762	-0,217	0,002	0,000
Self-efficacy	0,591	0,794	-0,203	0,002	0,000
Taking initiative	0,557	0,806	-0,249	0,002	0,000
Taking responsibility	0,624	0,832	-0,208	0,002	0,000
Teamwork	0,653	0,861	-0,208	0,002	0,000
Total	**0,586**	**0,805**	**-0,219**	**0,001**	**0,000**

Table 8: Difference in normalized pre-scores between pre-only survey and retrospective survey (N = 15331 retrospective self-assessments and 19400 pre-self-assessments)

Competences	mean (retro)	mean (POST)	b	se	p
Creativity	0,192	0,027	0,165	0,002	0,000
Perseverance	0,150	0,017	0,133	0,002	0,000
Resourcefulness	0,190	0,023	0,167	0,002	0,000
Self-efficacy	0,159	0,019	0,141	0,002	0,000
Taking initiative	0,158	0,011	0,147	0,002	0,000
Taking responsibility	0,143	0,014	0,128	0,002	0,000
Teamwork	0,162	0,017	0,144	0,001	0,000
Total	**0,161**	**0,017**	**0,144**	**0,001**	**0,000**

Table 9: Difference in normalized learning (i.e., POST-PRE) between post-only survey and retrospective survey. (N = 15331 retrospective self-assessments and 19400 pre-self-assessments)

Indeed, the average learning reported in the post-only survey is significantly lower than the average learning reported in the retrospective survey (b = .144, p <.001). When comparing the abilities reported in two separate surveys (PRE and POST), the learning is on average 1.7%, compared to a learning of 16.1% on average in the retrospective survey. The low learning in the separate surveys is likely due to individual biases, and not a reflection of an individual's actual learning. Given that the retrospective survey mitigates different forms of biases, these results are more likely to be correct. The further analysis is therefore limited to retrospective self-assessments. This excludes countries, like Finland and Russia, without retrospective self-assessments.

3.2.2 Pre-programme evaluations

Table 10 shows students' pre-programme ability in the first of the in total eleven competencies evaluated in the retrospective self-assessment countries. To ease comparison between countries within the same competence, the table displays z-scores. The normalized total values are included as reference at the bottom of the table.

Within 'Creativity', the competency with the overall lowest pre-programme rating, is evaluated highest in countries such as Lithuania, Luxembourg, and North Macedonia. In the case of Lithuania, the z-score of 0.42 means that students in Lithuania evaluate their pre-programme ability to be creative 0.42 standard deviations higher than the average (mean = 0.52). One standard deviation above and one standard deviation below the mean represent 68% of the population. Countries that evaluate their ability to be creative the lowest before participating in the programme include Hungary (z = -0.72, mean = 0.38), Denmark (z = -0.47, mean = 0.43), and Turkey (z = -0.13, mean = 0.49). Given that one standard deviation above and one standard deviation below the mean represent 68% of the population, these variations are rather small.

Low High

	Creativity		Perseverance		Resource-fulness		Selfefficacy		Taking initiative		Taking responsibility		Teamwork	
Country	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**
Austria	0,18	0,99	0,29	0,94	0,23	0,96	0,15	0,97	0,10	1,00	0,27	0,87	0,23	0,96
Belgium	-0,07	0,83	0,23	0,90	-0,10	0,89	-0,28	0,83	-0,11	0,93	-0,11	0,89	-0,10	0,90
Czech Republic	-0,12	0,96	-0,22	0,94	-0,16	0,97	-0,19	0,96	-0,27	1,01	-0,06	0,96	-0,14	0,94
Denmark	-0,47	0,78	-0,21	0,87	-0,37	0,78	-0,19	0,78	-0,28	0,81	-0,12	0,82	-0,19	0,75
Estonia	-0,07	0,95	-0,09	0,88	0,01	0,92	0,12	0,91	0,06	0,95	0,04	0,95	0,18	0,91
France	0,00	0,86	0,23	0,96	-0,22	0,90	-0,19	0,91	-0,22	0,97	-0,09	0,92	0,00	0,88
Georgia	-0,06	1,21	-0,33	1,14	-0,07	1,21	-0,22	1,21	-0,12	1,09	-0,20	1,21	-0,36	1,19
Greece	0,06	0,89	0,30	1,01	0,27	1,00	0,10	0,99	0,18	1,00	0,16	0,96	0,06	0,94
Hungary	-0,72	0,63	-1,00	0,62	-0,73	0,63	-0,95	0,69	-0,79	0,54	-1,10	0,59	-1,13	0,65
Italia	0,01	0,98	0,12	0,94	0,13	1,00	-0,11	0,97	-0,06	0,99	0,00	0,93	-0,05	0,95
Latvia	0,04	0,90	0,12	0,89	0,08	0,89	0,07	0,86	0,07	0,93	-0,14	0,86	0,27	0,90
Lithuania	0,42	0,96	0,24	1,03	0,19	0,99	0,30	0,93	0,16	1,03	0,04	0,99	0,32	0,97
Luxembourg	0,30	0,92	0,14	0,93	0,19	0,95	0,09	0,95	0,06	0,95	0,11	0,94	0,20	0,88
Macedonia	0,35	0,96	0,41	0,97	0,32	1,01	0,49	0,96	0,42	0,99	0,41	0,92	0,37	0,99
Malta	0,18	0,87	0,10	0,98	-0,06	0,96	-0,01	0,91	0,11	0,99	-0,03	0,94	0,07	0,94
Moldova	0,08	1,16	0,29	1,03	0,08	1,15	0,13	1,13	0,16	1,04	0,16	1,04	0,18	0,98
Norway	-0,10	0,96	0,01	0,89	-0,09	0,87	0,15	0,88	-0,03	0,90	0,18	0,87	0,00	0,85
Poland	0,18	0,90	0,07	0,98	0,23	0,90	-0,14	0,84	0,01	1,07	0,26	0,88	0,11	0,96
Romania	0,13	1,19	0,18	1,13	0,04	1,17	-0,01	1,14	0,13	1,12	-0,01	1,10	-0,03	1,11
Serbia	0,18	0,98	0,46	0,95	0,31	0,98	0,37	1,03	0,53	0,91	0,40	0,91	0,28	0,95
Slovenija	0,12	0,99	0,10	1,05	0,05	1,01	-0,08	0,97	0,02	1,00	-0,04	1,00	0,04	1,04
Spain	-0,03	1,00	0,02	1,02	0,00	1,02	-0,22	1,00	-0,03	0,98	-0,14	1,01	0,12	0,98
Sweden	0,14	0,97	0,19	0,87	0,12	0,91	0,35	0,86	0,30	0,94	0,37	0,89	0,39	0,84
Switzerland	0,08	0,78	0,15	0,81	0,03	0,83	0,09	0,83	0,16	0,88	0,10	0,82	0,12	0,84
Turkey	-0,13	0,76	0,10	0,97	0,03	0,97	-0,10	0,95	0,10	0,98	-0,16	0,96	-0,07	0,92
Total	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**
Normalized value (total)	0,52	0,19	0,61	0,22	0,54	0,20	0,59	0,22	0,56	0,22	0,62	0,21	0,65	0,21

Table 10: Standardized pre-scores (z-score) by countries, retrospective survey

‘Teamwork’, the competency with the overall highest pre-programme rating, is evaluated highest in countries such as Sweden (z = 0.39), North Macedonia (z = 0.37), and Lithuania (z = 0.32), closely followed by Serbia (z = 0.28) and Latvia (z = 0.27). Hungary and Georgia have the lowest ratings, with a z-score of -1.11 and -0.36, respectively.

Across these seven competences, North Macedonia, Serbia, and Sweden have the highest self-evaluations pre-programme, and Hungary, Denmark, and Georgia the lowest.

Four competencies have been added to the retrospective survey version. These are ‘Financial literacy’, ‘Marshal resources’ —which refers to participants’ ability to complement their own resources with those of others in the value creation process—, ‘Mobilise people’, and ‘New venture creation’. The pre-programme evaluations of these competencies are displayed in Table 11, in a similar fashion to Table 10.

Low High

	Financial literacy		Marshal resources		Mobilise people		New venture creation		
Country	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**Count**
Austria	0,32	0,99	0,10	0,99	0,28	1,05	0,21	1,00	349
Belgium	-0,20	0,93	-0,18	0,83	0,07	0,96	-0,37	0,91	367
Czech Republic	0,00	0,91	-0,30	0,93	-0,21	0,98	-0,18	0,92	999
Denmark	-0,29	0,82	-0,38	0,91	-0,38	0,78	-0,25	0,89	263
Estonia	-0,16	0,92	0,04	1,00	-0,09	0,94	-0,22	0,94	1743
France	-0,29	0,97	-0,08	0,90	0,05	0,96	-0,45	0,86	262
Georgia	0,08	1,11	0,07	1,13	-0,11	1,12	0,16	1,09	2259
Greece	0,18	0,93	0,23	0,97	0,26	1,00	0,16	1,07	502
Hungary	-0,41	0,69	-0,61	0,64	-0,75	0,65	-0,26	0,66	310
Italia	0,03	0,97	0,01	0,96	-0,01	1,02	0,04	1,04	575
Latvia	0,01	0,88	0,05	0,94	-0,04	0,95	-0,11	0,90	414
Lithuania	0,22	0,98	0,30	1,03	0,15	0,98	0,25	1,03	1139
Luxembourg	0,28	0,98	0,15	1,00	0,23	0,99	0,08	1,07	206
Macedonia	0,39	0,99	0,39	0,98	0,49	0,92	0,41	0,99	224
Malta	0,06	0,98	-0,21	0,90	0,04	0,99	-0,25	1,00	137
Moldova	0,40	1,17	0,08	1,07	0,15	1,10	0,19	1,10	295
Norway	-0,20	0,98	-0,14	0,90	-0,03	0,87	0,12	0,90	2007
Poland	-0,06	0,97	-0,04	0,95	0,08	0,98	0,16	0,93	226
Romania	0,32	1,11	0,05	1,02	0,17	1,09	0,16	1,07	415
Serbia	0,29	1,15	0,15	1,00	0,22	1,04	0,44	1,04	144
Slovenija	-0,03	0,94	0,11	1,02	-0,08	0,96	-0,05	1,01	319
Spain	-0,20	0,95	-0,02	1,00	0,01	1,08	-0,27	0,96	316
Sweden	0,23	0,97	0,16	0,97	0,12	0,92	-0,14	0,97	611
Switzerland	0,12	0,93	-0,08	0,89	0,17	0,92	-0,19	0,92	383
Turkey	-0,19	0,96	-0,04	0,98	0,18	1,01	-0,10	0,95	866
Total	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**15331**
Normalized values (total)	0,47	0,23	0,51	0,23	0,55	0,24	0,43	0,24	15331

Table 11: Standardized pre-scores (z-score) of further competencies, retrospective survey

Of these competencies, 'Mobilise resources' has the highest average rating with a normalized mean of 0.55. This means that if students had to rate their ability to mobilise people on a scale from 1 to 20, then students would give an eleven. The variation between countries is relatively small, ranging from Hungary at the lower end (z = - 0.75) to Macedonia at the higher end (z = 0.49). This pattern is similar across competencies except "New venture creation", where France ranks lowest (z = -0.45) and Serbia highest (z = 0.44). On a scale from one to 20, that would approximately correspond to a value of 13.

Table 12 shows the pre-evaluations of the eight lifelong learning objectives (LLLs) included in the survey. Not surprisingly, students evaluate their 'Communication skills in their mother tongue' as the highest among the LLLs (mean = 0.64). Sweden is the country with the highest scores. Here, students rate their communication ability in their mother tongue 0.64 standard deviations above the mean, followed by Denmark (z = 0.49) and North Macedonia (z = 0.42). Across countries, students evaluate their pre-programme 'Entrepreneurship' competency as the lowest compared to the other LLLs, close to the value expected in a normal distribution, i.e., 0.50. North Macedonia has evaluations about 0.53 standard deviations above the mean, followed by Slovenia (z = 0.33) and Austria (z = 0.30). This means that, on average, students in these countries perceive their entrepreneurship competencies before participating in the program as higher than students in other countries.

Low — High

	Citizenship		Communication in foreign language		Communication in mother tongue		Cultural awareness		Digital		Entrepreneurship		Learning to learn		Math and science	
Country	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**
Austria	0,38	0,94	0,23	0,93	0,40	0,94	0,20	0,98	0,37	0,97	0,30	0,98	0,37	1,02	0,26	0,94
Belgium	-0,13	0,90	-0,31	0,91	-0,16	0,87	-0,15	0,90	-0,14	0,93	-0,09	0,88	-0,12	0,86	-0,07	0,92
Czech Republic	-0,28	0,94	-0,31	0,99	-0,30	0,93	-0,19	0,94	-0,28	0,95	-0,13	0,96	-0,11	0,98	-0,42	0,95
Denmark	-0,04	0,87	0,37	0,95	0,49	0,92	-0,47	0,82	-0,19	0,92	-0,37	0,84	-0,29	0,89	-0,33	0,90
Estonia	-0,08	0,92	0,09	0,91	0,12	0,91	-0,08	0,91	-0,04	0,97	0,04	0,93	-0,01	0,94	0,07	0,93
France	-0,20	0,92	-0,42	0,97	-0,11	0,95	-0,08	0,90	0,03	0,97	-0,06	0,93	-0,11	0,93	-0,08	1,01
Georgia	-0,17	1,13	-0,16	1,06	-0,23	1,14	-0,06	1,13	-0,20	1,07	0,03	1,10	-0,10	1,15	-0,14	1,10
Greece	0,13	1,00	0,34	0,99	0,07	0,97	0,24	1,04	0,28	1,05	0,29	1,04	0,15	1,02	0,39	1,03
Hungary	-0,65	0,56	-0,57	0,67	-0,95	0,58	-0,44	0,75	-0,63	0,74	-0,42	0,65	-0,54	0,73	-0,60	0,57
Italia	0,02	1,04	-0,25	1,00	-0,14	0,94	0,08	1,01	0,10	1,00	-0,06	1,03	0,07	0,97	0,01	1,00
Latvia	-0,14	0,94	0,05	0,94	0,11	0,94	0,02	0,95	0,03	0,92	0,03	0,96	0,09	0,93	-0,03	0,89
Lithuania	0,11	1,00	0,09	0,99	-0,21	0,94	0,22	1,00	0,07	0,98	0,08	1,02	0,15	1,02	0,16	0,96
Luxembourg	0,03	0,96	0,17	0,85	0,23	0,92	0,27	0,95	0,05	1,00	0,21	0,99	0,10	0,94	0,11	0,92
Macedonia	0,31	1,05	0,45	0,93	0,42	0,97	0,74	1,03	0,51	1,00	0,53	1,00	0,59	1,01	0,51	1,00
Malta	0,07	0,91	-0,11	1,08	0,08	0,99	0,28	0,98	0,30	0,98	0,17	0,92	0,17	1,00	0,30	0,96
Moldova	0,06	1,09	-0,26	1,03	0,09	1,03	0,22	1,11	0,12	1,08	0,18	1,08	0,17	1,12	0,14	1,07
Norway	0,22	0,90	0,25	0,96	0,21	0,93	-0,22	0,87	0,15	0,92	-0,26	0,89	-0,05	0,85	-0,08	0,93
Poland	0,10	0,93	0,18	0,90	0,20	0,89	0,21	0,89	-0,02	0,90	0,21	0,93	0,12	0,93	0,22	0,87
Romania	0,14	1,10	-0,04	1,07	0,02	1,05	0,23	1,12	0,22	1,09	0,24	1,16	0,17	1,17	0,10	1,07
Serbia	0,22	1,05	0,18	1,04	0,33	0,95	0,50	1,10	0,41	1,03	0,33	1,10	0,32	1,06	0,40	1,02
Slovenija	-0,20	1,01	-0,12	0,98	-0,31	1,01	-0,01	1,02	-0,12	1,06	-0,02	0,98	-0,28	0,97	-0,13	1,06
Spain	-0,09	1,02	-0,09	1,03	-0,01	0,93	-0,08	0,99	-0,05	1,00	-0,14	1,00	-0,10	0,98	-0,23	0,99
Sweden	0,26	0,93	0,26	0,92	0,64	0,89	0,01	0,93	0,08	0,93	-0,03	0,97	0,00	0,93	0,01	0,96
Switzerland	0,10	0,91	0,01	0,87	0,03	0,86	-0,04	0,89	-0,08	0,91	0,01	0,91	0,03	0,90	0,15	0,94
Turkey	0,11	1,01	-0,13	1,02	-0,05	0,91	0,25	0,99	0,07	0,97	0,12	1,02	0,08	1,00	0,35	0,99
Total	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**
Normalized values (total)	0,54	0,23	0,55	0,26	0,64	0,25	0,52	0,25	0,56	0,25	0,50	0,25	0,56	0,25	0,53	0,23

Table 12: Standardized pre-scores (z-score) of Lifelong Learning objectives (LLLs) by countries, retrospective survey. (N = 15331 self-evaluations of retrospective surveys)

3.2.3 Learning, comparing pre- and post-evaluations

The next section investigates the learning of the participating students. Learning is operationalised as the difference between the post-participation and the pre-participation self-assessment scores. A positive value indicates that students have improved their abilities after participating in the JA programme. A value of zero means no difference between pre- and post-scores, and a negative value occurs when students evaluated their pre-programme abilities as higher than post-participation.

Table 13 breaks down the learnings of the first seven competencies by country. The normalized mean values are included at the bottom of the table. These values show that students documented, on average, the highest learning in the area of 'Creativity' (mean = 0.192), followed by 'Resourcefulness', which reflects their ability to handle the unexpected and overcome obstacles, exceeds the average learning across all competencies (mean = 0.189), 'Self efficacy' (mean = 0.159), and 'Taking initiative' (mean = 0.158). Competencies with the lowest learning are 'Perseverance' (mean = 0.150), 'Teamwork' (mean = 0.143), and 'Taking responsibility' (mean = 0.143). Recall that the latter three competencies have the highest pre-participation scores, and thus, by design, a lower learning potential (as discussed earlier). In contrast, 'Creativity' has the lowest pre-participation rating relative to the other competencies, and thus, by design, a higher learning potential. Consequently, the values are rather an indication of students' improvement after the programme, than an indicator of which competency they improved more. If anything, 'Self-efficacy' and 'Teamwork' might be the competencies that improve more than others, relative to their initial scores.

Low High

	Creativity		Perseverance		Resource-fulness		Selfefficacy		Taking initiative		Taking responsibility		Teamwork	
Country	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**
Austria	-0,19	0,87	-0,17	0,73	-0,17	0,73	-0,19	0,73	-0,18	0,74	-0,20	0,73	-0,27	0,78
Belgium	0,02	1,01	-0,14	1,10	0,03	1,05	0,07	1,07	-0,02	1,06	0,01	1,02	0,00	1,10
Czech Republic	-0,35	0,95	-0,22	0,89	-0,33	0,87	-0,20	0,87	-0,29	0,87	-0,25	0,88	-0,30	0,92
Denmark	0,47	0,83	0,14	0,88	0,23	0,81	0,21	0,87	0,19	0,89	0,05	0,73	0,13	0,71
Estonia	-0,08	1,03	-0,08	0,92	-0,08	0,95	-0,15	0,88	-0,14	0,91	-0,15	0,91	-0,17	0,94
France	0,04	0,88	-0,10	0,75	0,14	0,79	0,05	0,76	0,04	0,84	0,03	0,85	-0,01	0,72
Georgia	0,21	1,08	0,29	1,14	0,16	1,20	0,24	1,20	0,27	1,17	0,26	1,22	0,30	1,15
Greece	0,08	0,90	0,02	0,93	-0,01	0,95	0,04	0,96	0,01	0,95	0,04	0,90	0,10	0,94
Hungary	0,88	0,75	1,09	0,84	0,92	0,83	0,95	0,97	1,10	0,84	1,19	0,88	1,10	0,81
Italia	0,16	0,83	0,09	0,87	0,01	0,91	0,14	0,96	0,12	0,92	0,11	0,87	0,15	0,87
Latvia	-0,03	1,04	-0,16	1,12	-0,08	1,06	-0,10	1,11	-0,03	1,11	-0,03	1,12	-0,22	1,11
Lithuania	-0,30	0,85	-0,26	0,93	-0,21	0,84	-0,30	0,78	-0,31	0,81	-0,16	0,84	-0,26	0,86
Luxembourg	-0,44	0,99	-0,25	0,89	-0,26	0,81	-0,29	0,80	-0,27	0,91	-0,24	0,84	-0,25	0,80
Macedonia	0,23	0,94	0,05	0,86	0,10	0,80	-0,03	0,88	-0,01	0,83	-0,08	0,72	-0,02	0,88
Malta	0,15	0,75	0,08	0,84	0,27	0,80	0,07	0,83	0,14	0,87	0,11	0,76	0,10	0,69
Moldova	0,12	1,38	0,02	1,42	0,21	1,49	0,11	1,50	0,16	1,39	0,07	1,48	-0,04	1,48
Norway	-0,01	0,93	-0,04	0,78	-0,07	0,78	-0,08	0,73	-0,04	0,76	-0,14	0,70	-0,02	0,74
Poland	0,07	0,89	0,00	0,96	-0,10	0,91	0,05	0,91	0,01	0,98	-0,15	0,82	0,04	0,96
Romania	-0,02	1,11	-0,05	0,96	0,02	1,11	-0,02	1,05	-0,06	1,05	0,05	1,03	0,07	1,00
Serbia	0,39	0,79	0,12	0,81	0,23	0,84	0,14	0,92	0,08	0,84	0,09	0,80	0,20	0,84
Slovenija	-0,69	1,62	-0,80	1,85	-0,80	1,78	-0,76	1,86	-0,78	1,83	-0,85	1,89	-0,83	1,91
Spain	0,17	0,87	0,15	0,93	0,13	0,90	0,25	1,00	0,15	0,94	0,12	0,96	0,04	0,89
Sweden	-0,14	0,85	-0,21	0,76	-0,06	0,80	-0,23	0,69	-0,18	0,73	-0,25	0,69	-0,19	0,70
Switzerland	0,01	0,76	-0,08	0,71	0,04	0,73	-0,04	0,73	-0,02	0,74	-0,03	0,72	-0,02	0,74
Turkey	0,09	0,72	0,28	0,87	0,39	0,83	0,40	0,88	0,32	0,87	0,47	0,86	0,36	0,85
Total	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**
Normalized value (total)	0,19	0,22	0,15	0,21	0,19	0,20	0,16	0,20	0,16	0,20	0,14	0,19	0,14	0,20

Table 13: Standardized learning evaluations (z-score) by countries, retrospective survey (N = 15331 self-evaluations of retrospective surveys)

To ease comparability across countries, the remaining values in Table 13 are standardized (i.e., z-scores). Across competencies, students in Hungary report the highest learning. Given that Hungary has the lowest pre-programme scores, the high learning scores may be more a reflection of the survey design and students' initial evaluations, rather than their actual improvements. At least two other countries stand out. Turkey, a country with average pre-scores, has learning scores from 0.09 ('Creativity') to 0.47 standard deviations above the mean ('Taking responsibility'). Slovenia, in contrast, has learning scores from -0.69 ('Creativity') to -0.85 standard deviations below the mean ('Taking responsibility'). Although these numbers are below the average, Slovenia's post-competencies are not significantly lower (or higher) than the pre-competencies, except for 'Creativity', which is somewhat higher than the pre-score (t= 1.75, b = 0.038, p = .08). The very small, normalized learning values of Slovenia in Table 15 illustrate this. Another country with relatively low learning scores is Luxembourg—reflected both in the small, normalized values displayed in Table 14 and the low z-scores (ranging from -0.25 to -0.44) in Table 13. Yet, the pre- and post-evaluations test significantly different (all $p < .001$), meaning that students in Luxembourg evaluated their post-competencies higher than their pre-competencies, although this difference is smaller than in other countries.

Low — High

	Creativity		Perseverance		Resource-fulness		Selfefficacy		Taking initiative		Taking responsibility		Teamwork	
Country	**mean**	**sd**	**mean**	**sd**	**mean**	**sd**	**mean**	**sd**	**mean**	**sd**	**mean**	**sd**	**mean**	**sd**
Austria	0,15	0,20	0,11	0,15	0,16	0,15	0,12	0,14	0,12	0,14	0,10	0,14	0,09	0,16
Belgium	0,20	0,23	0,12	0,23	0,20	0,21	0,17	0,21	0,15	0,21	0,14	0,20	0,14	0,23
Czech Republic	0,11	0,21	0,10	0,18	0,12	0,17	0,12	0,17	0,10	0,17	0,10	0,17	0,08	0,19
Denmark	0,30	0,19	0,18	0,18	0,24	0,16	0,20	0,17	0,19	0,17	0,15	0,14	0,17	0,15
Estonia	0,17	0,23	0,13	0,19	0,17	0,19	0,13	0,17	0,13	0,18	0,11	0,17	0,11	0,19
France	0,20	0,20	0,13	0,16	0,22	0,16	0,17	0,15	0,17	0,16	0,15	0,16	0,14	0,15
Georgia	0,24	0,24	0,21	0,24	0,22	0,24	0,21	0,24	0,21	0,23	0,19	0,23	0,20	0,24
Greece	0,21	0,20	0,15	0,19	0,19	0,19	0,17	0,19	0,16	0,19	0,15	0,17	0,16	0,19
Hungary	0,39	0,17	0,37	0,17	0,37	0,17	0,35	0,19	0,37	0,17	0,37	0,17	0,37	0,17
Italia	0,23	0,19	0,17	0,18	0,19	0,18	0,19	0,19	0,18	0,18	0,16	0,16	0,17	0,18
Latvia	0,19	0,23	0,12	0,23	0,17	0,21	0,14	0,22	0,15	0,22	0,14	0,21	0,10	0,23
Lithuania	0,13	0,19	0,10	0,19	0,15	0,17	0,10	0,15	0,10	0,16	0,11	0,16	0,09	0,18
Luxembourg	0,09	0,22	0,10	0,18	0,14	0,16	0,10	0,16	0,11	0,18	0,10	0,16	0,09	0,16
Macedonia	0,24	0,21	0,16	0,18	0,21	0,16	0,15	0,17	0,16	0,16	0,13	0,14	0,14	0,18
Malta	0,22	0,17	0,17	0,17	0,24	0,16	0,17	0,16	0,19	0,17	0,16	0,14	0,16	0,14
Moldova	0,22	0,31	0,15	0,29	0,23	0,30	0,18	0,30	0,19	0,27	0,16	0,28	0,14	0,30
Norway	0,19	0,21	0,14	0,16	0,18	0,16	0,14	0,14	0,15	0,15	0,12	0,13	0,14	0,15
Poland	0,21	0,20	0,15	0,20	0,17	0,18	0,17	0,18	0,16	0,19	0,11	0,16	0,15	0,20
Romania	0,19	0,25	0,14	0,20	0,19	0,22	0,16	0,21	0,15	0,21	0,15	0,20	0,16	0,20
Serbia	0,28	0,18	0,18	0,17	0,24	0,17	0,19	0,18	0,17	0,16	0,16	0,15	0,18	0,17
Slovenija	0,04	0,36	-0,01	0,38	0,03	0,36	0,01	0,37	0,01	0,36	-0,02	0,36	-0,03	0,39
Spain	0,23	0,19	0,18	0,19	0,22	0,18	0,21	0,20	0,19	0,18	0,17	0,18	0,15	0,18
Sweden	0,16	0,19	0,11	0,16	0,18	0,16	0,11	0,14	0,12	0,14	0,10	0,13	0,11	0,14
Switzerland	0,19	0,17	0,13	0,15	0,20	0,15	0,15	0,14	0,15	0,15	0,14	0,14	0,14	0,15
Turkey	0,21	0,16	0,21	0,18	0,27	0,17	0,24	0,17	0,22	0,17	0,23	0,16	0,22	0,17
Total	**0,19**	**0,22**	**0,15**	**0,21**	**0,19**	**0,20**	**0,16**	**0,20**	**0,16**	**0,20**	**0,14**	**0,19**	**0,14**	**0,20**

Table 14: Normalised learning evaluations by countries, retrospective survey (N = 15331 self-evaluations of retrospective surveys)

Table 15 shows the learning values of the other entrepreneurship competencies. For ease of comparison and interpretation, the table includes z-scores similar to Table 13 and the normalized values similar to Table 14. The competency with the highest learning score is 'New venture creation' (z = 0.27). Note that this competency had the lowest score of the four competencies (0.43), and thus a larger learning potential. 'Financial literacy', which has a pre-programme score of 0.47, has the second-highest average learning score (0.21). Overall, the patterns across countries are similar to the seven initially included entrepreneurship competences (see Table 14), although the differences between countries are a bit smaller. There are notable differences within countries. For example, Hungary, a country that lies repeatedly above the average, lies 0.81 standard deviations above the mean in 'Mobilise people', but only 0.27 standard deviations above the mean in 'New venture creation'. Indeed, Malta (z = 0.55) and Turkey (z = 0.53) rank the highest in this competency.

Low High

	Financial literacy			Marshal resources			Mobilise people			New venture creation			
Country	**z-score**	**mean**	**sd**	**z-score**	**mean**	**sd**	**z-score**	**mean**	**sd**	**z-score**	**mean**	**sd**	**Count**
Austria	-0,26	0,16	0,16	-0,11	0,17	0,16	-0,21	0,12	0,15	-0,20	0,23	0,19	349
Belgium	0,14	0,24	0,24	0,02	0,20	0,23	-0,09	0,15	0,22	0,26	0,33	0,25	367
Czech Republic	-0,32	0,14	0,18	-0,27	0,13	0,18	-0,29	0,11	0,18	-0,29	0,20	0,21	999
Denmark	0,10	0,24	0,19	0,45	0,29	0,22	0,40	0,25	0,19	0,26	0,33	0,24	263
Estonia	0,06	0,23	0,21	-0,04	0,18	0,20	-0,05	0,16	0,19	0,06	0,29	0,22	1743
France	0,04	0,22	0,19	-0,04	0,18	0,15	-0,07	0,15	0,17	0,27	0,33	0,21	262
Georgia	0,04	0,22	0,24	0,08	0,21	0,24	0,20	0,21	0,24	-0,10	0,25	0,25	2259
Greece	-0,10	0,19	0,20	0,05	0,20	0,20	-0,02	0,16	0,19	0,05	0,28	0,24	502
Hungary	0,55	0,33	0,18	0,71	0,34	0,18	0,81	0,33	0,18	0,27	0,34	0,18	310
Italia	-0,01	0,21	0,20	0,03	0,20	0,19	0,13	0,19	0,20	-0,05	0,26	0,22	575
Latvia	0,03	0,22	0,25	-0,03	0,19	0,24	-0,01	0,17	0,24	0,14	0,31	0,28	414
Lithuania	-0,24	0,16	0,18	-0,31	0,13	0,18	-0,21	0,12	0,17	-0,34	0,19	0,21	1139
Luxembourg	-0,37	0,13	0,17	-0,31	0,13	0,17	-0,27	0,11	0,20	-0,09	0,25	0,23	206
Macedonia	0,08	0,23	0,20	0,04	0,20	0,17	-0,02	0,16	0,17	-0,05	0,26	0,19	224
Malta	0,20	0,26	0,20	0,30	0,26	0,19	0,22	0,21	0,19	0,55	0,40	0,21	137
Moldova	0,06	0,23	0,33	0,11	0,22	0,30	0,16	0,20	0,30	0,02	0,28	0,32	295
Norway	0,03	0,22	0,19	0,01	0,19	0,18	-0,05	0,16	0,16	-0,06	0,26	0,19	2007
Poland	0,15	0,25	0,21	0,02	0,20	0,19	-0,01	0,17	0,20	-0,05	0,26	0,20	226
Romania	-0,11	0,19	0,23	-0,10	0,17	0,21	-0,08	0,15	0,20	-0,23	0,22	0,24	415
Serbia	0,23	0,26	0,22	0,39	0,28	0,18	0,25	0,22	0,18	0,07	0,29	0,21	144
Slovenija	-0,70	0,06	0,36	-0,80	0,02	0,38	-0,72	0,02	0,37	-0,64	0,12	0,41	319
Spain	0,31	0,28	0,22	0,09	0,21	0,19	0,09	0,19	0,21	0,21	0,32	0,24	316
Sweden	-0,08	0,20	0,18	-0,15	0,16	0,18	-0,12	0,14	0,16	0,30	0,34	0,22	611
Switzerland	-0,05	0,20	0,17	0,10	0,21	0,17	0,00	0,17	0,15	0,40	0,37	0,20	383
Turkey	0,43	0,31	0,20	0,48	0,29	0,20	0,27	0,22	0,19	0,53	0,40	0,21	866
Total	**0,00**	**0,21**	**0,22**	**0,00**	**0,19**	**0,21**	**0,00**	**0,17**	**0,21**	**0,00**	**0,27**	**0,23**	**15331**

Table 15: Learning evaluations (z-score) of other entrepreneurship competencies by countries, retrospective survey (N = 15331 self-evaluations of retrospective surveys. Displayed is the SD of the normalized values. Total SD of z-scores is zero.)

Table 16 shows the standardised learning evaluations (z-score) of Lifelong Learning objectives (LLLs) by countries, retrospective survey. 'Entrepreneurship' has the highest normalized learning score of the seven LLLs (mean = 0.22). 'Cultural awareness' has the second highest score (mean = 0.17). In contrast, 'Communication in a foreign language' and 'Mathematics and science' have the lowest score (both mean = 0.13). These patterns are in line with the objective of the ESP, which is, first and foremost, to foster entrepreneurial competencies. An explanation for why 'Mathematics and science' ranks relatively low, despite the financial competencies students are taught during the ESP, might be that students do not primarily associate budgeting and related tasks with mathematics, but rather as a part of 'Entrepreneurship'.

Low High

	Citizenship		Communication in foreign language		Communication in mother tongue		Cultural awareness		Digital		Entrepreneurship		Learning to learn		Math and science	
Country	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**	**z-score**	**sd**
Austria	-0,25	0,87	-0,26	0,75	-0,31	0,68	-0,26	0,76	-0,26	0,83	-0,28	0,80	-0,25	0,86	-0,22	0,78
Belgium	-0,01	1,04	-0,06	1,02	0,00	1,18	0,00	1,09	-0,06	1,04	0,04	1,05	0,03	1,00	-0,18	0,96
Czech Rep.	-0,19	0,87	-0,16	0,80	-0,04	0,88	-0,24	0,82	-0,18	0,84	-0,31	0,85	-0,19	0,95	-0,20	0,80
Denmark	0,00	0,85	-0,23	0,78	-0,22	0,78	0,17	0,94	-0,06	0,85	0,32	0,97	0,11	0,87	-0,17	0,75
Estonia	-0,14	0,88	-0,13	0,88	-0,13	0,87	-0,13	0,88	-0,06	0,90	-0,12	0,91	-0,06	0,94	-0,18	0,85
France	0,11	0,81	-0,04	0,81	0,13	0,88	0,09	0,77	0,02	0,84	0,05	0,85	0,07	0,76	-0,07	0,83
Georgia	0,26	1,21	0,33	1,22	0,25	1,21	0,20	1,16	0,26	1,18	0,04	1,07	0,18	1,18	0,37	1,24
Greece	0,09	0,94	0,00	0,96	0,05	0,89	0,03	1,04	0,04	0,99	-0,07	0,94	-0,01	0,94	0,00	0,97
Hungary	0,93	0,85	1,02	0,91	1,07	0,87	0,69	0,93	0,88	0,94	0,57	0,81	0,75	0,90	1,12	0,89
Italia	0,14	0,99	0,18	1,01	0,14	0,90	0,12	1,03	0,08	0,94	0,07	0,95	0,08	0,91	0,14	0,90
Latvia	-0,01	1,15	0,02	1,13	-0,13	1,17	0,00	1,17	-0,08	1,15	-0,08	1,15	-0,10	1,15	0,06	1,14
Lithuania	-0,19	0,84	-0,12	0,88	-0,04	0,82	-0,22	0,86	-0,20	0,83	-0,20	0,91	-0,24	0,92	-0,12	0,83
Luxembourg	-0,14	0,82	-0,14	0,80	-0,25	0,76	-0,29	0,79	-0,19	0,87	-0,31	0,84	-0,16	0,79	-0,28	0,68
Macedonia	0,06	0,99	0,07	1,01	-0,08	0,89	-0,09	0,92	-0,06	0,93	-0,03	0,97	-0,07	0,91	0,06	0,92
Malta	0,04	0,84	-0,04	0,80	0,04	0,83	0,04	0,77	0,02	0,78	0,21	0,79	0,08	0,76	-0,03	0,68
Moldova	0,25	1,53	0,46	1,48	0,10	1,56	0,15	1,48	0,23	1,41	0,10	1,39	0,13	1,45	0,36	1,44
Norway	-0,12	0,71	-0,21	0,69	-0,18	0,69	0,06	0,84	-0,15	0,73	0,20	0,90	-0,05	0,74	-0,20	0,69
Poland	-0,06	0,91	-0,12	0,84	-0,12	0,88	-0,14	0,88	-0,06	0,91	-0,10	0,89	-0,15	0,87	-0,07	0,96
Romania	-0,04	1,07	0,05	1,11	-0,01	1,03	-0,07	1,05	-0,05	1,17	-0,18	1,11	-0,09	1,10	0,01	1,13
Serbia	0,19	0,88	0,20	0,84	0,14	0,84	0,11	0,90	0,06	0,86	0,18	0,95	0,09	0,87	0,11	0,78
Slovenija	-0,65	1,84	-0,56	1,76	-0,64	1,98	-0,64	1,75	-0,58	1,87	-0,69	1,66	-0,60	1,70	-0,62	1,93
Spain	0,13	0,98	0,09	0,98	0,11	0,97	0,23	0,99	0,13	0,94	0,13	0,98	0,18	1,03	0,15	0,94
Sweden	-0,19	0,70	-0,25	0,70	-0,39	0,60	-0,14	0,78	-0,16	0,75	0,12	0,91	-0,02	0,82	-0,25	0,71
Switzerland	-0,03	0,74	-0,11	0,75	0,03	0,75	0,04	0,78	0,10	0,84	0,06	0,83	0,01	0,76	-0,10	0,71
Turkey	0,23	0,90	0,20	0,93	0,36	0,90	0,16	0,91	0,29	0,90	0,30	0,96	0,30	0,91	0,27	0,88
Total	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**	**0,00**	**1,00**
Normalized values (total)	0,16	0,20	0,13	0,21	0,14	0,20	0,18	0,22	0,15	0,21	0,22	0,23	0,17	0,22	0,13	0,19

Table 16: Standardised learning evaluations (z-score) of Life Long Learning objectives (LLLs) by countries, retrospective survey. (N = 15331 self-evaluations of retrospective surveys)

3.3 Linking self-assessments and exam outcomes

The last part of the analysis gives a first glance at the effectiveness of the ESP programme. While the self-assessments and the exams in themselves provide insights into what students think they learned (comparing pre- and post-assessments) and how they perform in the exam, it leaves open the question of whether the perceived learning is related to the exam results. That is, does ESP improve the exam score of students? It could be that students with high pre-programme self-assessment scores have higher exam scores, and those with lower pre-assessments have lower exam scores. Indeed, descriptive statistics show that among the 9,852 students who completed both a retrospective self-assessment and the exam in the period from 2020 to 2022, students with a pre-programme self-assessment score above the median have on average 0.02 percentage points more correct exam answers (corresponding to a 2.6% increase in correctness, t(9850) = -5.69, b = -0.02, p < .001). To gain further insights, the analysis turns to a simple linear regression model. The model controls for year and country differences and individuals' age and gender. Table 17 shows the results.

DV = Normalized exam total	Model 1			Model 2		
Variables	**b**	**se**	**p**	**b**	**se**	**p**
Difference in the 7 entrepreneurship competencies (normalised)	**0,09**	0,01	0,00	.	.	.
Total pre-ability in the 7 competencies (normalised)	0,10	0,01	0,00	**0,05**	0,01	0,00
Pct. of individual's realized learning of individual's learning potential	.	.	.	0,02	0,00	0,00
Male or undefined	0,00	.	.	0,00	.	.
Female	0,01	0,00	0,08	0,00	0,00	0,10
age	0,00	0,00	0,49	0,00	0,00	0,48
Country	Included	Yes	Yes	Included	Yes	Yes
Year	Included	Yes	Yes	Included	Yes	Yes
Constant	0,62	0,08	0,00	0,65	0,08	0,00
N	9852	.	.	9842	.	.
r2_a	0,26	.	.	0,26	.	.
p	0,00	.	.	0,00	.	.
F	115,60	.	.	115,37	.	.

Table 17: Regression models estimating the normalised exam outcomes

Model 1 in Table 17 shows a significant and positive effect of the difference in the total self-assessment score (based on the seven entrepreneurship competencies, i.e., Creativity, Perseverance, Resourcefulness, Self-efficacy, Taking initiative, Taking Responsibility, and Teamwork) on the exam outcome. One percentage point increase in these competencies increases the exam outcome by 0.09 percentage points. Similarly, the pre-ability in these competencies affects the exam outcome too (b = 0.10, p <.001). The effect sizes (eta-square) are, however, negligible; most of the effect is explained by the variations between countries (n^2 = .25). Model 2 takes into account the varying learning potentials of individuals, which depend on their initial assessment scores. The results shown in Model 2 show a similar pattern as in Model 1; Learning is positively associated with exam outcomes, although the effect is small compared to the country effect. Further analysis suggests that students with medium-level pre-abilities (25th to 75th percentile) may benefit the most from the ESP programme in terms of exam outcomes. Across models, female has a small coefficient < 0.01, which is significant at the 10-percent level, suggesting some variations between female and male participants, in line with the descriptive statistics presented earlier. Some of the variation may be absorbed by the country dummies included in the models (recall, the share of participants varies between countries). A more fine-grained analysis is needed to examine gender differences, and which entrepreneurship competencies contribute the most. This first analysis suggests that the ESP programme indeed positively influences entrepreneurship competencies.

4 Discussion

This report presents a first analysis of the Entrepreneurial Skills Pass (ESP) outcomes across several European countries, providing valuable insights into students' entrepreneurial knowledge and self-assessed competences developed through the JA Company Programme.

A key finding is the considerable variation in exam pass rates among countries. Switzerland consistently exhibits the highest exam performance, with a pass rate exceeding 95%, whereas Georgia demonstrates significantly lower results, with pass rates below 30%. These marked differences suggest that further investigation into contextual factors such as participant age, educational practices, and implementation quality would be valuable in future studies.

The self-assessment analysis revealed substantial discrepancies depending on the assessment method. Students evaluated their initial competence levels significantly higher in pre-surveys than in retrospective assessments, reflecting a recognised phenomenon where participants tend to overestimate their pre-existing skills before experiencing the programme. The retrospective assessment approach seems to yield more reliable results and clearer indications of perceived learning gains.

The self-assessed learning gains were largest in countries with relatively lower initial self-assessments, such as Hungary. Countries with higher initial competence ratings, like Luxembourg and Slovenia, reported smaller gains. This outcome can be partially attributed to the assessment design itself; students with lower initial ratings naturally have greater potential for measurable improvement, while those rating their initial competencies higher have a correspondingly reduced potential for improvement. Such variations suggest that educators and policymakers should interpret learning gains carefully, considering the implications of different initial self-assessment levels when adapting programme implementation.

Additionally, a gender dimension was evident, albeit subtly, with female participants consistently outperforming male counterparts in several areas, underscoring the importance of maintaining gender sensitivity in entrepreneurship education practices. However, female participants evaluated their abilities slightly lower than their male counterparts in the self-assessment, especially in the area of 'Taking Responsibility'. Future studies should take potential gender differences into account when analysing how learning affects exam outcomes.

Finally, while the link between self-assessed competence development and exam performance is statistically significant, the effect size remains modest. This underscores the complexity of measuring entrepreneurial education outcomes, especially in settings where cultural, economic, legislative, and societal differences likely affect the outcomes. This suggests that evaluations should continue to combine subjective perceptions with objective assessments to capture a fuller picture of students' learning experiences.

5 Conclusion

The Entrepreneurial Skills Pass demonstrates substantial potential in fostering entrepreneurial competencies across diverse educational contexts in Europe. However, the pronounced country-level differences underline the necessity for future research to consider contextual variables such as local educational standards, socio-economic status, student demographics, and cultural attitudes towards entrepreneurship.

Improving the effectiveness of entrepreneurship education through the ESP programme would benefit from increased attention to curriculum areas that show lower performance. The adoption of retrospective self-assessments provides clearer insights into actual learning gains and should be promoted as standard practice for future evaluations.

Overall, this report confirms the value of the JA Company Programme and ESP certification as tools for equipping young Europeans with essential entrepreneurial skills. Yet, realising their full potential requires ongoing adaptation, thoughtful curriculum enhancements, and continued commitment to robust assessment methods.

6 References

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