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Preliminary results of the first cycle of Cyprus' National Graduate Tracking Survey

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REPUBLIC OF CYPRUS
MINISTRY OF EDUCATION
SPORT AND YOUTH

CY GRADUATES

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Abbreviations

Abbreviation	Description
CCES	Career Counselling and Educational Services
DHE	Department of Higher Education
ECTS	European Credits Transfer and Accumulation System
EEA	European Economic Area
EHEA	European Higher Education Area
EQF	European Qualifications Framework
ESGs	Standards and Guidelines for Quality Assurance
ESS	Employers' Skills Survey
EU	European Union
GDPR	General Data Protection Regulation
HE	Higher Education
HEI	Higher Education Institutions
ISCED	International Standard Classification of Education
ITE	Institutions of Tertiary Education
L&D	Learning & Development
MESY	Ministry of Education, Sport, and Youth
NESS	National Employers' Skills Survey
NGTS	National Graduate Tracking Survey
NQF	National Qualifications Frameworks
PwC	PricewaterhouseCoopers Ltd.

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Executive summary

Skills mismatch appears to be a major challenge across Europe. According to CEDEFOP, Europe's challenge is not just to improve skills levels, but to align individuals with the appropriate skills to suitable jobs. There are various types of skills mismatches, such as overeducation, undereducation, horizontal mismatch, over-skilling, skills obsolescence, etc., which are a major cause of rising unemployment and increasing difficulties for individuals transitioning from education to the labour market to find jobs matching their potential. In Cyprus, skills mismatch has been identified as a major cause of concern in a multitude of policy reports. Although, skills mismatches have been identified as a great challenge at national level that needs to be urgently addressed, national data on the type and extent of different types of skills mismatches are scarce. The identification and measurement of different types of skills mismatches (such as overeducation – undereducation, over-skilling – under-skilling, horizontal mismatch, etc.) is important as these have different implications and call for different actions.

The overall objective of the project of the Department of Higher Education (DHE) of the Ministry of Education, Sport, and Youth (MESY) entitled "Development of a National Graduate tracking Mechanism and Design and Implementation of an Employers' Skills Survey" is to collect national data on graduates' pathways after leaving Higher Education as well as data on labour market's current and future needs in terms of knowledge and skills. By this way, the project aims to identify, measure and monitor on a longitudinal basis the different types of skills mismatches from two sources of data: graduates and employers, and provide the evidence-base to various stakeholders (e.g., policy makers in relevant Ministries/ Services/ Organisations, Cyprus Higher Education Institutions, Human Resource Development Authority, Counselling Services, researchers, employers, students, etc.) to make informed decisions that will ultimately contribute to increasing the responsiveness of Cyprus' education and training system to labour market needs. This project is part of a broader project entitled "Addressing Skills Mismatch between Education and the Labour Market" (C5.1R1), which is included in the Cyprus Recovery and Resilience Plan (RRP).

In the context of DHE's project in the RRP, three surveys will be developed and implemented for collecting high quality data that will contribute to a comprehensive understanding of the mismatch between the skills acquired by graduates of Cyprus Higher Education Institutions and the skills required by the local labour market that will employ them. These surveys are the National Graduate Tracking Survey (NGTS), the National Employers' Skills Survey and the EUROGRADUATE Survey. This report presents the design, implementation, and main results of the first cycle of the National Graduate Tracking Survey 2022, along with the implementation of the first wave of EUROGRADUATE 2022 Survey in Cyprus. The current report mainly focuses on national findings as comparative findings of Cyprus' graduates with graduates from other European countries participating in the EUROGRADUATE Survey will be published in a comparative report prepared by the EUROGRADUATE Consortium in 2024. It is important to note that, in the years the EUROGRADUATE Survey will be running, the National Graduate Tracking and EUROGRADUATE Surveys will share a common methodology and questionnaire for comparability purposes with the respective results of other countries participating in the EUROGRADUATE Survey. Therefore, the National Graduate Tracking Survey was designed according to standards and guidelines provided by the EUROGRADUATE Consortium.

The target groups for the first cycle of National Graduate Tracking and EUROGRADUATE Surveys (for 2022) were all graduates of the academic years 2016/17 (i.e., five years after graduation – T+5) and 2020/21 (i.e., one year after graduation – T+1) from all Higher Education Institutions in Cyprus, both private and public. Specifically, the total population included graduates of all nationalities, all enrolment statuses (e.g., full-time, part-time, distance learning) who completed programs of study at ISCED level 5 (Certificates and Diplomas), ISCED level 6 (Bachelor's degrees) and ISCED level 7 (Master's degrees). The total target population comprised of 24.095 graduates, out of which 10.478 were T+5 graduates and 13.617 were T+1 graduates.

Data collection took place during February and March 2023 through an online questionnaire which was administered in two languages, Greek and English. The questionnaire included questions in six thematic areas: "Education History", "Employment", "Skills/ Competencies", "Regional Mobility", "Career Counselling in Upper Secondary Education and Higher Education" and "Upskilling and Reskilling during Employment". The first four thematic areas were also part of the EUROGRADUATE Survey's questionnaire, while the last two were national thematic sections added by the Department of Higher Education. It is noted that, an additional section

collected data on personal and social background. Various question types were included in the questionnaire, along with several standardized lists and taxonomies to enhance the quality and comparability of the gathered data.

Invitations for participation were sent to graduates by their Higher Education Institutions which included personalized links to access the questionnaire. During the period of data collection, a comprehensive support to both participating graduates and Higher Education Institutions involved was offered. During data collection, various dissemination activities were employed to maximize the visibility of the National Graduate Tracking and EUROGRADUATE Surveys, encourage a high participation and achieve a sufficient response rate.

A total of 1.476 graduates completed the questionnaire, which, based on EUROGRADUATE Consortium's definition for valid cases, then decreased to 1.438: 524 for T+5 (2016/17) and 914 for T+1 (2020/21). In both cohorts, most participants were females, 56% in 2016/17 and 58% in 2020/21. However, when it comes to the age of graduation, a different pattern was observed among respondents. In the 2016/17 cohort, the majority of graduates who responded to the National Graduate Tracking Survey graduated before the age of 25 (38%), while a significant percentage (27%) belonged to the category of 35 and over. On the contrary, in the 2020/21 cohort, the largest proportion of participants fell into the age group of 35 and over (38%) and another significant proportion at the age category of under 25 (32%). Regarding the respondents' country of birth, in both 2016/17 and 2020/21 cohorts, most participants were born in Cyprus (68% and 53% respectively). In relation to variables related to their studies, in both cohorts, the largest proportion of participants attended Universities for their Higher Education studies (84% for 2016/17 and 75% for 2020/21) and graduated from programs of study at ISCED level 7 (52% in 2016/17 and 54% in 2020/21).

Main findings are presented in six sections, following the thematic areas of the questionnaire. In relation to findings regarding graduates' experiences during studies in Higher Education, graduates from both cohorts reported a high overall satisfaction with their studies. The highest satisfaction scores were reported by graduates in the fields of Business Administration and Law, and of Education and Teacher Training in cohort 2016/17 and by graduates in the field of Technology and Engineering in cohort 2020/21. In terms of the contribution of their program of study to their professional career and personal development, graduates from both cohorts reported that it was very beneficial, especially for their personal development. Regarding the teaching and learning modalities employed by their programs of study, most graduates (>50%) within both cohorts reported a joined learning environment of lectures and problem-based learning. The learning environment that relied heavily on lectures was a clear second option by graduates from both cohorts (around 30%), whereas problem-based learning environment, which is relevant to an active learning environment, recorded percentages below 10%. Most graduates also reported that opportunities for participation in internships or work placements (which create a close link between learning and work) were not offered to a high extent by their program of study. While a large percentage of graduates from both cohorts reported that they had a labour market experience during their studies in Higher Education (48% and 63% for cohorts 2016/17 and 2020/21 respectively), this experience was not only gained through internships and work placements that were part of their program of study, but also through internships and work placements offered to all students of their HEI on a voluntary basis, or by engaging in paid employment alongside their studies. The percentage of graduates in both cohorts with a labour market experience in a related field to their studies was significantly higher than those who had gained labour market experience in an unrelated field. International mobility was also explored as participation in mobility programs gives the opportunity to Higher Education students to be exposed to different views, teaching and research methods, work practices, but also it is an opportunity to develop key skills for their personal development. The percentage of graduates who had at least one experience abroad as part of their program of study was approximately 15% in both cohorts. Most graduates reported that studying abroad was the main reason for the time spent abroad, while a significant percentage in both cohorts reported internships or work placements as a second reason. Approximately 30% of graduates in both cohorts decided not to enter the labour force after graduation and continued their studies in Higher Education. In both cohorts, ISCED 6 level had the highest percentage of graduates who reported pursuing further studies after graduation when compared to ISCED 5 and ISCED 7 levels. The field of Natural Sciences had the highest percentage of graduates continuing their studies after graduation, while the field of Health the lowest in both cohorts.

In relation to labour market participation, as expected, the percentage of 2016/17 graduates who are part of the labour force (90%) is higher than the corresponding percentage of 2020/21 graduates (82%). Consequently, the percentage of graduates who reported that they are unemployed or out of the labour force is higher in the 2020/21 cohort. In relation to sectors of employment, most participants reported working in the

private sector in both cohorts (2016/17: 48% and 2020/21: 46%) and a significant percentage is employed in the public sector (2016/17: 37% and 2020/21: 40%). Only a small percentage reported being self-employed (2016/17: 15% and 2020/21: 14%). Self-employment could potentially serve as an indication of entrepreneurship within the workforce. Regarding the place of employment (Cyprus or abroad), most graduates in both cohorts have found employment in Cyprus. This percentage is higher in the 2016/17 cohort when compared to cohort 2020/21 (67% and 57% respectively). By exploring the relationship between place of employment and country of birth, the following pattern emerged in both cohorts: most Cypriots (>90%) found employment in Cyprus, the vast majority (>85%) of graduates from EU countries are employed outside Cyprus and approximately half of the graduates from non-EU countries are employed in Cyprus and the other half abroad. Three indicators of job quality were also explored: job security, working hours and earnings for graduates who made the transition to the labour market. Job security refers to the security of finding and keeping a job and more specifically to permanent contracts or contracts of unlimited duration. Most graduates reported having a contract of unlimited duration at 76% in 2016/17 and 70% in 2020/21. Average contracted working hours were the same in both cohorts (approximately 37 hours per week on average) based on data reported by graduates who are employed or self-employed on a full-time basis. Actual working hours per week differ in both cohorts (39,3 for 2016/17 and 40,5 for 2020/21 graduates). The gap between average contracted and actual hours per week was found to be statistically significant in both cohorts. Graduates from the field of Health reported the highest average of contracted and actual working hours in both cohorts. Another important aspect of quality employment is earnings. Graduates reported their gross annual earnings plus annual supplementary payments. More specifically, graduates in the 2016/17 cohort reported significantly higher earnings than graduates in the 2020/21 cohort. In both cohorts, males had significantly higher median earnings than females. In addition, ISCED 7 graduates reported the highest median earnings in both cohorts. In relation to the field of study, in both cohorts, the highest median earnings are paid to Business, Administration and Law and to Technology and Engineering graduates, while the lowest to Education and Teacher Training graduates. Regarding time taken to find first job after graduation, graduates in the 2016/17 cohort reported a longer waiting time to find employment (17,1 months). However, a higher proportion of 2016/17 graduates reported finding a job after graduation (60%) than 2020/21 graduates (46%). The survey also collected data on overall job satisfaction. The average job satisfaction appears to be medium to high in both cohorts (3,85 for the 2016/17 cohort and 3,83 for the 2020/21 cohort on a scale from 1 to 5). Graduates employed in the public sector reported a higher average job satisfaction in both cohorts.

Findings are also reported regarding mobile graduates. Mobile graduates are defined as persons working or learning in a different country from that of graduation at any point following completion of their higher education studies. The proportion of mobile graduates in both cohorts was relatively low, with percentages equal to 9% and 10% for the 2016/17 and 2020/21 cohorts respectively. In both cohorts, males exhibited a higher tendency to migrate than females, as did younger graduates compared to older ones. Additionally, ISCED level 6 graduates were more prone to leaving the country than ISCED level 5 and 7 graduates, and those from Universities were more inclined to migrate than graduates from Institutions of Tertiary Education (ITE). Regarding the field of study, in the 2016/17 cohort, the highest proportion of mobile graduates was found within the field of Natural Sciences (18%), while in the 2020/21 cohort in the field of Health (31%).

When graduates transition into the labour market, it is crucial that they find a job that matches their qualifications and skills. Graduates who are employed in a position that does not match the level of their higher education qualifications (vertical mismatch) or the field of their studies (horizontal mismatch) are considered to be in a particularly difficult situation. Previous surveys have shown that they face skills depreciation and earn significantly less. In the context of this study, various types of skills mismatches were explored. All types of skills mismatches reported were subjectively measured, i.e., they were based on graduates' views and self-assessments. A considerable percentage of graduates, approximately equal to 46% in both cohorts, reported being overeducated or, put simply, reported having a higher level of education than it is required by their job. In the 2016/17 cohort, the majority of females indicated that they are overeducated (49%), while the majority of males reported that their job matches their level of education (48%). In the 2020/21 cohort, the opposite pattern is observed: more than half of females expressed that they are matched with their current job and most males (48%) reported that they are overeducated. Undereducation does not appear to be a problem as only a small percentage of graduates reported having a lower level of education than it is required by their job (9% in 2016/17 and 8% in 2020/21). In both cohorts, most ISCED 5 and ISCED 6 graduates reported that their level of education matched with the requirements of their current employment, while the majority of ISCED 7 graduates reported being overeducated. ISCED 6 is the group with the highest percentage of graduates with matched jobs in both cohorts (68% in the 2016/17 and 77% in the 2020/21). In relation to the alignment

between the level of education and current employment according to graduates' field of study, in the 2016/17 cohort, the majority of graduates in the fields of Education and Teacher Training and the category "Other" (which included the fields of Agriculture, Forestry, Fisheries, Veterinary and Services) reported being overeducated (65% and 70% respectively). The field of Natural Sciences had the highest percentage of graduates reporting being undereducated (22%) compared to other fields. In the 2020/21 cohort, the majority of graduates in the fields of Education and Teacher Training and Business, Administration and Law (49% and 50% respectively) reported being overeducated, while the category "Other" had the highest proportion of graduates reporting being undereducated (23%) compared to the other fields. The proportion of graduates reporting being horizontally mismatched was much lower when compared to the proportion of graduates reporting being vertically mismatched (either overeducated or undereducated) in both cohorts. Specifically, 21% and 15% of graduates from the 2016/17 and 2020/21 cohorts respectively reported that their current job was not in line with the field of their program of study. ISCED 5 had the highest percentage of graduates reporting that they were horizontally mismatched when compared to other ISCED levels (48% as opposed to 18%-19% for ISCED levels 6 and 7 in cohort 2016/17 and 25% as opposed to 13%-14% for ISCED levels 6 and 7 in cohort 2020/21). In relation to the extent of horizontal mismatch by graduates' field of study, in the 2016/17 cohort, the fields of Natural Sciences, Health, Other and Arts and Humanities had more than 30% of graduates reporting that their job did not align with the field of their degree (40%, 35%, 33% and 33% respectively). In the 2020/21 cohort, only the fields of Arts and Humanities and "Other" had more than 30% of graduates reporting being horizontally mismatched. Two other types of skills mismatches that were measured in the context of this study were over-skilling and under-skilling. Graduates were requested to assess their current proficiency in various types of skills (hard, soft, digital and green), along with the expected level of skill required by their current job, using a seven-point rating scale (ranging from 1-very low to 7-very high). In both cohorts, graduates' own level was significantly higher than the corresponding level required by their current job for almost all skills assessed, thus indicating over-skilling. The largest discrepancy between current own level and the level required by current employment related to the soft skill "Ability to write and speak in a foreign language" and to the green skill "Ability to make decisions towards environmental sustainability and a resource-efficient society and act accordingly" in both cohorts. Differences in average discrepancy scores were also explored between different sub-groups of graduates based on demographic variables and variables related to their studies, with many interesting findings emerging from this exploration.

Career counselling and guidance is viewed as continuous process throughout life and supports individuals of all ages at all stages of their career to make informed decisions about their education, training, and employment. Its role is considered critical and necessary to support individuals to make smooth transitions from Secondary to Higher Education, from Higher Education to employment, from one job to another, etc. In order to explore the extent and quality of career counselling activities and guidance in Upper Secondary and Higher Education, relevant questions were posed to graduates. Only ISCED 5 and ISCED 6 graduates responded to questions regarding career counselling in Upper Secondary Education as the focus was on the transition between Secondary and Higher Education. Approximately one third of graduates in both cohorts received counselling while studying in Upper Secondary Education. The Career Counselling and Educational Services (CCES) of the Ministry of Education, Sport, and Youth was indicated as the main provider. Graduates evaluated the services received by the CCES in terms of specific aspects as moderately useful. It is also worth mentioning that most graduates in both cohorts indicated that guidance received by the CCES while in Upper Secondary Education did not have an impact on the choice of the program of study in Higher Education from which they graduated. Only a small percentage of graduates (15-16%) received career guidance during their Higher Education studies in both cohorts. The main provider of career counselling in Higher Education was their Higher Education Institution. Graduates evaluated the usefulness of career guidance and counselling services received by their HEI positively. It is also worth mentioning that 48% of University graduates and 53% of graduates from ITE stated that guidance received by their HEI had a big contribution to finding a job after graduation, while 61% of University graduates and 60% of graduates from ITE indicated that guidance received played a significant role in their decision to continue their studies in Higher Education.

Finally, graduates' participation in upskilling and reskilling activities during employment was also explored. Reskilling and upskilling have a crucial role to play in a fast-changing labour market where old jobs are disappearing, some skills become obsolete and new jobs and skills are emerging. More specifically, the investigation sought to determine the extent to which graduates engage in upskilling and reskilling activities, as well as the underlying motivations for their participation. A higher percentage of 2016/17 graduates (63%) reported participating in upskilling and reskilling activities than 2020/21 graduates (55%). Most of these graduates participated in training activities offered by their employer, either on a compulsory or voluntary basis.

The primary motive cited by most graduates for engaging in upskilling and reskilling activities was the acquisition of hard skills directly relevant to their current job roles, with percentages at 77% and 81% for the 2016/17 and 2020/21 graduates respectively. The joy of learning and the acquisition of soft skills were also selected as important motives for participating in such activities. Online training was the most frequently utilised approach for delivering reskilling and upskilling activities (51% of the training for the 2016/17 cohort and 50% for the 2020/21 cohort) with a considerable percentage of graduates reporting their involvement in upskilling and reskilling training sessions conducted through face-to-face sessions (38% in the 2016/17 cohort and 36% in the 2020/21 cohort).

This report provides an overview of preliminary findings in relation to graduates' experiences from studies in Higher Education, as well as from their transition and participation in the labour market. More in-depth analysis is in progress for exploring significant relationships, such as factors influencing/ predicting employment, factors having an impact on the acquisition of high levels of skills, factors having an impact on vertical and horizontal mismatch, etc. Future cycles of the NGTS will address the challenges faced during this first cycle, explore ways to improve response rates but will also explore the possibility of combining data from Surveys, as well as from administrative sources. Finally, this report illustrates the significance and feasibility of collecting national data regarding the pathways of Cyprus Higher Education graduates and provides insightful results that are relevant to various national policies and strategies.

1. Introduction

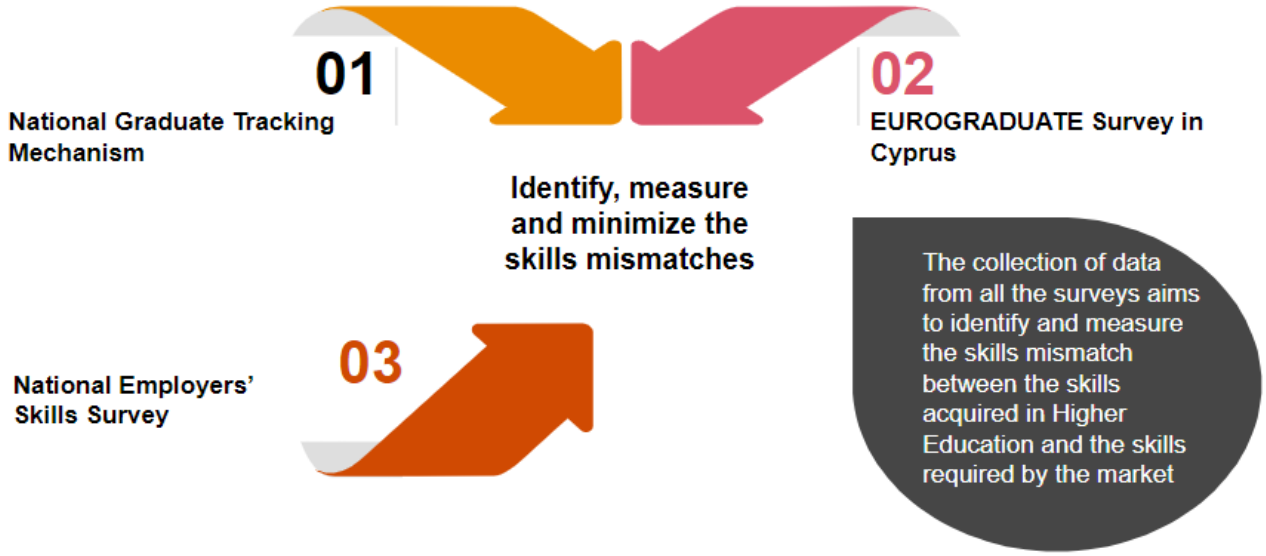
1.1. The context of the project – Identifying the "problem"

The Department of Higher Education (DHE) of the Cyprus Ministry of Education, Sport, and Youth (MESY) commissioned PwC Cyprus through the tender procedure (DHE 17-21), for the implementation of the project "Development of a National Graduate Tracking Mechanism and Design and Implementation of an Employers' Skills Survey" which is financed by the Recovery and Resilience Facility of the European Commission as well as by national funds. This project was developed to measure and monitor both the supply and demand for skills in the Cyprus market, with an emphasis on Cyprus' Higher Education graduates. By contrasting the supply versus the demand for skills based on high-quality longitudinal data this project aimed to provide important insights on possible skills mismatches, as well as insights about the employability of Higher Education graduates.

Skills mismatch appears to be a major challenge across Europe. According to the European Centre for the Development of Vocational Training (CEDEFOP, 2010), Europe's challenge is not just to improve skills levels, but to match people with the right skills to the right jobs. Skills mismatch has been defined as a "complex phenomenon affecting citizens, enterprises, economies, and societies. It refers not only to skill gaps and shortages, but also to skills exceeding job requirements". There are various types of skills mismatches, such as vertical mismatch, horizontal mismatch, over-skilling, skills obsolescence etc which are a major cause of rising unemployment and increasing difficulties for people entering the labour market to find jobs matching their potential. In Cyprus, the skills mismatch has been identified as a major weakness in several policy reports, including the Cyprus competitiveness reports in 2019, 2020 and 2021 (CECC, 2021). In the most recent of those (2021), both a vertical and a horizontal skills mismatch is identified, noting that "findings suggest that the educational system is not successful in delivering a skilled workforce corresponding to market needs. This is an important competitiveness issue if it means that employers, particularly in the private sector, are constrained by a lack of appropriately skilled workers". Although, skills mismatches have been identified as a great challenge at national level that needs to be urgently addressed, national data on the type and extent of different types of skills mismatches are scarce. The identification and measurement of different types of skills mismatches (such as overeducation – undereducation, over-skilling – under-skilling, horizontal mismatch, etc.) is important as these have different implications and call for different actions.

The overall aim of this project is to collect national data on graduates' pathways after leaving Higher Education as well as data on labour market's current and future needs in terms of knowledge and skills and thus provide evidence on the types and magnitude of different types of skills mismatches in Cyprus. For this purpose, in the context of this project, three surveys (Figure 1) will be developed and implemented for collecting quality data that will help understand the gap/mismatch between the skills acquired by graduates of all Higher Education Institutions (HEIs) in Cyprus and the skills required by the local labour market that will employ them. These surveys are the National Graduate Tracking Mechanism, the National Employers' Skills Survey and the EUROGRADUATE Survey. Information generated through these surveys will form the evidence-base to various stakeholders (e.g., policy makers in the Ministry of Education, Sport, and Youth and other relevant Ministries/ Services/ Organisations, Cyprus Higher Education Institutions, Human Resource Development Authority, Counselling Services, researchers, employers, students, etc.) to make informed decisions that will ultimately contribute to increasing the responsiveness of Cyprus' education and training system to the labour market needs, while benefitting the individuals, but also the economy as a whole.

Figure 1: The three surveys in the context of the project "Development of a National Graduate Tracking Mechanism and Design and Implementation of an Employers' Skills Survey"



Survey	Target Group	Data	Aim	Data	Target Group	Survey
National Graduate Tracking Mechanism	Higher Education Graduates' Perspective	Experiences form Higher Education	Identify, measure, and monitor the skills mismatches	Skills needed by the labour market	Employers' perspective	Employers' Skills
EURO-GRADUATE		Experiences from entering the labour market Skills Utilisation Employment		Skills gaps and shortages		

The specific objectives of this project (Figure 2) are:

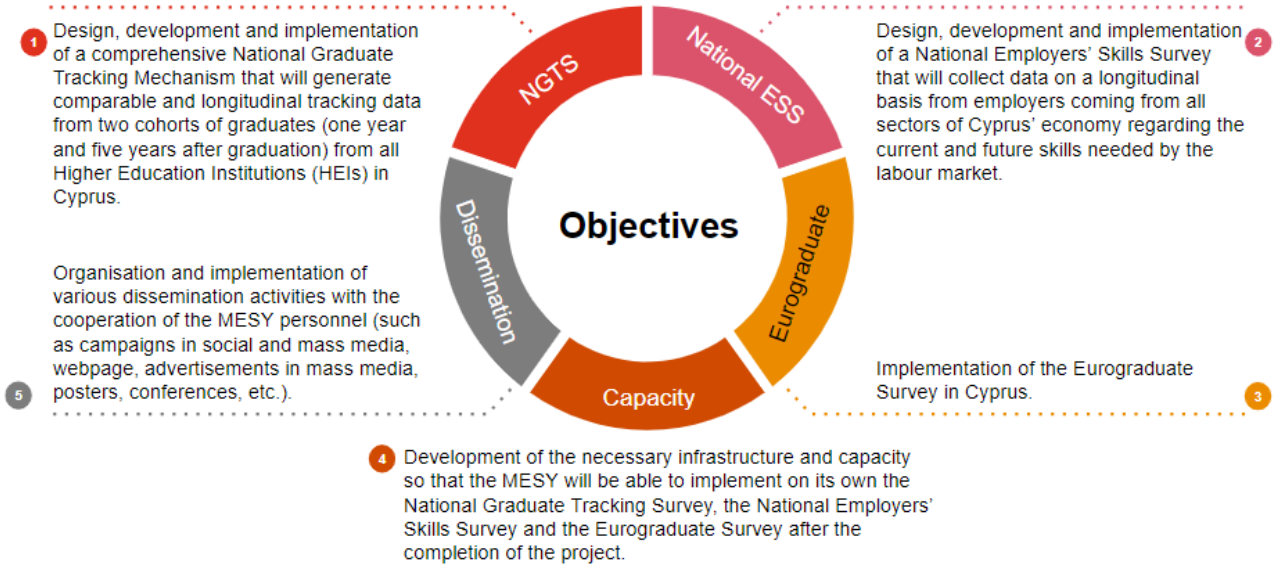
1. The development and implementation of a National Graduate Tracking Mechanism, which will collect data on Higher Education graduates' pathways one and five years after graduation on an annual basis.
2. The development and implementation of a National Employers' Skills Survey, which will collect data from employers regarding the current and future needs of the labour market in terms of knowledge and skills.
3. The implementation of two waves of EUROGRADUATE Survey (2022 and 2026) in Cyprus. EUROGRADUATE survey aims to map the impact that experiences of European graduates during

their time as students have had on their professional lives and their lives as European citizens (EUROGRADUATE, 2022).

4. The development of the necessary infrastructure for collecting, analysing and presenting data from the National Tracking Survey and the National Employers' Skills Survey (e.g., a dynamic platform for the presentation of results of all three surveys in a user-friendly format with the use of infographics).
5. The implementation of various dissemination activities at different phases of the project to:
    a. Communicate and promote the scope of the surveys, highlighting their added value.
    b. Raise awareness for the importance of the project.
    c. Strengthen the participation and engagement of the target groups (i.e., both graduates and employers).
    d. Disseminate findings from all three surveys.

The current report presents the methodology and findings from the implementation of the first cycle of the National Graduate Tracking Survey. This report also presents activities undertaken in relation to Objectives 3, 4 and 5. Findings from the first wave of EUROGRADUATE Survey will be presented in a comparative report prepared by the EUROGRADUATE Consortium in 2024.

Figure 2: Objectives of the project "Development of a National Graduate Tracking Mechanism and Design and Implementation of an Employers' Skills Survey"



1.2. European initiatives regarding tracking graduates

A Council Recommendation on tracking graduates was issued on the 20th of November 2017 (EU Council, 2017) highlighting the importance of developing systems in EU countries for collecting, analysing and using data on the outcomes of graduates from Higher Education and Vocational Education and Training. This information is considered important to understand the causes of graduates' employability problems but also to identify solutions for these problems. Employability hinges on various factors, including the level of qualification, field of study, as well as socio-demographic and socioeconomic backgrounds. Hence, the comprehensive data collection on the impact of these factors is essential to tackle weaknesses within the system. High quality information is important for students to make informed choices about their studies and career path, but also for Higher Education Institutions (HEIs) to be able to assess and improve their programs and teaching methods. It is also important for policy and decision-makers for making funding and legislative decisions. Additionally, the need for better intelligence and anticipation about labour market needs and outcomes, through tracking the career of graduates is highlighted in the 2015 Joint Report of the Council and the Commission on the implementation of the strategic framework for European cooperation in Higher Education and training (Comission, 2020).

The European Commission has acknowledged that graduate tracking systems for collecting, analysing and using data on the outcomes for graduates from Higher Education are not well developed in many Member States of the Union. Cyprus is amongst the countries where a National Tracking Mechanism had not been implemented until recently. Even when such systems exist in various Member States, national data collected is not comparable to data collected in other Member States, thus any conclusions from differences in trends or outcomes across countries are difficult to be drawn. In order to improve the availability and quality of national data about the activities of Higher Education graduates and the availability of comparable information on graduate employment and social outcomes, the Council recommended a full roll-out of a European graduate survey in Higher Education, i.e., the EUROGRADUATE survey. This survey aims to facilitate the monitoring of progress towards the European Education Area and identify areas that require more investment and resources. Moreover, strengths and weaknesses between the Higher Education systems of the European Member States will be recognized, leading to improved preparation of graduates for the labour market and the society as a whole.

In Autumn 2018, the EUROGRADUATE pilot project was carried out in eight countries (Austria, Czech Republic, Croatia, Germany, Greece, Lithuania, Malta, and Norway) and aimed to provide the European Commission and participating countries with evidence on whether a Europe-wide graduate survey could be conducted periodically. The pilot study covered graduates on ISCED-2011 levels 6 (Bachelor) and 7 (Master or long degree programs), one and five years after graduation, covering the short-term and the mid-term development of graduates. Based on findings from the pilot study, it was decided that a full roll out of a European graduate survey was feasible, starting in 2022 with half of the EU/EEA countries and up to 80% of the EU/EEA countries in 2026. In the first wave of EUROGRADUATE in 2022, 17 EU/EEA countries participated with decentralised data collected at national level. Cyprus was among these countries. The survey was coordinated by the EUROGRADUATE consortium which consisted of four partners with substantial expertise in the field of Higher Education policy analysis and research: DZHW (Germany, central coordinator), IHS (Austria), ROA (the Netherlands), and cApStAn (Belgium). EUROGRADUATE 2022 collected data through an online questionnaire and/or administrative sources from graduates on ISCED-2011 levels 6 (Bachelor) and 7 (Master or long degree programs) from two cohorts: one year after graduation (Cohort 2020/21) and five years after graduation (Cohort 2016/17). A comparative report will be prepared and made available by the EUROGRADUATE consortium in 2024.

A European Network of Graduate Tracking is also another initiative that was introduced by the European Commission to support EU Member States with the implementation of the Council Recommendation on tracking graduates by promoting the cooperation and mutual learning on the design and implementation of graduate tracking systems among countries. It is noted that, the Department of Higher Education of the MESY actively participates in this Network and significant support is received by the Network for the design and implementation of the National Graduate Tracking Mechanism.

1.3. The structure of this report

This report presents the design, implementation, and main findings from the first cycle of the National Graduate Tracking Survey, along with the implementation of the EUROGRADUATE Survey in Cyprus, and it mainly focuses on national findings. Comparative findings of Cyprus' graduates with graduates from other European countries, as already mentioned, will be published in a comparative report to be prepared by the EUROGRADUATE Consortium in 2024. Specifically, the current report has the following structure:

Section 2: provides a brief overview of the **Higher Education system in Cyprus**, and the population of Higher Education students/graduates in Cyprus.

Section 3: presents the overall **methodology** used. Specifically, this section presents the construction and administration of the questionnaire, fieldwork procedures, as well as methods for analysing the data in the context of the National Graduate Tracking and EUROGRADUATE Surveys in Cyprus.

Section 4: presents the definition of target population and sample, as well as statistical information for the **population and sample** per cohort by demographic variables and by variables related to their Higher Education studies.

Section 5: presents the **main findings** from the analysis of national data collected during the implementation of the National Graduate Tracking and EUROGRADUATE Surveys in Cyprus.

Section 6: presents the **main challenges and limitations** faced during the implementation of the first cycle of the National Graduate Tracking and EUROGRADUATE Surveys that should be taken into consideration for improving the implementation of future cycles of both surveys.

Section 7: presents the **conclusions** of this study, by providing an overview of the main findings, highlighting their significance and limitations, as well as suggestions for improvement for future cycles.

2. Higher Education system in Cyprus and demographic profile of graduates

2.1. Higher Education in Cyprus

The Department of Higher Education (DHE) of the Ministry of Education, Sport and Youth (MESY) has been assigned with the responsibility for the design and implementation of policies in Higher Education. The DHE has set three strategic objectives for 2024-2026 as follows:

a) the development and modernization of Cyprus Higher Education,
b) the connection of Cyprus Higher Education with the labour market needs in order to address mismatches in supply and demand of skills and qualifications, and
c) the establishment of Cyprus as an international centre for Higher Education.

It is noted that, the DHE's project "Development of a National Graduate Tracking Mechanism and Design and Implementation of an Employers' Skills Survey" is directly linked with the second strategic objective.

The Cyprus Higher Education System is closely aligned with the European Higher Education Area (EHEA), as outlined by the Bologna Process. Cyprus is an official member of the Bologna Process since 2001 and has implemented various tools for facilitating fair recognition of foreign qualifications and/or study periods abroad. Specifically, as part of the EHEA, Cyprus implemented the following Bologna requirements/tools: a three-cycle Higher Education System consisting of Bachelor's, Master's and Doctoral studies, the European Credits Transfer and Accumulation System (ECTS) for all programs of study and the Diploma Supplement issued automatically (free of charge) after completion of studies by HEIs. Moreover, Cyprus implemented the Standards and Guidelines for Quality Assurance (ESGs) and has also developed its National Qualifications Framework (Figure 5) which is linked to the European Qualifications Framework. It is important to clarify that Higher Education in Cyprus covers NQF levels 5 (Certificates, Diplomas and Higher Diplomas), 6 (Bachelor's degree), 7 (Master's degree) and 8 (Doctoral degree) of the National and European Qualification Frameworks (MESY Cyprus, 2008).

Higher Education in Cyprus is offered by public and private Universities and Institutions of Tertiary Education (ITE)[1]. In the academic year 2022/23, Higher Education system in Cyprus included a total of fifty-eight (58) Higher Education Institutions (HEIs).

Over the last decade, the number of students in Cyprus Higher Education has significantly grown, as depicted in Figure 3 and Figure 4 (DHE Cyprus, 2020-2021). It is evident that there is a general upward trend in the total number of students until the academic year 2020/21, with a slight decrease (3%) thereafter. According to Figure 4, the total number of students at Universities shows an increasing trend over the last nine (9) academic years. The same pattern does not apply for Institutions of Tertiary Education, as the total number of students decreased by 17% in the academic year 2020/21 compared to 2019/2020. The total number of students decreased further (by 20%) in the next academic year (2021/22). This decrease may be due to the coronavirus pandemic (COVID-19) and the travel difficulties that students from EU and non-EU countries might have faced.

[1] In the context of EUOGRADUATE 2022 survey, the term non-University is used.

Figure 3: Total number of students at Cyprus Higher Education Institutions from the academic year 2013/14 up to the academic year 2021/22

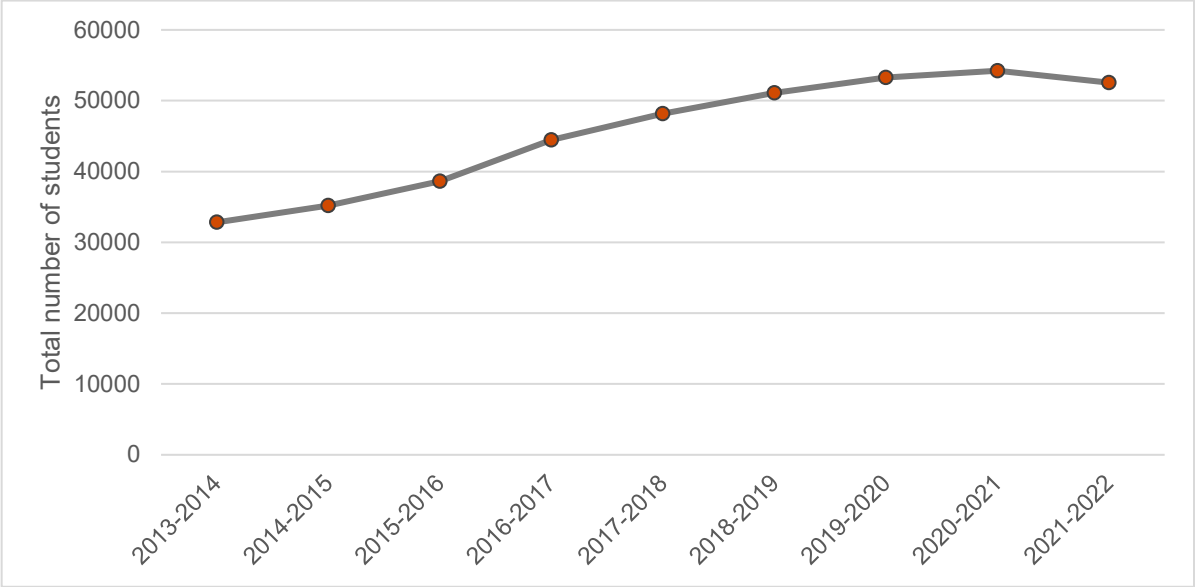


Figure 4: Total number of students at Universities and Institutions of Tertiary Education (ITE) from the academic year 2013/14 up to the academic year 2021/22

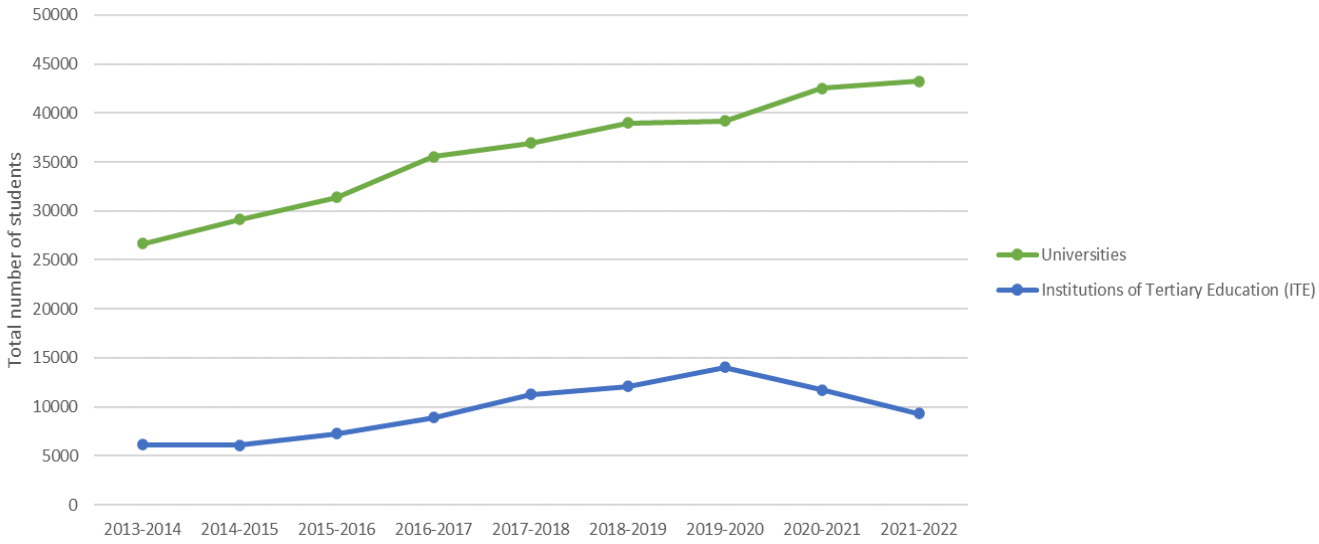


Figure 5: Cyprus National Qualification Framework

THE CYPRUS QUALIFICATIONS FRAMEWORK					
NQF LEVELS	EDUCATIONAL/ACADEMIC QUALIFICATIONS			Occupational/Vocational Qualifications	EQF LEVELS
8	DOCTORAL DEGREE				8
7c	MASTER'S DEGREE				7
7b	POST GRADUATE DIPLOMA				
7a	POST GRADUATE CERTIFICATES				
6	UNIVERSITY DEGREE (PTYCHION/BACHELOR'S DEGREE)			SVQ Level 6	6
5c	HIGHER CERTIFICATES AND DIPLOMAS (3 years or more)			SVQ Level 5	5
5b	POST SECONDARY CERTIFICATES AND DIPLOMAS (2 years)				
5a	POST SECONDARY CERTIFICATES AND DIPLOMAS (1 year)				
4	UPPER SECONDARY GENERAL EDUCATION AND EVENING SCHOOLS CERTIFICATES (12th Class-or 12&13th for some private schools)-APOLYTERION	UPPER SECONDARY TECHNICAL AND VOCATIONAL EDUCATION AND EVENING TECHNICAL SCHOOLS CERTIFICATES (12th Class)-APOLYTERION		SVQ Level 4	4
3	LOWER SECONDARY EDUCATION CERTIFICATE 10th Class		NEW MODERN APPRENTICESHIP CERTICATE	SVQ Level 3	3
2	COMPULSORY LOWER SECONDARY EDUCATION CERTIFICATE 9th Class		PREPARATORY PROGRAMME (NEW MODERN APPRENTICESHIP)		2
1	COMPULSORY EDUCATION CERTIFICATE (Elementary School Leaving Certificate, and/or graduates of 7th and /or 8th Class)				1
*SVQ=SYSTEM OF VOCATIONAL QUALIFICATIONS					

2.2. Target group definition

Based on EUROGRADUATE guidelines, the target group for the National Graduate Tracking and EUROGRADUATE surveys encompassed (at minimum) graduates of academic years **2016/17 and 2020/21** who had obtained degrees at **ISCED 2011 (NQF) levels 6 or 7**, corresponding to Bachelor's degrees or equivalent, and master's degrees or equivalent respectively. Each participating country was allowed to choose whether holders of Higher Certificates and Diplomas (**ISCED 2011/ NQF level 5**) would also be included.

This was indeed decided to be the case for Cyprus, considering that Higher Education in Cyprus includes NQF level 5 and that the country would not only participate in the EUROGRADUATE survey, but would also develop and run (for the first time) its National Graduate Tracking Survey.

In general, the selection criteria for participants in the EUROGRADUATE and National Graduate Tracking surveys for 2022 were the following:

1. Graduates of academic years 2016/17 and 2020/21 from all Higher Education Institutions in Cyprus (both private and public Universities and Institutions of Tertiary Education).
2. Graduates holding degrees corresponding to ISCED 2011/ NQF levels 5, 6, and 7.
3. Graduates of all nationalities, irrespective of their location prior to their education (e.g., school or first degree) and their current or permanent location after graduation (the survey sample includes graduates of Cyprus Higher Education Institutions, whether they reside within or outside Cyprus).
4. Graduates of all enrolment statuses (e.g., full-time, part-time, distance learning).

EUROGRADUATE survey excluded graduates who studied in Institutions where students are employed and which are run by an employer, such as military or police Universities, or corporate Universities. An example of this is the Cyprus Police Academy, where graduates are employed after passing the relevant examination to enter the Academy and after the successful completion of their studies in the Police Academy. It is important to note that the Cyprus Police Academy was not excluded from the National Graduate Tracking survey, however, their responses were only included in some thematic areas of the questionnaire.

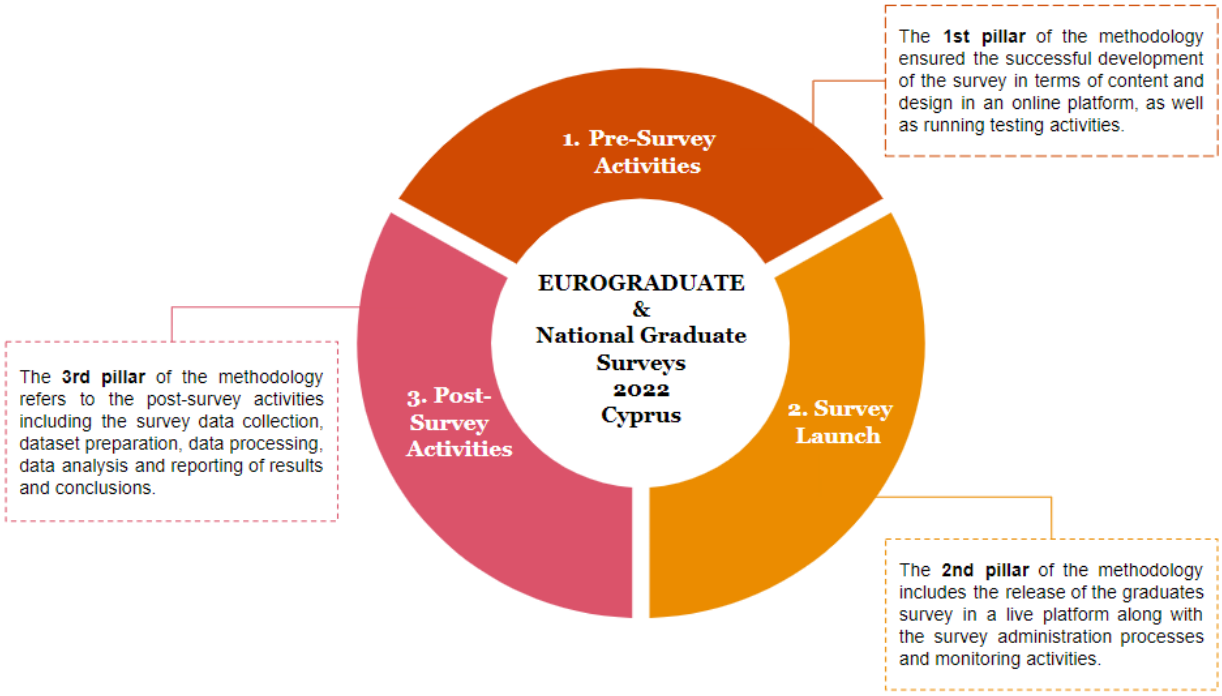
By adhering to these criteria, the survey aimed to gather comprehensive data about Higher Education graduates in Cyprus and provide valuable insights about their educational experiences and career paths.

3. Methodology

The methodology used to define the overall strategy for National Graduate Tracking Survey[2] relies upon three pillars (Figure 6) as follows: (1) "Pre-Survey Activities" which describes all the activities for the preparation of data collection, (2) "Survey Launch" which describes the activities performed during the period when the EUROGRADUATE and National Graduate Tracking survey was live, and (3) "Post-Survey Activities" which sets out the activities undertaken following the completion of the collection cycle to prepare the final dataset as well as the methods employed for data analysis. Another key component of the implementation of the National Graduate Tracking Survey was the visibility/dissemination activities which aimed to promote the survey and bring it to the attention of the Higher Education graduates who were invited to participate. As described in detail in this section, the primary objective of these activities was to communicate the significance of the survey and its benefits to current and future generations of graduates, particularly in their pursuit of successful employment. Each pillar is analysed in detail in this section. The activities included in each pillar are presented in Figure 7.

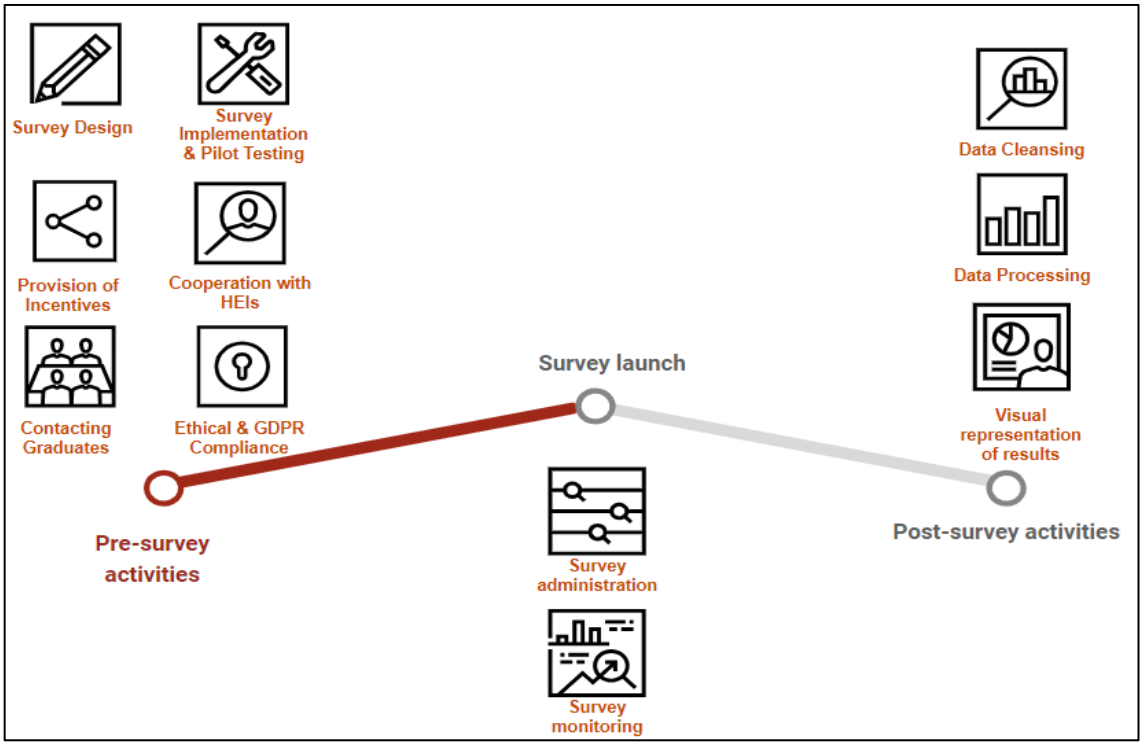
It is important to note that, in the years the EUROGRADUATE survey is running, the National Graduate Tracking and EUROGRADUATE surveys will share a common methodology and questionnaire for comparability purposes with the respective results of other countries participating in the EUROGRADUATE survey. Therefore, the first cycle of the National Graduate Tracking Survey was designed by the standards and guidelines provided by the EUROGRADUATE consortium.

Figure 6: Methodology pillars



[2] It is noted that, during the years that EUROGRADUATE survey is running, data for both the National Graduate Tracking and the EUROGRADUATE surveys are collected through a common questionnaire, therefore participants see and complete only one survey.

Figure 7: Overview of the activities within each pillar



3.1. Pre-Survey Activities

Pre-survey activities concerned all activities that were undertaken before data collection. These activities involved the design, translation, and implementation of the EUROGRADUATE and National Graduate Tracking questionnaire in an online platform, the pilot testing activities for the smooth administration of the survey and the relevant communication activities with the Cyprus Higher Education Institutions. Ethical considerations, data protection and GDPR compliance were also important aspects of pre-survey activities.

3.1.1. The design of the National Graduate Tracking survey

The questionnaire of the first cycle of the National Graduate Tracking Mechanism was based on the content and design of the EUROGRADUATE questionnaire. As already mentioned, the National Graduate Tracking and EUROGRADUATE surveys shared a common questionnaire. Countries participating in the EUROGRADUATE were allowed to include their national questions as well.

The EUROGRADUATE 2022 questionnaire covered three modules (Figure 8) as follows:

- Module A-Essential information: basic information on Higher Education graduates, their education, and their employment.
- Module B-Recommended information: more in-depth information on Higher Education graduates, their education, and their employment.
- Module C-EU module: social outcomes of Higher Education, e.g., active citizenship, social integration, wellbeing, democratic & academic values.

Member states had the freedom to choose which modules to administer and how, i.e., by survey or administrative data. Cyprus decided only to administer Modules A and B, mainly due to the extensive length of the questionnaire and due to the fact that collecting data through administrative sources was not possible. The Department of Higher Education added national questions under two additional thematic areas which

were relevant to project's objectives: "Career counseling in Upper Secondary and in Higher Education" and "Reskilling and Upskilling Opportunities during Employment".

Figure 8: EUROGRADUATE 2022 questionnaire modules

MODULE A

- **Socio-demographics** (date/ country of birth, citizenship(s), gender, country of residence, etc.)
- **Study progress** (field of study, duration, degrees, grades, intern. study mobility etc.)
- **Labour market situation** (employment status, occupation, job history, work conditions, etc.)

MODULE B

- **Background information** (information on partner, children)
- **Full education history** (further subject information on study progress, course design, etc.)
- Skills
- Job search, career progression, job satisfaction
- Mobility behaviour

MODULE C

- **Social outcomes** (e.g., active citizenship, social integration, wellbeing, democratic & academic values)

The EUROGRADUATE and National Graduate Tracking questionnaire consisted of approximately 300 questions (including repetitive questions), in six thematic areas: "Education History", "Employment", "Skills/Competencies", "Regional Mobility", "Career Counselling in Upper Secondary and Higher Education" (National section) and "Upskilling and Reskilling in Employment" (National section). It is noted that an additional section collected data on personal and social background. Various question types were included such as single-choice, multiple-choice, rating scales, and open-ended to ensure comprehensive data collection. The questionnaire also included several standardized lists and taxonomies to enhance the quality and comparability of the gathered data. Specifically, the following lists and taxonomies were used:

- ISCED-F 2013 - Detailed field descriptions,
- Countries (ISO 3166-1),
- Languages (ISO 639-1),
- Currencies (ISO 4217-1),
- Places within country (NUTS regions),
- Economic Activity Sector Classification (Industry)-NACE,
- ISCO-Occupations.

EUROGRADUATE 2022 questionnaire was adapted by the Department of Higher Education to ensure the survey's appropriateness for the national context. As the questionnaire was going to be administered in two languages (Greek and English), it was also translated from English to Greek. This translation process followed an iterative procedure (Figure 9) as prescribed by cApStAn which aimed to establish cross-cultural validity. This approach aimed to minimize any potential linguistic or cultural biases that could have affected the survey results.

Figure 9: Translation process as prescribed by cApStAn in the context of EUROGRADUATE 2022

3.1.2. The implementation of the questionnaire in an online platform and pilot testing activities

DESAN CAI platform was used to administer the questionnaire online in both Greek and English languages. This platform had previously been selected for data collection, storage, and analysis in the context of the EUROGRADUATE pilot survey in 2018, as well as for various other online surveys (among others, for graduate tracking and employers' skills surveys) in Netherlands.

The platform met all the requirements set by EUROGRADUATE consortium (as presented by the consortium through webinars held prior and during the survey), which included the following key elements:

- Multilingual Support, i.e., the platform could accommodate multiple languages, ensuring a smooth experience for users from diverse linguistic backgrounds.
- Individual access links for each participant with the ability to pause and resume their progress in the questionnaire.
- Filter questions and routing based on multiple answers enabling this way the formation of personalized paths based on respondents' specific answers and enhancing the relevance of the survey experience.
- Unlimited participant capacity.
- The versatility of questions, i.e., wide range of question types was integrated into the platform, leading to the gathering of diverse and valuable data.
- Compatibility with multiple devices, either computers, laptops, or smartphones to enable respondents to participate using their preferred devices.
- Data safety and General Data Protection Regulation (GDPR) compliance to guarantee data security and compliance with GDPR, privacy and confidentiality to the responders.
- Autocompletion of fields to streamline the survey experience and minimize the possibility of errors in data entry.
- Intelligent input checks and warnings to guide the participants through the survey and ensure the accuracy of their responses.

The questionnaire was implemented in the online platform according to the guidelines provided by the EUROGRADUATE consortium. A landing page was also added (in both English and Greek) for providing additional information and support to participants or interested parties, as shown in Figure 10. It is noted that, respondents visiting the landing page were asked to enter their credentials in order to access the questionnaire. When logged in the questionnaire, a starting page (Figure 11) provided useful information to respondents regarding the survey (e.g., its purpose), the time needed for completion and the ability to pause and continue the completion at a later point.

Figure 10: Survey's landing page in English

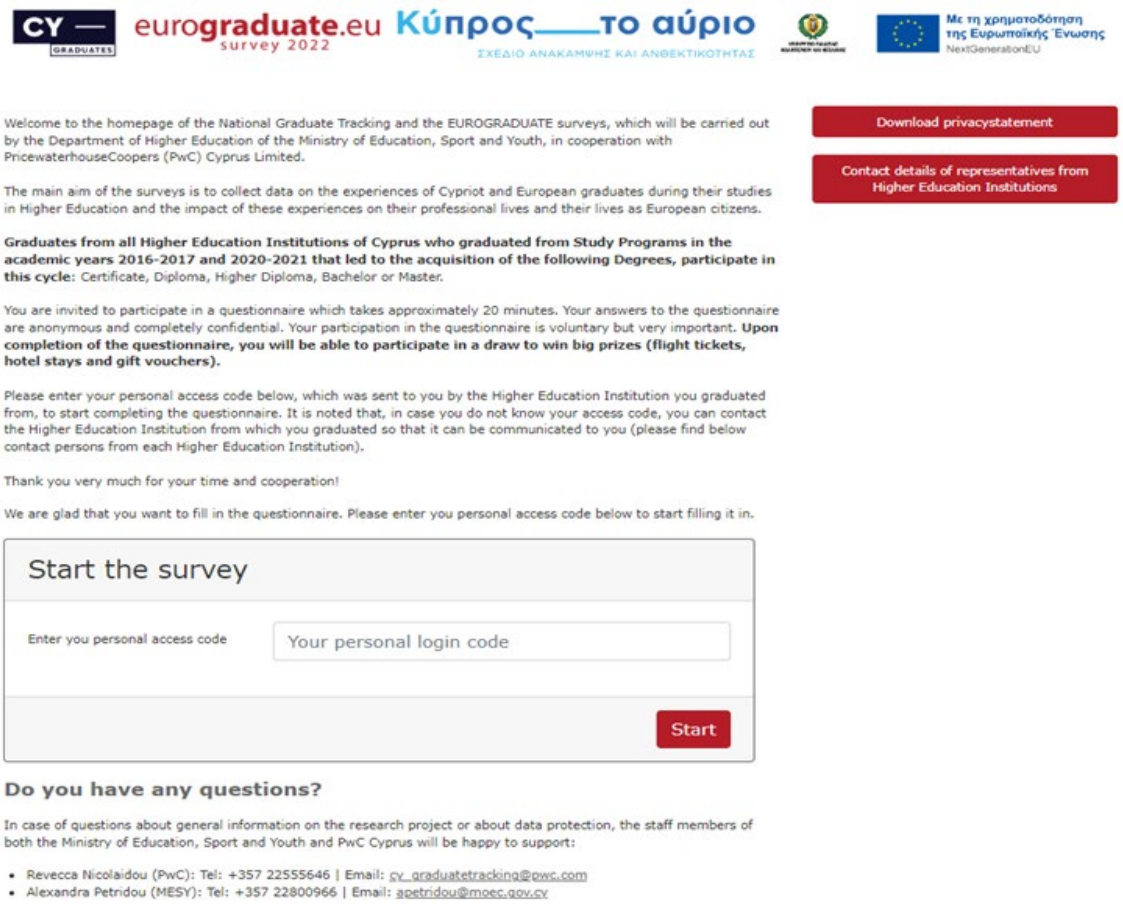
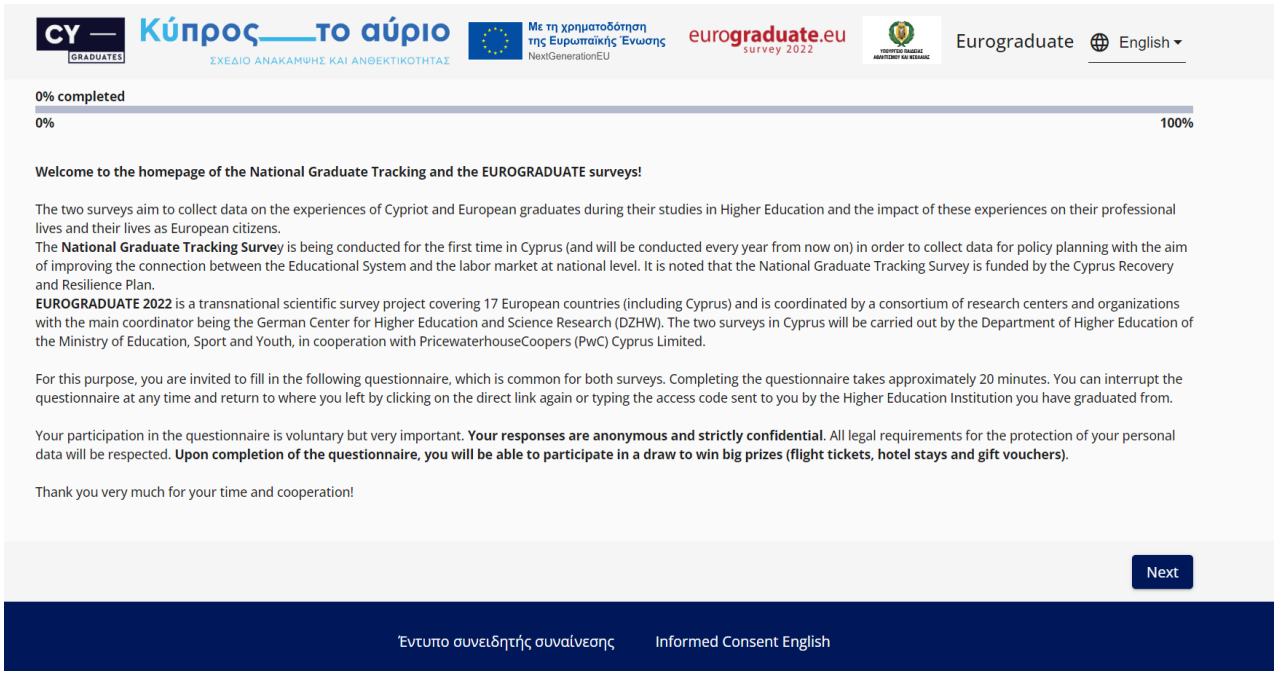


Figure 11: Survey's starting page in English



With the implementation of the questionnaire in the online platform, several rounds of checks were made to ensure that important features were smoothly operating. The online questionnaire was fully tested in relation to content, user experience and functionality before sharing it with the graduates. Dedicated access codes were created and provided to the PwC and MESY teams for this purpose.

Testing activities aimed at ensuring and verifying that all questions were correctly assigned, programed, and labelled, as well as that questions' filtering was properly implemented. Furthermore, testing activities examined the accessibility to the survey, including the participants' ability to pause and resume the questionnaire, the overall user experience, the content, and the syntax/ grammar of the questions included. It was also ensured that the respondents were offered the option to change the questionnaire's language at any point during its completion. The testing process additionally ensured users' privacy and anonymization.

During the testing process, all the questions were reviewed, and minor corrections were made, mainly on questions of higher complexity (those that could potentially raise questions by participants, or even lead to invalid responses).

3.1.3. Providing incentives

Various incentives were offered to graduates in order to increase response rates and reduce the risk of dropout during questionnaire completion. Moreover, as there was no previous experience regarding response rates, it was decided to build on best practices from other countries with extensive experience in graduate tracking surveys. As low response rates are a common problem/challenge faced by various countries, a small gift to each respondent completing the questionnaire, as well as an opportunity to participate in a lottery with a number of bigger prizes was planned to be offered. However, due to the very tight time schedule, it was only possible to proceed with the lottery of bigger prizes for this first cycle National Graduate Tracking Mechanism. Specifically, graduates completing and submitting the questionnaire were provided the opportunity to participate in a lottery for winning flight tickets, hotel stays and vouchers. In future cycles of the research, both kinds of incentives will be provided (i.e., a small gift for each respondent as well as participation in a lottery).

3.1.4. Establishing the cooperation of the HEIs

HEIs were recognised as main stakeholders in the context of this project. Their role and contribution for the successful implementation of the National Graduate Tracking and EUROGRADUATE surveys was very important. HEIs acted as liaisons and were responsible for the communication between the project team (PwC Cyprus and DHE-MESY) and participating graduates, while maintaining the anonymity of graduates. HEIs contributed to the promotion of the project by sharing visibility activities, such as informative banners/articles, to their websites or by uploading relevant posts on their Social Media accounts. Therefore, at the early stages of the project, both PwC and DHE worked collaboratively to establish a good cooperation with the HEIs.

All HEIs had identified contact points for the purposes of this project according to the DHE's instruction. To foster clear communication and ensure a shared understanding of the project's objectives, two informative sessions were thoughtfully organized on the 10th and the 17th of January 2023. During these sessions, representatives from the HEIs were provided with a comprehensive presentation describing the project's scope, the specific purpose of each survey, and the crucial role of HEIs within the overall initiative. In addition, the HEIs were provided with detailed instructions on the required actions on their behalf. Furthermore, the benefits of HEIs participating in this project were highlighted, emphasizing the value of their contributions, as well and the positive impact of their involvement on the success of the survey(s).

The project team provided detailed guidelines to the HEIs on how to contact graduates and provide them with their unique IDs and access codes, as well as how to send the invitations while ensuring that the communication with the graduates would be compliant with the relevant data protection legislations. These initial tasks were completed into three (3) distinct stages, as described below:

1. The first stage referred to the provision of data (by the HEIs to the PwC and DHE-MESY project teams) regarding **the number of their graduates**. Specifically, the HEIs shared with PwC the exact number

of their graduates per cohort (T+1 and T+5). The purpose of this exercise was to generate the respective amount of credentials/ unique access codes per graduate. EUROGRADUATE required the use of personalised login codes, which gave the respondents access to the questionnaire. Once the credentials were separately prepared for each HEI, they were shared with each HEI's representative. HEIs were also asked to provide information regarding the type of contact details available (e.g., postal address, phone number, email, postal address of parents). This way, graduates with no contact information per cohort were identified in order for the PwC project team to keep track of how many of them were not reachable. These graduates would have to be eventually removed from the total number of graduates when calculating the net response rates (for further information please refer to Section 4 – "Population and Sample").

2. The second stage referred to the process of **matching the credentials with the personal details of each graduate**. Each HEI was responsible to locally match the credentials with the personal contact details of each graduate. The specific process was only performed locally by each HEI (without sharing the data with DHE or PwC) in order to avoid sharing the graduates' personal data. In this way, all activities were conducted in accordance with the provisions of the GDPR legislation. The credentials encompassed a Unique ID for each graduate, giving them access to the questionnaire through the platform. On PwC's side, these credentials (without any additional information to enable their matching with any graduate) were used for response tracking purposes, ensuring that the reminders for the completion of the survey would only be sent to participants who haven't completed the survey up to that point.
3. The third stage involved the **provision of the Unique IDs to the graduates** along with a short description of the survey. Each HEI forwarded the Unique ID separately to each graduate and informed them:
    - That their Unique IDs will only be used by PwC and DHE-MESY for response tracking purposes without the ability to connect those to their personal details. Therefore, graduates were informed that access to their personal information was unauthorized and prevented.
    - That their Unique ID (along with their access code) would be used by them to access the platform and the questionnaire.
    - About the incentives that were available to the graduates who would have completed the survey.

The project team has maintained continuous and direct communication with the administration departments of the HEIs to offer assistance and provide any necessary information. This communication extended beyond the specific tasks mentioned earlier and encompassed the entire survey process, including the pre-release and survey launch phases. For this purpose, the project team had established a helpdesk with members of both the PwC's and the DHE-MESY's teams. The helpdesk served as a means to address inquiries, respond to questions, and offer comprehensive support as required.

3.1.5. Contacting graduates and sending invitations

EUROGRADUATE consortium offered four different scenarios for contacting graduates based on where the sampling frame and contact details of the graduates were held (Table 1). Cyprus fell into Scenario B, which meant that the sampling frame was accessible centrally, but the contact details were only stored locally within the HEIs and could not be provided to the DHE-MESY.

Table 1: Different scenarios regarding access to sampling frame and to graduates' contact information as described in EUROGRADUATE 2022 Data Collection Handbook

		Contact information	
		central access	decentral access
Sampling frame	central access	A (all central)	B (mixed)
	decentral access	D (mixed, unlikely)	C (all HEI)

As already mentioned, HEIs were responsible for sending the invitations to graduates, as well as reminders for the completion of the survey, on behalf of the project team. A timeline (Figure 12) was provided to HEIs for this purpose. HEIs also needed to complete a Process Report (Figure 13), i.e., a short report providing feedback regarding the process of sending invitations and reminders. It is noted that, a template of the report was prepared by the PwC project team in the form of a table and was both shared via a Microsoft Word file and a Google Form, so that each HEI's representative could provide the information in the most convenient way.

Figure 12: Timeline for sending invitations and reminders by the Higher Education Institutions

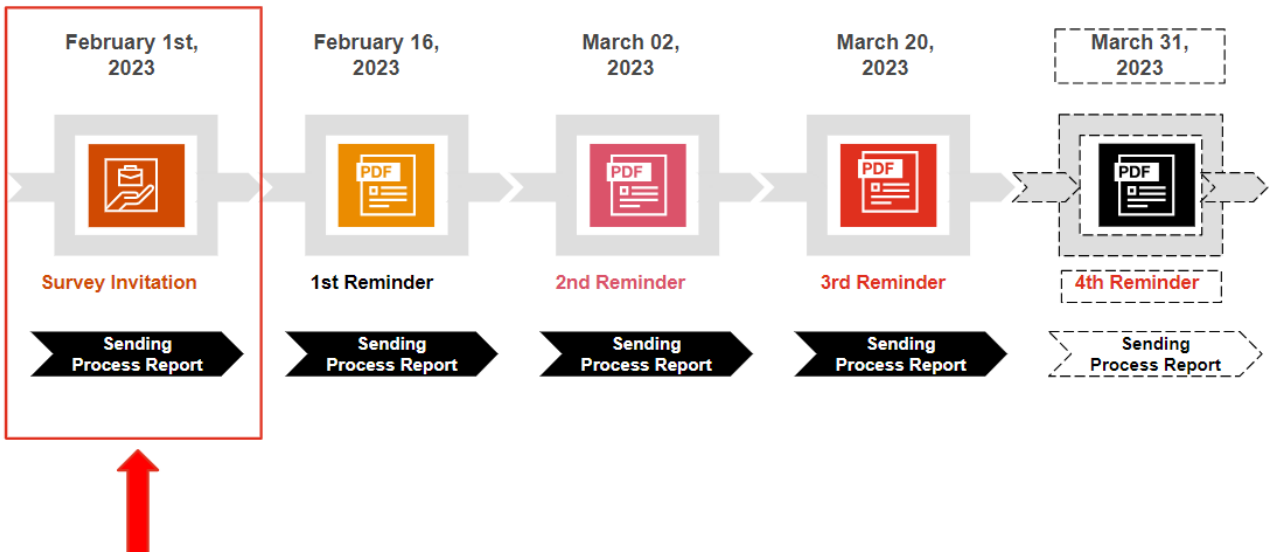


Figure 13: Process Report provided in EUROGRADUATE 2022 Data Collection Handbook

Name of HEI	
Name of responsible person	
Contact details of responsible person	
Initial invitation (fill after the sending of the initial invitation is finished)	
When were the invitations sent?	
At what time/ within which time span were they sent?	
Were they sent all at once, in smaller packages, or one after another?	
How many e-mails/postal letters were sent?	
If applicable, report the number and type of multi-mode invitations (e.g. e-mail + SMS, e-mail + postal…)	
E-mails only: How many e-mails bounced ("not deliverable" message returned)?	
Are there certain e-mail providers to which e-mails were not delivered at all?	
Other remarks	

The invitations to graduates were either sent via email or a text message (SMS), using relevant templates that were prepared and shared by the project team, based on instructions provided in the EUROGRADUATE Data Collection Handbook – Version 1.2 (2022). Templates required customisation from each HEI in order to make reference to the name of the HEI, the academic year of graduation (i.e., 2016/17 or 2020/21), the personalised URL and the personalised access code per graduate. In order to ensure that the activities/steps to be performed during the process of sending the invitations and reminders were clear and understood by the HEIs representatives, the PwC project team organised and requested each HEI to perform relevant testing activities. More specifically, the HEIs representatives were given a sample list of email addresses, Unique IDs and personalised URLs for each participating cohort, and were asked to follow the provided guidelines (i.e., amend the text where needed and send an individualized email to the correct recipient) in order to send the test invitation emails. Then, the project team provided feedback, making sure that possible questions were addressed and that minor mistakes were corrected (and avoided in the original invitations sent).

3.1.6. Ethical considerations, data protection and GDPR compliance

Ethical considerations in social research are important for many reasons, such as to protect the rights and well-being of research participants as well as enhance research validity and reliability. Key ethical considerations are always involved when collecting data from people. In the context of NGTS, special attention was given to the following ethical issues:

- **Voluntary participation** – The survey invitation underlined the principle of voluntary participation, emphasising the autonomy of the participants in both participating and consenting to the survey. The respondents were also free to skip or opt-out from questions during questionnaire completion.
- **Informed consent** – The introductory page of the survey included the informed consent statement (in English and Greek) which provided a concise explanation of what they are consenting to, of the data collection procedures and the intended purposes for which their information would be gathered (Appendix I). A privacy statement was also prepared by EUROGRADUATE consortium, which informed respondents about the exact conditions and means of use of their data. Respondents were encouraged to read the statement thoroughly and give their explicit consent before participating in the survey. The aim of this was to foster a trusting environment that respects the rights and privacy of all

participants. By laying these conditions out, respondents could give informed consent for their data to be processed for the purposes of the project.

- **Anonymity** – Graduate anonymity was ensured by assigning unique IDs for participation instead of accessing personal contact details. Response data were meticulously anonymized, preventing individual graduate identification. Any personally identifying information was eliminated, and information aggregation that could potentially lead to respondent identification was avoided. Moreover, assurances for protection of anonymity were provided by EUROGRADUATE consortium during data processing and reporting. Detailed explanations regarding the protection of respondents' anonymity were provided in the informed consent statement.
- **Confidentiality** - Respondents' identities and contact information were strictly confidential and they were not disclosed to any third parties. Their responses to the survey were safeguarded by utilizing unique identifiers and data processing followed rigorous protocols to ensure anonymity, making it impossible to trace responses back to individual participants.
- **No harm** – To minimise the risk of harming the participants, the following practices were employed: obtaining informed consent, protecting the anonymity and confidentiality of participants and providing participants with the right to withdraw from research at any time.

In relation to data protection and the project's compliance with the General Data Protection Regulations (GDPR), several actions were taken. It must be noted that in the EUROGRADUATE context, personal data was relevant in two ways:

1) Directly identifying information, such as addresses, names, e-mail addresses, etc. This data may be available to the researchers to contact graduates or to distribute incentives.
2) Survey data that can be used for indirect identification. The responses graduates provide in the questionnaire can potentially be used to reveal their identity by combining them with other sources of data/knowledge.

Graduates participating in the survey were informed and assured that any data containing direct identifying information or information that could potentially lead to indirect identification (non-anonymized data) will be promptly deleted within a reasonable timeframe. This included sampling data, contact details, and raw survey data. In addition, it was clarified to the respondents that all published data will be factually anonymized so that the identification of individuals will not be feasible.

3.2. Survey Launch

Invitations were sent to graduates on the 1st of February 2023. The PwC project team was responsible for monitoring the data collection process on the platform, ensuring its smooth progress. A comprehensive support was offered to the HEIs involved in the survey throughout the data collection period. More specifically, the project team provided assistance, guidance, and clarifications to the HEIs' representatives, particularly in situations where graduates reached out with inquiries concerning the questionnaire completion or the survey's scope.

During the data collection period, the PwC project team was also responsible for monitoring the number of responses per cohort on the platform. On this note, and as per the relevant guidelines by the EUROGRADUATE consortium, three (3) reminders were also sent to the graduates to improve the response rates. Finally, following relevant communication with the DHE-MESY project team, a fourth reminder was sent to selected HEIs with either a high number of graduates or to those which had missed sending any of the three previous reminders.

Each reminder was systematically scheduled to be dispatched following a reasonable lapse of time to avoid exerting undue pressure on respondents. The PwC team was responsible for notifying the HEIs prior to each reminder scheduled date and providing them with the unique IDs of the graduates who did not respond by that time, so that they could follow the required steps and send the reminders. It is noted that, following each reminder sent, each HEI was again required to complete and submit the Process Report, either via the dedicated Microsoft Word file or the Google Form.

Once all the necessary preparations for each reminder were completed, the PwC team was sending separate emails to each HEI's representative, providing the following information:

- The lists of the Unique IDs for their graduates in both cohorts who had not completed the questionnaire.
- The templates for the reminder messages to be sent to the graduates, both in email and text message (SMS) formats.

By consistently following the above-mentioned steps, it was ensured that there was an organized process for managing the Unique IDs, preparing updated lists, and facilitating the communication with HEIs and their graduates throughout the survey.

Data collection ended on the 3rd of April 2023.

3.3. Post-Survey Activities

The post-survey activities were those performed after the data collection ended. These activities mainly involved data cleansing procedures and data processing.

3.3.1. Data Cleansing

Following the completion of data collection, several data cleansing activities were carried out before starting data analysis. The steps performed were in line with guidance provided by the EUROGRADUATE Consortium. However, the EUROGRADUATE dataset has a few differences from the National one, as the latter also includes a few additional, national-only questions under three two thematic areas ("Career counseling in Upper Secondary Education and in Higher Education and "Reskilling and upskilling opportunities during employment"), as well as graduates from the Cyprus Police Academy (which is both a Higher Education Institution and an employer, hence was excluded from the EUROGRADUATE data). It is noted that, the responses of Cyprus Police Academy's graduates were only included for the categories of "Education History", "Competencies", "Personal Social Background", "Career Counselling in Secondary Education" (National section) and "Upskilling and Reskilling in Employment" (National section).

The following data cleansing activities were performed before data analysis:

1. **Initial exploration of the data:** An initial exploration of the dataset using descriptive statistics, and summaries in SPSS was performed in order to get a better understanding of the data, gain insights into the data's distribution and identify potential issues.
2. **Recoding of national variables into target variables:** All national variables were recoded into newly created target variables. The aim of this step was to keep the original version of the data before proceeding with additional data cleansing steps. From this point onwards, all data cleansing steps were carried out on the newly created target variables.
3. **Manual recoding of open text fields:** Some variables in the dataset were open text fields that required manual recoding. This meant that all text responses in these variables were read by the research team and a decision was made on how to categorize the open responses into a workable set of categories. Responses that could not be categorized remained as "other" option.
4. **Definition of variable formats:** All target variables were formatted according to the EUROGRADUATE standards. This step defined how each variable should be displayed (e.g., numeric, string, etc.).
5. **Calculation, definition and labelling of missing values:** Different types of missing values were defined, so that any missing values within the sample could be identified. The different types of missing values are described below:
    - Implausible value excluded: Question was seen by respondent; an implausible answer was indicated.
    - Target group filter: Question was not seen by respondent due to target group (i.e., question was only asked to one of the two target cohorts).
    - Question filter: Question was not seen by respondent due to filtering based on previous answer(s).
    - Don't know: Question was seen by respondent, a "don't know" option was selected or indicated (if available).
    - Inapplicable (as indicated by answer): Question was seen by respondent, an option implying inapplicability was selected/indicated.
    - Nonresponse: Question was seen by respondent, no answer was selected or indicated.
6. **Checking value ranges:** Several checks were performed in order to investigate whether the values of the target variables lie within the ranges defined by the EUROGRADUATE Consortium. Two major types of checks were performed as follows:
    - Min-max variables: For variables with a continuous range of values (i.e., where a minimum and maximum can be defined), checks were performed to investigate whether the values lie within the specified ranges. Extreme values were recoded as "implausible value excluded".

- List variables: For string, non-continuous variables only the pre-defined set of values (options) could be defined as plausible. Checks were performed to identify any implausible cases.

7. **Making plausibility checks and case validity:** In this step, several checks were performed to assess whether responses were invalid and thus excluded from the dataset for further processing.
    - Case response completeness: Cases that lacked too much information (insufficient number of valid responses) or lacked weighting-relevant information were marked as not valid. The weighting relevant information or the "must" variables are the ones used for weighting purposes in the following step. These variables are "Cohort", "Degree ISCED level", "Degree Field", "HEI type", "Gender" and "Age".
    - Plausibility checks and answer pattern analysis: To assess the quality of responses and prevent data consistency problems, target variables were checked for implausible (combinations of) values. Different scenarios could hint implausibility or negligent response behaviour:
        i. "hard" implausibility within a value was given when a value is logically impossible (for instance, a date in the future is reported as birth date).
        ii. "soft" implausibility within a value was assumed if a value is unlikely, but not entirely impossible (for instance, school graduation and Higher Education entry at an unusual young age).
        iii. answer patterns can imply that respondents did not apply much care when responding to the questionnaire. For example, straightlining, which refers to respondents that select the same scale point for all items in a scale.

    For each type of hard, soft or pattern implausibility, an implausibility flag was raised. Cases with multiple flags were treated as invalid and thus excluded from the dataset. A total of 38 cases were excluded from Cyprus dataset.

8. **Weighting**: Survey data is generally weighted based on population data to ensure the representativeness of the study, in cases where it is suspected that the sample is biased for whatever reason, or that certain groups are more likely to participate in the survey than others are. This is a necessity with almost all surveys and a common quality standard. The method used was the so-called "raking procedure". The results presented in this report are, unless explicitly stated otherwise, based on the raking procedure considering the following variables: "Cohort", "Gender", "Age at Graduation", "Degree ISCED level", "Degree Field" and "HEI type".

3.3.2. Data Processing

Following the completion of the data cleansing phase, several data processing methods were applied in order to visually and statistically explore the data to gain insights, identify patterns, and explore relationships between variables. These methods included:

1. **Descriptive Statistics**: Indicators of central tendency (such as mean, median, quartiles) and measures of dispersion (such as standard deviation) were used to summarize and provide basic information about variables in the dataset.
2. **Tables and Data Visualization:** Frequency tables, crosstabs and various types of diagrams (such as bar charts, lines graphs and boxplots) were created to visualize the distribution of different categories within a variable and to highlight potential relationships between different variables.
3. **Inferential statistics:** Various parametric and non-parametric inferential statistics were used to determine statistically significant differences or relationships between sub-groups of graduates (such as chi-square test of independence, paired samples and independent samples t-tests, Mann-Whitney, Kruskal-Wallis, one-way ANOVA) and to make generalizations and conclusions about the population from the sample data.

3.4. Visibility Activities

One of the main objectives of the project was to organise and implement various dissemination activities to maximize the visibility of these surveys and encourage a high participation from graduates. For this purpose, the PwC project team developed a communication strategy and dissemination plan for the promotion of the EURORADUATE and National Graduate Tracking surveys, which was approved by the DHE.

To achieve this, various activities were employed that would effectively promote the surveys. One of the activities was selecting the appropriate social media platforms for survey campaigns. The efforts were mostly focused on Instagram and Facebook, recognizing their wide user base and potential reach. Every social media post contained specific messaging to be used in the promotion of the surveys. The approach involved a combination of visuals, such as pictures and videos, alongside concise text paragraphs. The incorporation of these elements into social media posts (see Figure 14 and Figure 15), aimed at capturing the attention of the graduates and at communicating the purpose and scope of the surveys. In addition, within the text, special emphasis was given on the benefits of the participating graduates, along with their chance to win one of the prizes available.

To ensure a well-coordinated campaign, PwC established a specific timeline for all social media activities to help maintain consistency and execute promotional efforts.

In addition to the social media campaign, activities were undertaken by the HEIs offering further visibility and awareness for the ongoing surveys. Some HEIs hosted advertising banners in their websites and reposted social media posts in the HEI's accounts, as well as in their alumni accounts in social media.

It is also noted that, additional visibility activities were undertaken by the DHE-MESY. Specifically, a press conference was held by the MESY, where the Minister and the Director of the Department of Higher Education provided an overview of the project's objectives and the activities to be performed throughout its course. Additionally, radio advertisements funded by the Ministry were ran through three (3) radio stations in Cyprus, assisting in further visibility and increased awareness about the surveys.

Overall, the objective of all these activities was to increase both the number of graduates who would respond to the survey and the overall awareness about this project. Through this multi-faceted approach using social media, HEIs engagement, and radio advertising, the main objective was to increase participation in the National Graduate Tracking and EUROGRADUATE Surveys.

Figure 14: Social Media posts on Instagram

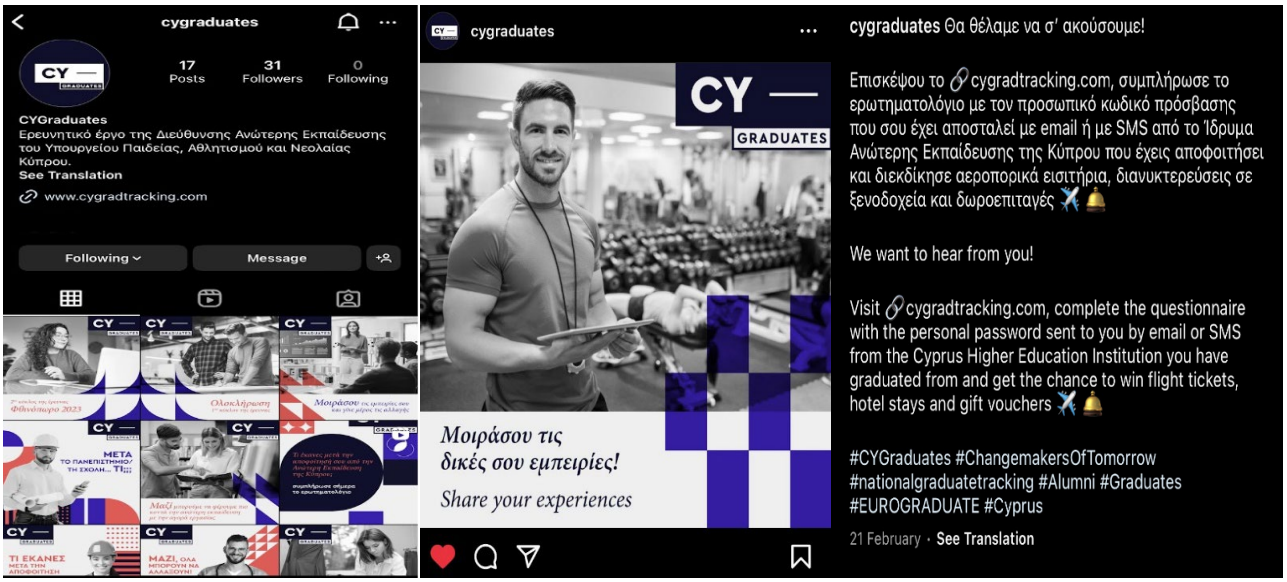
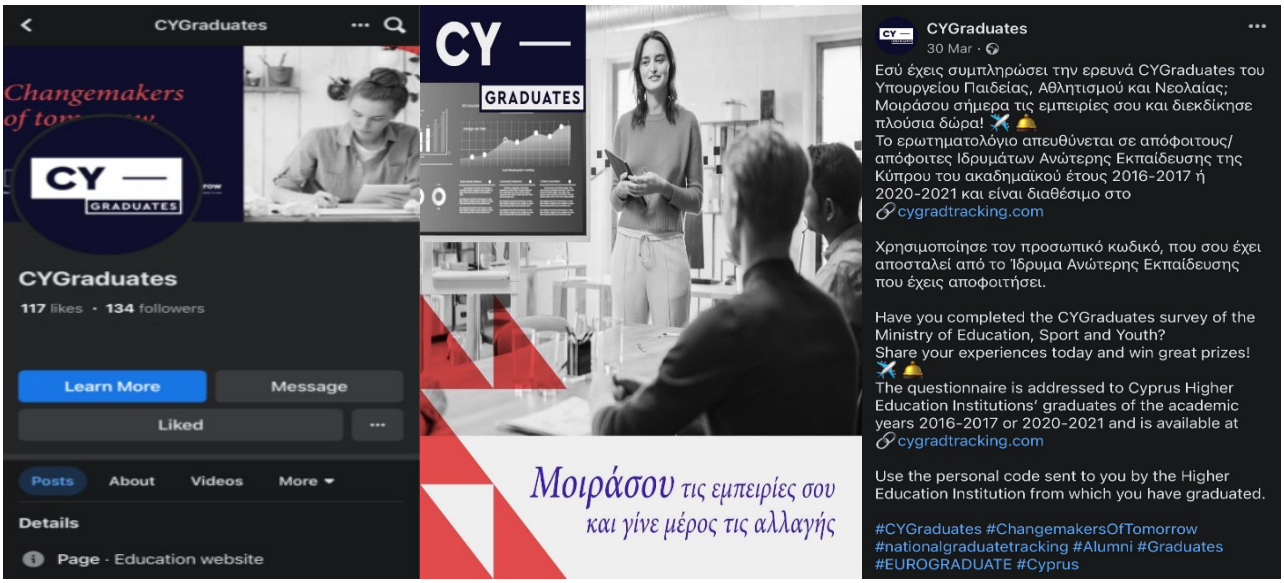


Figure 15: Social Media posts on Facebook



4. Population and Sample

Understanding the characteristics of the surveyed population and the composition of the obtained sample is crucial for interpreting the findings of this survey accurately. In this section, a comprehensive overview of the target population is presented, as well as the sample that responded to the survey. For the purposes of the first cycle of the NGTS and EUROGRADUATE, a census approach was conducted according to EUROGRADUATE consortium's recommendations. A census approach involves the collection of data from the entire target population of T+5 (2016/17) and T+1 (2020/21) graduates. EUROGRADUATE consortium recommended that when the total number of graduates per academic year is below 30.000, then countries should consider conducting a census. Cyprus' target population per academic year was approximately 10,000-15,000 and therefore a census approach was decided as more appropriate.

The total target population comprised of 24.095 graduates, out of which 10.478 were T+5 graduates and 13.617 were T+1 graduates. During the Invitation and Reminders phases, 1764 graduates were unreachable, therefore the net population decreased to 22.331 (Table 2). A total of 1476 graduates responded to the questionnaire. The final number of participants was identified based on EUROGRADUATE consortium's definition for valid cases which included the following two criteria: a) they completed all/most of the questions, and b) their response was considered as "valid" after running several plausibility and answer pattern analysis checks (refer to section 3.3.1 – "Data Cleansing"). Based on the above-mentioned definition for valid cases, the total number of respondents was 1.438, 524 for T+5 (2016/17) and 914 for T+1 (2020/21).

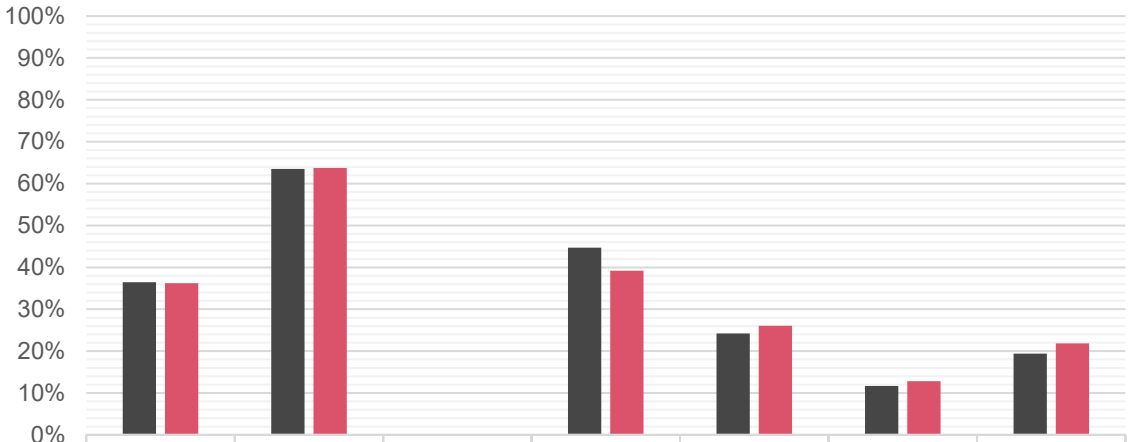
Table 2: Population and survey participants per cohort

Cohort – Population and Sample					
Cohort	**Total population**	**Unreachable graduates**	**Net population**	**Sample**	**Response rate%**
Cohort 2016/17	10.478	904	9.574	524	5,64%
Cohort 2020/21	13.617	860	12.757	914	7,04%
Total	**24.095**	**1764**	**22.331**	**1.438**	**6,44%**

4.1. Description of the population

This section presents statistical information for the population of each cohort by demographic variables (such as gender and age at graduation) and by variables related to their studies (such as Level of program of study, Field of Study, HEI Type). This information was provided by HEIs. Figure 16 presents the gender and age distribution for each cohort. It should be noted that, for the gender variable, three options were provided: males, females, and non-binary. In both cohorts, approximately 36% were males, 64% were females, while a percentage of 0,02% of the population were identified as "non-binary or other". Regarding age at graduation, the majority of graduates in both cohorts was under 25 years old. Specifically, in the cohort 2016/17, 45% of the graduates were under 25 years old, 24% were aged between 25-29, 12% between 30-34 and 19% were 35 years old and over. In the cohort 2020/21, 39% of the graduates were under 25 years old, 26% were aged between 25-29, 13% were between 30-34 and 22% were 35 years old and over.

Figure 16: Population distribution by demographic variables



	Male	Female	under 25	25-29	30-34	35 and over
Cohort 2016/17	36%	63%	45%	24%	12%	19%
Cohort 2020/21	36%	64%	39%	26%	13%	22%

Figure 17 presents the population distribution for each cohort by the level of studies (UNESCO Institute for Statistics, 2012) HEI type and field of study in each cohort. Data regarding graduates' field of study was collected for population data from HEIs based on the International Standard Classification of Education (ISCED) for fields of education and training (2013) was used. This specific classification contains 11 broad fields (2 digits), 29 narrow fields (3 digits) and about 80 detailed fields (4 digits). The broad fields of education in ISCED-F 2013 are as follows:

00 – Generic programs and qualifications

01 – Education

02 – Arts and humanities

03 – Social sciences, journalism and information

04 – Business, administration and law

05 – Natural sciences, mathematics and statistics

06 – Information and Communication Technologies

07 – Engineering, manufacturing and construction

08 – Agriculture, forestry, fisheries and veterinary

09 – Health and welfare

10 – Services

EUROGRADUATE consortium suggested the use of an adapted version of the ISCED-2013 study fields (Table 3), where classification of certain fields is so broad that they obscure some important differences between graduates of certain disciplines. The adapted version of the ISCED-2013 study fields employed by both National Graduate Tracking and EUROGRADUATE surveys splits very broad study fields into fields that are internally more homogenous, reflecting the differences within existing categories to a higher degree. This adapted version is still based on the detailed (4-digit) ISCED-2013 study fields. It should be noted that, Cyprus excluded category 0 as it includes programs of study which do not apply to Cyprus' Higher Education (e.g., programs designed to teach fundamental skills in reading, writing and arithmetic to adults). For the purposes

of analysis though, the EUROGRADUATE consortium suggested combining the 19 ISCED field categories to eight, as presented in Table 4.

Table 3: Adapted ISCED-2013 classification of fields of study in the context of EUROGRADUATE 2022

NEW	ISCED-Fields								Label
0[1]	00	UNK							Generic programmes and qualifications **PLUS** unknown
1	0110	0111	0119	018					Education Science
2	0112	0113	0114						Teacher Training
3	021								Arts
4	020	022	028	029					Humanities
5	023								Languages
6	0310	0311	0312	0314	0319	032	038	039	Social sciences, journalism and information
7	0313								Psychology
8	040	041	048	049					Business and administration
9	042								Law
10	05								Natural sciences, mathematics and statistics
11	06								ICT
12	070	071	072	0730	0732	078	079		Engineering, manufacturing, construction
13	0731								Architecture and town planning
14	08								Agriculture, forestry, fisheries, veterinary
15	0911	0912							Medicine, Dental Studies
16	0910	0913	0914	0915	0917	0919	098	099	Health
17	0916								Pharmacy
18	092								Welfare
19	10								Services

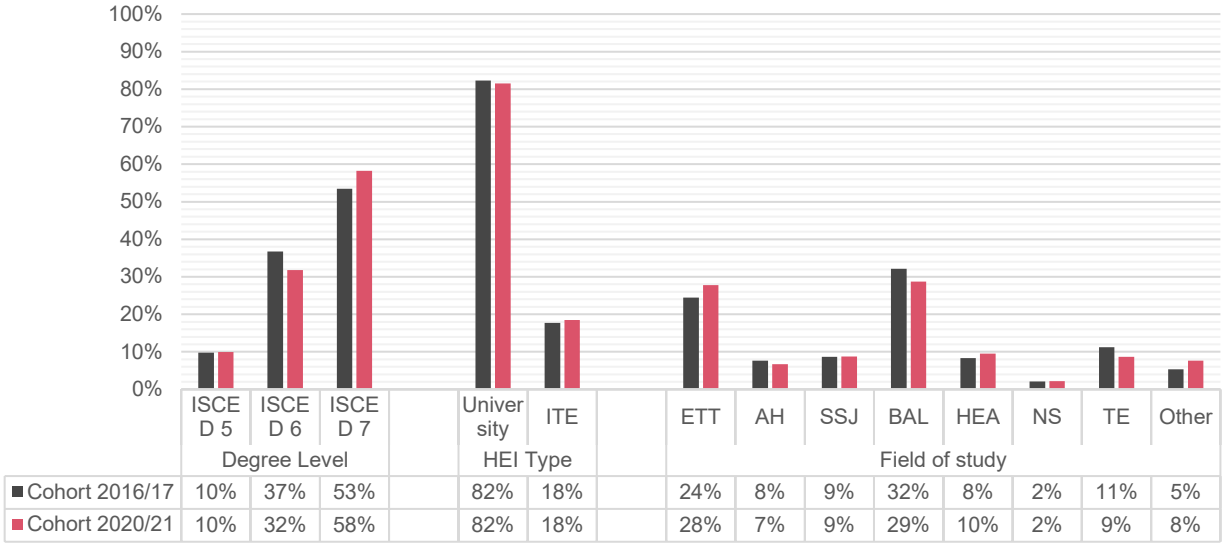
Table 4: New categorisation for fields of study for the purposes of data analysis

New categorisation for ISCED fields of study	Adapted ISCED 2013 classification of fields of study	
	Field number	Field of study
1. Education and Teacher Training (ETT)	1	Education Science
	2	Teacher Training
2. Arts and Humanities (AH)	3	Arts
	4	Humanities
	5	Languages
3. Social Sciences and Journalism (SSJ)	6	Social sciences, journalism and information
	7	Psychology
4. Business, Administration and Law (BAL)	8	Business and administration
	9	Law
5. Natural Sciences (including Mathematics) (NS)	10	Natural sciences, mathematics and statistics
6. Technology and Engineering (TE)	11	ICT
	12	Engineering, manufacturing, construction
	13	Architecture and town planning
7. Health (HEA)	15	Medicine, Dental Studies
	16	Health
	17	Pharmacy
	18	Welfare
8. Other*	14	Agriculture, forestry, fisheries, veterinary
	19	Services

**Generic Programs (Category 0 in ISCED 13 taxonomy) was excluded from category "Other" for Cyprus.*

In terms of the population distribution to the eight fields of study within each cohort, Figure 17 shows that the highest percentages were noted in the field of Business Administration, and Law (32% and 29% for 2016/17 and 2020/21 respectively) and Education and Teacher Training (24% and 28% for 2016/17 and 2020/21 respectively). The field with the lowest percentage in both cohorts was Natural Sciences (2%). Regarding the level of study in the cohort 2016/17, 10% of the graduates obtained a degree at ISCED level 5 (short cycle Higher Education), 37% at ISCED level 6 (bachelor's or equivalent) and 53% at ISCED level 7 (Master's or equivalent). In the cohort 2020/21, the distribution is similar. In relation to the type of HEI, in both cohorts, approximately 82% graduated from a University and 18% from Institutions of Tertiary Education (ITE).

Figure 17: Population distribution by variables related to graduates' Higher Education studies



Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

The differences in educational qualifications obtained among genders in the two cohorts is illustrated in Table 5. There is a similar trend within both cohorts in relation to distribution of qualifications by gender. The majority of females obtained an ISCED 7 degree (59% in cohort 2016/17 and 67% in cohort 2020/21), while approximately equal percentages of males have obtained degrees at ISCED levels 6 and 7 within each cohort. Only a small percentage of females and males obtained an ISCED 5 degree within both cohorts.

Table 5: Population distribution by ISCED-level and gender

Cohort			Gender		Total
			Male	Female	
2016/17	Degree Level	ISCED 5	13%	8%	**10%**
		ISCED 6	43%	33%	**37%**
		ISCED 7	43%	59%	**53%**
	Total		**100%**	**100%**	**100%**
2020/21	Degree Level	ISCED 5	14%	5%	**9%**
		ISCED 6	41%	27%	**32%**
		ISCED 7	45%	67%	**59%**
	Total		**100%**	**100%**	**100%**

The distribution of the population of graduates by fields of study and gender within both cohorts is presented in Table 6. In both cohorts, the majority of females pursued degrees in the field of Education and Teacher Training (32% in cohort 2016/17 and 37% in cohort 2020/21) and the majority of males degrees in the field of study is Business, Administration, and Law (39% in cohort 2016/17 and 37% in cohort 2020/21). The second most popular choice for females appears to be the field of Business, Administration, and Law (27% in cohort 2016/17 and 23% in cohort 2020/21) while for males the field of Technology and Engineering (20% in cohort

2016/17 and 18% in cohort 2020/21). The lowest percentages for both genders in both cohorts were noted in the field of Natural Sciences and Mathematics.

Table 6: Population distribution by field of study and gender

Cohort			Gender		Total
			Male	Female	
2016/17	Field of Study	Education and Teacher Training	10%	32%	**24%**
		Arts and Humanities	5%	9%	**8%**
		Social Sciences and Journalism	6%	10%	**8%**
		Business, Administration and Law	39%	27%	**32%**
		Health	8%	8%	**8%**
		Natural Sciences (including Mathematics)	2%	2%	**2%**
		Technology and Engineering	20%	6%	**11%**
		Other	12%	5%	**8%**
	Total		**100%**	**100%**	**100%**
2020/21	Field of Study	Education and Teacher Training	10%	37%	**27%**
		Arts and Humanities	4%	8%	**7%**
		Social Sciences and Journalism	5%	10%	**9%**
		Business, Administration and Law	37%	23%	**28%**
		Health	9%	10%	**9%**
		Natural Sciences (including Mathematics)	2%	2%	**2%**
		Technology and Engineering	18%	3%	**9%**
		Other	15%	6%	**9%**
	Total		**100%**	**100%**	**100%**

In terms of the distribution of the population according to level and field of study, Table 7 presents a similar trend in both cohorts. The majority of ISCED 7 graduates were concentrated in the field of Education and Teacher Training (41% in the 2016/17 cohort and 44% in the 2020/21 cohort), the majority of ISCED 6 graduates pursued studies in the field of Business, Administration, and Law (33% in the 2016/17 cohort and 30% in the 2020/21 cohort) while high percentages of ISCED 5 graduates pursued studies in the fields of Business, Administration and Law and in the fields of Agriculture, Forestry, Fisheries, Veterinary and Services which they were combined under the category “Other”.

Table 7: Population distribution by field of study and ISCED-level

Cohort			Degree level			Total
			ISCED 5	ISCED 6	ISCED 7	
2016/17	Field of Study	Education and Teacher Training	3%	4%	41%	**24%**
		Arts and Humanities	4%	10%	6%	**8%**
		Social Sciences and Journalism	0%	11%	8%	**8%**
		Business, Administration and Law	33%	33%	31%	**32%**
		Health	8%	11%	6%	**8%**
		Natural Sciences (including Mathematics)	0%	4%	1%	**2%**
		Technology and Engineering	19%	18%	5%	**11%**
		Other	32%	10%	2%	**8%**
	Total		**100%**	**100%**	**100%**	**100%**
2020/21	Field of Study	Education and Teacher Training	4%	3%	44%	**27%**
		Arts and Humanities	3%	8%	7%	**7%**
		Social Sciences and Journalism	0%	10%	9%	**9%**
		Business, Administration and, Law	27%	30%	27%	**28%**
		Health	6%	19%	4%	**9%**
		Natural Sciences (including Mathematics)	2%	4%	1%	**2%**
		Technology and Engineering	22%	14%	4%	**9%**
		Other	37%	11%	4%	**9%**
	Total		**100%**	**100%**	**100%**	**100%**

4.2. Participants

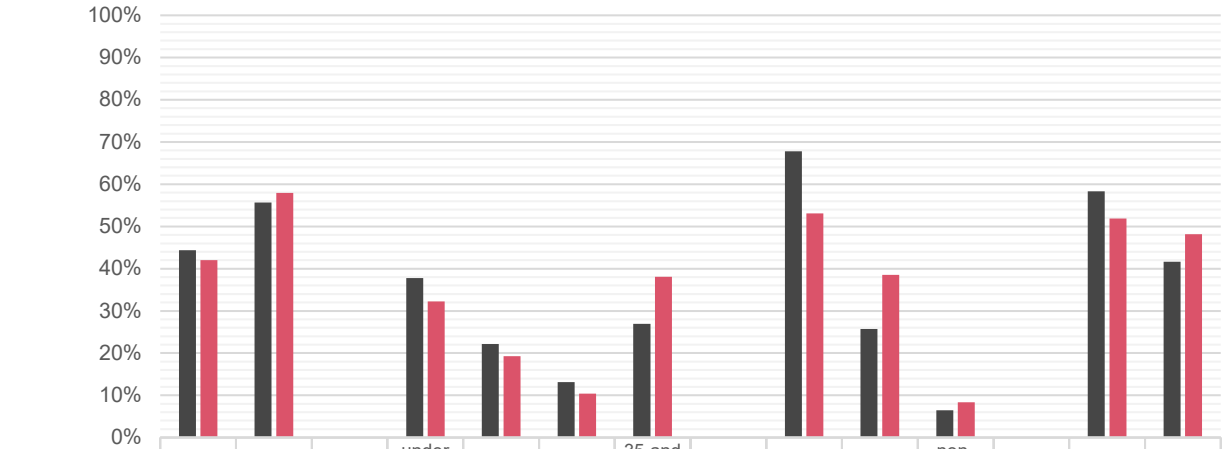
Statistical information is presented in this section for the participants from each cohort, by demographic variables (such as age at graduation, gender, country of birth, academic background) and by variables related to their studies (such as Degree Level, Field of Study, HEI Type). This information was elicited from graduates and specifically through relevant questions included in the section Personal and Social Background of the questionnaire.

According to Figure 18, in both cohorts, most participants were females, with 56% in 2016/17 and 58% in 2020/21. However, when it comes to the age of graduation, a different pattern is observed among the two cohorts. In the 2016/17 cohort, the majority of individuals that responded to the survey graduated before the age of 25 (38%), while a significant percentage (27%) belonged to the category of 35 and over. On the contrary, in the 2020/21 cohort, the largest proportion of participants fell into the age group of 35 and over (38%) and another significant proportion at the age category of under 25 (32%). In both cohorts, fewer participants were noted in the category between the ages of 30-35.

Figure 18 also presents some additional demographic characteristics of the survey participants from both cohorts, such as country of birth and academic background. In terms of country of birth, in both the 2016/17 and 2020/21 cohorts, the majority of participants were born in Cyprus, accounting for 68% and 53% respectively. However, a shift occurred in the 2020/21 cohort, as a notable increase in participants from EU countries was witnessed, rising from 26% in the previous cohort to 39%. In contrast, non-EU participants remained the minority, constituting just 6% in 2016/17 and 8% in 2020/21 cohorts.

Regarding the academic background of the participants, in the 2016/17 cohort, a significant majority of participants (approximately 58%) had parents with no Higher Education background. In the 2020/21 cohort, the majority of participants again had parents with no academic background, however the percentage decreased to 52%, indicating a subtle shift in the academic background of recent graduates.

Figure 18: Sample distribution by demographic variables



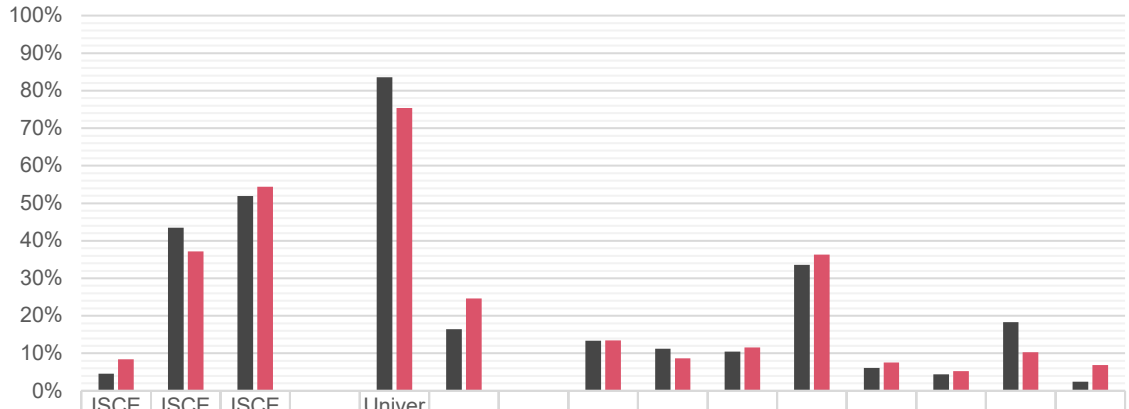
	Male	Female	under 25	25-29	30-34	35 and over	Cyprus	EU	non-EU	No	Yes
	Gender		Age at graduation				Country of Birth			Academic background of parents	
Cohort 2016/17	44%	56%	38%	22%	13%	27%	68%	26%	6%	58%	42%
Cohort 2020/21	42%	58%	32%	19%	10%	38%	53%	39%	8%	52%	48%

Figure 19 presents survey participants from both cohorts according to variables related to their studies. Across both cohorts, a similar trend emerges when examining the participants' educational levels. In both the 2016/17

and 2020/21 cohorts, the largest proportion of participants, at 52% and 54% respectively, held a master's degree or equivalent (ISCED 7). This suggests a strong presence of highly educated individuals in both groups. Conversely, the smallest percentage of participants in both cohorts held a diploma or equivalent (ISCED 5), with figures at 5% in 2016/17 and 8% in 2020/21. Finally, participants with bachelor's degrees or their equivalents (ISCED 6) constituted a significant portion of both cohorts, with 44% in 2016/17 and 37% in 2020/21, highlighting a substantial number of individuals with undergraduate qualifications in both groups.

Furthermore, in the 2016/17 cohort, a substantial 84% of participants attended Universities for their Higher Education studies and only 16% Institutions of Tertiary Education. In the 2020/21 cohort, the percentage of participants that attended Universities decreased to 75%. It's noteworthy that in both cohorts, the field of Business Administration and Law emerged as the most popular choice for studies among participants. The most striking disparity between the two cohorts lies in the field of Technology and Engineering. In the 2016/17 cohort, 18% of participants graduated in this field, indicating a relatively significant representation. However, in the 2020/21 cohort, there was a noticeable decline, with only 10% of participants opting for Technology and Engineering. This marked decrease in the percentage of graduates in the field of Technology and Engineering stands out as a noteworthy divergence from the otherwise stable distribution of participants across other fields of study within both cohorts.

Figure 19: Sample distribution by variables related to graduates' Higher Education studies



	ISCED 5	ISCED 6	ISCED 7	University	ITE	ETT	AH	SSJ	BAL	HEA	NS	TE	Other
	Degree Level			HEI Type		Field of study							
Cohort 2016/17	5%	44%	52%	84%	16%	13%	11%	10%	34%	6%	4%	18%	2%
Cohort 2020/21	8%	37%	54%	75%	25%	13%	9%	12%	36%	8%	5%	10%	7%

Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

5. Main findings

This section presents the survey's main findings divided in six thematic areas as follows:

1. Education Experience
2. Labour Market Participation and Labour Market Outcomes
3. International mobility of graduates after graduation
4. Skills Mismatch
5. Career Guidance and Counselling in Upper Secondary and Higher Education
6. Upskilling and reskilling during employment

The first four sections present findings in relation to thematic areas that are also included in the EUROGRADUATE comparative report, while the last two present findings in relation to national questions. In each section, a range of statistics are presented, both descriptive and inferential. The approach undertaken involves the presentation of percentages and indicators of central tendency and spread for main variables, as well as exploration for possible associations with demographic variables (i.e., age at graduation or at the time of the survey and gender) and variables related to graduates' Higher Education studies (i.e., type of Higher Education Institution, level of study, field of study). Statistically significant findings are marked with an asterisk in figures and tables.

5.1. Education Experience

5.1.1. Modes of teaching and learning

Employing new modes of learning and teaching and providing high quality, relevant and widely accessible higher education is a fundamental goal of the European Higher Education Area (European Association for Quality Assurance in Higher Education, 2015). As an initial step towards achieving this goal, it is imperative to develop a vision and framework for the integration of innovative teaching and learning methods that align with broader policy objectives for the Higher Education system across Europe.

In this context, respective questions were posed to graduates of Cyprus HEIs aimed at assessing the diverse landscape of teaching and learning modalities. The main impetus was to capture the spectrum of conventional teaching approaches, such as lectures, alongside emerging methods, like project-based and problem-based learning. Specifically, graduates were asked to indicate the extent to which various modes of teaching and learning were part of their program of study. Their responses were provided on a five-point scale (1=to a very high extent, 5=not at all). Table 8 presents graduates' responses in percentages per cohort. More than half of the participants in both cohorts indicated that the more traditional modes of teaching and learning (such as lectures, written assignments, and self-study) were used to a high extent. Internships, work placements and exposure to entrepreneurial activities were the modes of teaching and learning that most graduates stated that were not used at all in their program of study.

Table 8: Extent of use of various modes of teaching and learning in the context of graduates' program of study

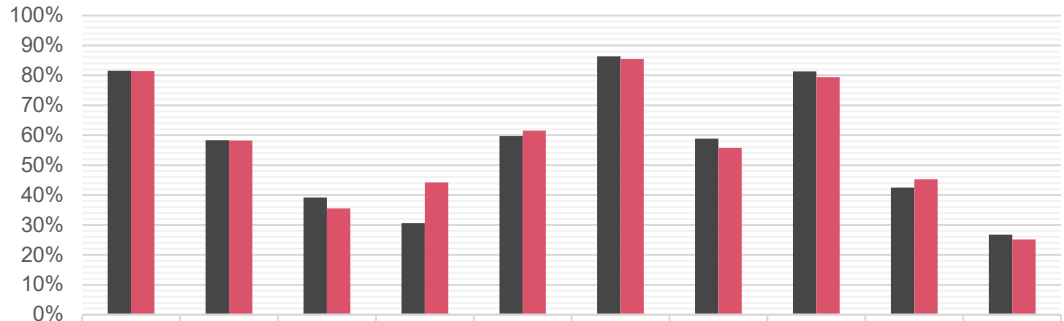
	Modes of teaching and learning		To a very high extent				Not at all
			1	2	3	4	5
a	Lectures	2016/17	**62%**	19%	14%	3%	1%
		2020/21	**64%**	18%	13%	3%	2%
b	Group assignments	2016/17	28%	**30%**	22%	11%	8%
		2020/21	**32%**	26%	22%	10%	9%
c	Participation in research projects	2016/17	18%	**21%**	19%	15%	27%
		2020/21	19%	17%	**23%**	22%	20%
d	Internships, work placements (as formal part of your study program)	2016/17	19%	12%	14%	10%	**45%**
		2020/21	27%	18%	13%	10%	**33%**
e	Project and/or problem-based learning	2016/17	29%	**31%**	21%	13%	6%
		2020/21	**32%**	30%	20%	11%	8%
f	Written assignments	2016/17	**61%**	25%	10%	3%	1%
		2020/21	**65%**	21%	10%	4%	1%
g	Oral presentations by students	2016/17	**32%**	26%	22%	10%	10%
		2020/21	**30%**	26%	21%	14%	10%
h	Self-study	2016/17	**54%**	27%	11%	5%	3%
		2020/21	**56%**	24%	12%	5%	3%
i	Interdisciplinary learning activities	2016/17	21%	22%	**25%**	21%	11%
		2020/21	19%	**27%**	**27%**	14%	13%
j	Exposure to entrepreneurial activities (e.g., projects or seminars involving companies, mentoring by start-ups, visiting facilities)	2016/17	14%	13%	19%	19%	**36%**
		2020/21	12%	14%	21%	17%	**37%**

Note: Percentages are rounded to the nearest integer.

Graduates' responses regarding the extent to which various modes of teaching and learning were used in their program of study were classified into two separate categories. Response options 1-2 were grouped together indicating a high frequency ("to a high extent") and response options 3-5 were grouped together indicating a low-medium frequency. Figure 20 illustrates the percentages for the category "high frequency" for each mode of teaching and learning. "Lectures", "written assignments" and "self-study" were the modes of teaching and

learning with the highest percentages (>80%), indicating that they were used to a high extent. The modes of teaching and learning with the lowest percentages in the high frequency category were “participation in research projects”, “internships, work placements”, “Interdisciplinary learning activities” and “Exposure to entrepreneurial activities” (<45%). Finally, the greatest difference in percentages for the various modes of teaching and learning between the two cohorts was noted for “internships, work placements” (31% in cohort 2016/17 and 44% in cohort 2020/21).

Figure 20: Percentages of graduates reporting a high frequency of use for the various modes of teaching and learning in the context of their program of study



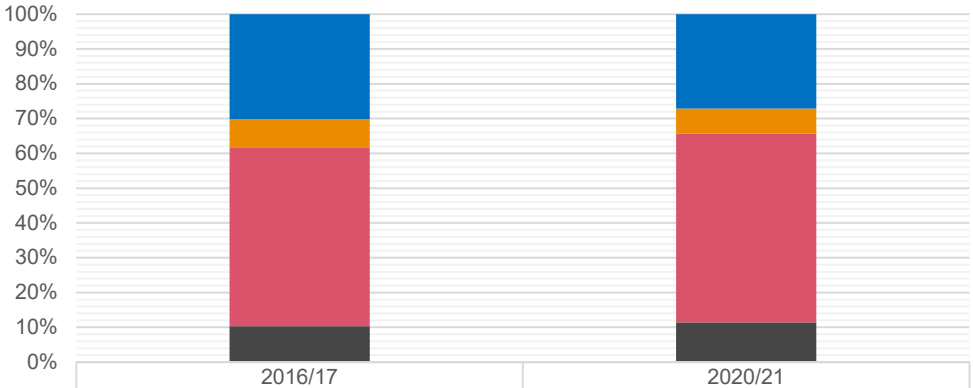
	Lectures	Group assignments	Participation in research projects	Internships, work placements	Project and/or problem-based learning	Written assignments	Oral presentations by students	Self-study	Interdisciplinary learning activities	Exposure to entrepreneurial activities
2016/17 to a high extent	82%	58%	39%	31%	60%	86%	59%	81%	42%	27%
2020/21 to a high extent	81%	58%	36%	44%	61%	85%	56%	79%	45%	25%

Graduates’ responses to the question regarding the modes of teaching and learning were also grouped in accordance with the typology of learning environments by Meng (Meng, 2006) (Meng, 2020), following the guidelines provided by the EUROGRADUATE consortium. Specifically, four types of learning environments were created as follows:

1. Lecture style: included graduates who have selected response options 1-2 on “lectures” (i.e., to a high extent) and 3-5 on “project and/or problem-based learning” (i.e., not to a high extent).
2. Problem based learning style: included graduates who have selected response options 3-5 on “lectures” (i.e., not to a high extent) and 1-2 on “project and/or problem-based learning” (i.e., to a high extent).
3. Lecture & Problem based learning style: included graduates who have selected response options 1-2 on “lectures” (i.e., to a high extent) and 1-2 on “project and/or problem-based learning” (i.e., to a high extent).
4. Other modes: included graduates who have selected response options 3-5 on “lectures” (i.e., not to a high extent) and 3-5 on “project and/or problem-based learning” (i.e., not to a high extent).

Figure 21 presents the percentages of the four types of learning environments per cohort. It becomes clear that most graduates reported a joined learning environment of lectures and problem-based learning, recording more than 50% within both cohorts. The “lecture only” environment of learning was a clear second option by participants from both cohorts (around 30%), whereas the options for “other modes” and problem-based only learning, both recorded percentages of around 10% and below.

Figure 21: Four types of learning environment based on Meng's typology (Meng, 2006), (Meng, 2020) by graduation cohort

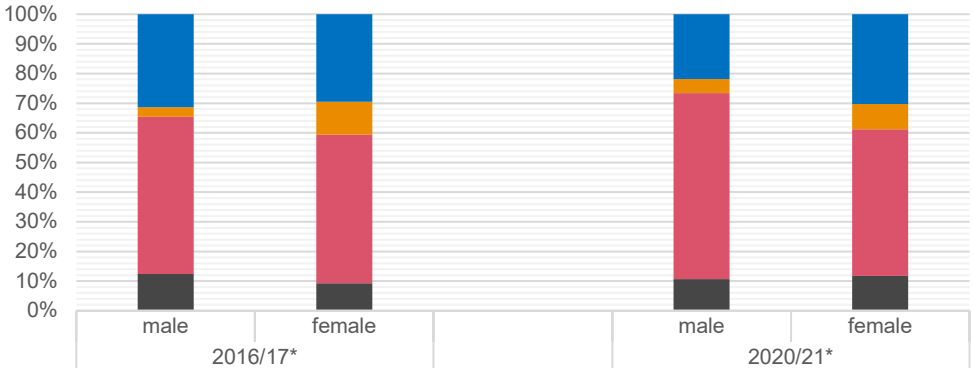


	2016/17	2020/21
lecture style	30%	27%
problem based learning style	8%	7%
lecture & problem based learning	51%	54%
other modes	10%	11%

5.1.1.1. Types of learning environment by demographic variables

In cohort 2016/17, both males and females provided similar responses for the types of learning environments they've experienced during their studies, except for problem-based learning style (Figure 22). Specifically, a higher percentage of females reported the use of problem-based learning style than males (11% and 3% respectively). In the 2020/21 cohort, male graduates reported the use of a hybrid learning environment to a higher extent than female graduates (63% and 49% respectively). The opposite was true for lecture style learning environment, as female graduates reported the use of a lecture style learning environment to a higher extent than male graduates (30% and 22% respectively). These differences among the two genders were found to be statistically significant.

Figure 22: Four types of learning environments by gender and graduation cohort

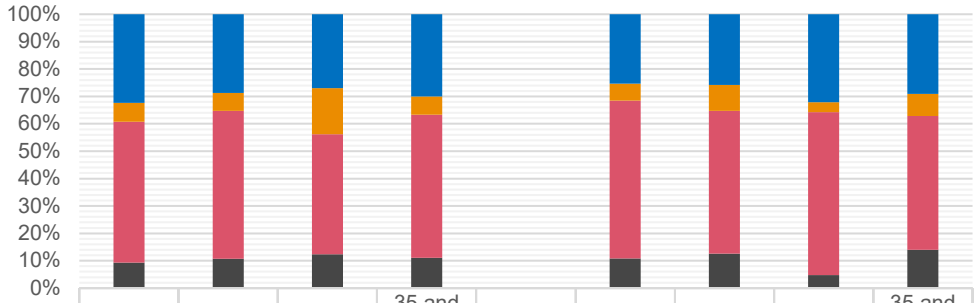


	male	female	male	female
	2016/17*		2020/21*	
lecture style	31%	30%	22%	30%
problem based learning style	3%	11%	5%	9%
lecture & problem based learning	53%	50%	63%	49%
other modes	12%	9%	11%	12%

**Statistically significant findings*

Across both cohorts, the age at graduation doesn't appear to be associated to the types of learning environments, as illustrated by Figure 23. Similar percentages were recorded for all types of learning environments across all age groups in both cohorts.

Figure 23: Percentages for the four types of learning environments by age (at graduation) and graduation cohort



	under 25	25 to 29	30 to 34	35 and over	under 25	25 to 29	30 to 34	35 and over
	2016/17				2020/21			
lecture style	32%	29%	27%	30%	25%	26%	32%	29%
problem based learning style	7%	7%	17%	7%	6%	9%	4%	8%
lecture & problem based learning	51%	54%	44%	52%	58%	52%	60%	49%
other modes	9%	11%	12%	11%	11%	13%	5%	14%

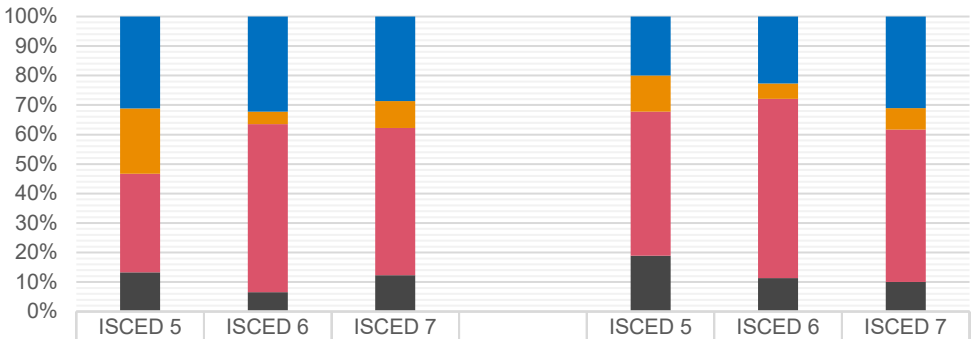
5.1.1.2. Types of learning environment by variables related to Higher Education studies

Figure 24 presents the distribution of the four types of learning environments according to the level of degrees within both cohorts. The majority of graduates in both cohorts, for all degree levels, reported that their programs of study had both lecture and problem-based learning.

Specifically, in the cohort 2016/17, more than 50% of ISCED 6 and ISCED 7 graduates reported a hybrid learning environment of lectures and problem-based learning, approximately one third a lecture only style environment, and less than 10% a problem-based learning style. For ISCED 5 graduates, the distribution appears different as 31% of the participants reported a lecture only style environment, another 33% a hybrid learning environment comprised of lectures and problem-based learning, while 22% of the graduates reported a problem-based learning style.

In cohort 2020/21, at all ISCED levels, the majority of graduates (>48%) reported a hybrid learning environment, with ISCED 6 graduates having the highest percentage (61%). The second most popular choice at all ISCED levels is the lecture only style, with ISCED 7 graduates having the highest percentage among all ISCED level groups (31%). The association between types of learning environments and level of degree was statistically significant in both cohorts. Finally, a noticeable shift of more than 10% is recorded for the ISCED 5 group, between the two cohorts: as the percentage of lecture only style learning and problem-based learning decreased, the percentage for the joint learning environment of lectures and problem-based learning combination increased.

Figure 24: Four types of learning environment by ISCED-level and graduation cohort

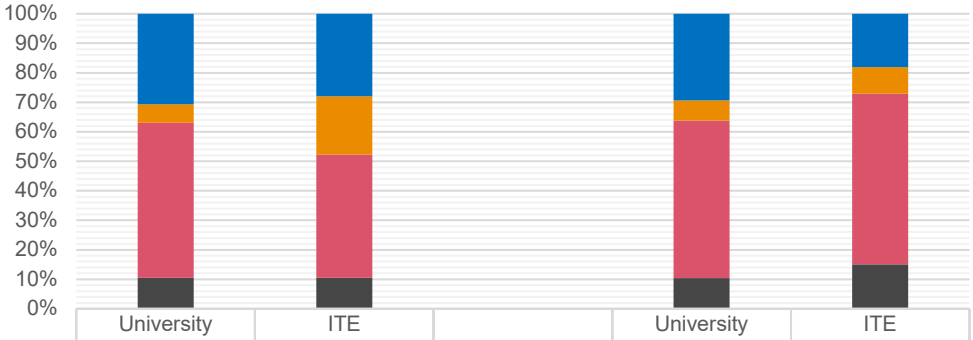


	ISCED 5	ISCED 6	ISCED 7		ISCED 5	ISCED 6	ISCED 7
	2016/17*				2020/21*		
lecture style	31%	32%	29%		20%	23%	31%
problem based learning style	22%	4%	9%		12%	5%	7%
lecture & problem based learning	33%	57%	50%		49%	61%	52%
other modes	13%	7%	12%		19%	11%	10%

**Statistically significant findings*

The distribution of the different types of learning environment with respect to the type of HEI, is shown in Figure 25. It is observed that, in both Universities and ITE in both cohorts the majority of graduates reported a learning environment that combined lectures with problem-based learning (42%-58%). Graduates of 2016/17 in ITE reported a problem based only learning to a higher extent (20%) as opposed to graduates in Universities (6%), however graduates in Universities reported the use of combined lectures with problem-based learning to a higher extent (53%) than graduates from ITE (42%). The majority of most recent graduates (cohort 2020/21), in both Universities and ITE, indicated a hybrid learning environment. The second more popular choice in both types of HEIs was the lecture style only, a higher percentage was noted though in Universities (29%) than in ITE (18%). Similar percentages were noted between the two types of HEIs for problem-based learning style. Associations between types of learning environments and types of HEIs were statistically significant. Comparisons between cohorts show that, in ITE, there was a decrease in percentages for lecture only and problem based only types of learning environment and an increase in percentages for the hybrid type (lecture and problem-based learning environment). In Universities, a similar pattern is noted in terms of the types of learning environments between the two cohorts.

Figure 25: Percentages for the four types of learning environment by type of HEI and graduation cohort



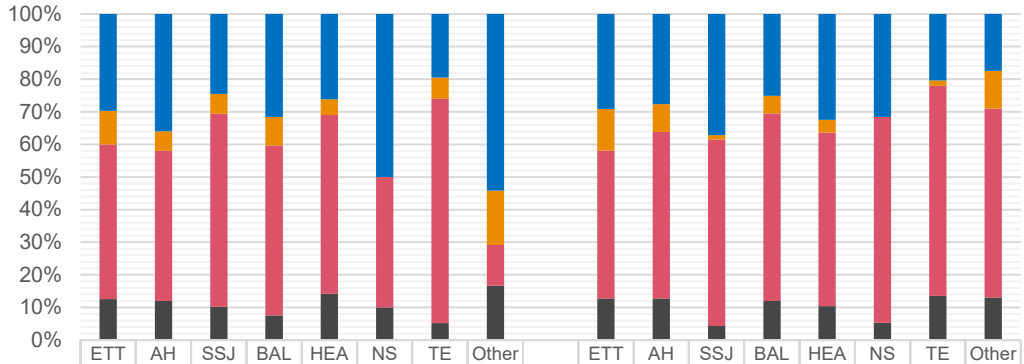
	University	ITE		University	ITE
	2016/17*			2020/21*	
lecture style	31%	28%		29%	18%
problem based learning style	6%	20%		7%	9%
lecture & problem based learning	53%	42%		53%	58%
other modes	10%	10%		10%	15%

**Statistically significant findings*

Figure 26 illustrates the different types of learning environments by fields of study for the two cohorts. In the 2016/17 cohort, the majority of graduates in all fields of study reported a learning environment that combines lectures with problem-based learning except in two fields, Natural Sciences and category Other, where the majority of graduates reported a lecture style. The highest percentage for the hybrid environment is recorded in the field of Technology and Engineering, where almost 70% of graduates reported a hybrid type of learning environment which combined lecture and problem-based learning.

In the 2020/21 cohort, most graduates in all fields of study again reported that their program of study created a learning environment that combined lectures with problem-based learning, with the highest percentages noted in the fields of Natural Sciences and Technology and Engineering. The highest percentage for lecture-based style environment was noted in the field of Social Science and Journalism. These differences in the percentages of the four types of learning environments within each field of study were statistically significant in both cohorts.

Figure 26: Four types of learning environment by field of study and graduation cohort



	ETT	AH	SSJ	BAL	HEA	NS	TE	Other	ETT	AH	SSJ	BAL	HEA	NS	TE	Other
	2016/17*								2020/21*							
lecture style	30%	36%	24%	32%	26%	50%	19%	54%	29%	28%	37%	25%	32%	32%	20%	17%
problem based learning style	10%	6%	6%	9%	5%	0%	6%	17%	13%	9%	1%	5%	4%	0%	2%	12%
lecture & problem based learning	47%	46%	59%	52%	55%	40%	69%	13%	45%	51%	57%	58%	53%	63%	64%	58%
other modes	13%	12%	10%	8%	14%	10%	5%	17%	13%	13%	4%	12%	10%	5%	14%	13%

**Statistically significant findings*
Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

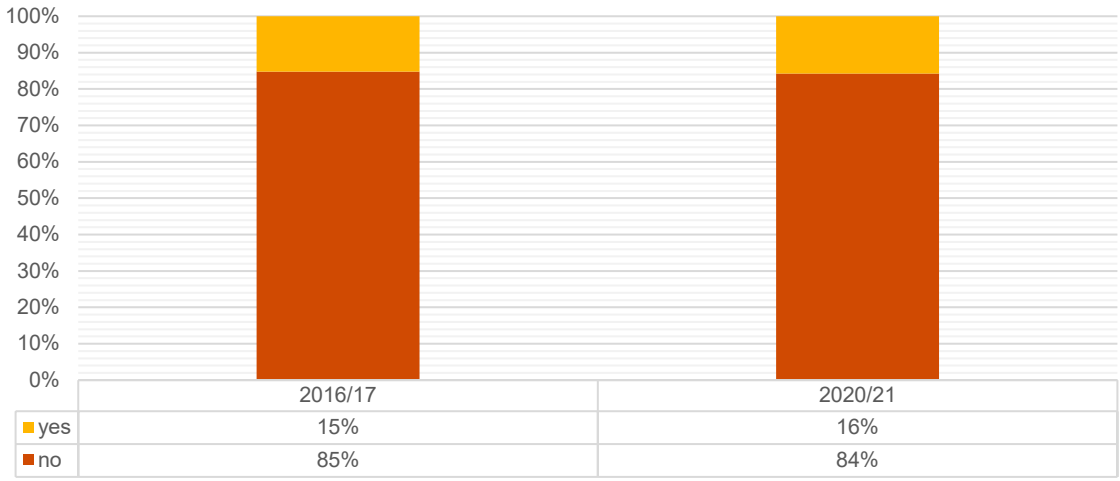
5.1.2. Experience abroad as part of the program of study

International mobility is frequently perceived as improving the allocation of skilled labour across the European labour market, increasing individual labour market opportunities, enhancing intercultural tolerance, and promoting the development and spread of innovations and creativity. Simultaneously, it fosters academic cooperation, enhances the international dimension of Higher Education, increases the synergies between Higher Education, Innovation and Research, removes barriers to learning, and contributes to the development of innovative education policies (M. Symeonaki et al., 2020). Thus, in the questionnaire respondents were asked questions regarding their international experiences, such as credit mobility. Participants could report up to five experiences abroad and each time to select among five types of experiences (i.e., temporary study abroad during the reference study period) and/or internship or work placement.

Figure 27 presents the percentage of graduates who had at least one experience abroad as part of their program of study. A similar pattern was observed for graduates in 2016/17 and 2020/21 cohorts as 15% and 16% of graduates respectively reported having at least one experience abroad during their studies as part of their program of study. Figure 28 presents the types of experiences abroad. In both cohorts the majority of graduates reported that studying abroad was the main reason for the time spent abroad during their studies (57% for 2016/17 and 47% for 2020/21 cohorts) and a significant percentage in both cohorts reported

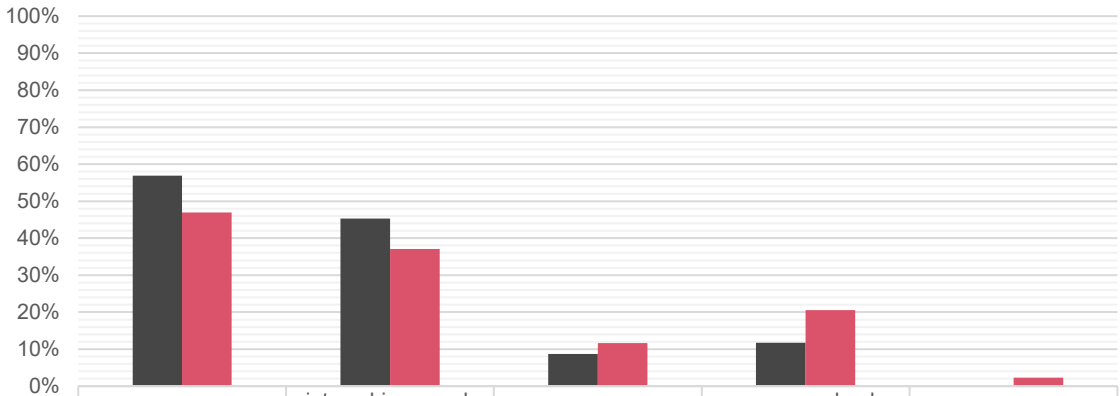
internships or work placements as a second reason (45% for 2016/17 and 37% for 2020/21 cohorts). Comparisons between the two cohorts reveal that the percentage of graduates studying abroad has declined in 2020/21 compared to 2016/17 (from 57% to 47%). In contrary, the percentage of graduates attending language courses and summer schools increased in 2020/21 when compared to 2016/17.

Figure 27: Percentage of graduates with an experience abroad as part of the program of study by graduation cohort



	2016/17	2020/21
yes	15%	16%
no	85%	84%

Figure 28: Participation in different types of experiences abroad by graduation cohort



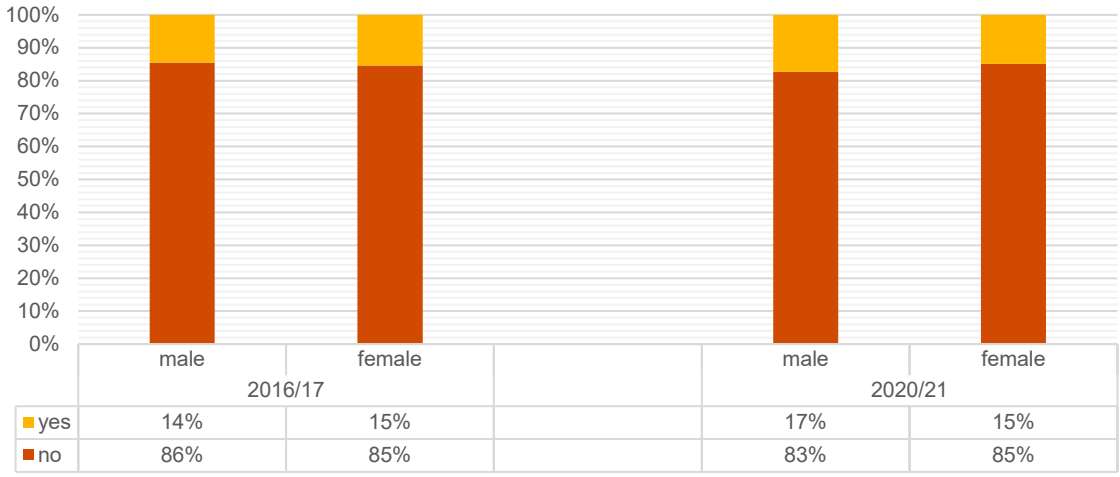
	study abroad	internship or work placement	language course	summer school, workshop, etc.	other
2016/17	57%	45%	9%	12%	0%
2020/21	47%	37%	12%	21%	2%

Note: Based on up to five international experiences abroad. Graduates could report multiple types of experiences.

5.1.2.1. Experience abroad as part of the program of study by demographic variables

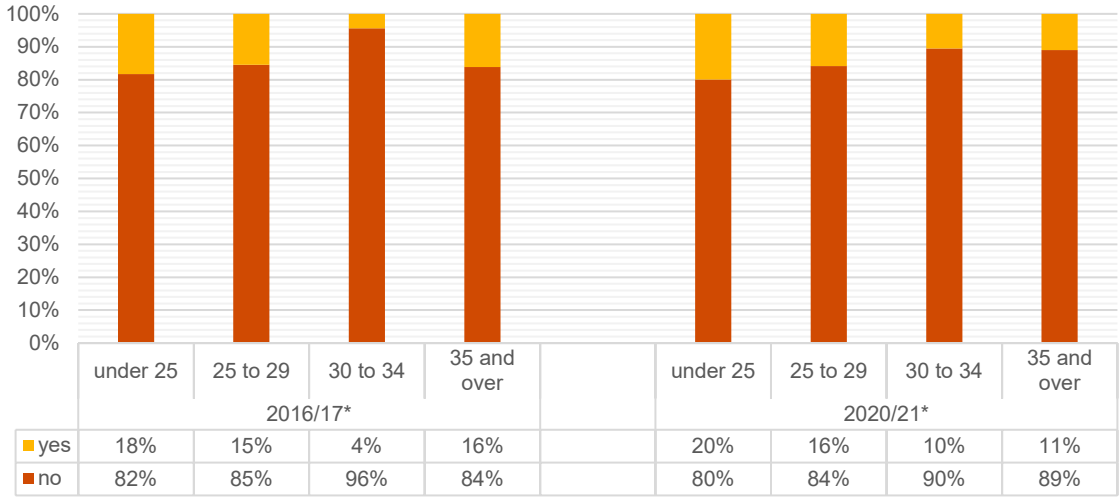
Figure 29 represents the distribution of the participants with at least one experience abroad, by gender. Males and females show a similar pattern in both cohorts. Similar percentages of males and females had at least one experience abroad during their studies in both cohorts. The percentage of male graduates with a study abroad experience increased from 14% in 2016/17 to 17% in 2020/21. While the percentage of female graduates with a study abroad experience remained the same at 15% in 2016/17 and 2020/21.

Figure 29: Percentage of graduates with an experience abroad by gender and graduation cohort



The relationship between participation in experience abroad and age was statistically significant in both cohorts. Particularly, in the cohort 2016/17, all age groups had similar participation rates in experience abroad except the “30 to 34” age group which had the lowest percentage (4%), as illustrated in Figure 30. In the 2020/21 cohort, the age groups “under 25” and “25 to 29” had higher participation rates in experiences abroad than the age groups “30 to 34” and “35 and over”. Comparisons between the two cohorts show that recent graduates had higher participation percentages in experiences abroad than older graduates in all age groups, except for the category “35 and over”.

Figure 30: Percentage of graduates with an experience abroad by age and graduation cohort



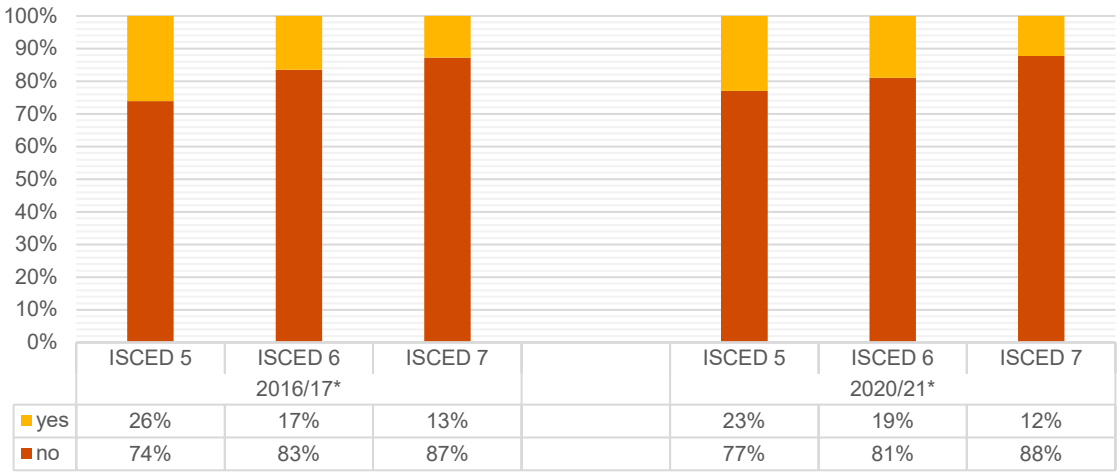
**Statistically significant findings*

5.1.2.2. Experience abroad as part of the program of study by variables related to Higher Education studies

The distribution of graduates with an experience abroad in relation to the three levels of study (ISCED 5, 6 and 7) is shown in Figure 31. Overall, a similar trend was observed within both 2016/17 and 2020/21 cohorts. As

the level of studies increased from ISCED 5 to ISCED 7, the percentage of graduates with an experience abroad declined. ISCED 5 graduates had the highest participation percentage in an experience abroad in both 2016/17 (26%) and 2020/21 (23%) cohorts, whilst ISCED 7 graduates had the lowest participation in an experience abroad in both cohorts (13% in 2016/17 and 12% in 2020/21). The relationship between participation in an experience abroad and level of study was statistically significant in both cohorts.

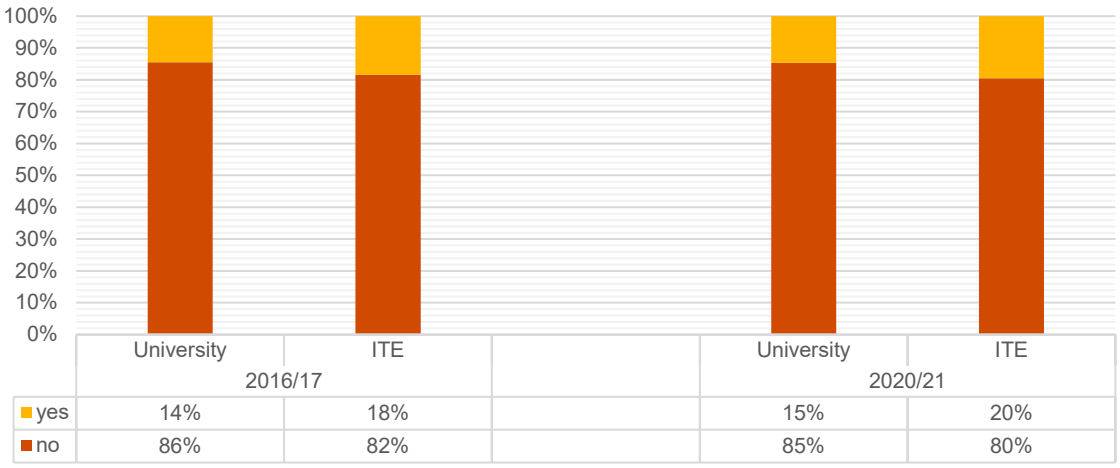
Figure 31: Percentage of participants with a study abroad experience by ISCED-level and graduation cohort



**Statistically significant findings*

Figure 32 illustrates the percentage of graduates with an experience abroad in relation to the type of HEI. Graduates from ITE reported a higher participation in experiences abroad (18% and 20% for cohorts 2016/17 and 2020/21 respectively) than graduates from Universities (14% and 15% for cohorts 2016/17 and 2020/21 respectively). There was a slight increase in the percentage of graduates participating in an experience abroad in both types of HEIs from 2016/17 to 2020/21.

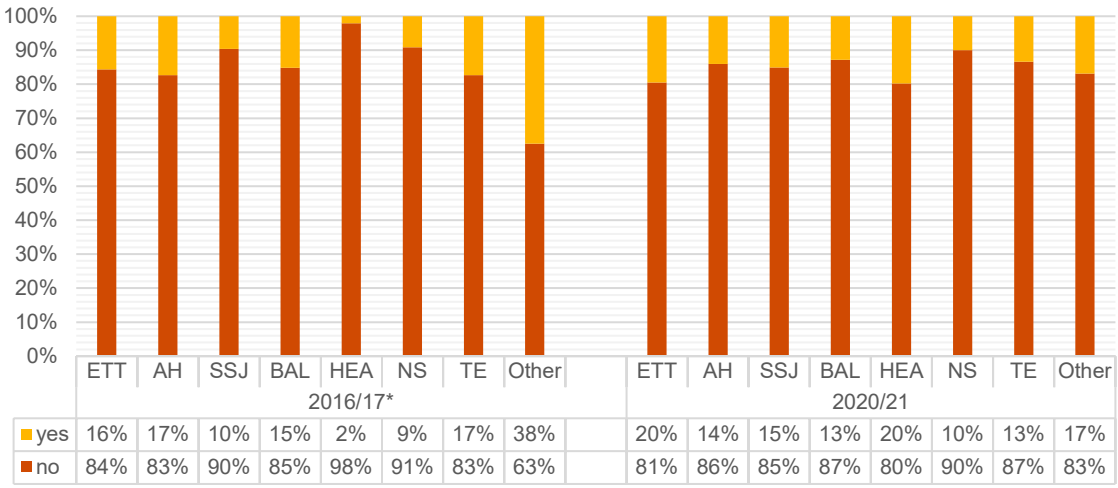
Figure 32: Percentage of graduates with an experience abroad by type of HEI and graduation cohort



The relationship between participation in experiences abroad and fields of study is statistically significant only for the cohort 2016/17. According to Figure 33, 2016/17 graduates in the fields of Arts and Humanities,

Technology and Engineering, Education and Teacher Training and Business Administration and Law had the higher participation in an experience abroad (ranging between 15-17%) while graduates in the fields of Natural Sciences (including Mathematics) had the lowest (2%). In 2020/21 cohort, smaller differences were noted in the percentages of graduates participating in experiences abroad in all fields of study (ranging from 10%-20%).

Figure 33: Percentage of graduates with an experience abroad by field of study and graduation cohort



	ETT	AH	SSJ	BAL	HEA	NS	TE	Other	ETT	AH	SSJ	BAL	HEA	NS	TE	Other
	2016/17*								2020/21							
yes	16%	17%	10%	15%	2%	9%	17%	38%	20%	14%	15%	13%	20%	10%	13%	17%
no	84%	83%	90%	85%	98%	91%	83%	63%	81%	86%	85%	87%	80%	90%	87%	83%

**Statistically significant findings*

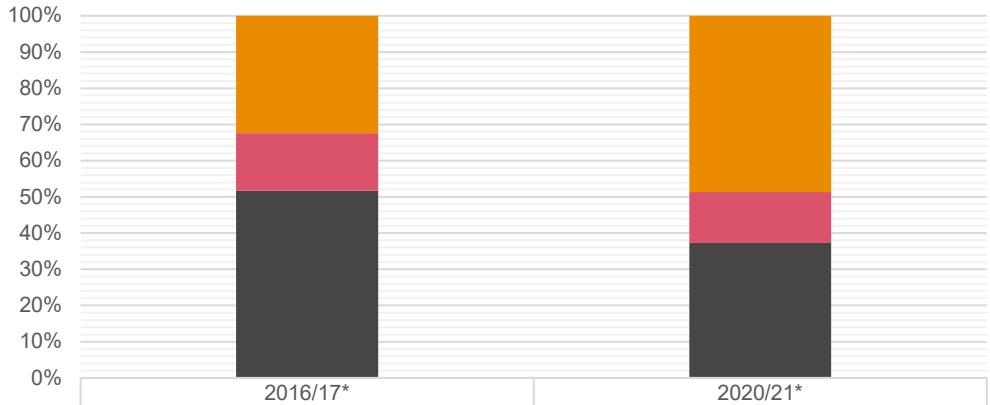
Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

5.1.3. Labour market experience during studies

Higher Education is given the task to prepare students for a successful transition to the labour market, adequate employment, career development and job security (Symeonaki et al, 2023). Along this line and considering that work experience generally improves the chances of finding a job and may be a "competitive advantage" for young-graduates, this sub-section presents findings regarding graduates' labour market experiences during their Higher Education studies to improve their Higher Education-to-work transition. In the context of the current study, labour market experiences included: a) internships or work placements as part of their program of study, b) internships or work placements offered to all students by Higher Education Institutions on a voluntary basis and c) paid employment alongside studies.

Figure 34 shows the breakdown of the type of labour market experience during studies by cohort. A large percentage of graduates in both cohorts reported that they had a labour market experience during their programs of study (48% and 63% for cohorts 2016/17 and 2020/21 respectively). Of those who pursued a labour market experience, the percentage of participants working in a related field (32% and 49% for cohorts 2016/17 and 2020/21 respectively) was greater than those working in an unrelated field (16% and 14% for cohorts 2016/17 and 2020/21 respectively), in both cohorts. The percentage of graduates with no labour market experience is higher in the 2016/17 cohort (52% as opposed to 37%). Differences between cohorts in terms of graduates' participation in labour market experience during studies were found to be statistically significant.

Figure 34: Labour market experience during studies by graduation cohort



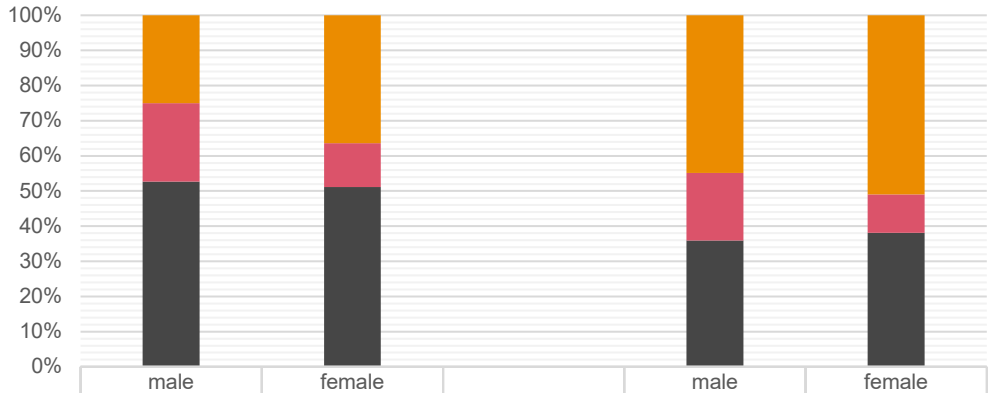
	2016/17*	2020/21*
yes, related to their studies	32%	49%
yes, but unrelated to their studies	16%	14%
no	52%	37%

**Statistically significant findings*

5.1.3.1. Labour market experience during studies by demographic variables

Figure 35 suggests that significantly more females have a related market experience during studies than males, whilst more males have an unrelated work experience than females, within both cohorts. Similar percentages were noted for no labour market experience among the two genders within both cohorts. Between the 2016/17 and 2020/21 cohorts, the percentage of both male and female graduates with a related work experience increased (from 25% to 45% for males and from 36% to 51% for females).

Figure 35: Labour market experience during studies by gender and graduation cohort

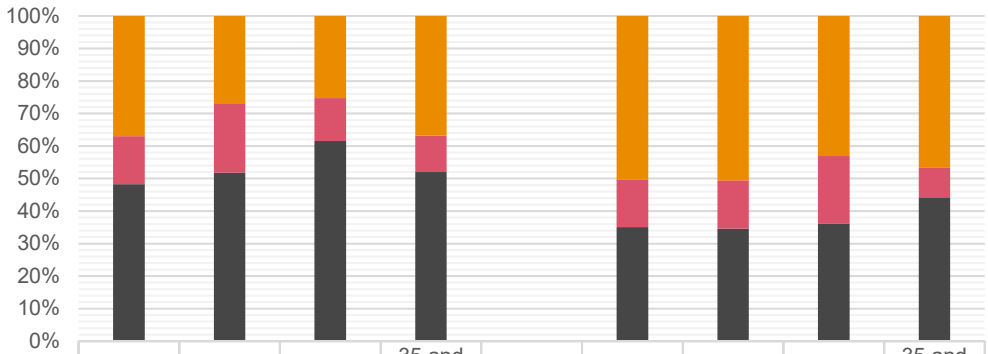


	male	female	male	female
	2016/17*		2020/21*	
yes, related to their studies	25%	36%	45%	51%
yes, but unrelated to their studies	22%	12%	19%	11%
no	53%	51%	36%	38%

**Statistically significant findings*

Figure 36, illustrates participation in labour market experiences during studies by age at graduation. In cohort 2016/17, statistically significant differences were noted among the four age groups. In particular, the majority in all age groups reported no labour market experience, with the age group “30 to 34” years old having the highest percentage (62%). Younger (“under 25” years old) and older (“35 and over”) graduates in cohort 2016/17 reported to a significantly higher extent having a related labour market experience than graduates in middle age categories (25 to 34 years old). In cohort 2020/21, most graduates in all age groups reported having related labour market experience. Older graduates (“35 and over”) reported the highest percentage of no labour market experience during their program of study. Comparisons between the two cohorts show an increase in percentages for related labour market experience for all age groups.

Figure 36: Labour market experience during studies by age (at graduation) and graduation cohort



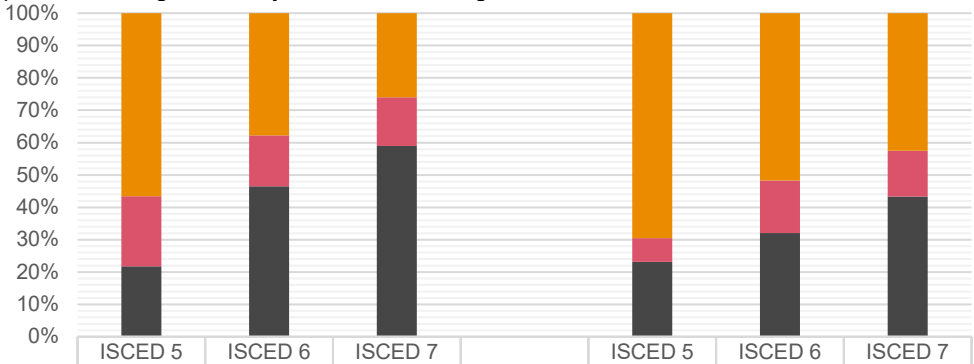
	2016/17*				2020/21			
	under 25	25 to 29	30 to 34	35 and over	under 25	25 to 29	30 to 34	35 and over
yes, related to their studies	37%	27%	25%	37%	50%	51%	43%	47%
yes, but unrelated to their studies	15%	21%	13%	11%	15%	15%	21%	9%
no	48%	52%	62%	52%	35%	35%	36%	44%

**Statistically significant findings*

5.1.3.2. Labour market experience during studies by variables related to Higher Education studies

The distribution of participation in labour market experience according to the three levels of study within both cohorts is illustrated in Figure 37. Findings suggest that the relationship between participation in labour market experience and level of study is statistically significant in both cohorts. Specifically, in cohort 2016/17, the majority of ISCED 5 graduates reported having a related labour market experience (57%), while the majority of ISCED 6 and ISCED 7 graduates reported not having a labour market experience during their studies (47% and 59% respectively). In cohort 2020/21, the majority of ISCED 5 and ISCED 6 graduates reported having a related labour market experience during their studies (69% and 52% respectively). The percentage of ISCED 7 graduates who reported as having a related labour market experience and those that reported as not having such an experience is almost the same.

Figure 37: Labour market experience during studies by ISCED-level and graduation cohort



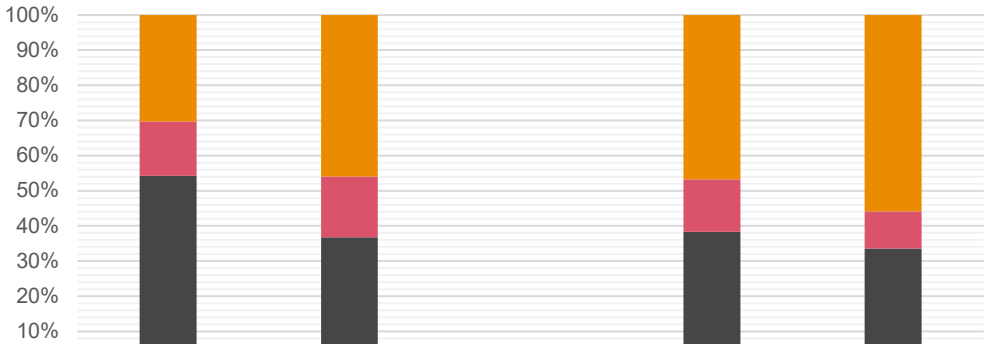
	ISCED 5	ISCED 6	ISCED 7		ISCED 5	ISCED 6	ISCED 7
	2016/17*				2020/21*		
yes, related to their studies	57%	38%	26%		69%	52%	42%
yes, but unrelated to their studies	22%	16%	15%		7%	16%	14%
no	22%	47%	59%		23%	32%	43%

**Statistically significant findings*

The relationship between labour market experience and type of HEIs is presented in Figure 38. In cohort 2016/17, there is a statistically significant association between labour market experience and type of HEIs. Particularly, the majority of graduates in ITE (46%) had a related labour market experience during their programs of study, while the majority of graduates in Universities (54%) reported not having such an experience. In cohort 2020/21, the majority of graduates in both Universities and ITE (47% and 56% respectively) reported as having a related labour market experience during their studies.

In both cohorts, a higher percentage of graduates in ITE had a related labour market experience during their programs of study than graduates in Universities. Additionally, in cohort 2020/21, more graduates from ITE reported as having a related labour market experience during their studies (56% vs 47%), however this was not a statistically significant difference. This finding was somehow expected as ITE offer exclusively ISCED 5 programs, which were found to have the highest percentage of graduates reporting a related market experience according to Figure 37.

Figure 38: Labour market experience during studies by type of HEI and graduation cohort

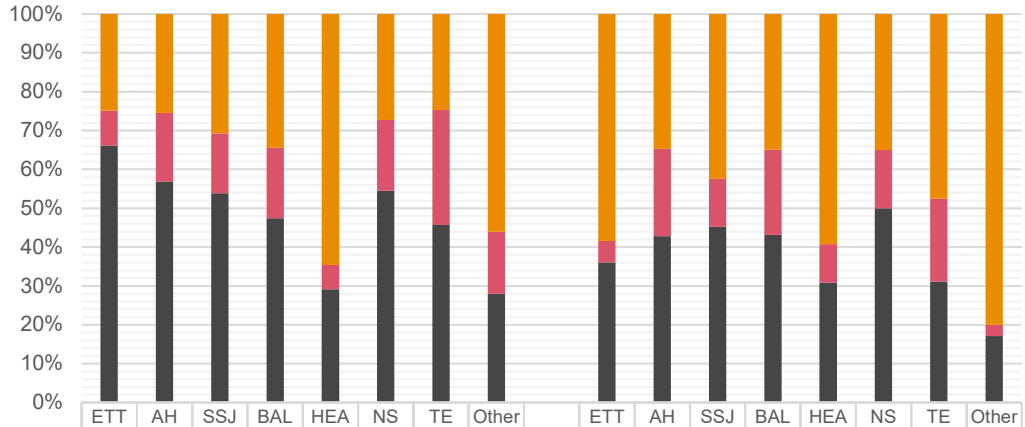


	University	ITE		University	ITE
	2016/17*			2020/21	
yes, related to their studies	30%	46%		47%	56%
yes, but unrelated to their studies	16%	17%		15%	11%
no	54%	37%		38%	34%

**Statistically significant findings*

Figure 39 presents the relationship between the field of study and the graduates' participation in labour market experience during studies which was found to be statistically significant in both cohorts. In cohort 2016/17, the field of Health had the highest percentage of graduates (65%) with a related labour market experience, while the field of Education and Teacher Training had the highest percentage of graduates with no labour market experience. In cohort 2020/21, the fields of Health (59%), Education and Teacher Training (58%) and the category Other (80%) had the highest percentages of graduates with related labour market experience, while the field of Natural Sciences had the highest percentage of graduates reporting no labour market experience during studies (50%).

Figure 39: Labour market experience during studies by field of study and graduation cohort



	ETT	AH	SSJ	BAL	HEA	NS	TE	Other	ETT	AH	SSJ	BAL	HEA	NS	TE	Other
	2016/17*								2020/21*							
yes, related to their studies	25%	25%	31%	34%	65%	27%	25%	56%	58%	35%	42%	35%	59%	35%	48%	80%
yes, but unrelated to their studies	9%	18%	15%	18%	6%	18%	30%	16%	6%	22%	12%	22%	10%	15%	21%	3%
no	66%	57%	54%	47%	29%	55%	46%	28%	36%	43%	45%	43%	31%	50%	31%	17%

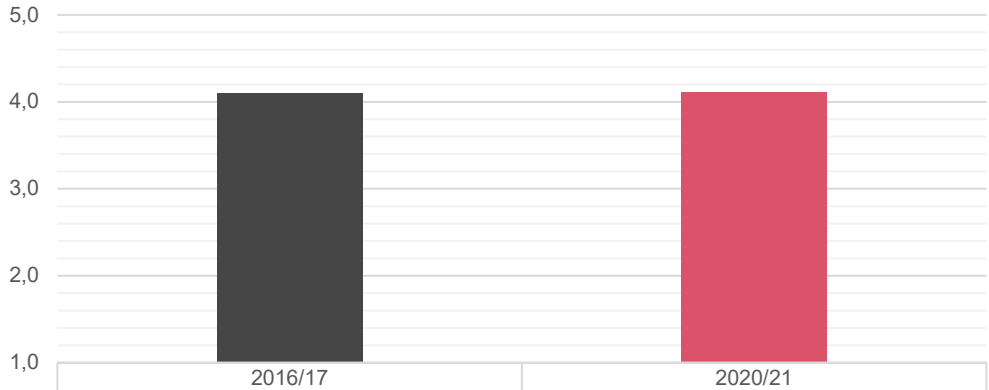
**Statistically significant findings*

Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

5.1.4. Overall satisfaction with Higher Education studies

A key aspect for quality improvement in a Higher Education Institution is the overall students' satisfaction with their studies. Students, being the backbone of the Higher Education system and its most important stakeholder, are those that can provide this piece of information. Thus, in the context of this study graduates were asked to assess their overall satisfaction from their studies providing feedback to the HEIs and insights into their perceptions. Particularly, graduates were asked to indicate the level of satisfaction with their studies using a five-point rating scale (with 1 representing a state of profound dissatisfaction, while a rating of 5 signifying a high level of satisfaction). According to Figure 40, both 2016/17 and 2020/21 graduates reported a high average satisfaction score (4,10 and 4,11 respectively). This suggests that graduates in both cohorts were highly satisfied with their studies.

Figure 40: Average satisfaction with Higher Education studies by graduation cohort



	2016/17	2020/21
Average study satisfaction	4,10	4,11
Std. Deviation	1,04	1,02

5.1.4.1. Overall satisfaction with Higher Education studies by demographic variables

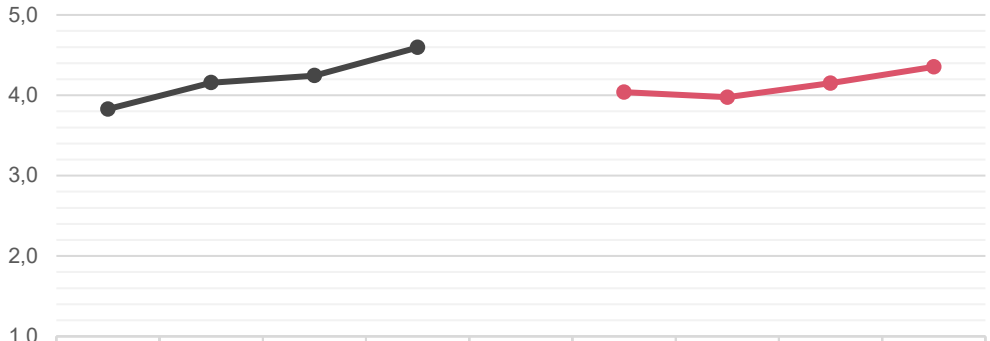
A similar average satisfaction score was observed for both genders within both cohorts (Figure 41), with female graduates having a slightly higher average satisfaction score than male graduates. This difference however was not statistically significant.

Figure 41: Average satisfaction with Higher Education studies by gender and graduation cohort

	male	female		male	female
	2016/17			2020/21	
Average study satisfaction	4,08	4,11		4,11	4,12
Std. Deviation	1,07	1,03		1,08	0,98

Statistically significant differences in average satisfaction scores were found among the four age groups within both cohorts (Figure 42). In the 2016/17 cohort, as age increased, the average satisfaction score also increased. A similar pattern was observed in the 2020/21 cohort, apart from the “under 25” age group which was found to have a higher average satisfaction score than the age group of “25 to 29”.

Figure 42: Average satisfaction with Higher Education studies by age and graduation cohort



	under 25	25 to 29	30 to 34	35 and over		under 25	25 to 29	30 to 34	35 and over
	2016/17*					2020/21*			
Average study satisfaction	3,83	4,16	4,24	4,59		4,04	3,98	4,15	4,35
Std. Deviation	1,14	0,99	0,91	0,69		1,05	1,06	0,96	0,90

**Statistically significant findings*

5.1.4.2. Overall satisfaction with Higher Education studies by variables related to studies

Figure 43 illustrates an increase in the average satisfaction score from 3,68 to 4,21 when moving from ISCED level 5 to ISCED level 7 in the 2016/17 cohort. This suggests that ISCED 7 graduates were more satisfied with their studies compared to ISCED 5 and ISCED 6 graduates in this cohort.

It is noted that the differences observed in 2016/17 cohort were statistically significant, whereas no statistically significant differences were found in the average satisfaction scores between graduates at different levels of study for the 2020/21 cohort.

Figure 43: Average satisfaction with Higher Education studies by ISCED-level and graduation cohort

	ISCED 5	ISCED 6	ISCED 7		ISCED 5	ISCED 6	ISCED 7
	2016/17*				2020/21		
Average study satisfaction	3,68	4,00	4,21		4,09	4,08	4,14
Std. Deviation	1,45	1,01	0,98		0,89	1,03	1,03

**Statistically significant findings*

Figure 44 shows that there were no statistically significant differences in average satisfaction scores among graduates from Universities and ITE within both cohorts. Graduates from Universities appear to be more

satisfied than graduates from ITE in 2016/17. The opposite was true in 2020/21, i.e., graduates in ITE appear to be more satisfied than graduates from Universities.

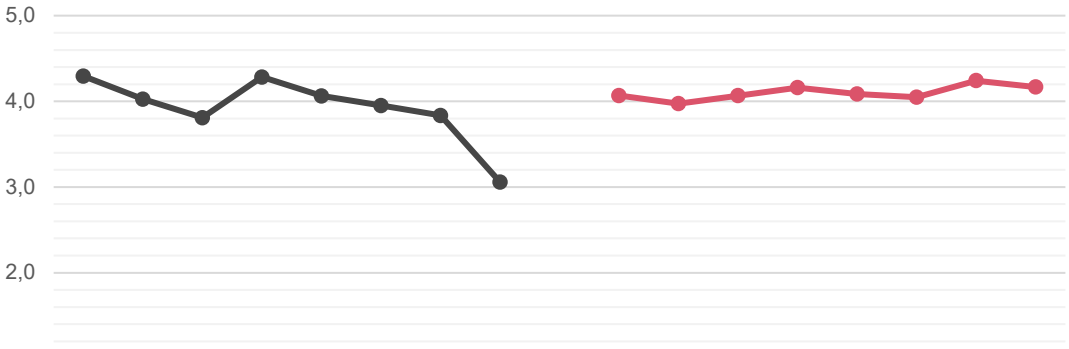
Figure 44: Average satisfaction with Higher Education studies by type of HEI and graduation cohort

	University	ITE		University	ITE
	2016/17			2020/21	
Average study satisfaction	4,11	4,01		4,10	4,18
Std. Deviation	1,01	1,22		1,03	0,96

Average satisfaction scores for graduates in the eight fields of study within each cohort, are presented in Figure 45. In cohort 2016/17, statistically significant differences were found in average satisfaction scores among the various study fields. Graduates in the fields of Business Administration and Law (4,29) and of Education and Teacher Training (4,29) have reported the highest satisfaction scores, while graduates in the fields of Other (3,06) and of Social Sciences and Journalism (3,81) the lowest within the 2016/17 cohort.

Within 2020/21 cohort, no statistically significant differences were noted in average satisfaction score among graduates from different fields of study. In particular, the highest average satisfaction score was noted for graduates in the field of Technology and Engineering (4,24), while the lowest for graduates in the field of Arts and Humanities (3,97).

Figure 45: Average satisfaction with Higher Education studies by field of study and graduation cohort



	ETT	AH	SSJ	BAL	HEA	NS	TE	Other		ETT	AH	SSJ	BAL	HEA	NS	TE	Other
	2016/17*									2020/21							
Average study satisfaction	4,29	4,03	3,81	4,29	4,06	3,95	3,83	3,06		4,07	3,97	4,07	4,16	4,09	4,05	4,24	4,17
Std. Deviation	0,84	0,98	1,20	0,86	1,25	1,11	1,11	1,65		1,14	1,17	0,85	1,03	0,91	0,95	0,84	0,92

**Statistically significant findings*
Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

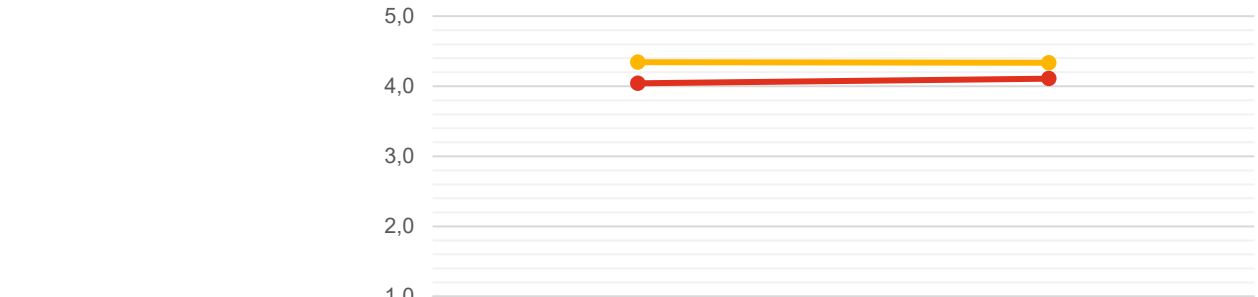
5.1.5. Contribution of the program of study to Professional Career and Personal Development

Higher Education aims to fulfil multiple purposes, including preparing students for active citizenship, for their future careers (e.g., contributing to their employability), supporting their personal development, creating a broad advanced knowledge base, and stimulating research and innovation. Given this multifaceted mission, it becomes evident that Higher Education Institutions (HEIs) must find effective mechanisms to collect feedback on the students' perspectives regarding their programs of study and how these align with or contribute to their professional ambitions and self-growth.

In this context, graduates were asked whether they believed that their studies served as a good basis for their professional career and development. Graduates provided their responses on a five-point scale (where 1 indicated "not at all" and 5 "to a very high extent").

Overall, graduates in both cohorts have reported that their studies have been a good basis for their professional career and personal development (Figure 46). Average scores for personal development were higher than for professional career in both cohorts. This suggests that graduates found their program of study slightly more beneficial for personal development than for professional career.

Figure 46: Average scores for contribution of the program of study to Professional Career and Personal Development by graduation cohort

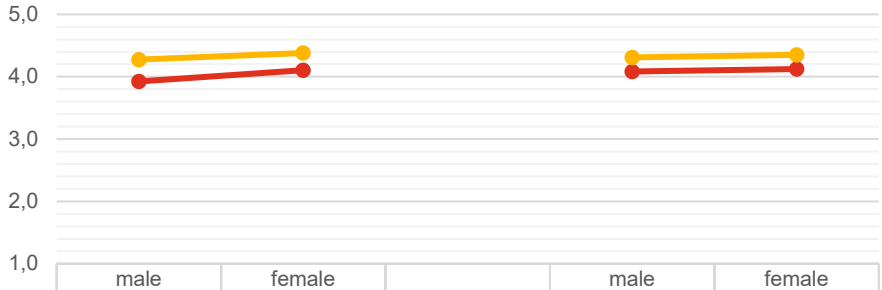


	2016/17	2020/21
Average: Study programme good basis for professional career	4,04	4,11
Std. Deviation: Study programme good basis for professional career	1,19	1,06
Average: Study programme good basis for: personal development	4,34	4,34
Std. Deviation: Study programme good basis for: personal development	0,93	0,95

5.1.5.1. Contribution of the program of study to Professional Career and Personal Development by demographic variables

Looking at the relationship between gender and contribution of the program of study to professional career and personal development in Figure 47, it becomes evident that, in both cohorts, female graduates reported that they benefitted professionally and personally to a greater extent than males. These differences between females and males though were not found to be statistically significant.

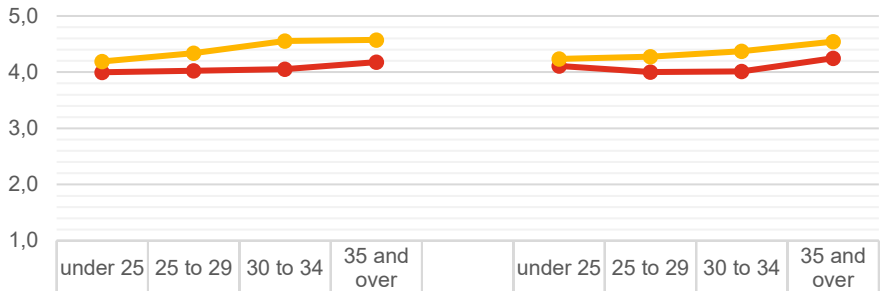
Figure 47: Contribution of the program of study to Professional Career and Personal Development by gender and graduation cohort



	male	female		male	female
	2016/17			2020/21	
Average: Study programme good basis for professional career	3,92	4,11		4,08	4,12
Std. Deviation: Study programme good basis for professional career	1,29	1,13		1,12	1,02
Average: Study programme good basis for: personal development	4,28	4,38		4,31	4,35
Std. Deviation: Study programme good basis for: personal development	0,99	0,90		0,98	0,93

The average score of contribution of the program of study to professional career and personal development according to age at graduation is displayed in Figure 48. Statistically significant differences in average scores for the contribution of the program of study to personal development among the four age groups were found in both cohorts. Specifically, in both cohorts, a higher average score was observed as age was increasing, which indicates that older graduates benefitted more from the program of study in terms of their personal development. In relation to the contribution of the program of study to the graduates' professional career, statistically significant differences were found among the four age groups only in cohort 2020/21. In particular, 2020/21 graduates in the age group "35 and over" had the highest average score, while graduates in the middle age groups (25-29 and 30-34) had the lowest.

Figure 48: Contribution of the program of study to Professional Career and Personal Development by age (at graduation) and graduation cohort



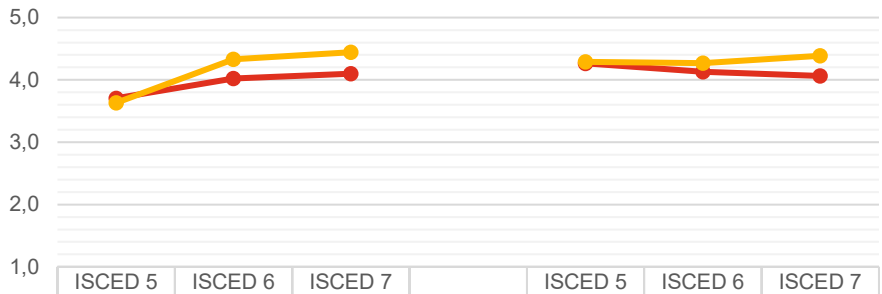
	under 25	25 to 29	30 to 34	35 and over		under 25	25 to 29	30 to 34	35 and over
	2016/17*					2020/21*			
Average: Study programme good basis for professional career	4,00	4,03	4,05	4,18		4,11	4,00	4,01	4,25
Std. Deviation: Study programme good basis for professional career	1,20	1,16	1,32	1,09		1,04	1,06	1,10	1,06
Average: Study programme good basis for: personal development	4,19	4,34	4,56	4,57		4,24	4,27	4,37	4,55
Std. Deviation: Study programme good basis for: personal development	1,00	0,88	0,78	0,89		1,00	0,99	0,93	0,79

**Statistically significant findings. Cohort 2016/17: for personal development. Cohort 2020/21: both for professional career and for personal development.*

5.1.5.2. Contribution of the program of study to Professional Career and Personal Development by variables related to Higher Education studies

Figure 49 presents average scores regarding the contribution of the program of study to professional career and personal development according to the three ISCED levels of study in both cohorts. In the 2016/17 cohort, statistically significant differences were found in average scores for the contribution of the program of study to both personal development and professional career among the three ISCED levels. Specifically, it can be observed that ISCED 5 graduates had the lowest average scores and ISCED 7 graduates the highest for both personal development and professional career. In the 2020/21 cohort, ISCED 5 graduates had the lowest average scores and ISCED 7 graduates the highest for personal development, while the opposite was true for average scores in relation to the contribution of the program of study to professional development.

Figure 49: Contribution of the program of study to Professional Career and Personal Development by ISCED-level and graduation cohort



	ISCED 5	ISCED 6 2016/17*	ISCED 7		ISCED 5	ISCED 6 2020/21	ISCED 7
Average: Study programme good basis for professional career	3,71	4,02	4,10		4,27	4,13	4,06
Std. Deviation: Study programme good basis for professional career	1,38	1,20	1,16		1,04	1,01	1,09
Average: Study programme good basis for: personal development	3,63	4,33	4,44		4,29	4,27	4,39
Std. Deviation: Study programme good basis for: personal development	1,31	0,87	0,87		1,02	0,97	0,92

**Statistically significant findings.*

The contribution of the program of study to professional career and personal development with respect to the two types of HEIs is illustrated by Figure 50. In 2016/17 cohort, University graduates reported higher average contribution scores for both professional career and personal development, than graduates from ITE. This finding suggests that University graduates benefitted to a greater extent both personally and professionally from their program of study than graduates from ITE. These differences were statistically significant only for personal development scores. In the 2020/21 cohort, graduates from ITE had a higher average score (4,16) than University graduates (4,09) for the contribution of the program of study to professional career, while University graduates (4,34) had a higher average score for the contribution of the program of study to personal development (4,32). These differences though were not statistically significant.

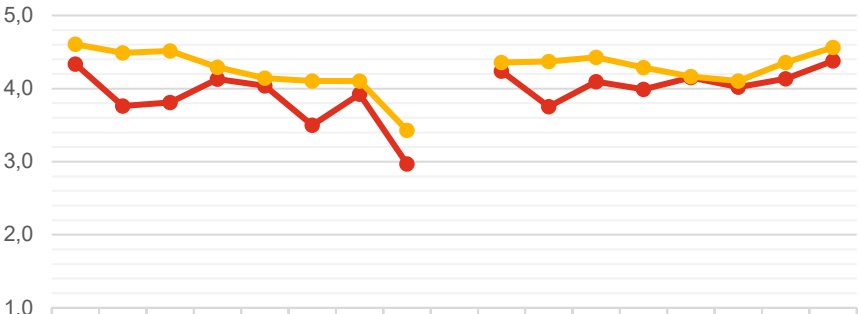
Figure 50: Contribution of the program of study to Professional Career and Personal Development by type of HEI and graduation cohort

	University 2016/17*	ITE 2016/17*		University 2020/21	ITE 2020/21
Average: Study programme good basis for professional career	4,06	3,95		4,09	4,16
Std. Deviation: Study programme good basis for professional career	1,18	1,25		1,06	1,06
Average: Study programme good basis for: personal development	4,39	4,04		4,34	4,32
Std. Deviation: Study programme good basis for: personal development	0,89	1,15		0,94	1,00

**Statistically significant findings. Cohort 2016/17: for personal development.*

Figure 51 presents average scores for the contribution of the program of study to professional career and personal development with respect to the fields of study for the two cohorts. In the 2016/17 cohort, statistically significant differences in average scores among the various fields were found for both aspects. Specifically, graduates in the field of Education and Teacher Training had the highest average score for professional career and personal development (4,34 and 4,60 respectively), while graduates in the category Other had the lowest average scores in terms of both aspects. In the 2020/21 cohort, graduates in the category Other had the highest average scores for contribution of the program of study to both professional career and personal development, while graduates in the field of Arts and Humanities had the lowest average score for professional career and graduates in the field of Natural Sciences the lowest average score for personal development.

Figure 51: Contribution of the program of study to Professional Career and Personal Development by field of study and graduation cohort



	2016/17*								2020/21							
	ETT	AH	SSJ	BAL	HEA	NS	TE	Other	ETT	AH	SSJ	BAL	HEA	NS	TE	Other
Average: Study programme good basis for professional career	4,34	3,76	3,81	4,13	4,04	3,50	3,92	2,97	4,24	3,76	4,09	3,99	4,15	4,02	4,13	4,38
Std. Deviation: Study programme good basis for professional career	0,99	1,37	1,27	1,12	1,22	1,47	1,14	1,60	0,95	1,29	1,04	1,15	1,06	1,24	0,90	0,76
Average: Study programme good basis for: personal development	4,60	4,49	4,52	4,29	4,14	4,10	4,10	3,43	4,36	4,37	4,43	4,29	4,17	4,10	4,36	4,56
Std. Deviation: Study programme good basis for: personal development	0,74	0,79	0,77	0,91	1,09	1,01	0,93	1,59	0,95	1,04	0,89	1,03	0,97	0,99	0,70	0,72

**Statistically significant findings.*

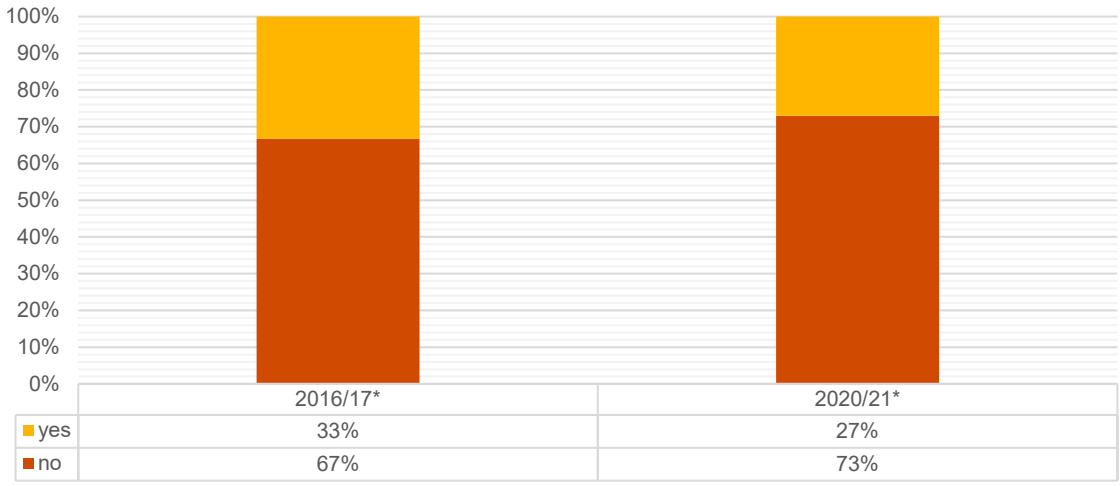
Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

5.1.6. Continuing studies in Higher Education after graduation

Obtaining a certificate, a diploma, a bachelor's, or master's degree from a Higher Education Institution marks a significant milestone in one's educational journey, but it is not the final destination. Instead, it represents a pivotal point within the broader context of lifelong learning. Continuous education and ongoing learning are imperative for graduates to ensure their competencies remain current and to adapt to the ever-accelerating pace of technological transformations that reshape our society and, specifically, the labour market. Given this perspective, this study explored whether graduates pursued further studies following the completion of their degrees.

Figure 52 shows that upon graduation, most of the graduates in both cohorts did not continue their studies in Higher Education. Specifically, only 33% of those who have graduated in 2016/17 continued their studies in Higher Education and an even smaller percentage of 2020/21 graduates (27%). These differences among the two cohorts were found to be statistically significant.

Figure 52: Continuing studies in Higher Education after graduation, by graduation cohort

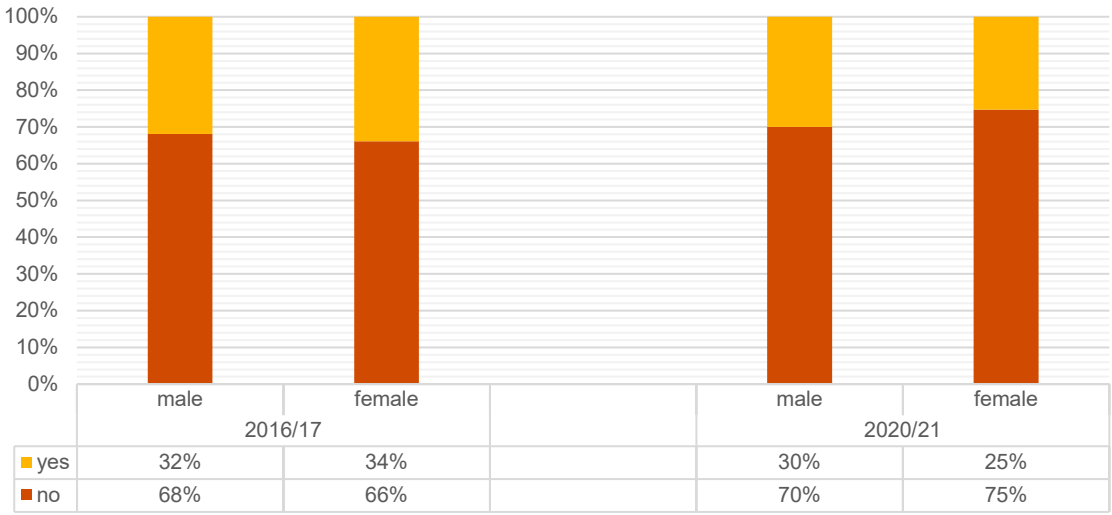


**Statistically significant findings*

5.1.6.1. Continuing studies in Higher Education after graduation by demographic variables

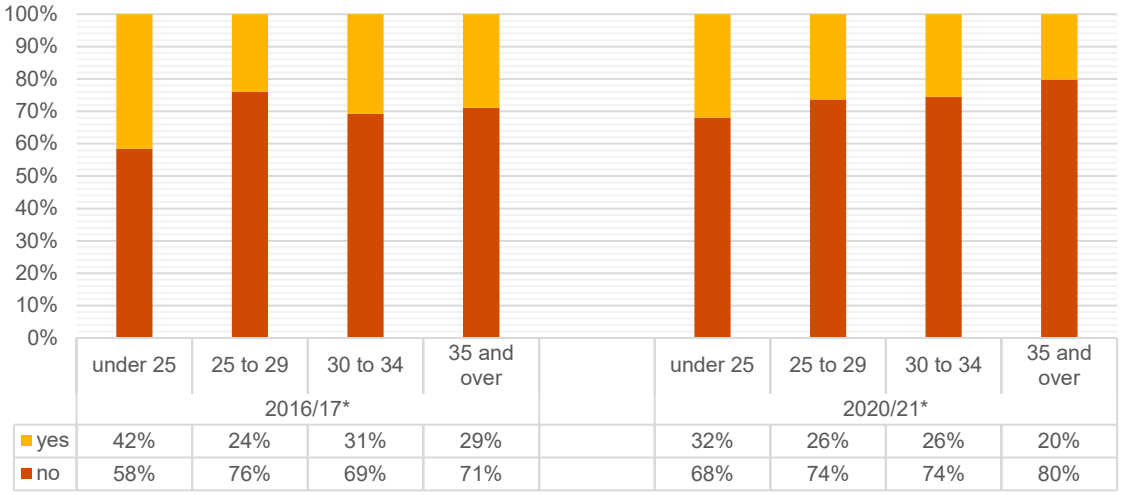
Figure 53 shows the percentage of graduates continuing their studies after graduation by gender in the two cohorts. Overall, more females continued their studies in Higher Education after graduation than males in the 2016/17 cohort. The opposite was true for 2020/21 graduates. These differences among the two genders were not found to be statistically significant.

Figure 53: Continuing studies in Higher Education after graduation by gender and graduation cohort



The relationship between pursuing further studies in Higher Education and age at graduation in the two cohorts is displayed in Figure 54, where statistically significant differences were noted in both cohorts. In cohort 2016/17, the age category “under 25” had the largest portion of graduates pursuing Higher Education studies (42%), while the age category “25 to 29” had the smallest (24%). In the 2020/21 cohort, there is a clear trend in the relationship between age and continuing studies after graduation; as the age increases, the participation in Higher Education after graduation decreases.

Figure 54: Continuing studies in Higher Education after graduation by age (at graduation) and graduation cohort

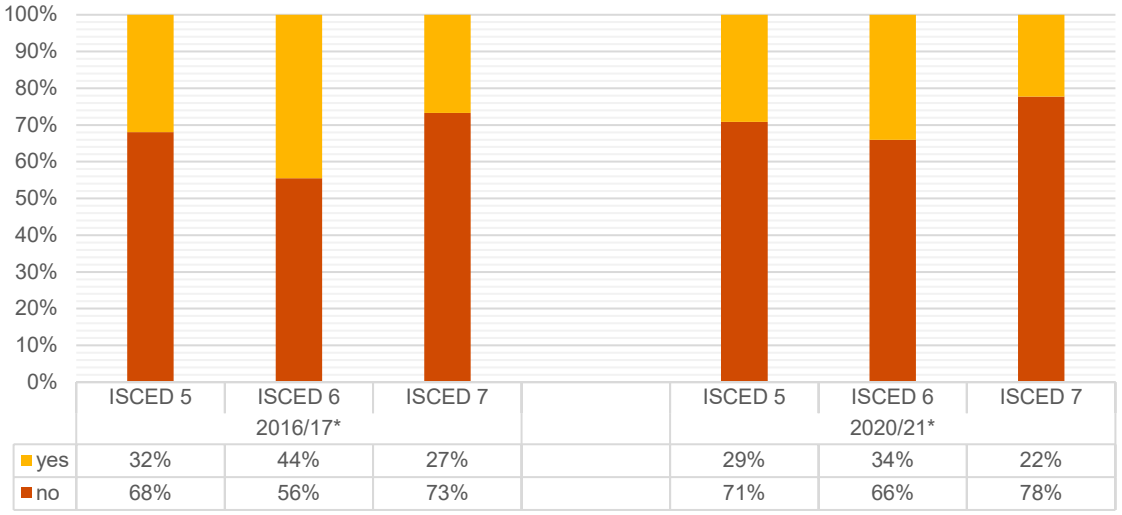


**Statistically significant findings*

5.1.6.2. Continuing studies after graduation by variables related to Higher Education studies

ISCED levels appeared to be associated to a statistically significant extent with pursuing further studies after graduation in both cohorts (Figure 55). In the 2016/17 cohort, ISCED 6 level had the highest percentage of graduates (44%) that reported pursuing further studies after graduation. This was followed by ISCED 5 and then ISCED 7 (32% and 27% respectively). A similar pattern was noted in the cohort 2020/21. Comparisons between the two cohorts indicated that the percentages of graduates who reported pursuing further studies in Higher Education after graduation for each ISCED level decreased from 2016/17 to 2020/21.

Figure 55: Continuing studies in Higher Education after graduation by ISCED-level and graduation cohort



**Statistically significant findings*

Type of HEIs and pursuing further studies after graduation do not appear to be related to a statistically significant level. According to Figure 56, in 2016/17 cohort, more University graduates continued their Higher Education studies after graduation than graduates from ITE (34% and 28% respectively). In 2020/21, the percentage of graduates who continued their studies after graduation for both types of HEIs was similar.

Figure 56: Continuing studies in Higher Education after graduation by type of HEI and graduation cohort

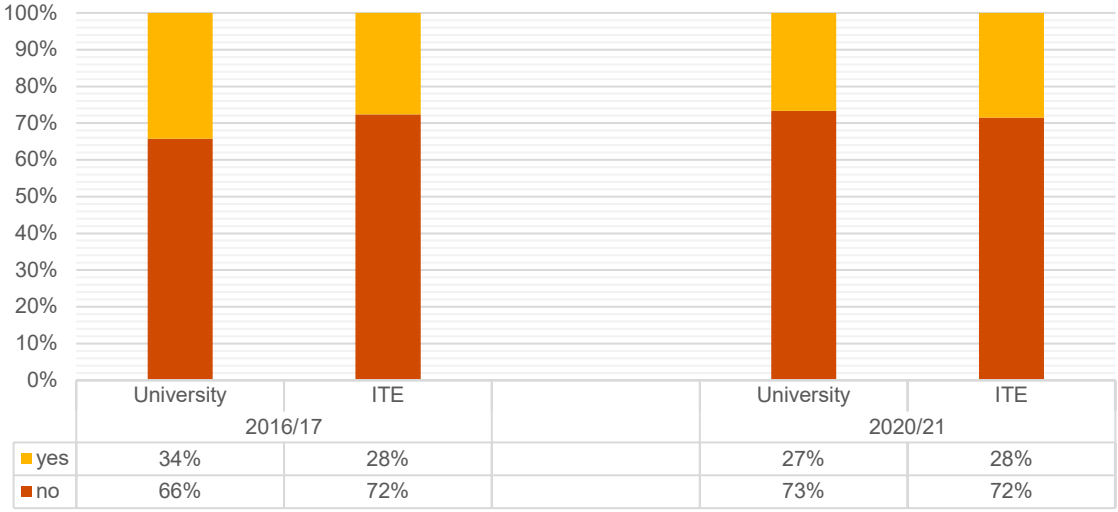
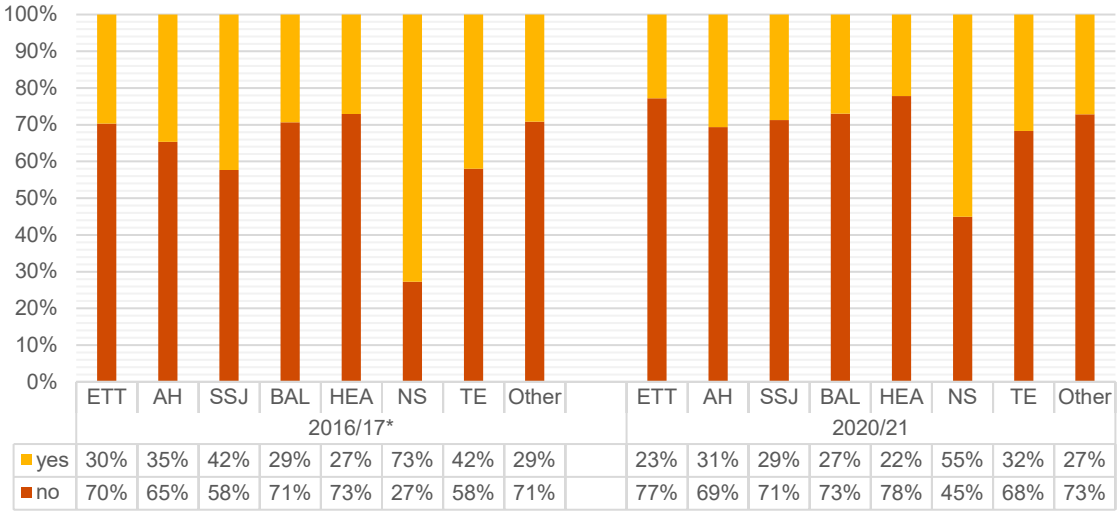


Figure 57 illustrates that depending on the field of study, the percentage of graduates who continue their studies after graduation differs. However, only in cohort 2016/17 these differences were statistically significant. In cohort 2016/17, the field of Natural Sciences had the highest percentage (73%) of graduates continuing their studies after graduation, while the field of Health had the lowest percentage (27%). In 2020/21, a similar pattern was observed.

Figure 57: Continuing studies in Higher Education after graduation by field of study and graduation cohort



**Statistically significant findings*

Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

5.2. Labour Market Participation and Labour Market Outcomes

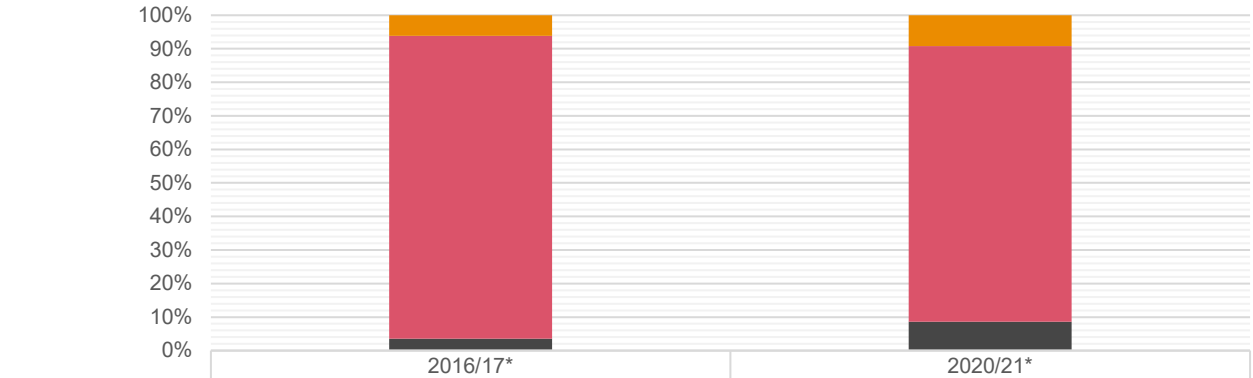
Higher Education is entrusted with the duty to prepare students for a successful transition to work, satisfactory employment, job security and career advancement. In this context, the current section presents the labour market status of graduates in respect to a number of significant variables of their labour market experience, in case they are employed, such as type, sector and place of employment, three important aspects of job quality, job security, job satisfaction, working hours and earnings, as well as waiting time to find a job after graduation.

5.2.1. Current employment status

One or five years after graduation, the labour market status of respondents regardless of where they currently live and work can be described as: a) those who are not actively participating in the labour force (referred to also as 'inactive'), and b) those who are part of the labour force, encompassing individuals who are either employed or seeking employment (referred to as 'unemployed'). Graduates who are out of the labour force are not available for the labour market for various reasons, such as being engaged in full-time further studies, fulfilling compulsory military service, or experiencing health-related work restrictions. This sub-section lays out the percentage distribution of graduates among the different labour market statuses.

Figure 58 illustrates the percentage distribution of the survey participants categorised as employed, unemployed and out of labour force by graduation cohort. Most graduates within both cohorts are part of the labour force (96% and 90% for the cohort 2016/17 and 2020/21 respectively). As expected, the percentage of 2016/17 graduates who are employed (90%) is significantly higher than the corresponding percentage of 2020/21 graduates (82%). The opposite is true for the other two categories. Specifically, the percentage of graduates who reported that they are unemployed and out of labour force is higher in the 2020/21 when compared to 2016/17 cohort. These differences in percentages among the two cohorts are statistically significant.

Figure 58: Employment status by graduation cohort



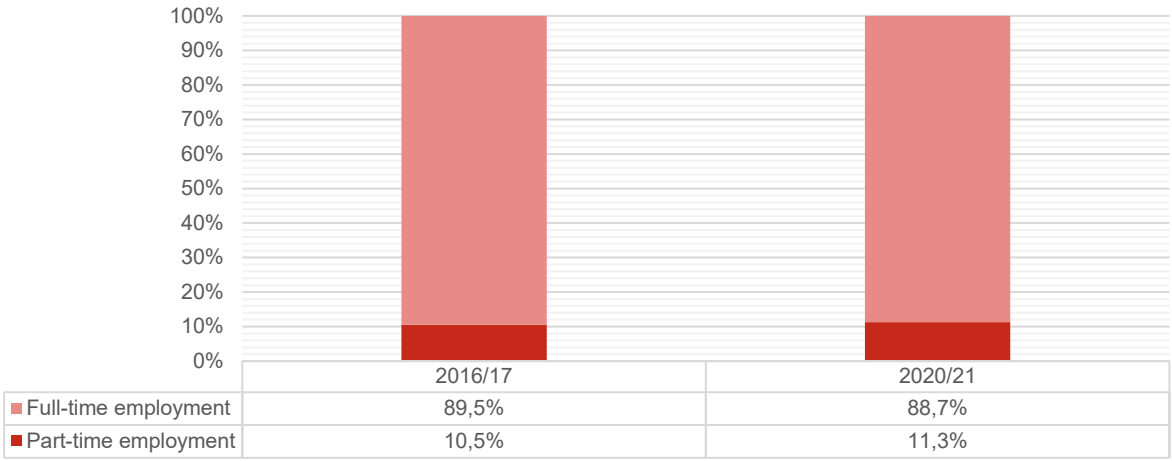
	2016/17*	2020/21*
Unemployed	6%	9%
Employed	90%	82%
Out of labour force	4%	9%

**Statistically significant findings*

All graduates who reported being employed were further queried about their employment status, specifically whether they were engaged in full-time or part-time work. The results of this inquiry are presented in Figure

59. The majority of participants who reported being employed were engaged in full-time employment (89,5% in the 2016/17 cohort and 88,7%. In the 2020/21 cohort).

Figure 59: Full-time and part-time employment by graduation cohort

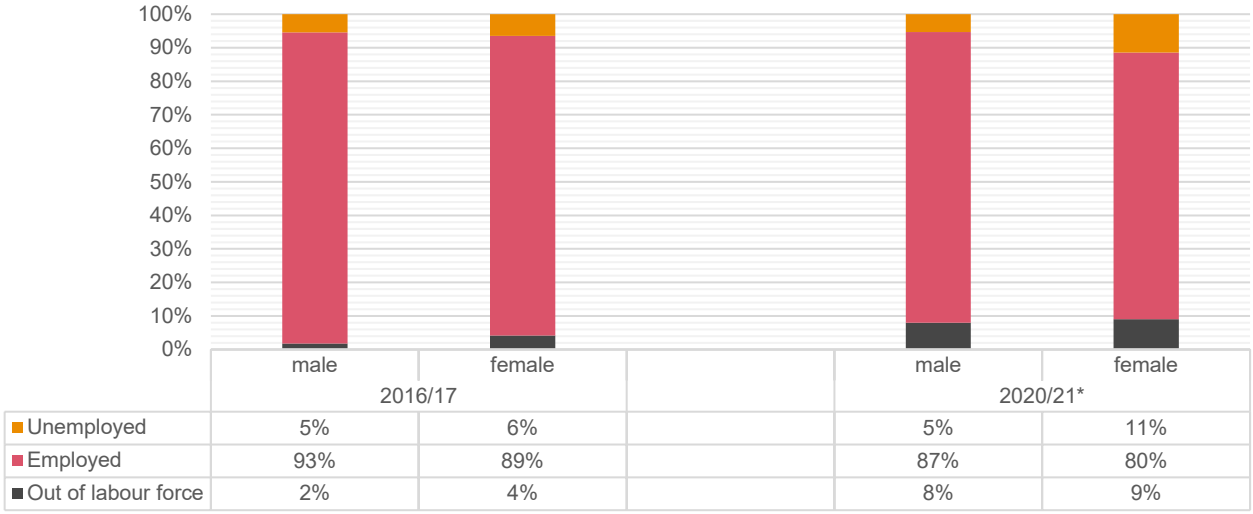


5.2.1.1. Current employment status by demographic variables

Figure 60 presents the employment rates for each of the two cohorts by gender. It was observed that for both cohorts the employment rate for males slightly exceeds that of females. In the 2016/17 cohort, the percentage of males who reported that they were employed was slightly higher (93% as opposed to 89%) than the corresponding percentage for females, while the percentage of females in the other two employment status categories was higher. The same trend appears in 2020/21, however the differences observed among males and females in this cohort were found to be statistically significant.

Comparisons between cohorts show a decrease in employment rates for both genders. For the category unemployed a different pattern was observed for each gender, while the percentage of unemployed males remains the same for graduates of both 2016/17 and 2020/21, the corresponding percentage for female graduates almost doubled.

Figure 60: Employment status by gender and graduation cohort

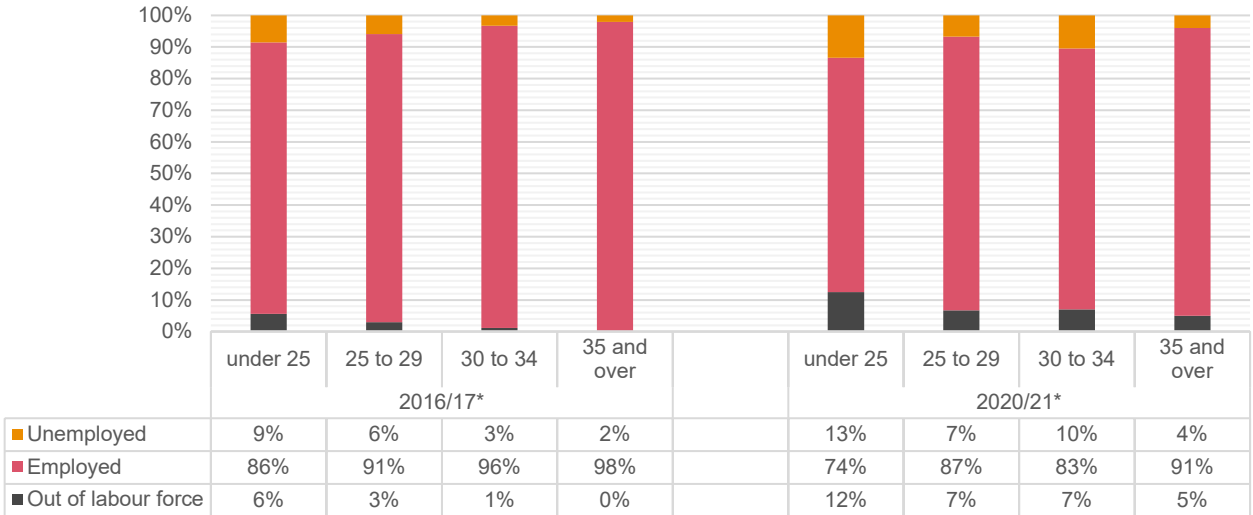


	male	female	male	female
	2016/17		2020/21*	
Unemployed	5%	6%	5%	11%
Employed	93%	89%	87%	80%
Out of labour force	2%	4%	8%	9%

**Statistically significant findings*

The employment rates by age at graduation for the two cohorts are illustrated in Figure 61. In the 2016/17 cohort, all the age groups had similar employment rates (more than 90%) except the under 25 age group which had the lowest rate at 86%. The under 25 age group had the highest percentage of unemployed graduates and graduates who reported being out of labour force. The recorded percentages of employed participants in 2020/21, lied between 74% to 91% with under 25 age group having again the lowest percentage among other age group categories. The under 25 age group had again the highest percentage of unemployed graduates and graduates who reported being out of labour force. These differences in employment status according to age within the two cohorts were statistically significant.

Figure 61: Employment status by age (at graduation) and graduation cohort



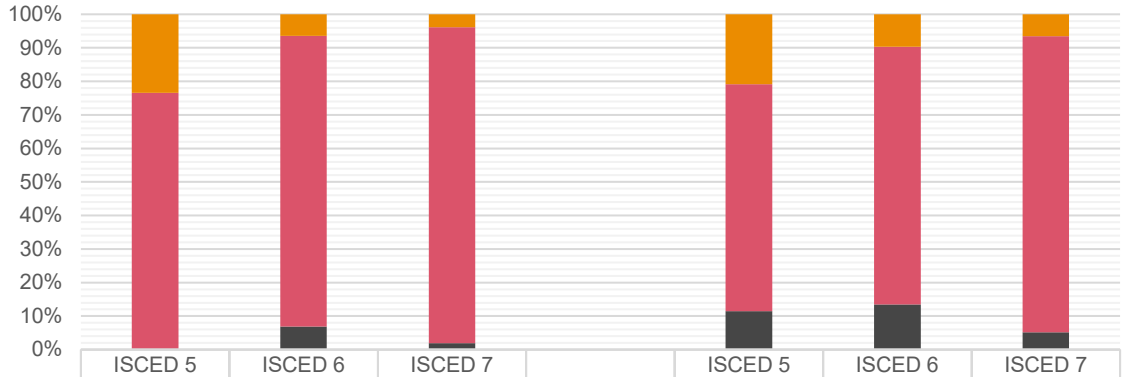
	under 25	25 to 29	30 to 34	35 and over	under 25	25 to 29	30 to 34	35 and over
	2016/17*				2020/21*			
Unemployed	9%	6%	3%	2%	13%	7%	10%	4%
Employed	86%	91%	96%	98%	74%	87%	83%	91%
Out of labour force	6%	3%	1%	0%	12%	7%	7%	5%

**Statistically significant findings*

5.2.1.2. Current employment status by variables related to Higher Education studies

The relationship between employment status and the level of degree is presented in Figure 62. A similar pattern was noted within both cohorts. As the level of degree increased from ISCED 5 to ISCED 7, the employment rates increased, and the unemployment rates decreased. ISCED 7 graduates had the highest employment rate in both 2016/17 (94%) and in 2020/21 (88%) cohorts. ISCED 5 graduates experienced the highest percentage of unemployment both in 2016/17 (23%) and in 2020/21 (21%). ISCED 6 graduates had the highest percentage of inactivity. These differences in employment status by the level of studies were statistically significant in both cohorts.

Figure 62: Employment status by ISCED-level and graduation cohort

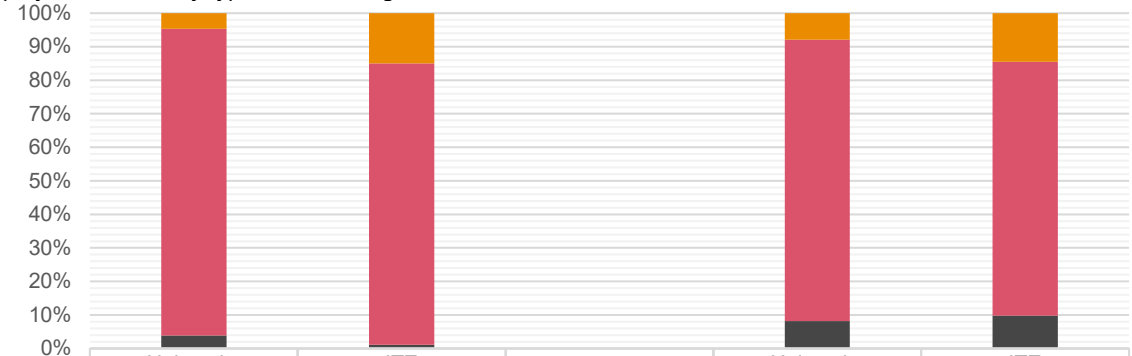


	ISCED 5	ISCED 6 2016/17*	ISCED 7		ISCED 5	ISCED 6 2020/21*	ISCED 7
Unemployed	23%	6%	4%		21%	10%	7%
Employed	77%	87%	94%		68%	77%	88%
Out of labour force	0%	7%	2%		11%	13%	5%

**Statistically significant findings*

Figure 63 illustrates the graduates' employment rates in relation to the type of HEI attended. Again, a similar pattern was observed in both 2016/17 and 2020/21 cohorts. The percentage of University graduates who reported that they are employed was significantly higher than the corresponding percentage of graduates from ITE, while the percentage of graduates from ITE who reported being unemployed was significantly higher than the corresponding percentage of University graduates within both cohorts. Comparisons between the two cohorts show a slight decrease in the percentage of employment for both HEI categories from 2016/17 (91% and 84%) to 2020/21 (84% and 76%) and an increase in the percentage of graduates out of labour force.

Figure 63: Employment status by type of HEI and graduation cohort

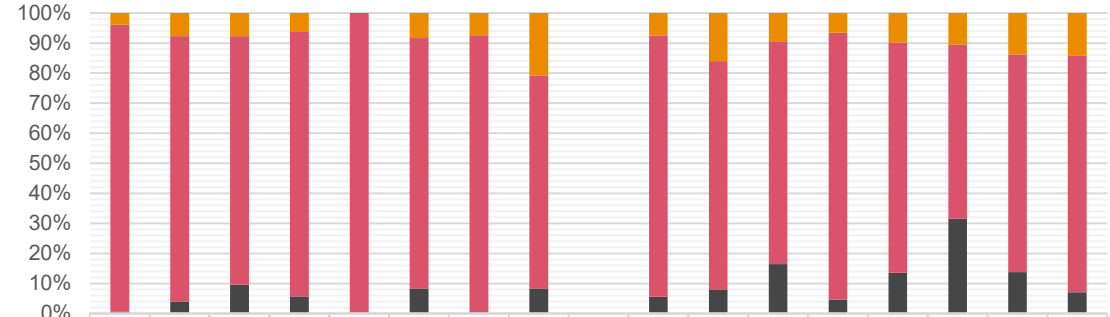


	2016/17*			2020/21*	
	University	ITE		University	ITE
Unemployed	5%	15%		8%	14%
Employed	91%	84%		84%	76%
Out of labour force	4%	1%		8%	10%

**Statistically significant findings*

The distribution of the labour market participation by the corresponding field of study for each of the two cohorts is illustrated in Figure 64. Graduates in the field of Education and Teacher Training, Health and Technology and Engineering had the highest employment rates in the 2016/17 cohort, at 96%, 100% and 93% respectively. In 2020/21, the fields with the highest employment rates were Business, Administration and Law and Education and Teacher Training with a rate of 89% and 87% respectively. The higher unemployment rates were noted in the category "Other" (21%) in the cohort 2016/17 and in the fields Arts and Humanities (16%), Technology and Engineering (14%) and the category "Other" (14%) in the cohort 2020/21. A high percentage of graduates (32%) from programs of study in the field Natural Sciences reported being out of labour force in cohort 2020/21.

Figure 64: Employment status by field of study and gradation cohort



	2016/17								2020/21							
	ETT	AH	SSJ	BAL	HEA	NS	TE	Other	ETT	AH	SSJ	BAL	HEA	NS	TE	Other
Unemployed	4%	8%	8%	6%	0%	8%	7%	21%	8%	16%	10%	7%	10%	11%	14%	14%
Employed	96%	88%	83%	88%	100%	83%	93%	71%	87%	76%	74%	89%	77%	58%	72%	79%
Out of labour force	1%	4%	10%	6%	0%	8%	0%	8%	6%	8%	16%	5%	14%	32%	14%	7%

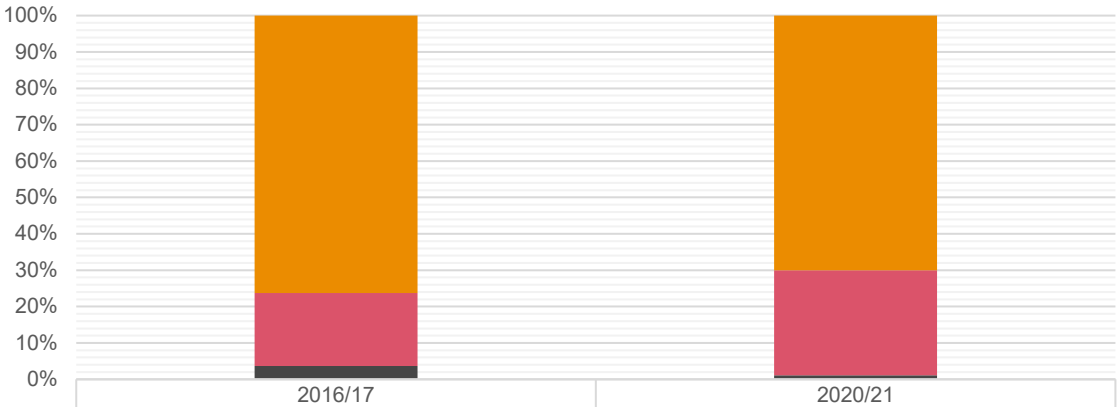
Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

5.2.2. Job security

Job security refers to finding and keeping a particular job or employment contract for the foreseeable future. In this sub-section, secure employment is explored by evaluating the contracted nature of employment among

graduates, with a specific emphasis on analysing the percentage of permanent contracts, i.e., contracts of unlimited duration. Figure 65 illustrates the percentage breakdown of job security for each of the two cohorts. For both cohorts, a similar pattern emerges, with higher percentages of graduates reporting having unlimited term contracts (at 76% in 2016/17 and 70% in 2020/21).

Figure 65: Job security by graduation cohort



	2016/17	2020/21
unlimited term	76%	70%
fixed-terms	20%	29%
other	4%	1%

5.2.2.1. Job security by demographic variables

As shown in Figure 66, the percentage of male graduates who obtained an unlimited term job was higher than the corresponding percentage for females for both cohorts. On the other hand, the percentage of females who obtained a fixed term job exceeds that of males both in 2016/17 and 2020/21 at 22% and 35% respectively.

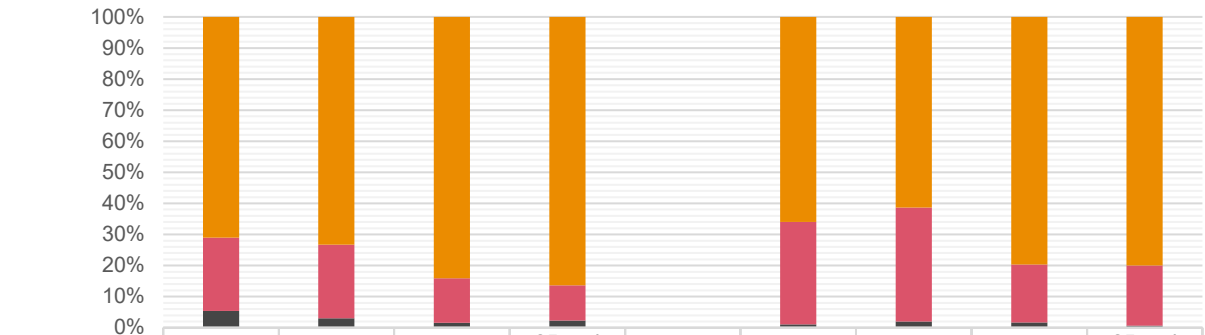
Figure 66: Job security by gender and graduation cohort

	male	female	male	female
	2016/17		2020/21	
unlimited term	82%	73%	79%	64%
fixed-terms	17%	22%	20%	34%
other	1%	5%	0%	1%

Figure 67 illustrates the percentage breakdown of job security for each of the two cohorts based on the age at graduation. In the 2016/17 cohort the percentage of graduates with an unlimited contract increases with age.

In the 2020/21 cohort the age categories 30 to 34 or 35 had the higher percentages of graduates securing a job with permanent contracts. Within both cohorts, the percentage of participants with a fixed term contract in age categories 30 to 34 or 35 and over exceeds the percentages in the other two age groups.

Figure 67: Job security by age (at graduation) and graduation cohort

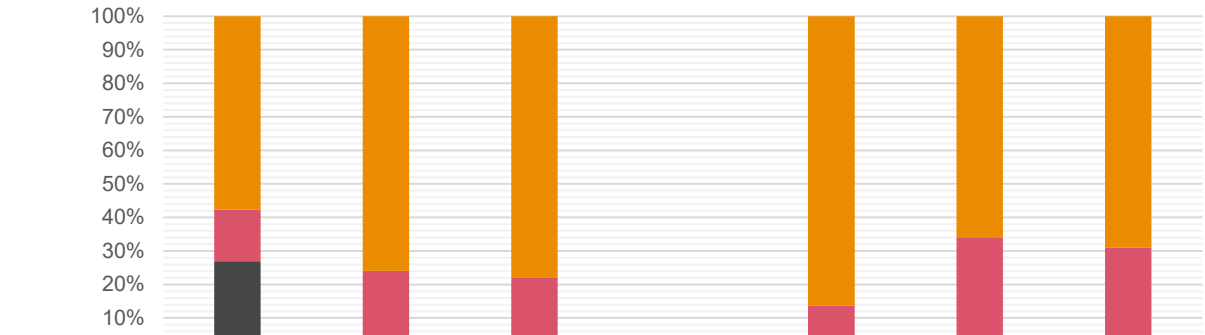


	under 25	25 to 29	30 to 34	35 and over		under 25	25 to 29	30 to 34	35 and over
	2016/17					2020/21			
unlimited term	71%	73%	84%	86%		66%	61%	80%	80%
fixed-terms	24%	24%	14%	11%		33%	37%	19%	19%
other	5%	3%	2%	2%		1%	2%	2%	1%

5.2.2.2. Job security by variables related to Higher Education studies

The distribution of employment stability in relation to the level of degree for each cohort is shown in Figure 68. In the 2016/17 cohort ISCED 6 and ISCED 7 graduates had at a higher percentage unlimited term contracts (76% and 78% respectively) than ISCED 5 graduates (58%). The opposite is true in cohort 2020/21, with ISCED 5 graduates having at a higher percentage unlimited term contracts (86%) than graduates at ISCED levels 6 and 7 (66% and 69% respectively).

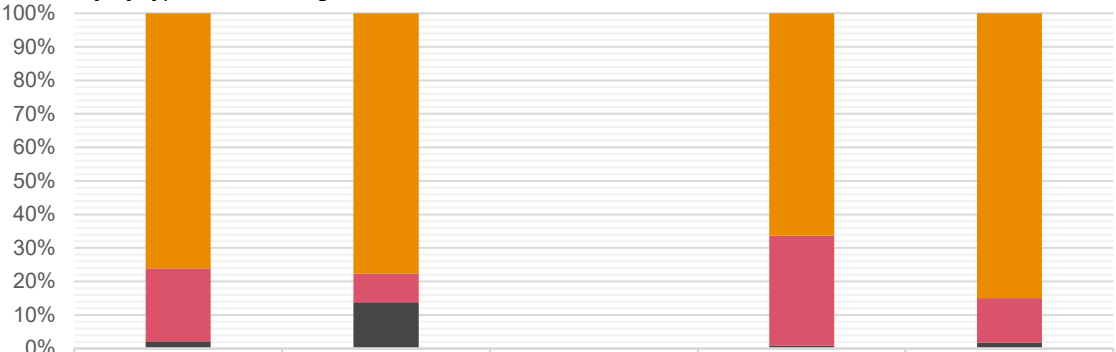
Figure 68: Job security by ISCED-level and graduation cohort



	ISCED 5	ISCED 6	ISCED 7		ISCED 5	ISCED 6	ISCED 7
	2016/17				2020/21		
unlimited term	58%	76%	78%		86%	66%	69%
fixed-terms	15%	21%	20%		12%	32%	30%
other	27%	3%	2%		2%	2%	1%

The association between job security in relation to the type of HEI attended, showed that similar percentages of graduates from Universities and ITE secured a job with unlimited terms in cohort 2016/17, as per Figure 69. The percentage of University graduates who obtained a job with fixed terms was higher when compared to graduates from ITE. In cohort 2020/21, a higher percentage of Graduates from ITE (85%) secured a job with unlimited terms while a higher percentage of University graduates obtained a job with fixed terms.

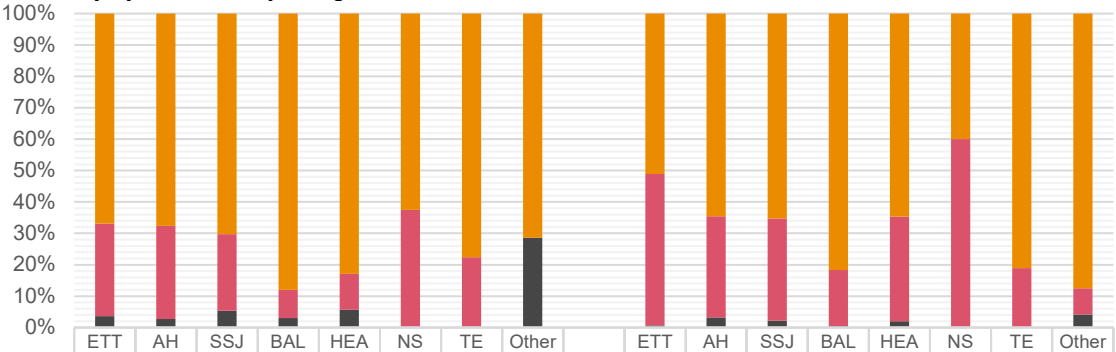
Figure 69: Job security by type of HEI and graduation cohort



	2016/17			2020/21	
	University	ITE		University	ITE
unlimited term	76%	78%		66%	85%
fixed-terms	22%	9%		33%	13%
other	2%	14%		1%	2%

The distribution of the job security by the corresponding fields of study is displayed in Figure 70. In the 2016/17 cohort, graduates in the fields of Business, Administration and Law (88%) and Health (83%) had the higher percentages in the category unlimited terms and graduates in the fields of Natural Sciences and Education and Teacher Training had the higher percentages in the category fixed-term contracts. In the 2020/21 cohort, graduates in the fields, “Other” (88%), Business, Administration and Law (82%) and Technology and Engineering (81%) had the higher percentages in the category unlimited terms while again graduates in the fields Natural Sciences (60%) and Education and Teacher Training (48%) had the highest percentages in the category fixed-term contracts. This finding suggests that the fields Natural Sciences and Education and Teacher Training offer the lowest job security.

Figure 70: Job security by field of study and graduation cohort



	2016/17								2020/21							
	ETT	AH	SSJ	BAL	HEA	NS	TE	Other	ETT	AH	SSJ	BAL	HEA	NS	TE	Other
unlimited term	67%	68%	70%	88%	83%	63%	78%	71%	51%	65%	65%	82%	65%	40%	81%	88%
fixed-terms	29%	30%	24%	9%	11%	38%	22%		48%	32%	33%	18%	33%	60%	19%	8%
other	4%	3%	5%	3%	6%			29%	1%	3%	2%	1%	2%			4%

Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

5.2.3. Job Satisfaction

A vast body of literature has demonstrated the importance of measuring job satisfaction, as an employees' overall contentment about his/her job (Fisher, 2010), (Lene Lottrup, 2015), (Ali, 2021). This notion holds particular relevance as we strive to comprehensively assess the overall sentiments of graduates toward their employment experiences. Evaluating job satisfaction becomes a vital tool in gaining insight into the quality of the positions secured by these graduates and identifying any areas of concern or dissatisfaction they may encounter.

In the context of this study, graduates were asked to indicate their job satisfaction levels on a five-point scale with 1 indicating significant dissatisfaction to 5 representing high levels of satisfaction.

Figure 71 illustrates average job satisfaction by cohort. The average job satisfaction appears to be medium to high in both 2016/17 (3,85) and 2020/21 (3,83) cohorts.

Figure 71: Average job satisfaction by graduation cohort

	2016/17	2020/21
Average job satisfaction	3,85	3,83
Std. Deviation	1,03	1,08

5.2.3.1. Job satisfaction by demographic variables

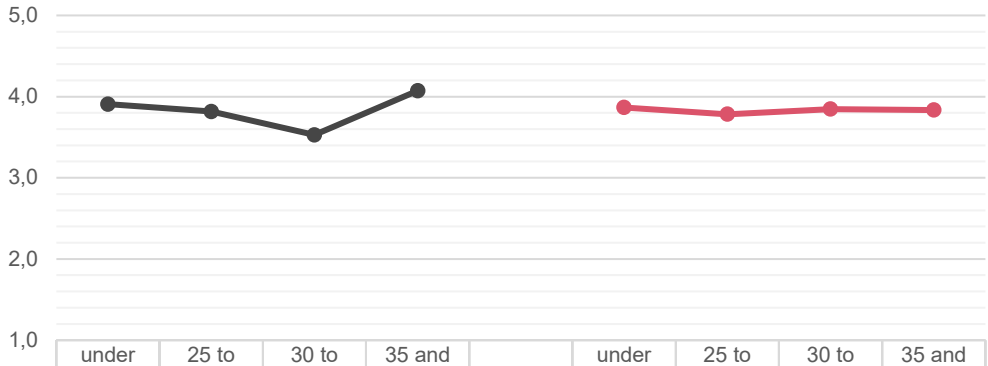
Figure 72 presents average job satisfaction scores by gender. Males appear to have lower average job satisfaction scores than females in both cohorts, but these differences are not statistically significant.

Figure 72: Average job satisfaction by gender and graduation cohort

	male	female		male	female
	2016/17			2020/21	
Average job satisfaction	3,82	3,87		3,77	3,87
Std. Deviation	1,11	0,98		1,14	1,05

Figure 73 presents the average job satisfaction scores by age at graduation. In cohort 2016/17, the 35 and over age group has the highest average job satisfaction while the 30-34 age group the lowest. The age groups under 25 and 25-29 had similar average satisfaction scores. These differences in average job satisfaction scores by age group are statistically significant. In cohort 2020/21 all age groups had similar average job satisfaction scores.

Figure 73: Average job satisfaction by graduates' age (at graduation) and graduation cohort



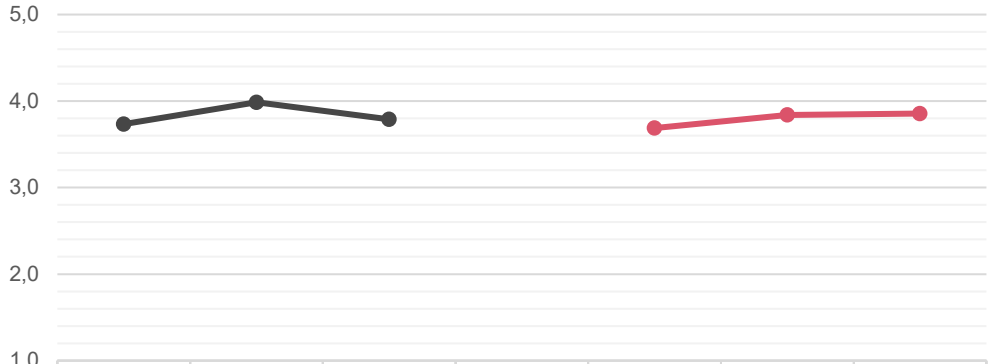
	under 25	25 to 29	30 to 34	35 and over		under 25	25 to 29	30 to 34	35 and over
	2016/17*					2020/21			
Average job satisfaction	3,91	3,82	3,53	4,07		3,87	3,78	3,85	3,83
Std. Deviation	1,02	1,07	1,10	0,82		1,08	1,07	1,11	1,09

**Statistically significant findings*

5.2.3.2. Job satisfaction by variables related to Higher Education studies

Job satisfaction levels according to the level of degree obtained is shown in Figure 74. ISCED 6 graduates and ISCED 7 graduates reported the highest average satisfaction score in cohorts 2016/17 and 2020/21 respectively. ISCED 5 graduates have the lowest average job satisfaction scores in both cohorts. These differences are not statistically significant. Comparisons between the two cohorts show varying trends. There is a slight decrease in average job satisfaction scores for ISCED 5 and ISCED 6 graduates while for ISCED 7 graduates there was an increase in average job satisfaction.

Figure 74: Average job satisfaction by ISCED-level and graduation cohort



	ISCED 5	ISCED 6	ISCED 7		ISCED 5	ISCED 6	ISCED 7
		2016/17				2020/21	
Average job satisfaction	3,74	3,99	3,79		3,69	3,84	3,86
Std. Deviation	1,20	0,99	1,02		1,28	1,07	1,06

University graduates reported higher average job satisfaction scores than Graduates from ITE in both cohorts (Figure 75). These differences though were not statistically significant. Comparisons between the two cohorts show a minor increase in job satisfaction for University graduates from 2016/17 to 2020/201 and a decrease for graduates from ITE.

Figure 75: Average job satisfaction by type of HEI and graduation cohort

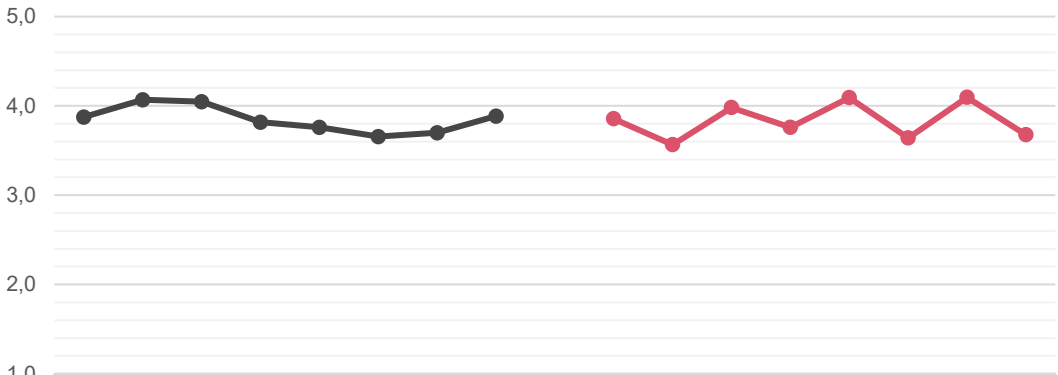
	University	ITE		University	ITE
	2016/17			2020/21	
Average job satisfaction	3,86	3,81		3,87	3,69
Std. Deviation	1,02	1,08		1,04	1,25

Regarding the field of study, average job satisfaction levels are depicted in Figure 76. In the 2016/17 cohort, graduates in the fields of Arts and Humanities and Social Sciences and Journalism had the highest average job satisfaction, reaching 4,07 and 4,05 respectively. The lowest average job satisfaction scores were noted by graduates in the field of Natural Sciences. In the 2020/21 cohort, graduates in the fields of Health and Technology and Engineering had the highest average job satisfaction, while graduates in the field of Arts and Humanities the lowest. These differences were not statistically significant.

Comparisons in job satisfaction between the two cohorts showed that for graduates in the fields of Education and Teacher Training, Social Sciences and Journalism, Business Administration and Law, and Natural

Sciences/Mathematics average scores remained relatively stable across both cohorts. Notably, the biggest increase in job satisfaction was observed among those who graduated in the fields of Health and Technology and Engineering and the largest decrease for graduates in the field of Arts and Humanities.

Figure 76: Average job satisfaction by field of study and graduation cohort



	2016/17									2020/21							
	ETT	AH	SSJ	BAL	HEA	NS	TE	Other		ETT	AH	SSJ	BAL	HEA	NS	TE	Other
Average job satisfaction	3,88	4,07	4,05	3,82	3,76	3,66	3,70	3,88		3,85	3,56	3,98	3,76	4,09	3,64	4,09	3,68
Std. Deviation	0,90	0,86	1,01	1,03	1,26	1,07	1,14	1,35		0,96	1,27	0,98	1,13	0,96	1,06	1,01	1,32

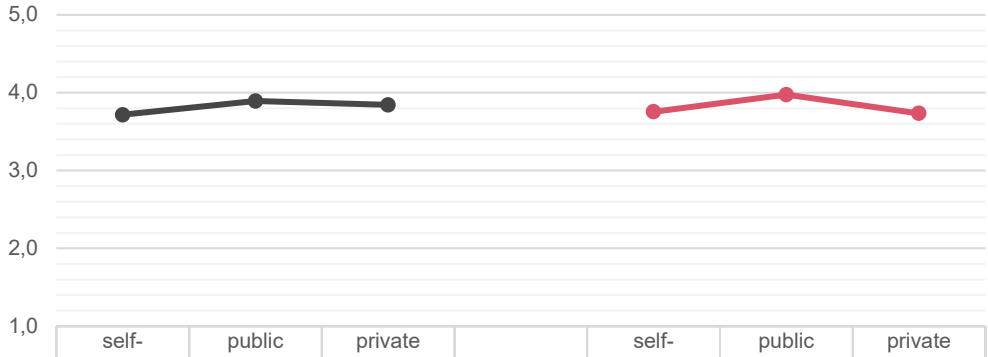
Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

5.2.3.3. Job satisfaction by type of employment

Job satisfaction scores varied among different employment sectors, as shown in Figure 77. In 2016/17, graduates employed in the public sector had the highest average job satisfaction score while self-employed graduates the lowest. In 2020/21 cohort, graduates employed in the public sector had the highest average job satisfaction score, while graduates employed in the private sector the lowest. Differences in average job satisfaction scores by type of employment were statistically significant in the 2020/21 cohort.

Comparing job satisfaction scores between the two cohorts, self-employed graduates and graduates employed in the public sector experienced an increase in job satisfaction. On the other hand, those in the private sector appeared to have a decrease in job satisfaction.

Figure 77: Average job satisfaction by type of employment and graduation cohort



	self-employed	public sector	private sector		self-employed	public sector	private sector
		2016/17				2020/21*	
Average job satisfaction	3,72	3,89	3,85		3,75	3,98	3,73
Std. Deviation	1,03	0,99	1,04		1,11	1,03	1,11

**Statistically significant findings*

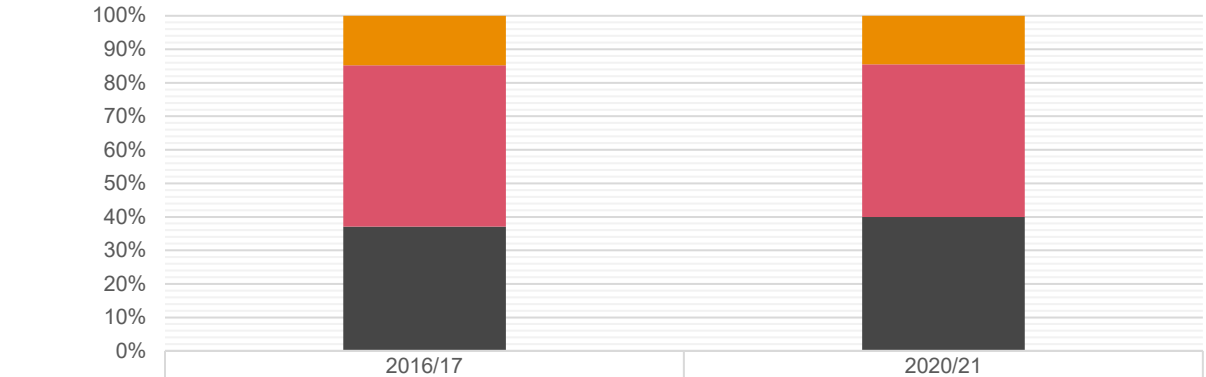
5.2.4. Type of employment

An important aspect relating to graduate surveys is the investigation of the career choices of HEI alumni and the identification of its determinants. This report examines, amongst others, choices between the public and the private sector as well as self-employment scanning for gender stereotypes that assume that male graduates prefer working in private sectors, while their female counterparts are more interested in public jobs.

Entrepreneurs are regarded as the backbone of the future economy, as they play a key role in generating the jobs of tomorrow. In this context, Higher Education assumes a critical role by equipping graduates with the skills necessary to transcend traditional boundaries, innovate, and potentially embark on entrepreneurial ventures. Consequently, this report seeks to shed light on the percentage distribution of self-employment which potentially could serve as an indicator of entrepreneurship within the workforce, particularly among young individuals.

As illustrated in Figure 78, most of the participants work in the private sector in both 2016/17(48%) and 2020/21 (46%) cohorts. A significant percentage is employed in the public sector and only a small percentage in 2016/17 (15%) and 2020/21 (14%) are self-employed.

Figure 78: Type of employment by graduation cohort



	2016/17	2020/21
self-employed	15%	14%
private sector	48%	46%
public sector	37%	40%

The economic sector of employment by NACE (i.e., the European statistical classification of economic activities) categories was also explored. Figure 79 presents the distribution of graduates from each cohort according to economic sectors in which they are employed by using NACE taxonomy. The pattern observed in both cohorts is similar. Specifically, half of graduates in both cohorts are employed in the Non-marketed Services group (50% and 49% for 2016/17 and 2020/21 respectively). Then the economic sectors of Other Marketed Services (17% and 13% for 2016/17 and 2020/21 respectively) and Other Business Services (11% and 10% for 2016/17 and 2020/21 respectively) follow. In all other sectors the percentages of graduates employed were quite low (<6%).

Figure 79: Employment by NACE sector by graduation cohort

	Primary and utilities	Manufacturing	Construction	Distribution and Transport	Hospitality	IT Services	Financial and Insurance	Other Business Services	Other marketed services	Non-marketed Services
2016/17*	4%	2%	2%	1%	2%	5%	6%	11%	17%	50%
2020/21*	5%	2%	3%	3%	5%	5%	6%	10%	13%	49%

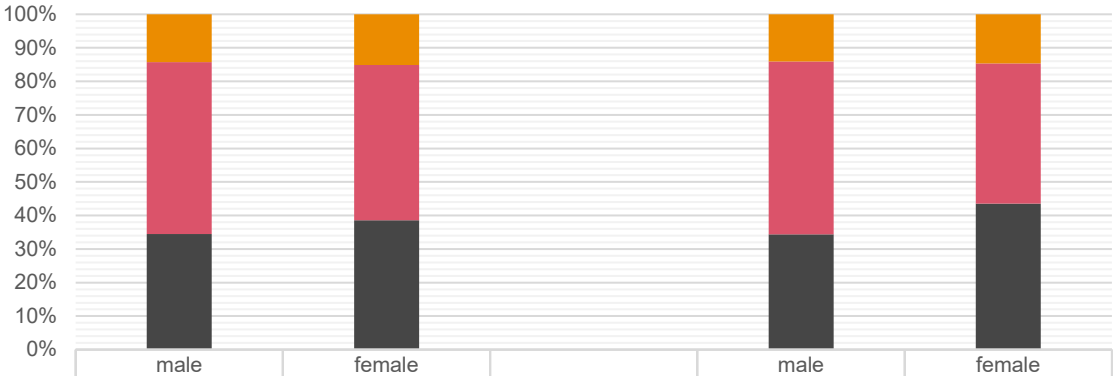
**Statistically significant findings*

Note: ***Primary and utilities:*** *Agriculture, forestry, fishing, mining, quarrying, and Electricity, gas, steam, and air conditioning supply.* ***Manufacturing:*** *Anything related to manufacturing.* ***Construction:*** *Anything related to construction.* ***Distribution and Transport:*** *Wholesale and retail trade, repair of motor vehicles and motorcycles, transportation, and storage.* ***Hospitality:*** *Accommodation and food service activities.* ***IT Services:*** *Information and communication.* ***Finance and Insurance:*** *Financial and insurance activities.* ***Other Business Services:*** *Real estate activities, Professional, scientific, and technical activities, Administrative and support service activities.* ***Other Marketed Services:*** *Arts, entertainment and recreation, Other service activities, Activities of households as employers, Activities of extraterritorial organisations and bodies.* ***Non-marketed Services:*** *Public administration and defence; compulsory social security, Education, Human health, and social work activities.*

5.2.4.1. Type of employment by demographic variables

As depicted in Figure 80, there was no statistically significant association between type of employment and gender in the cohort 2016/17. In the cohort 2020/21, a significantly higher percentage of males was employed in the private sector and a significantly higher percentage of females was employed in the public sector. Similar percentages were noted for both genders in the category self-employed. Comparisons between the two cohorts indicate a decrease in the percentage of females employed in the private sector and at the same time an increase in the percentage of females employed in the public sector.

Figure 80: Type of employment by gender and graduation cohort

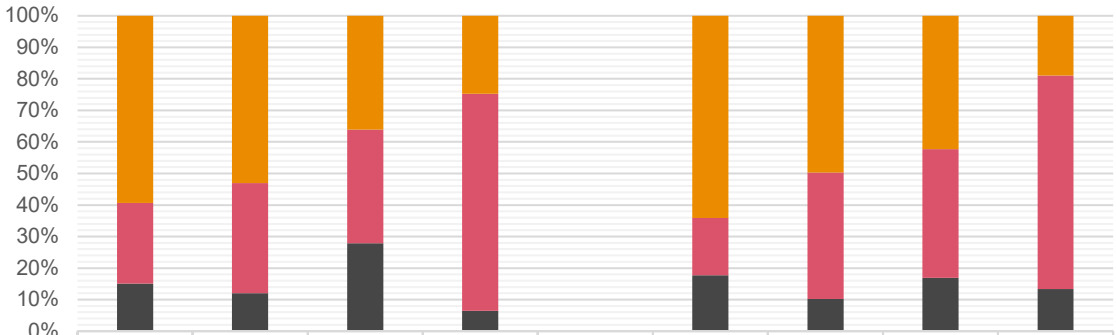


	2016/17 male	2016/17 female	2020/21* male	2020/21* female
self-employed	14%	15%	14%	15%
private sector	51%	46%	52%	42%
public sector	35%	39%	34%	44%

**Statistically significant findings*

Figure 81 illustrates the relationship between type of employment by age group, which is statistically significant in both cohorts. Evidently, participants that graduated at the age of 35 and over were mostly employed in the public sector across both cohorts. On the contrary, the majority of under 25 graduates were employed in the private sector, both in 2016/17 and 2020/21 cohorts. The age groups of 30 to 34 appeared to be almost evenly spread across both the public and the private sector.

Figure 81: Type of employment by graduates' age group and graduation cohort



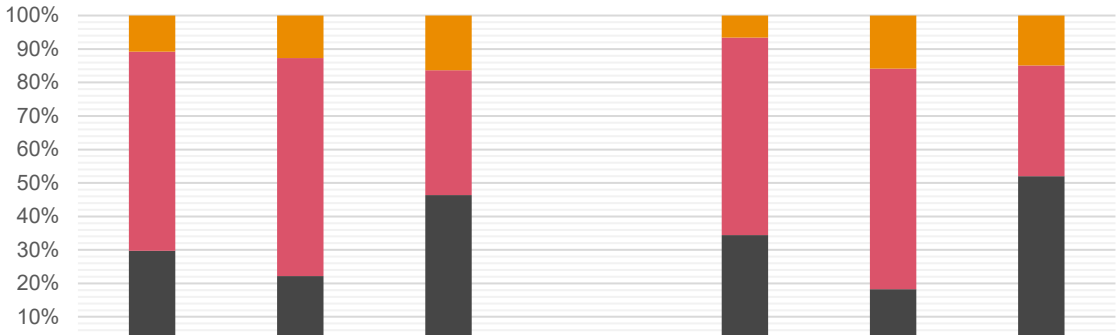
	under 25	25 to 29	30 to 34	35 and over	under 25	25 to 29	30 to 34	35 and over
	2016/17*				2020/21*			
private sector	59%	53%	36%	25%	64%	50%	42%	19%
public sector	26%	35%	36%	69%	18%	40%	41%	68%
self-employed	15%	12%	28%	6%	18%	10%	17%	13%

**Statistically significant findings*

5.2.4.2. Type of employment by variables related to Higher Education studies

Overall, there was a similar pattern in the type of employment by level of degrees in both cohorts as illustrated in Figure 82. It was observed that the majority of ISCED 7 graduates were employed in the public sector, while the majority of ISCED 5 and ISCED 6 graduates were employees in the private sector.

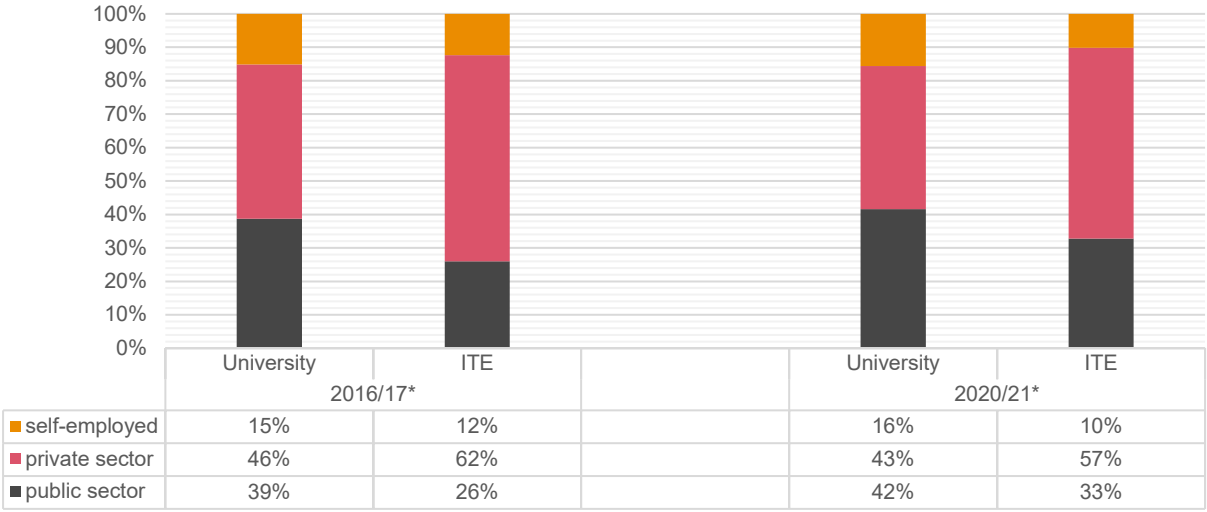
Figure 82: Type of employment by ISCED-level and graduation cohort



	ISCED 5	ISCED 6	ISCED 7	ISCED 5	ISCED 6	ISCED 7
	2016/17*			2020/21*		
self-employed	11%	13%	16%	7%	16%	15%
private sector	59%	65%	37%	59%	66%	33%
public sector	30%	22%	46%	34%	18%	52%

The distribution of graduates in the working sectors, with respect to the type of HEI institution from which they graduated is presented in Figure 83. Significantly more graduates from Universities and ITE are employed in the private sector than in the other sectors, with the percentage of graduates from ITE in the private sector being higher in comparison to that of graduates from Universities in both cohorts. Comparisons between the two cohorts reveal a decrease in percentages of graduates employed in the private sector and increase in the percentage of graduates who were employed in the public sector.

Figure 83: Type of employment by type of HEI and graduation cohort

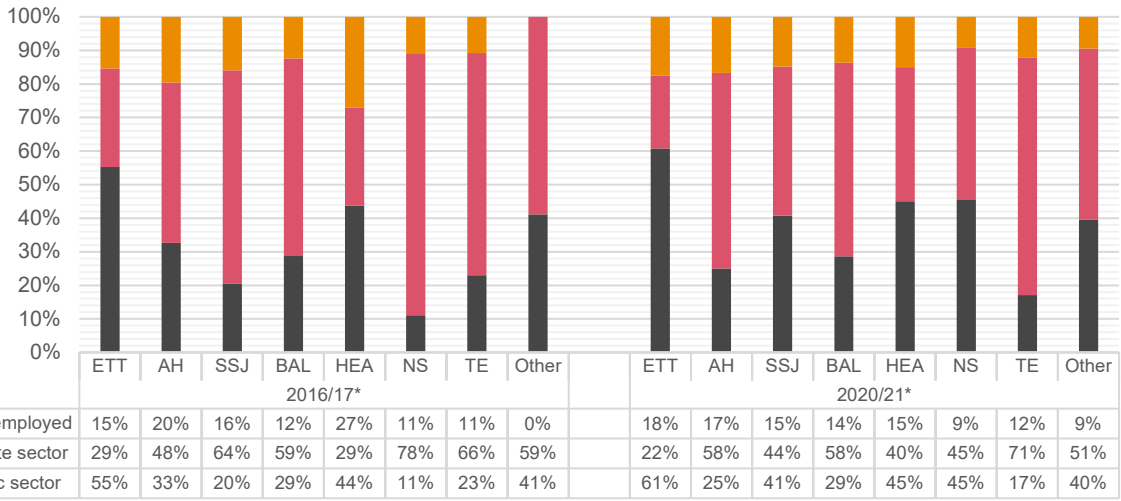


	2016/17*			2020/21*	
	University	ITE		University	ITE
self-employed	15%	12%		16%	10%
private sector	46%	62%		43%	57%
public sector	39%	26%		42%	33%

**Statistically significant findings*

Figure 84 depicts the statistically significant relationship between the field of study and the graduates' employment sector. Evidently, six fields have consistently most of their graduates employed in the private sector such as Arts and Humanities, Social Sciences and Journalism, Business, Administration and Law, Natural Sciences (including Mathematics), Technology and Engineering and the category "Other", while two fields (Education and Teacher Training and Health) have consistently most of their graduates employed in the public sector in both cohorts. The fields of Natural Sciences, Technology and Engineering and Social Sciences and Journalism had the higher percentages of 2016/17 graduates in the private sector while Education and Teacher Training and Health the higher percentages of graduates in the public sector. In the 2020/21 cohort, the fields of study with the higher percentages of graduates in the private sector were Technology and Engineering, Arts and Humanities and Business Administration and Law while the fields with higher percentages of graduates in the public sector were Education and Teacher Training, Health, and Natural Sciences.

Figure 84: Type of employment by field of study and graduation cohort



	ETT	AH	SSJ	BAL	HEA	NS	TE	Other	ETT	AH	SSJ	BAL	HEA	NS	TE	Other
	2016/17*								2020/21*							
self-employed	15%	20%	16%	12%	27%	11%	11%	0%	18%	17%	15%	14%	15%	9%	12%	9%
private sector	29%	48%	64%	59%	29%	78%	66%	59%	22%	58%	44%	58%	40%	45%	71%	51%
public sector	55%	33%	20%	29%	44%	11%	23%	41%	61%	25%	41%	29%	45%	45%	17%	40%

**Statistically significant findings*

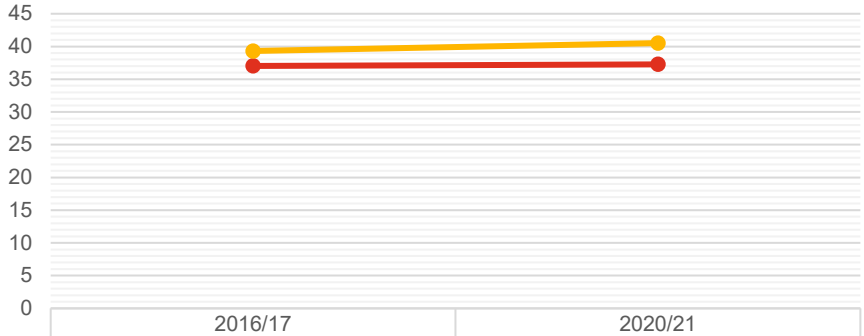
Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

5.2.5. Working Hours

An integral aspect within the realm of job quality is the amount of the employees' working hours. Working long hours can have an adverse effect on the well-being of employees but also on their performance. According to OECD (OECD, 2022), a person from an OECD country spends 37 hours a week at work. This section presents both contracted and actual working hours per week and examines discrepancies between actual working hours and contacted hours in respect to a number of demographic variables, variables related to graduates' studies as well as variables related to employment. Findings are presented only for graduates who reported being employed or self-employed on a full-time basis (participants working on a part-time basis were excluded).

As illustrated by Figure 85, graduates' working-hour agreements have been approximately the same, with average working hours per week at 37 and 37,3 hours in 2016/17 and 2020/21 cohorts respectively. Actual working hours differ, and this is evident in the gap between contracted and actual hours. This gap has grown from 2,3 hours to 3,5 from the 2016/17 cohort to the 2020/21 cohort.

Figure 85. Actual and contracted working hours by graduation cohort



	2016/17	2020/21
Working hours contract	37,0	37,3
Actual working hours	39,3	40,5
Std Deviation - Working hours contract	10,6	10,9
Std Deviation - Actual working hours	13,7	13,4

5.2.5.1. Working hours by demographic variables

Figure 86 displays contracted and actual working hours by gender. It is observed that males reported significantly higher average actual and contracted hours than females in both cohorts. Specifically, in the 2016/17 cohort, males reported 39,3 contracted hours compared to 35,7 contracted hours reported by females and 41,5 actual working hours compared to 38 reported by females. Similarly, in the 2020/21 cohort, males reported 38,4 contracted hours compared to 36,5 contracted hours reported by females and 42,4 actual hours compared to 39,3 reported by females.

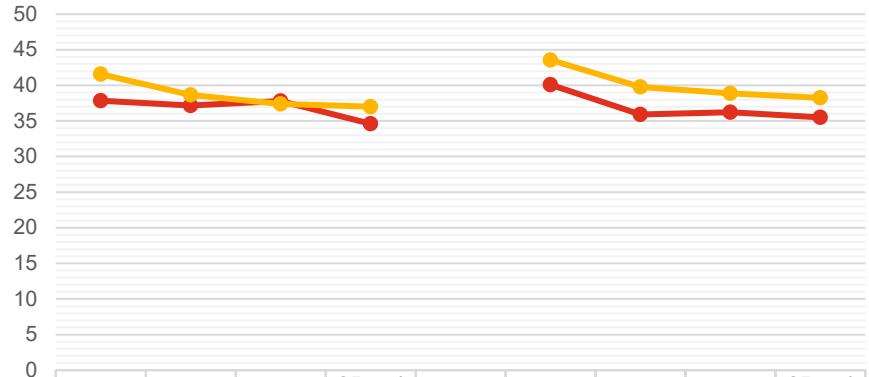
Figure 86: Actual and contracted working hours by gender and graduation cohort

	male	female		male	female
	2016/17*			2020/21*	
Working hours contract	39,3	35,7		38,4	36,5
Actual working hours	41,5	38,0		42,4	39,3
Std Deviation - Working hours contract	13,5	8,2		9,9	11,5
Std Deviation - Actual working hours	12,3	14,4		12,5	13,8

**Statistically significant findings.*

Figure 87 presents the actual and contracted working hours based on the age of graduation for both cohorts. Statistically significant differences in average actual working hours between age groups were noted for both cohorts. Particularly in both cohorts, younger graduates reported the highest actual working hours. In fact, actual working hours decrease with age. Regarding contacted working hours, statistically significant differences in average contracted working hours between age groups were noted only for the cohort 2016/17. Specifically, the group “under 25” reported the highest average of contracted working hours while the age group “25 to 29” the lowest.

Figure 87: Actual and contracted working hours by age (at graduation) and graduation cohort



	2016/17*					2020/21*			
	under 25	25 to 29	30 to 34	35 and over		under 25	25 to 29	30 to 34	35 and over
Working hours contract	37,9	37,2	37,8	34,6		40,1	35,9	36,2	35,5
Actual working hours	41,6	38,7	37,4	37,0		43,6	39,8	38,9	38,2
Std Deviation - Working hours contract	6,3	8,0	17,2	14,2		13,0	7,8	8,2	10,9
Std Deviation - Actual working hours	13,4	12,9	12,7	15,8		15,6	11,0	10,4	13,0

**Statistically significant findings. Cohort 2016/17: for actual working hours. Cohort 2020/21: for both contracted and actual working hours.*

5.2.5.2. Working hours by variables related to Higher Education studies

Differences in actual and contracted working hours according to the level of studies is presented in Figure 88. In both cohorts, ISCED 7 graduates had the lowest commitment to working hours, with 35,6 and 35,7 contracted hours (for 2016/17 and 2020/21 respectively), and 36,8 and 38,9 actual working hours (for 2016/17 and 2020/21 respectively). ISCED 6 graduates from cohort 2016/17 reported the highest contracted and actual working hours (39,2 and 43,6 respectively) while from cohort 2020/21 ISCED 5 graduates reported the highest contracted and actual working hours (42,1 and 47,2 respectively). Comparisons between the two cohorts (from 2016/17 to 2020/21) indicated that ISCED 5 graduates had a considerable increase in contracted and actual working hours, by approximately 3,3 and 7,8 hours respectively. Interestingly, only ISCED 6 graduates experienced a reduction in their contracted and working hours.

Figure 88: Actual and contracted working hours by ISCED-level and graduation cohort

	ISCED 5	ISCED 6	ISCED 7		ISCED 5	ISCED 6	ISCED 7
	2016/17*				2020/21*		
Working hours contract	38,8	39,2	35,6		42,1	39,0	35,7
Actual working hours	39,4	43,6	36,8		47,2	41,5	38,9
Std Deviation - Working hours contract	2,1	7,2	12,3		13,0	13,7	8,5
Std Deviation - Actual working hours	3,1	15,1	12,8		11,7	15,2	12,3

**Statistically significant findings*

Comparisons of actual and contracted working hours between graduates from Universities and ITE are shown in Figure 89. In both cohorts, it is observed that graduates from ITE reported higher contracted and actual working hours than University-graduates. These differences in contracted and actual working hours between graduates from Universities and ITE were statistically significant only in the 2020/21 cohort.

Figure 89: Actual and contracted working hours by type of HEI and graduation cohort

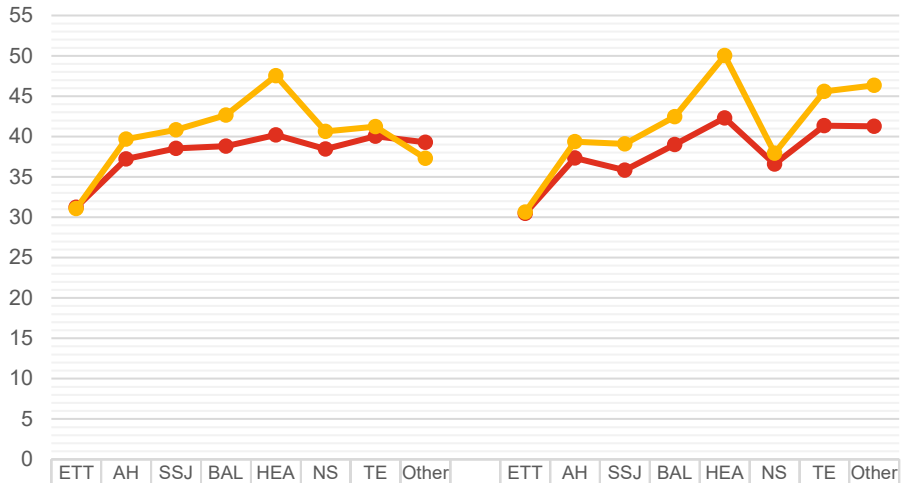
	University	ITE		University	ITE
	2016/17			2020/21*	
Working hours contract	36,8	38,9		36,7	39,8
Actual working hours	39,1	41,1		39,8	43,3
Std Deviation - Working hours contract	11,3	3,0		10,8	10,9
Std Deviation - Actual working hours	14,2	9,4		13,7	11,5

**Statistically significant findings*

Figure 90 presents the distribution of contracted and actual working hours segmented by field of study. Graduates from the field of Health reported the highest contracted and actual working hours in both cohorts, with 47,5 actual hours and 40,2 contracted hours in the 2016/17 cohort, and 50 actual hours and 42,3 contracted hours in the 2020/21 cohort. According to EU regulations and the relevant Cyprus Law, working hours per week may not exceed 48 hours on average, including overtime over a reference period of up to 4

months. Therefore, graduates from the field of Health have exceeded these hours in the 2020/21 cohort. It is also worth noting that graduates in the field of Technology and Engineering and graduates in the field category "Other" reported a high number of actual working hours (45,6 and 46,4 respectively) in the 2020/21 cohort. On the other hand, graduates from the field of Education and Teacher Training had fewest contracted and actual working hours in both cohorts. Specifically, in the 2016/17 cohort, they reported 31,1 actual hours and 31,2 contracted hours, while in the 2020/21 cohort, 30,5 actual hours and 30,6 contracted hours.

Figure 90: Actual and contracted working hours by field of study and graduation cohort



	2016/17*								2020/21*							
	ETT	AH	SSJ	BAL	HEA	NS	TE	Other	ETT	AH	SSJ	BAL	HEA	NS	TE	Other
Working hours contract	31,2	37,2	38,5	38,8	40,2	38,5	40,0	39,3	30,5	37,3	35,9	39,0	42,3	36,6	41,3	41,3
Actual working hours	31,1	39,7	40,8	42,7	47,5	40,6	41,2	37,3	30,6	39,4	39,1	42,5	50,0	38,0	45,6	46,4
Std Deviation - Working hours contract	7,4	19,2	5,5	7,6	5,6	3,9	15,8	2,1	9,4	10,3	8,6	6,2	19,5	8,9	7,3	14,1
Std Deviation - Actual working hours	10,5	20,3	8,3	10,8	21,4	4,5	8,8	13,1	10,2	16,3	10,2	8,9	22,7	11,3	10,7	11,4

**Statistically significant findings*

Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

5.2.5.3. Working hours by type of employment

Contracted and actual working hours were also explored by the type of employment (Figure 91). In the 2016/17 cohort, self-employed graduates reported higher number in contracted and actual working hours than graduates in the private and public sector. However, in the 2020/21 cohort, the pattern changes and graduates in the private sector reported the highest number of contracted and actual working hours. In both cohorts, participants employed in the public sector reported the lowest number of actual and contracted working hours.

Figure 91: Actual and contracted working hours by type of employment and graduation cohort

	self-employed	public sector	private sector		self-employed	public sector	private sector
	2016/17*				2020/21*		
Working hours contract	41,5	33,7	38,9		37,1	34,5	39,9
Actual working hours	42,1	36,7	40,8		39,6	37,9	43,1
Std Deviation - Working hours contract	20,1	11,8	4,2		16,2	12,1	6,3
Std Deviation - Actual working hours	15,0	18,8	6,5		16,3	16,2	8,3

**Statistically significant findings*

5.2.6. Earnings

Engaging in Higher Education represents an investment requiring financial resources, time commitments, and opportunity costs, both for the society as a whole and the individual student, all with non-guaranteed returns. A measure to assess this return on investment is the initial earnings that graduates accrue as they embark on their careers in the labour market. Higher earnings often translate into increased tax contributions, making these earnings a potential indicator of the societal return on this investment (OECD, 2023).

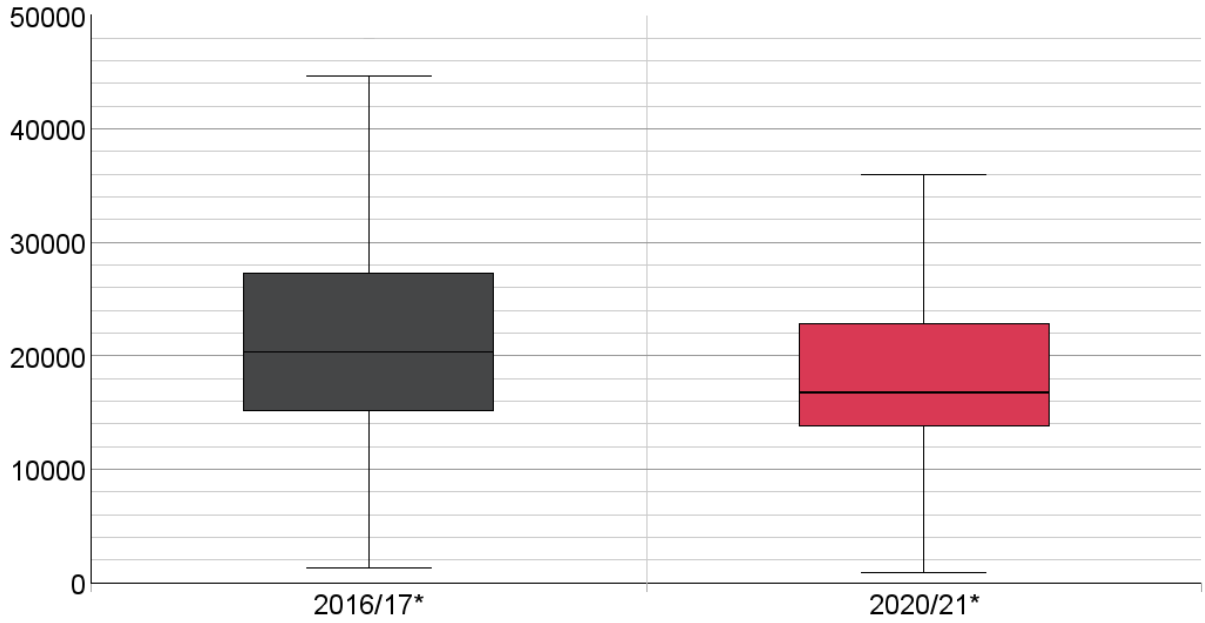
Earnings are considered a final key indicator when assessing the employment situation of graduates, therefore this sub-section presents graduates' annual earnings. Graduates in the questionnaire were asked to report gross annual salary (i.e., before income tax and other levies but including any regular extra earnings such as paid overtime, performance bonus, shift bonus) as well as annual supplementary earnings (such as 13th month salary and end of year bonuses). Graduates' annual earnings reported in this section are the sum of the gross annual salary and supplementary earnings.

This sub-section reports on median annual earnings, i.e., the amount which is in the middle of all reported earnings in each cohort of full-time employed graduates as well graduates who are self-employed. Median is considered to be a more accurate representation of the average earnings because it is not affected by outliers. Median annual earnings are reported in euro currency.

Differences in annual earnings between graduates are explored in relation to demographic variables, variables related to their studies and variables related to employment. Finally, it is also noting that findings presented in this section are based on self-reported data on a sensitive topic and thus might be affected by social desirability bias.

Earnings by graduation cohort is shown in Figure 92. The middle black line indicates the median earnings and the boxes above and below the middle line indicate the interquartile range (the range between the 1st and 3rd quartile). According to this figure, the median salary of 2016/17 graduates was 20.400 euros which was significantly higher than the median salary of 16.800 euros of 2020/21 graduates. Additionally, the earnings range in the 2016/17 cohort appears to be wider than in the 2020/21 cohort (length of the box) thus suggesting higher variability.

Figure 92: Annual earnings by graduation cohort



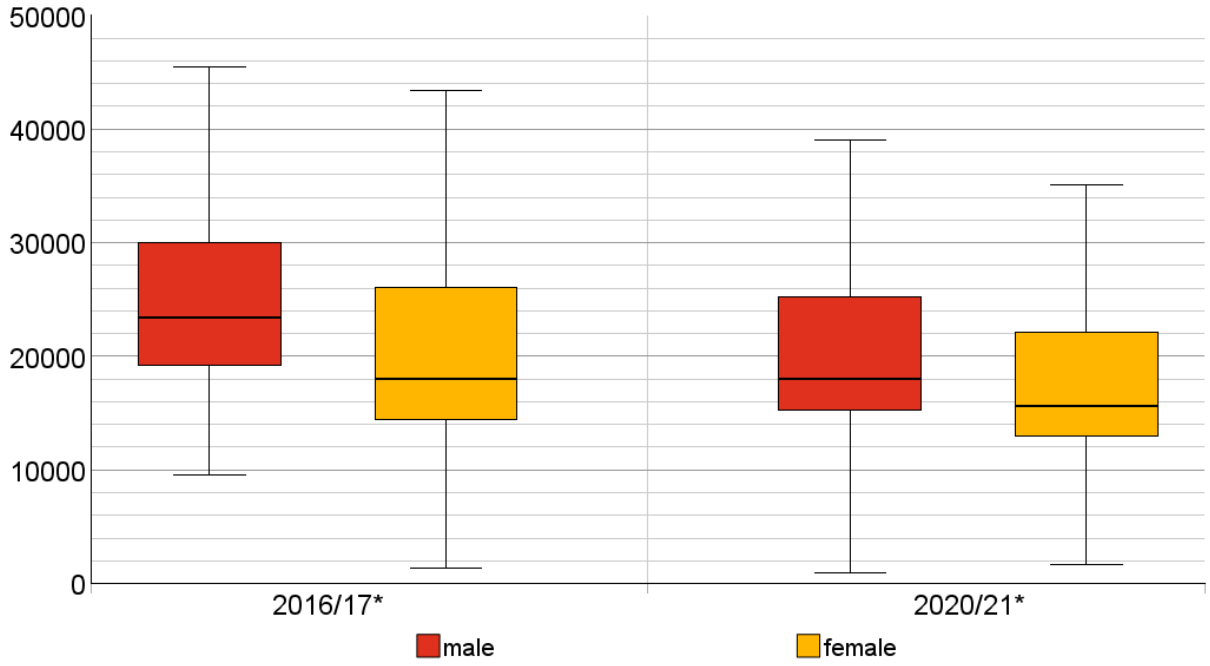
Earnings (EUR)	Quartiles		
	1st	2nd	3rd
2016/17*	15.228	20.400	27.289
2020/21*	13.800	16.800	22.800

**Statistically significant findings*

5.2.6.1. Earnings by demographic variables

The distribution of earnings by gender is presented in Figure 93. Overall, males had significantly higher median earnings than females in both cohorts. Specifically, median earnings for males were equal to 23.400 euros in the 2016/17 cohort and to 18.000 euros in the 2020/21 cohort, in comparison to median earnings for females which was 18.000 euros and 15.600 euros in 2016/17 and 2020/21 cohorts respectively. However, the gender gap in median earnings decreased from 2016/17 to 2020/21 (5.400 to 2.400 euros).

Figure 93: Annual earnings by gender and graduation cohort

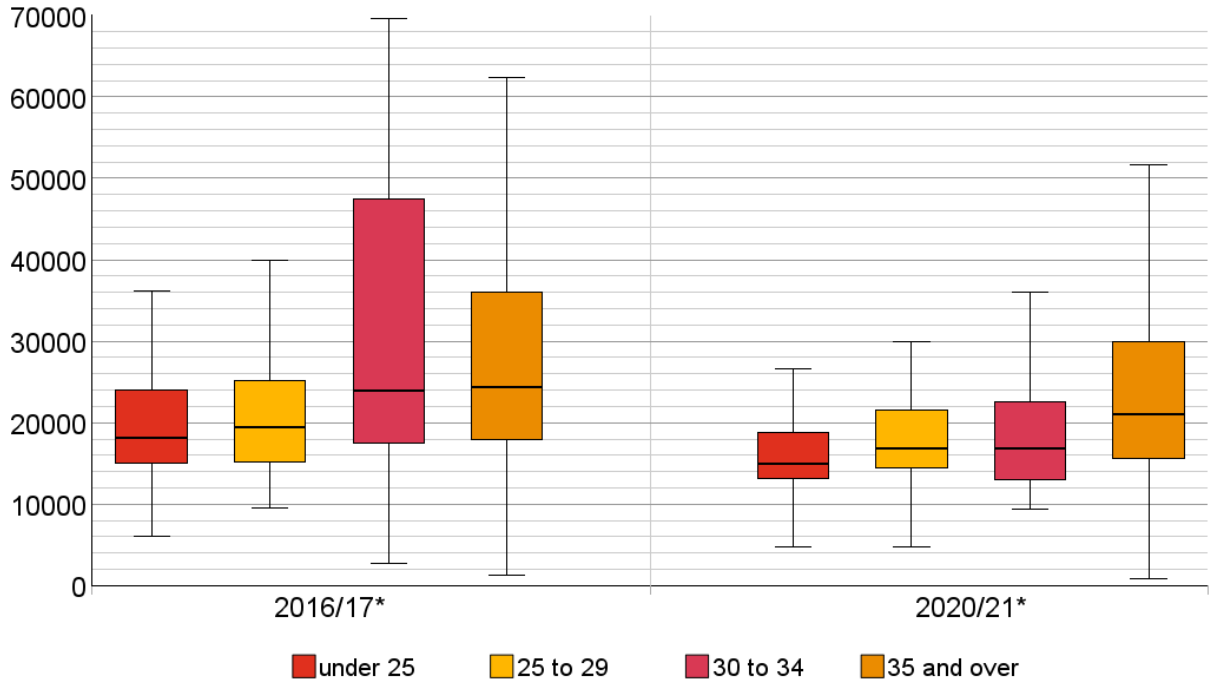


Earnings (EUR)		Quartiles		
		1st	2nd	3rd
2016/17*	Male	19.181	23.400	29.389
	Female	14.401	18.000	26.017
2020/21*	Male	15.169	18.000	25.200
	Female	12.907	15.600	22.100

**Statistically significant findings*

The distribution of earnings according to age at graduation is shown in Figure 94. Statistically significant differences in earnings by age at graduation were found in both cohorts. Particularly, the same pattern is observed in both cohorts, indicating that median earnings increase with age. This was expected as earnings tend to increase as graduates accrue more experience in the workplace. Moreover, peak earning years are usually after the age of 35. In the 2016/17 cohort, there was a noticeable variability in the earnings of participants who graduated between the ages of 30 to 34, as well as for those who graduated at over 35 years of age. In the 2020/21 cohort the greatest variability is observed in the age group “35 and over”.

Figure 94: Annual earnings by age (at graduation) and graduation cohort



Earnings (EUR)		Quartiles		
		1st	2nd	3rd
2016/17*	under 25	15.065	18.028	24.000
	25 to 29	15.172	19.295	25.103
	30 to 34	16.718	24.000	47.431
	35 and over	18.000	24.432	36.000
2020/21*	under 25	13.061	15.000	18.447
	25 to 29	14.354	16.800	21.233
	30 to 34	13.000	16.886	22.109
	35 and over	15.600	20.947	30.000

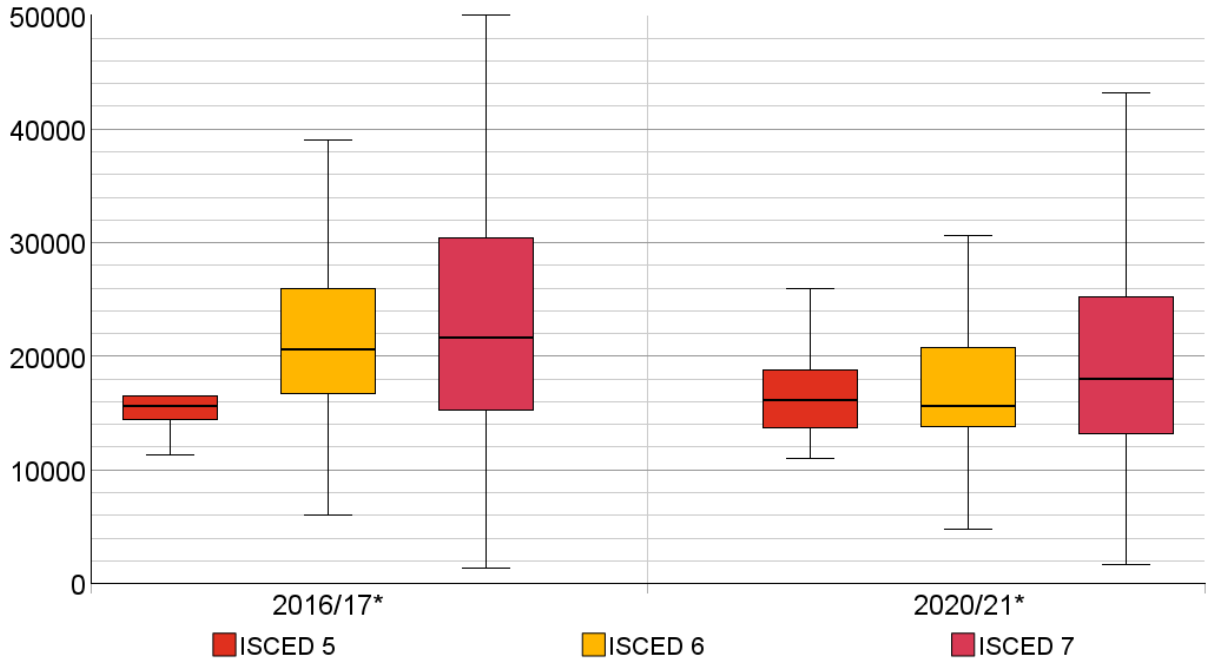
**Statistically significant findings*

5.2.6.2. Earnings by variables related to Higher Education studies

The distribution of earnings by level of studies is illustrated in Figure 95. It is evident that in both cohorts, median earnings differ significantly by level of studies. In the 2016/17 cohort median earnings increased by level of study with ISCED 7 graduates recording the highest earnings and ISCED 5 graduates the lowest. In the 2020/21 cohort the pattern changes with ISCED 7 graduates again recording the highest earnings, but this time ISCED 6 graduates record the lowest. Figure 95 also shows the large variability of annual earnings for ISCED 7 graduates (tall boxes). Comparisons between the two cohorts show that ISCED 6 and ISCED 7 graduates in the 2016/17 cohort recorded higher median earnings than ISCED 6 and ISCED 7 graduates in

the 2020/21 cohort, while no difference in median earnings is recorded for ISCED 5 graduates between the two cohorts.

Figure 95: Annual earnings by ISCED-level and graduation cohort

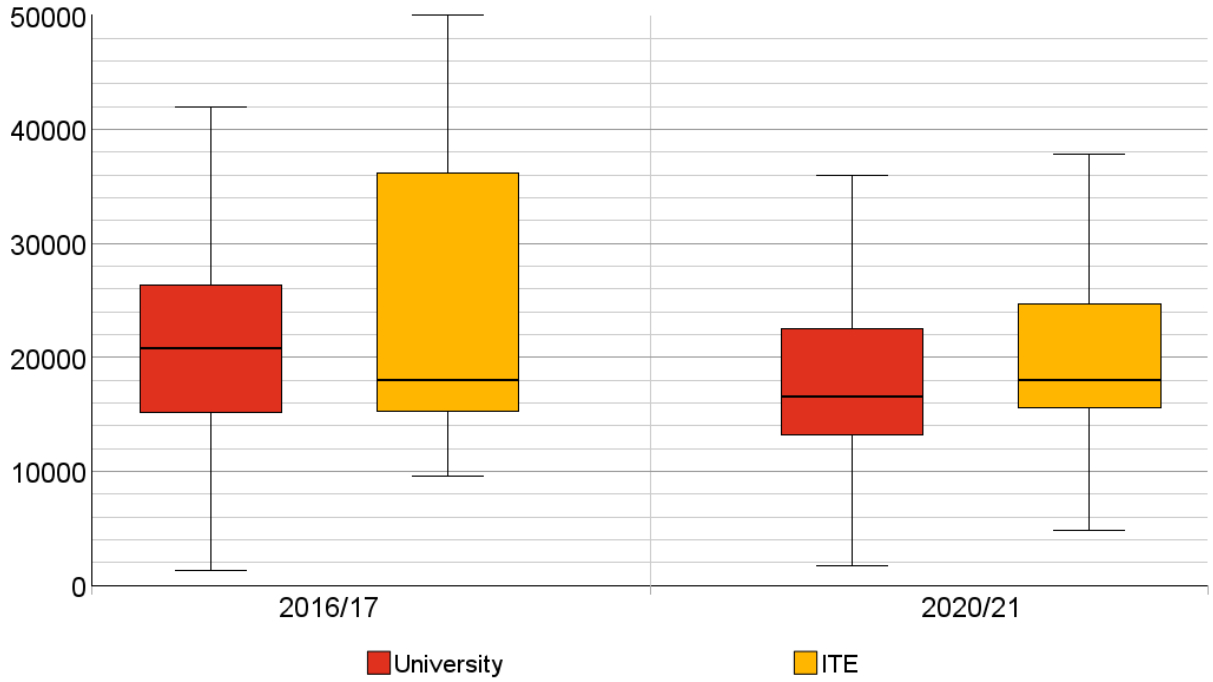


Earnings (EUR)		Quartiles		
		1st	2nd	3rd
2016/17*	ISCED 5	12.645	15.600	16.492
	ISCED 6	16.720	20.519	26.000
	ISCED 7	15.228	21.600	30.103
2020/21*	ISCED 5	13.720	16.132	18.436
	ISCED 6	13.800	15.600	20.605
	ISCED 7	13.200	18.000	25.114

**Statistically significant findings*

Figure 96 displays median earnings by type of HEI. In the 2016/17 cohort, the median earnings for University graduates were higher than those of graduates from ITE while the opposite is observed in the 2020/21 cohort. These differences though in median earnings between graduates from Universities and ITE were not statistically significant. It is also worth noting that there is a large variability in annual earnings for 2016/17 graduates from ITE with a highly positively skewed distribution, meaning a higher number of data points with lower values.

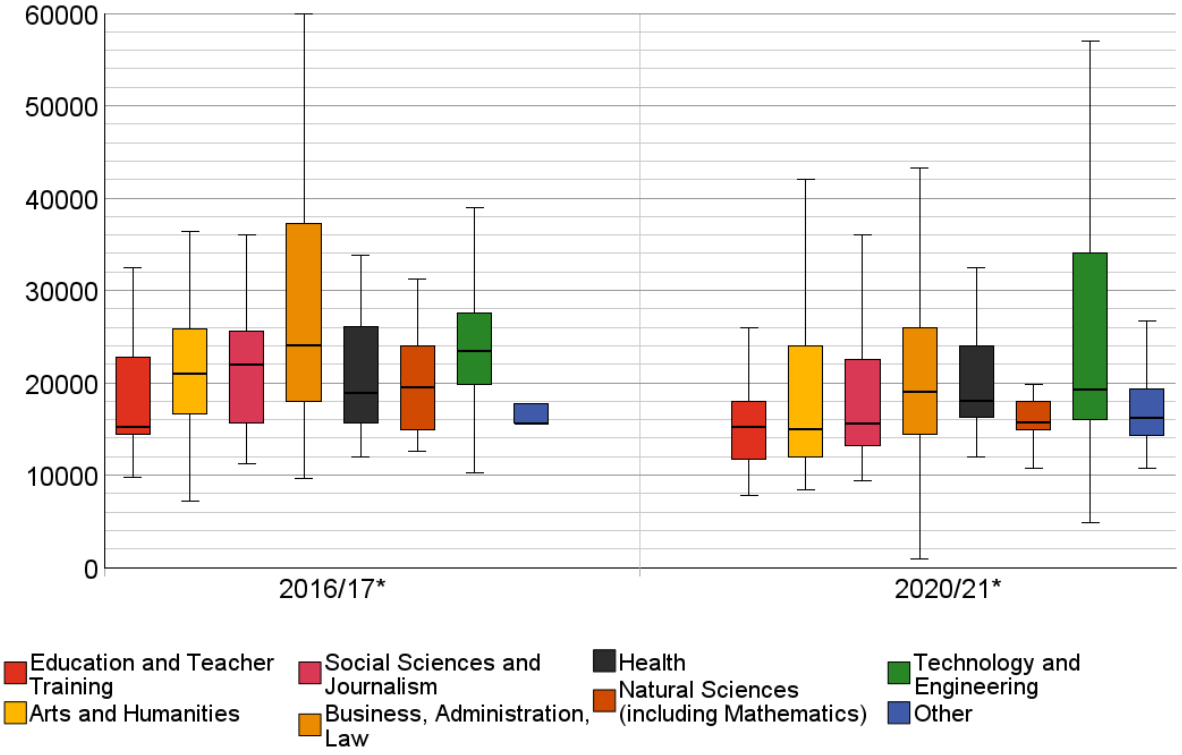
Figure 96: Annual earnings by type of HEI and graduation cohort



Earnings (EUR)		Quartiles		
		1st	2nd	3rd
2016/17	University	15,228	20,712	26,400
	ITE	14,521	18,000	36,064
2020/21	University	13,200	16,315	22,537
	ITE	15,600	18,000	24,315

Earnings were found to differ significantly also by field of study (Figure 97). In the 2016/17 cohort the highest median earnings belonged to graduates in the fields of Business, Administration and Law and Technology and Engineering while the lowest earnings were reported by graduates in the fields of Education and Teacher Training and in the category “Other”. The largest variation in graduates’ earnings were noted in the field of Business, Administration and Law. In the 2020/21 cohort, graduates from the fields of Business, Administration and Law and Technology and Engineering still earned the most. Graduates in the field of Education and Teacher Training and Arts and Humanities reported the lowest annual earnings. The largest variation in earnings in the 2020/21 cohort belonged to the Business, Administration and Law graduates.

Figure 97: Annual earnings by field of study and graduation cohort



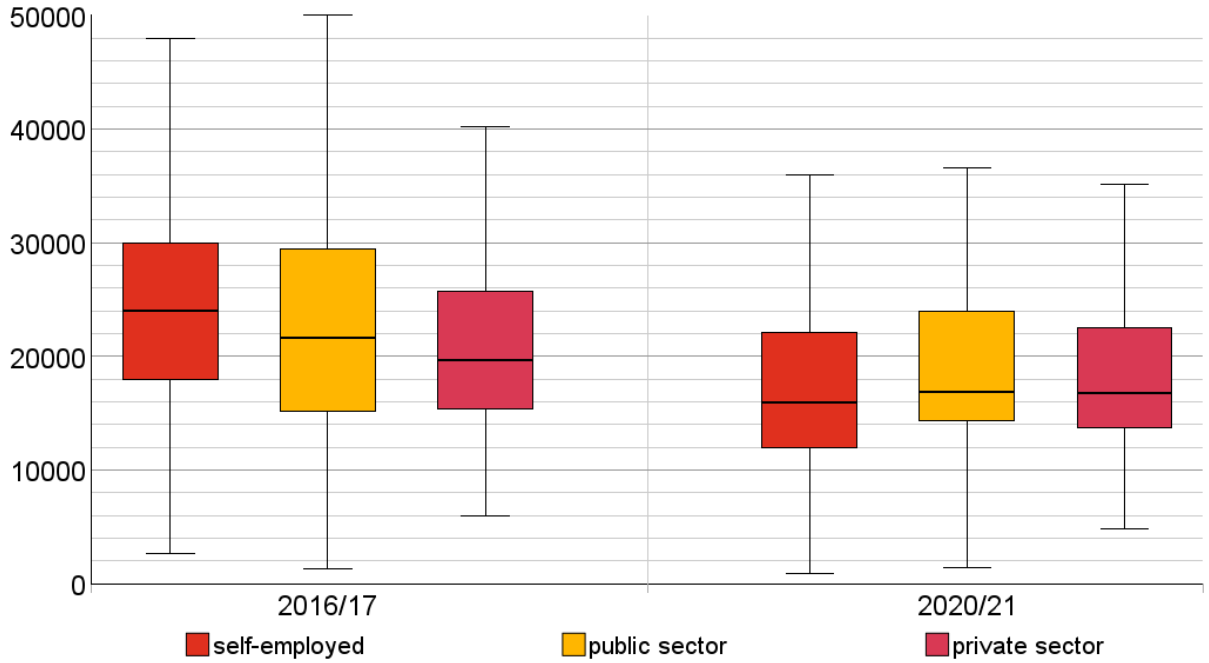
Earnings (EUR)		Quartiles		
		1st	2nd	3rd
2016/17*	Education and Teacher Training	13.964	15.228	22.800
	Arts and Humanities	15.706	20.918	25.800
	Social Sciences and Journalism	15.407	21.724	25.267
	Business, Administration and Law	18.000	23.983	36.415
	Health	15.600	18.831	26.037
	Natural Sciences (including Mathematics)	14.895	19.380	23.674
	Technology and Engineering	19.759	23.400	27.585
	Other	15.600	15.600	17.624
2020/21*	Education and Teacher Training	11.676	14.981	18.000
	Arts and Humanities	11.720	14.354	23.758
	Social Sciences and Journalism	13.200	15.577	22.500
	Business, Administration and Law	14.400	18.988	26.000
	Health	15.795	18.000	23.564
	Natural Sciences (including Mathematics)	14.369	15.644	17.812
	Technology and Engineering	15.968	19.219	33.902
	Other	14.060	16.238	19.339

**Statistically significant findings*

5.2.6.3. Earnings by type of employment

Figure 98 illustrates the distribution of earnings by employment type. In the 2016/17 cohort, self-employed graduates reported the highest median earnings compared to those employed in the private and public sectors. However, this trend was reversed in the 2020/21 cohort. Despite these differences in median earnings across employment types, these were not statistically significant. The 2016/17 cohort showed the greatest earnings variability in the public sector, while in the 2020/21 cohort, earnings variability was similar across all employment types.

Figure 98: Annual earnings by type of employment and graduation cohort

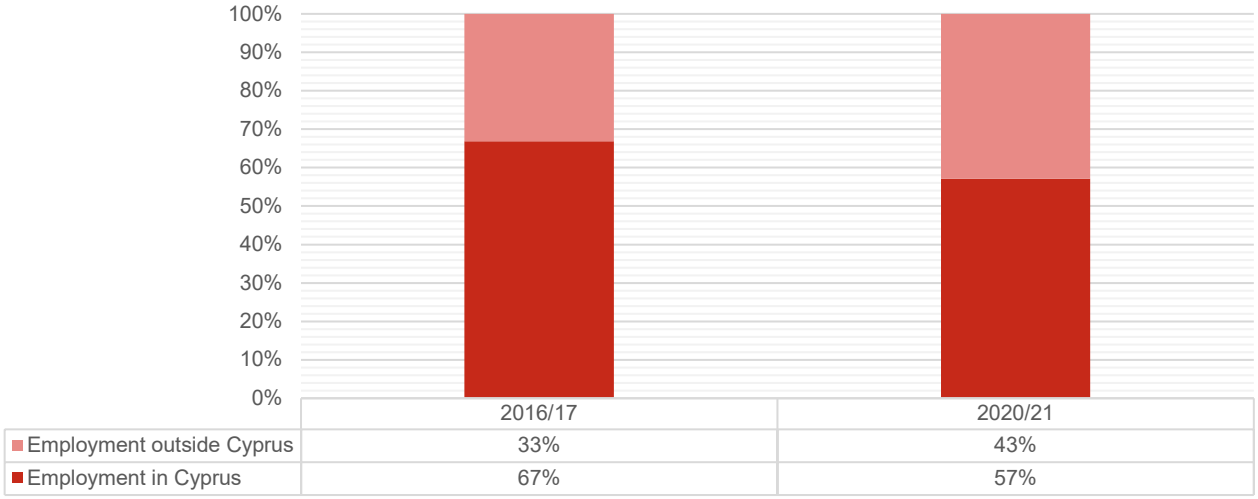


Earnings (EUR)		Quartiles		
		1st	2nd	3rd
2016/17	Self-employed	17.155	24.000	30.000
	Public Sector	15.228	21.460	29.001
	Private Sector	15.345	19.721	25.652
2020/21	Self-employed	11.510	15.968	21.855
	Public Sector	14.400	16.900	24.000
	Private Sector	13.720	16.736	22.537

5.2.7. Place of Employment

The current sub-section examines the place of employment, i.e., in Cyprus or abroad, for employed and self-employed graduates. It is evident from Figure 99, that most graduates in both cohorts have stayed in the country where they graduated i.e., in Cyprus. This percentage is higher in the 2016/17 cohort when compared to cohort 2020/21 (67% and 57% respectively).

Figure 99: Place of employment by graduation cohort

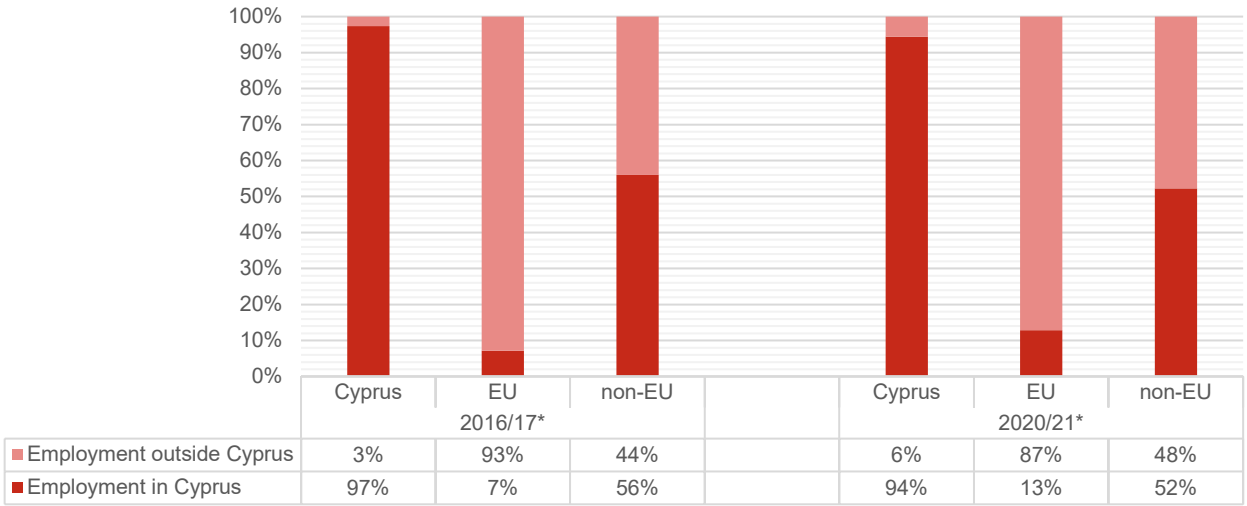


5.2.7.1. Place of employment by country of birth

Figure 100 depicts the percentage of people employed in and outside of Cyprus by country of birth. Graduates were grouped in three categories according to the country of birth: Cyprus, EU and non-EU. A similar and statistically significant pattern is evident in both cohorts regarding the relationship between place of employment and country of birth. The vast majority of respondents belonging to category “Cyprus” (>90%) found employment in Cyprus, the vast majority (>85%) of graduates from EU countries are employed outside Cyprus and approximately half of the graduates from non-EU countries are employed in Cyprus and the other half abroad.

Comparisons between the two cohorts show that the proportion of EU graduates finding employment in Cyprus increased by 6%, while the corresponding proportion of Cypriots and non-Europeans decreased by 3% and 4% respectively.

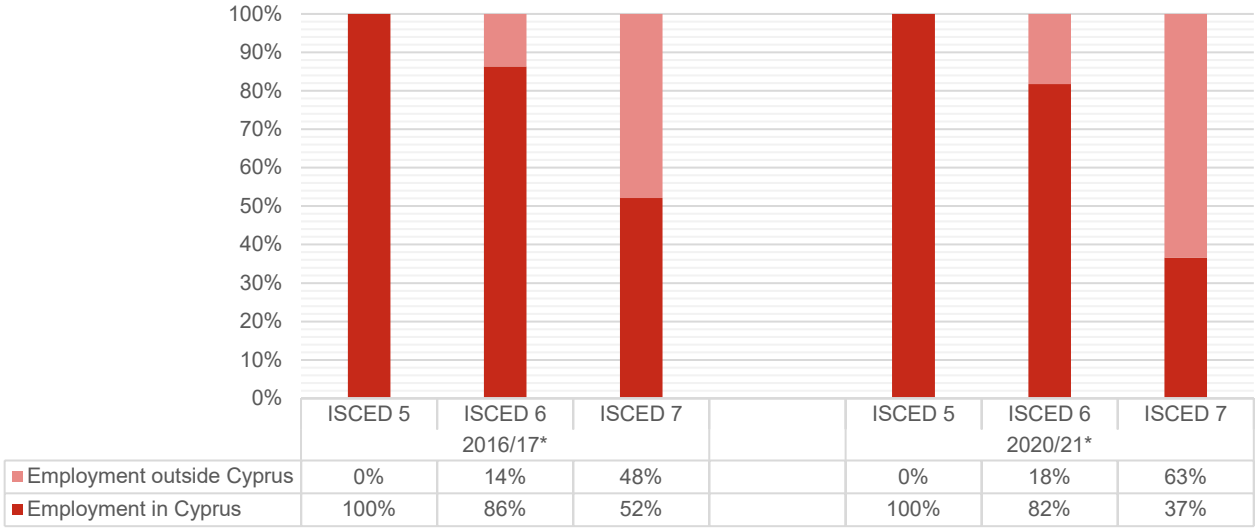
Figure 100: Place of employment by country of birth and graduation cohort



5.2.7.2. Place of employment by variables related to Higher Education studies

Place of employment (inside and outside of Cyprus) according to degree level is shown in Figure 101. It appears that in both cohorts, all ISCED 5 graduates reported finding employment in Cyprus. In cohort 2016/17, most of ISCED 6 graduates found employment in Cyprus while ISCED 7 graduates have almost equal percentages of employment within and outside Cyprus. In cohort 2020/21 again most ISCED 6 graduates found employment in Cyprus while most ISCED 7 graduates found employment outside Cyprus.

Figure 101: Place of employment by ISCED-level and graduation cohort

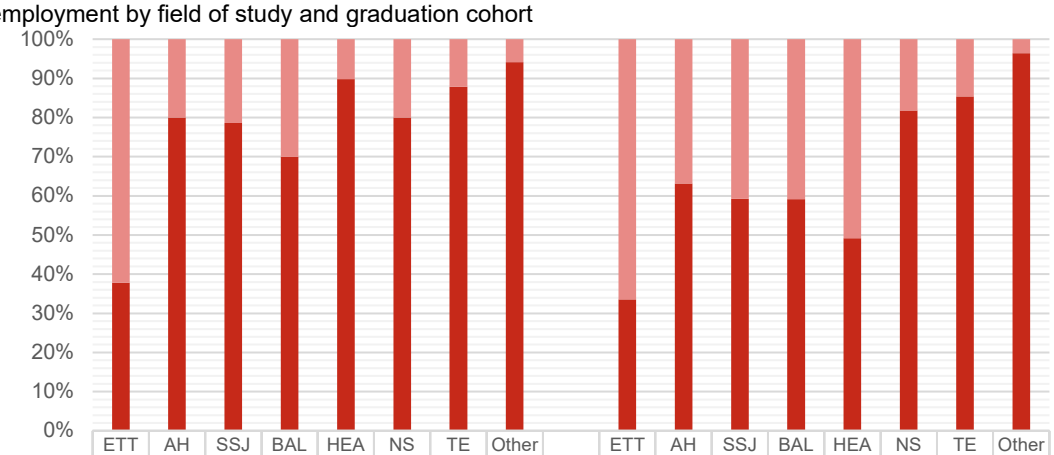


	ISCED 5	ISCED 6 2016/17*	ISCED 7		ISCED 5	ISCED 6 2020/21*	ISCED 7
Employment outside Cyprus	0%	14%	48%		0%	18%	63%
Employment in Cyprus	100%	86%	52%		100%	82%	37%

**Statistically significant findings*

Figure 102 depicts the percentage of graduates employed in and outside of Cyprus by field of study. In both cohorts Education and Teacher Training graduates had the lowest percentages of employment in Cyprus at 38% and 34% respectively. The higher percentages of graduates (>85) reporting finding employment in Cyprus were noted in the fields of Health, Technology and Engineering and the category "Other" for the 2016/17 cohort and in the fields of Technology and Engineering and the category "Other" for the 2020/21 cohort. These differences in place of employment by field of study were statistically significant in both cohorts. The biggest change between the two cohorts was for the graduates from the field of Health, of which only 10% worked outside Cyprus in the cohort 2016/17, in comparison to 51% in the cohort 2020/21. Almost all graduates in their respective field have seen an increase in their employment outside Cyprus, with the exception of Natural Sciences, of which it has decreased from 20% to 18%.

Figure 102: Place of employment by field of study and graduation cohort



	ETT	AH	SSJ	BAL	HEA	NS	TE	Other	ETT	AH	SSJ	BAL	HEA	NS	TE	Other
	2016/17*								2020/21*							
Employment outside Cyprus	62%	20%	21%	30%	10%	20%	12%	6%	66%	37%	41%	41%	51%	18%	15%	4%
Employment in Cyprus	38%	80%	79%	70%	90%	80%	88%	94%	34%	63%	59%	59%	49%	82%	85%	96%

**Statistically significant findings*

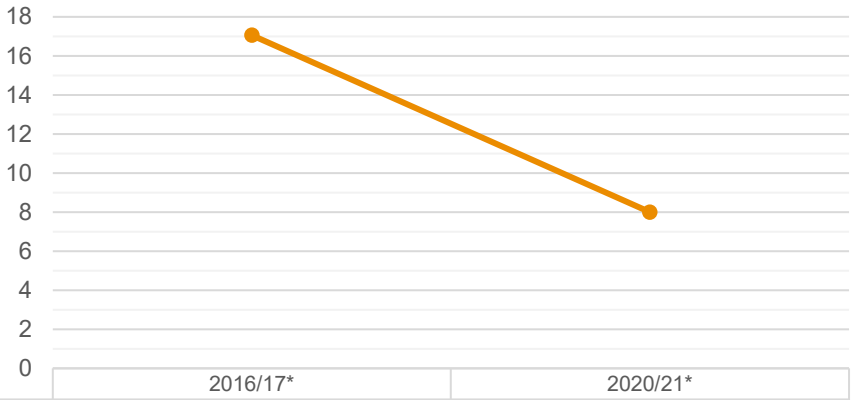
Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

5.2.8. Time taken to find a job after graduation

In this section, the time (in months) needed to get a job after graduation is explored. In the relevant literature this is referred as employment gap. For this purpose, findings presented in this section are based only on data reported by graduates who indicated finding a job (full time or part time) after their graduation. Consequently, graduates who reported being unemployed, graduates who continued their studies, or graduates who had a job before graduation or during their studies (and did not try to find a new one after graduation), are not included in the median calculation. It is important to note that the percentages presented in the table below show the proportion of graduates on which the statistic (i.e., the median) presented is based. For example, in Figure 103 the median time reported is based on 60% of graduates in cohort 2016/17 and 46% in cohort 2020/21.

Figure 103 presents the median time in months which took graduates in each cohort to find a job after graduation. It is evident that it took a significantly longer time for graduates of the 2016/17 cohort to find employment (median time of 17,1 months), compared to the 2020/21 cohort (median time 8,0 months). It should be highlighted though that the 2016/17 cohort graduates had more time available to find a job after graduation than the 2020/21 cohort graduates, since they graduated approximately five years ago. Specifically, the proportion of graduates who reported having found a job after graduation in the 2016/17 cohort was 60%, whereas in the 2020/21 cohort the corresponding proportion was 46%.

Figure 103: Median time taken to find a job after graduation by graduation cohort



	2016/17*	2020/21*
Median	17,1	8,0
% of graduates who reported finding a job after graduation	60%	46%

**Statistically significant findings*

Figure 104 presents the median time (in months) required for graduates in each cohort to find a job after graduation with both cohorts having the same time interval, i.e.,18 months after graduation. Interestingly, it seems that it took the same amount of time - approximately 7 months - for graduates in both cohorts to find employment after graduation. However, this time, a higher portion of graduates reported having found a job after graduation in the 2020/21 cohort (43%) as opposed to 32% in the 2016/17 cohort.

Figure 104: Median time taken to find a job after graduation by graduation cohort (up to 18 months)

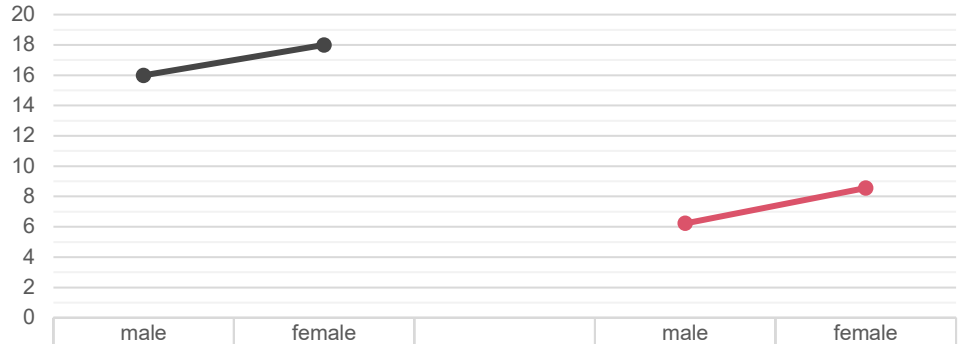
	2016/17	2020/21
Median	7,0	7,0
% of graduates who reported finding a job after graduation	32%	43%

5.2.8.1. Time taken to find a job after graduation by demographic variables

Figure 105 presents a comparison of the median waiting time between males and females to find a job after graduation. In both cohorts, it is observed that it took longer for females to find a job after graduation than for males. In the 2016/17 cohort, males found employment in 16 months after graduation while females in 18 months. This difference in median waiting time between males and females was statistically significant for the 2016/17 cohort. A similar trend is observed in the 2020/21 cohort, where males found a job in approximately

6,2 months, compared to females who took around 8,6 months. The percentages of male and female graduates who found employment after graduation were similar in both cohorts (around 60% in the 2016/17 cohort and 46% in the 2020/21 cohort).

Figure 105: Median time taken to find a job after graduation by gender and graduation cohort

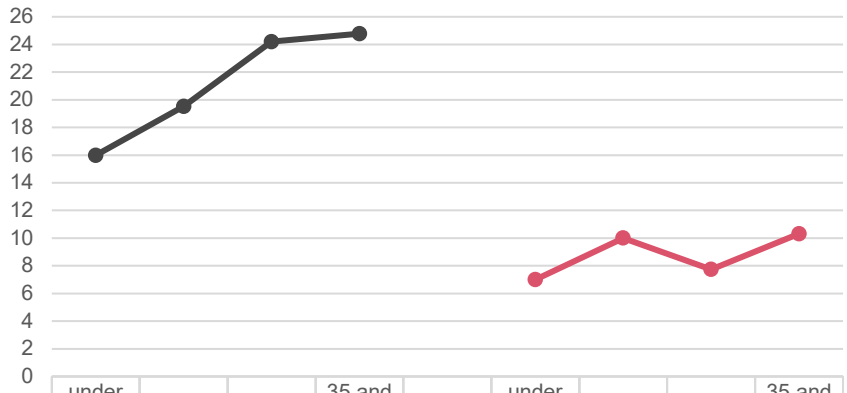


	male	female		male	female
	2016/17*			2020/21	
Median	16,0	18,0		6,2	8,6
% of graduates who reported finding a job after graduation	60%	61%		46%	46%

**Statistically significant findings*

In relation to the median waiting time taken to find a job after graduation by age groups (Figure 106), different patterns were observed in the 2016/17 and 2020/21 cohorts. Specifically, in the 2016/17 cohort, time taken increases by age with graduates over 30 reporting longer time taken (approximately 24 months as opposed to 16-19 months of younger graduates). In the 2020/21 cohort, statistically significant differences in median time taken between age groups were found. Graduates in the age groups “25 to 29” and “35 and over” reported the longest time taken to find a job after graduation (approximately 10 months). It is important to note that graduates in the age group of “35 and over” had the lowest percentages of graduates (17% and 21% for 2016/17 and 2020/21 cohorts respectively) reporting post-graduation employment, which might suggest that these graduates had already entered the labour market before or during their studies. On the other hand, graduates under the age of 25 reported the highest percentage of post-graduation employment (79% and 66% for 2016/17 and 2020/21 cohorts respectively).

Figure 106: Median time taken to find a job after graduation by age (at graduation) and graduation cohort



	under 25	25 to 29	30 to 34	35 and over		under 25	25 to 29	30 to 34	35 and over
	2016/17					2020/21*			
Median	16,0	19,5	24,2	24,8		7,0	10,0	7,7	10,3
% of graduates who reported finding a job after graduation	79%	61%	51%	17%		66%	48%	24%	21%

**Statistically significant findings*

5.2.8.2. Time taken to find a job after graduation by variables related to Higher Education studies

Figure 107 presents the median time taken to find a job after graduation by the ISCED level. In the cohort 2016/17, ISCED 5 graduates reported longer time taken than ISCED 6 and ISCED 7 graduates. The percentage of employment for ISCED 5 and ISCED 6 graduates were similar (approximately 75%) while lower for ISCED 7 graduates (49%). In the 2020/21 cohort the opposite pattern is observed, ISCED 6 and ISCED 7 graduates reported significantly longer time taken than ISCED 5 graduates. It is interesting that ISCED 5 graduates reported a median time of only 3,7 months. ISCED 6 graduates had the highest percentage of employment (76%) while ISCED 7 graduates the lowest (35%).

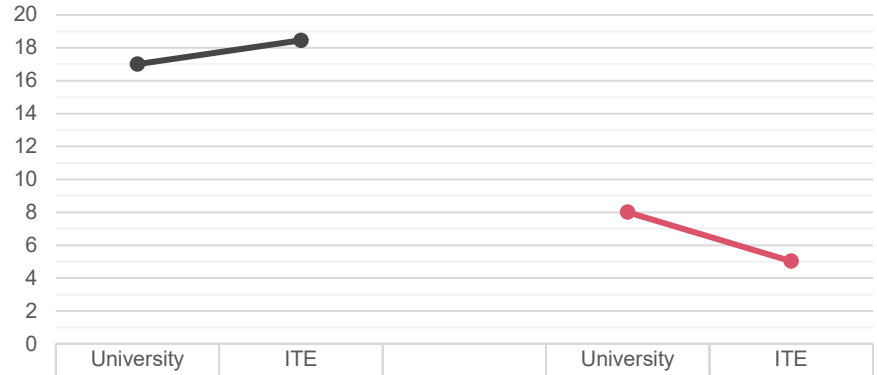
Figure 107: Median time taken to find a job after graduation by ISCED-level and graduation cohort

	ISCED 5	ISCED 6	ISCED 7		ISCED 5	ISCED 6	ISCED 7
	2016/17				2020/21*		
Median	24,0	17,0	17,0		3,7	8,0	8,0
% of graduates who reported finding a job after graduation	74%	76%	49%		47%	64%	35%

**Statistically significant findings*

No statistically significant differences in median time taken to find a job after graduation between graduates from Universities and ITE were found in either cohort (Figure 108). In the 2016/17 cohort, it took graduates from ITE slightly longer to find employment (18,5 months) compared to graduates from Universities (17 months). Additionally, the percentage of graduates from Universities who found employment was much higher (70% as opposed to 59%). In the 2020/21 cohort, the opposite pattern is observed, i.e., University graduates reported slightly lengthier time taken (8 months) to find employment compared to graduates from ITE (5 months). The percentages of graduates from Universities and ITE who reported finding employment after graduation were similar in the cohort 2020/21.

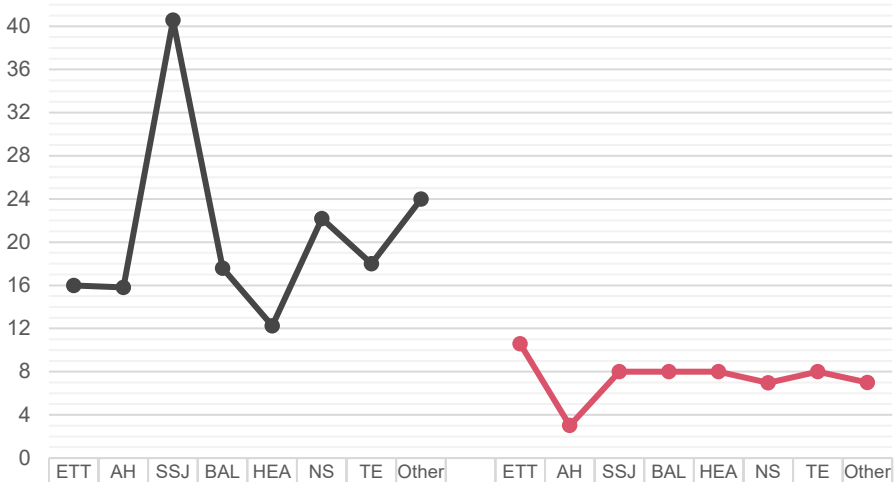
Figure 108: Median time taken to find a job after graduation by type of HEI and graduation cohort



	University	ITE		University	ITE
	2016/17			2020/21	
Median	17,0	18,5		8,0	5,0
% of graduates who reported finding a job after graduation	59%	70%		46%	45%

Figure 109 presents how long it took graduates from various fields of study to find employment after graduation. In the 2016/17 cohort, it took graduates from the field of Social Sciences and Journalism notably longer to find employment, requiring approximately 40,6 months. Graduates from the fields of Natural Sciences and the "Other" category also faced challenges, taking approximately two years (22,2 and 24 months respectively) to find employment, however, graduates from both of these fields reported high percentages of employment (78% and 81%). On the other hand, graduates from the field of Health had the shortest waiting time to find employment compared to graduates from other fields (12,3 months) and at the same time a high percentage of employment (73%). These differences in median waiting time among 2016/17 graduates from different fields of study were statistically significant. In the 2020/21 cohort, differences in time taken to find employment across the various fields of study were smaller. Graduates from the field of Education and Teacher Training had the highest waiting time (10,2 months) while graduates from the field of Arts and Humanities the lowest (3 months). In all fields of study (except Education and Teacher Training and Health) more than 50% of recent graduates found a job after graduation.

Figure 109: Median time taken to find a job after graduation by field of study and graduation cohort



	ETT	AH	SSJ	BAL	HEA	NS	TE	Other		ETT	AH	SSJ	BAL	HEA	NS	TE	Other
	2016/17*									2020/21							
Median	16,0	15,8	40,6	17,6	12,3	22,2	18,0	24,0		10,6	3,0	8,0	8,0	8,0	7,0	8,0	7,0
% of graduates who reported finding a job after graduation	51%	62%	65%	55%	72%	78%	73%	81%		42%	53%	52%	40%	55%	56%	50%	54%

**Statistically significant findings*

Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

5.3. International mobility of graduates after graduation

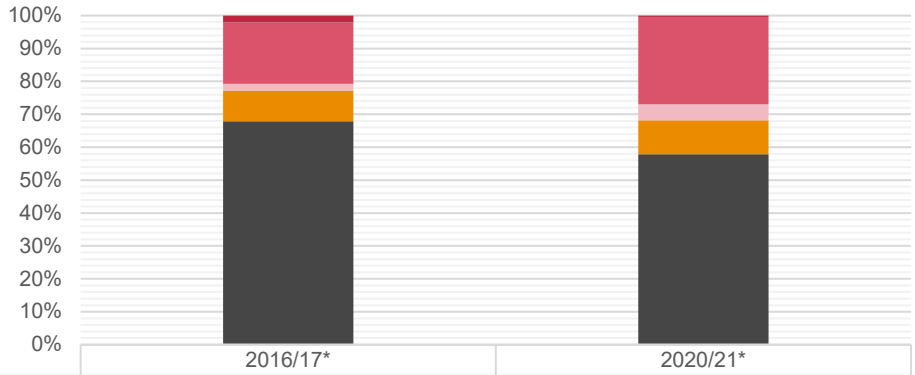
The concept of international mobility is usually perceived as a mechanism aimed at refining the equitable distribution of skilled professionals within the European labour market, amplifying the labour market opportunities available to employees, fostering intercultural tolerance, enhancing the growth and expansion of innovations and creativity catalysing the overall progress and dynamism of the labour market landscape (Unger, 2020). The focus here is on mobile graduates. There are various definitions in the relevant literature regarding mobile graduates. The definition adopted here is the one provided by Task Force 2 by the Expert Group on Graduate Tracking which defines mobile graduates as persons working or learning in a different country from that of graduation at any point following completion of their Higher Education studies (European Commission, 2021). Collecting information on mobile graduates provides valuable information to both sending and receiving countries such as information regarding the extent and effects of brain drain, brain gain, reasons for mobility etc.

This section presents findings in relation to the proportion of mobile graduates as well as associations with demographic variables and variables related to graduates' studies.

5.3.1. Mobile Graduates

In the questionnaire, graduates were asked to indicate the place of residence during studies in Higher Education as well as their current place of residence. Figure 110 presents graduates' responses for both cohorts. According to the definition of mobile graduates provided above, the proportion of mobile graduates in both cohorts is low, i.e., 9% and 10% for 2016/17 and 2020/21 cohorts respectively. It is also evident that the majority of graduates in both cohorts pursued their Higher Education studies in Cyprus and chose to remain in the country post-graduation (68% and 58% for 2016/17 and 2020/21 cohorts respectively). It is also worth noting that a considerable proportion of graduates from both cohorts pursued their education at a Cyprus Higher Education Institution while residing abroad. This suggests that these graduates pursued their studies in distance learning programs. Out of these, 19% and 27% for 2016/17 and 2020/21 cohorts respectively, chose to remain overseas.

Figure 110: Mobile graduates by graduation cohort



	2016/17*	2020/21*
In another country during study, in yet another country now	2%	0%
In another country during study, in the same country now	19%	27%
In another country during study, in survey country now	2%	5%
In survey country during study, in another country now	9%	10%
In survey country during study and now	68%	58%

**Statistically significant findings*

5.3.1.1. Mobile graduates by demographic variables

In terms of gender differences, as shown in Figure 111, it appears that a higher portion of males than females are mobile graduates in both cohorts. These differences among the two genders are statistically significant only for the 2020/21 cohort. Specifically, in the 2020/21 cohort 13% of males and 9% of females reported being mobile graduates.

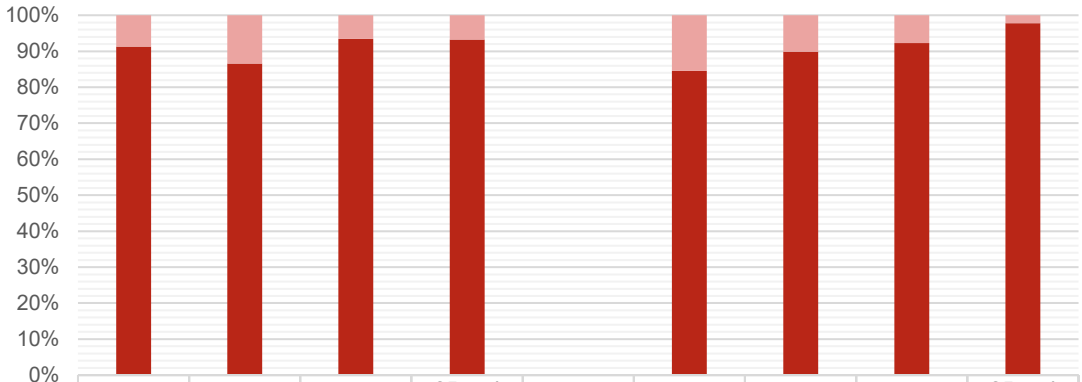
Figure 111: Mobile graduates by gender and graduation cohort

	male	female		male	female
	2016/17			2020/21*	
Mobile graduates	12%	8%		13%	9%
Not mobile graduates	88%	92%		87%	91%

**Statistically significant findings*

Figure 112 illustrates the proportion of mobile graduates in relation to their age at graduation. It is evident that in both cohorts, individuals who graduated at the age of 29 or younger have an increased propensity for mobility. Notably, in the 2020/21 cohort, a distinct trend emerges indicating that the younger the graduation age, the higher the proportion of a mobile graduate. Differences in proportion of mobile graduates by age group were statistically significant only for the 2020/21cohort.

Figure 112: Mobile graduates by age (at graduation) and graduation cohort

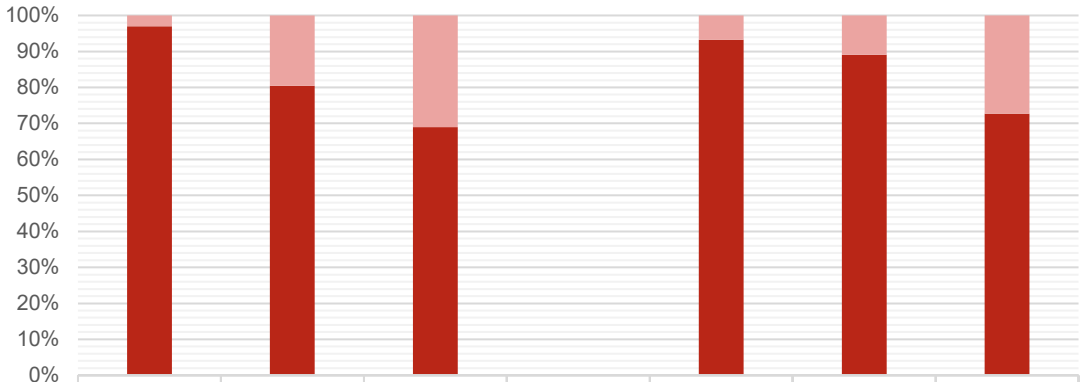


	under 25	25 to 29	30 to 34	35 and over		under 25	25 to 29	30 to 34	35 and over
	2016/17					2020/21*			
Mobile graduates	9%	13%	7%	7%		15%	10%	8%	2%
Not mobile graduates	91%	87%	93%	93%		85%	90%	92%	98%

**Statistically significant findings*

Figure 113 presents a breakdown of the percentages of mobile graduates based on their country of birth. A similar trend is observed in both cohorts, indicating that the smallest proportion of mobile graduates are those born in Cyprus, with 3% in the 2016/17 cohort and 7% in the 2020/21 cohort. Conversely, the largest proportion of mobile graduates are those born outside the EU, with 31% in the 2016/17 cohort and 27% in the 2020/21 cohort.

Figure 113: Percentage of mobile graduates by country of birth and graduation cohort



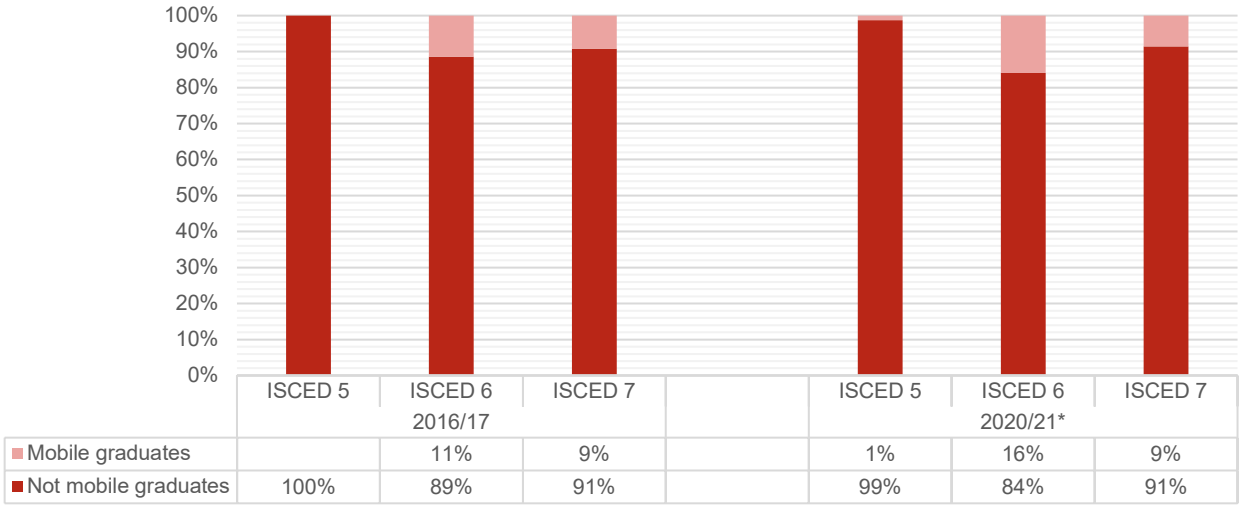
	Cyprus	EU	non-EU		Cyprus	EU	non-EU
	2016/17*				2020/21*		
Mobile graduates	3%	20%	31%		7%	11%	27%
Not mobile graduates	97%	80%	69%		93%	89%	73%

**Statistically significant findings*

5.3.1.2. Mobile graduates by variables related to Higher Education studies

The association between the proportion of mobile graduates and level of studies is presented in Figure 114. It appears that in both cohorts ISCED 6 level has the highest proportion of mobile graduates (11% in the 2016/17 cohort and 16% in the 2020/21 cohort). Furthermore, 9% of ISCED 7 graduates are mobile in both the 2016/17 and 2020/21 cohort. ISCED 5 graduates who are considered mobile are almost non-existent at 0% and 1% respectively. Differences in the proportion of mobile graduates by level of studies were statistically significant again only in the 2020/21 cohort.

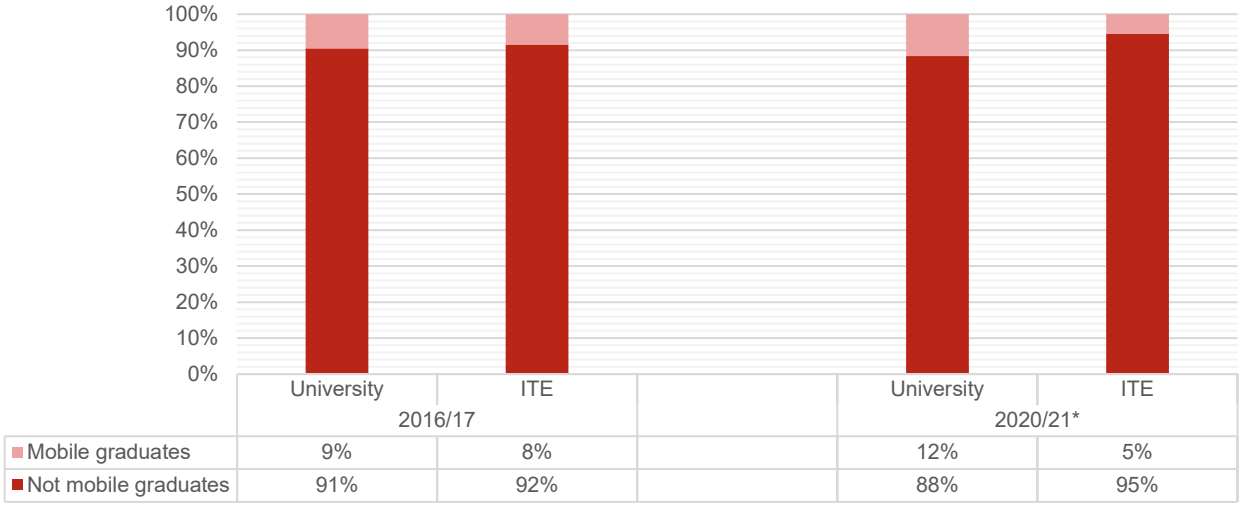
Figure 114: Mobile graduates by ISCED-level and graduation cohort



**Statistically significant findings*

The percentages of University graduates and graduates from ITE who are considered mobile are displayed in Figure 115. In both groups, it seems that the proportion of mobile graduates from ITE is lower than that of mobile University graduates. This disparity is more pronounced in the second group. The percentage of University graduates identified as mobile was 9% and 12% respectively, compared to 8% and 5% for graduates from ITE. Differences in the proportion of mobile graduates by type of HEI were statistically significant only in the 2020/21 cohort.

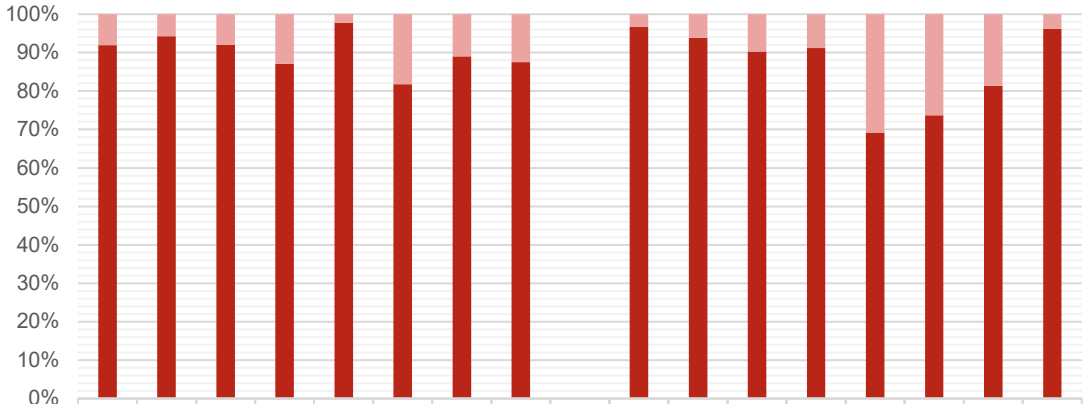
Figure 115: Mobile graduates by type of HEI and graduation cohort



**Statistically significant findings*

In the context of the graduates' field of study, Figure 116 provides an overview of the percentages of mobile graduates. In the 2016/17 cohort the field of study with the highest proportion of mobile graduates was Natural Sciences (18%) while the field with the lowest proportion of mobile graduates was Health (2%). Surprisingly in the 2020/21 cohort the field Health showed the highest percentage of mobile graduates at 31% and the field of Natural Sciences the second highest percentage at 26%. The lowest percentage of mobile graduates in the 2020/21 cohort was in the field Education and Teacher Training (3%). Differences in the proportion of mobile graduates by field of study were statistically significant only in the 2020/21 cohort. Comparisons between the two cohorts show an increase in the proportion of mobile graduates in four fields (social Science and Journalism, Health, Natural Sciences and Technology and Engineering) and a decrease in three fields of study (Education and Teacher Training, Business Administration and Law, and Other).

Figure 116: Mobile graduates by field of study and graduation cohort



	ETT	AH	SSJ	BAL	HEA	NS	TE	Other	ETT	AH	SSJ	BAL	HEA	NS	TE	Other
Mobile graduates	8%	6%	8%	13%	2%	18%	11%	13%	3%	6%	10%	9%	31%	26%	19%	4%
Not mobile graduates	92%	94%	92%	87%	98%	82%	89%	88%	97%	94%	90%	91%	69%	74%	81%	96%

**Statistically significant findings*

Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

5.4. Skills Mismatch

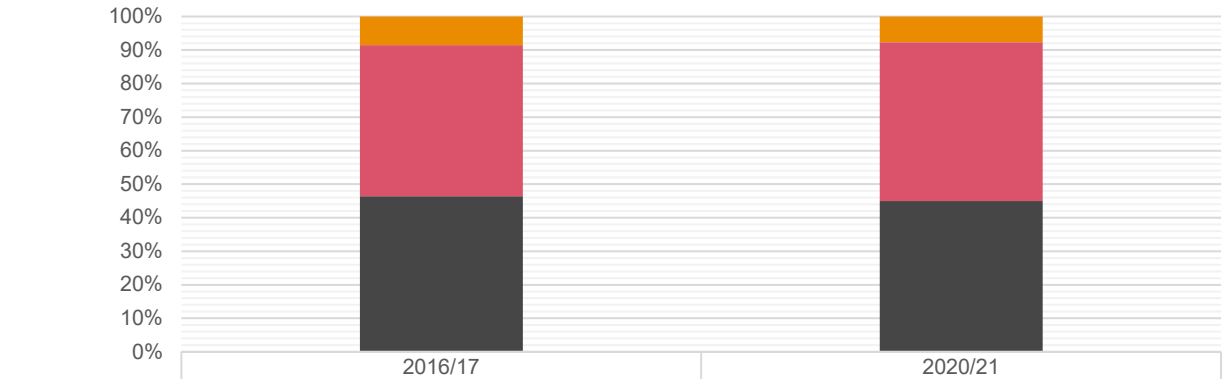
One significant purpose of this survey is to provide data on skills mismatch to inform decision makers and policy makers. Skills mismatch is not a unidimensional concept. In fact, there are many different types of skills mismatches, and many different types may co-exist. In this section data on four types of skills mismatches are presented: vertical (overeducation and undereducation), horizontal, over-skilling and under-skilling.

5.4.1. Vertical mismatch: Overeducation and Undereducation

When the level of an employee's qualifications is not the one required by his/her job, this is referred in the relevant literature as vertical mismatch. There are two types of vertical mismatch: overeducation and undereducation. Overeducation refers to the situation when employees have a higher level of education than it is required by their job while undereducation refers to exactly the opposite i.e., when employees have a lower level of education than it is required by their job. In the questionnaire graduates were asked to indicate the level of education that is usually required to perform their job. Their responses were grouped in three categories: match between education and employment, undereducation and overeducation. If the level of education selected by the graduates was lower than the one they hold then they were classified as overeducated. If the level of education selected by the graduates was higher than the one, they hold then they were classified as undereducated. All other cases were classified as matched.

Figure 117 illustrates the extent of vertical mismatch by cohort. It is evident that a considerable percentage of graduates in both cohorts, 46% of 2016/17 graduates and 45% of 2020/21, is overeducated. It is interesting that this percentage is the same in both cohorts. For recent graduates, mismatch at the beginning of their career can be seen as a steppingstone toward a matched job, but it seems that the situation remains the same even for graduates five years after graduation. These results are alarming as a large percentage of graduates are in jobs where they cannot fully exploit their abilities. This reflects a waste of scarce human capital from a macro-economic point of view (Anja Rossen, 2019). Undereducation appears to be a minor issue as a small percentage of graduates indicated having a level of education that is lower than the one required. A considerable percentage of graduates in both cohorts, 45% of 2016/17 graduates and 47% of 2020/21, indicated that their education level was aligned with their current employment.

Figure 117: Vertical mismatch by graduation cohort

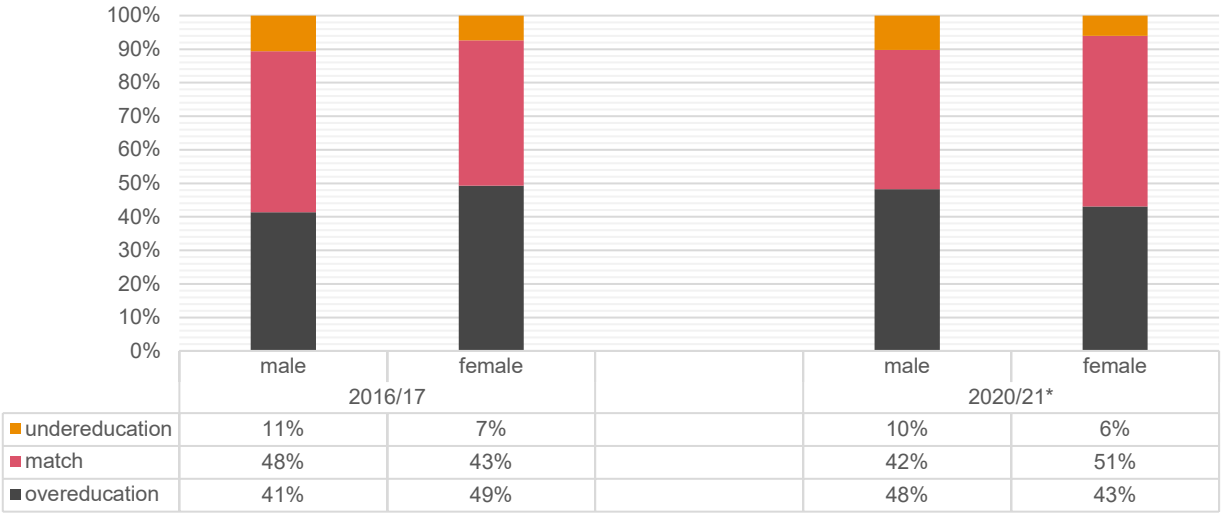


	2016/17	2020/21
undereducation	9%	8%
match	45%	47%
overeducation	46%	45%

5.4.1.1. Vertical mismatch by demographic variables

The match between education and employment by gender in both cohorts is presented in Figure 118 In the 2016/17 cohort, with the majority of females indicating that they are overeducated (49%) and the majority of males reporting that their job matches their level of education (48%). In the 2020/21, the opposite pattern is observed with more than half of females indicating that they are matched with their current job and the majority of males (48%) reporting that they are overeducated. Differences among the two genders were found to be statistically significant for the 2020/21 cohort.

Figure 118: Vertical mismatch by gender and graduation cohort

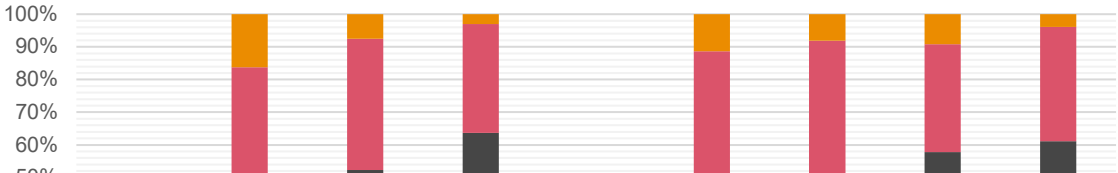


	2016/17 male	2016/17 female	2020/21* male	2020/21* female
undereducation	11%	7%	10%	6%
match	48%	43%	42%	51%
overeducation	41%	49%	48%	43%

**Statistically significant findings*

Vertical mismatch by age is illustrated in Figure 119. It should be mentioned that in the 2016/17 cohort, only a very small number of participants were under 25 and therefore this group was excluded from this exploration. A statistically significant pattern is observed in this figure, as the percentage of graduates reporting being overeducated increases with age in both cohorts. A large percentage of graduates aged 35 and older (64% in the 2016/17 cohort and 61% of the 2020/21 cohort) reported that their level of education is higher than the one required by their current employment. The opposite pattern is observed for undereducation, the percentage of graduates reporting being undereducated decreases with age in both cohorts.

Figure 119: Vertical mismatch by age (at the time of the survey) and graduation cohort



	under 25	25 to 29	30 to 34	35 and over	under 25	25 to 29	30 to 34	35 and over
	2016/17*				2020/21*			
undereducation		16%	8%	3%	11%	8%	9%	4%
match		63%	40%	33%	69%	53%	33%	35%
overeducation		21%	52%	64%	20%	39%	58%	61%

**Statistically significant findings*

5.4.1.2. Vertical mismatch by variables related to Higher Education studies

The relationship between vertical mismatch and level of education was found to be statistically significant in both cohorts (Figure 120). In both cohorts the same pattern is observed, the majority of ISCED 5 and ISCED 6 graduates reported that their level of education matched with the requirements of their current employment while the majority of ISCED 7 graduates reported being overeducated. ISCED 6 is the group with the highest percentage of graduates with matched jobs in both cohorts (68% in the 2016/17 and 77% in the 2020/21). It is also interesting to note that a considerable percentage of ISCED 5 graduates (36%) in the 2020/21 cohort reported being undereducated.

Figure 120: Vertical mismatch by ISCED-level and graduation cohort

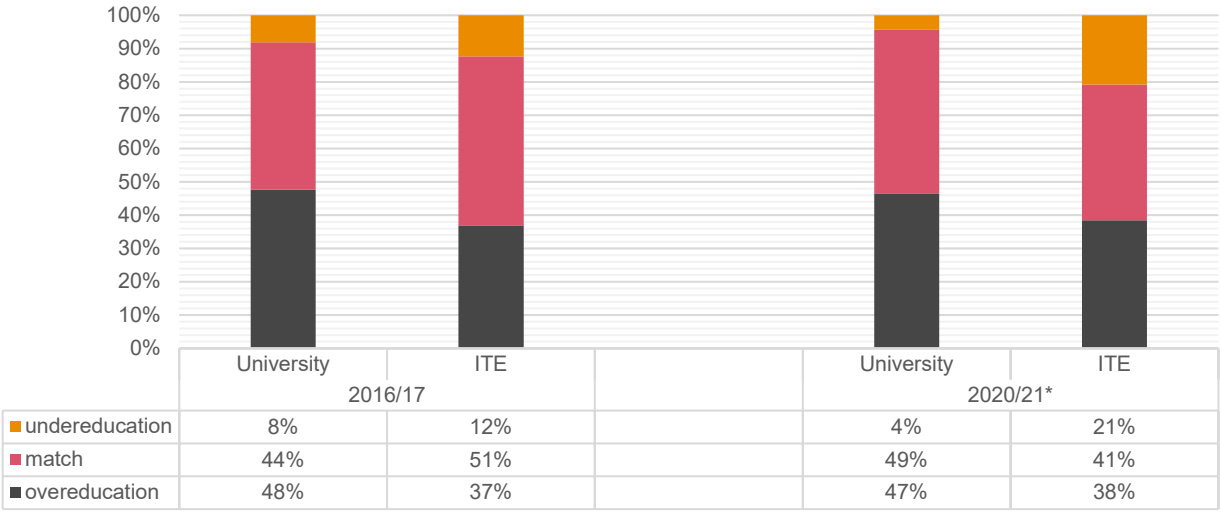
	ISCED 5	ISCED 6	ISCED 7	ISCED 5	ISCED 6	ISCED 7
	2016/17*			2020/21*		
undereducation	17%	20%	2%	36%	7%	3%
match	45%	68%	32%	39%	77%	34%
overeducation	38%	13%	67%	25%	16%	63%

**Statistically significant findings*

Figure 121 presents the vertical match between education and current employment type in relation to the type of HEI the graduates attended. In the 2016/17 cohort, the majority of graduates from ITE (51%) reported being

matched in their current job while the majority of University-graduates being overeducated (48%). Thus, a higher proportion of University graduates indicated that they possess a higher level of qualification than it is required by their jobs, compared to graduates from ITE (48% and 37% respectively). In the 2020/21 cohort, the majority of graduates from both Universities and ITE reported that their job matches their level of education (49% and 41% respectively). A large percentage though of graduates from both Universities and ITE reported being overeducated (47% and 38% respectively). Moreover, more graduates from ITE (21%) reported being undereducated than University graduates (4%). These differences in the distribution of vertical mismatch by the type of HEI were found to be statistically significant only in the 2020/21 cohort.

Figure 121: Vertical mismatch by type of HEI and graduation cohort

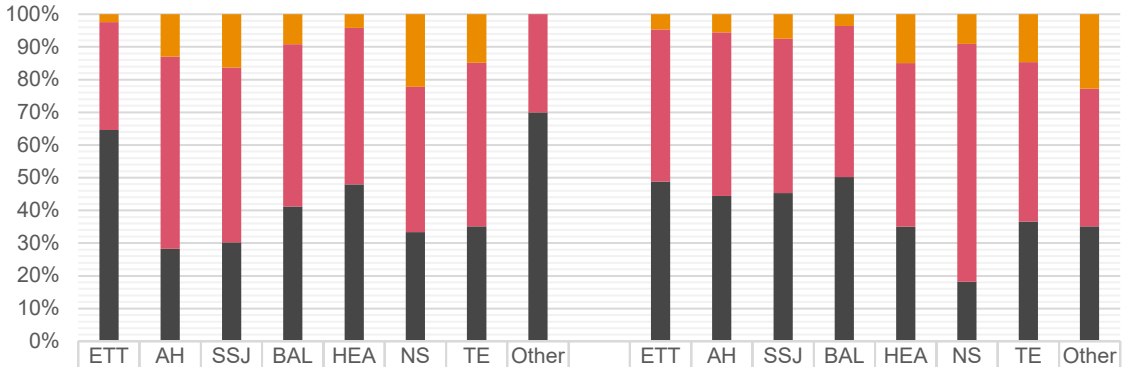


	University	ITE		University	ITE
	2016/17			2020/21*	
undereducation	8%	12%		4%	21%
match	44%	51%		49%	41%
overeducation	48%	37%		47%	38%

**Statistically significant findings*

The alignment between the level of education and current employment according to the field of study is displayed in Figure 122. Statistically significant differences were found in both cohorts. In the 2016/17 cohort, the majority of graduates in the fields of Education and Teacher Training and the category “Other” reported being overeducated (65% and 70% respectively). The majority of graduates in the fields of Arts and Humanities, Social Sciences and Journalism, Business Administration Law, Health, Natural Sciences (including Mathematics), and Technology and Engineering indicated being matched with their current job, with the highest proportion noted in the field of Arts and Humanities (59%). The field Natural Sciences had the highest percentage of graduates reporting being undereducated when compared to other fields (22%). However, in the 2020/21 cohort, the majority of graduates in the fields of Education and Teacher Training and Business Administration Law (49% and 50% respectively) reported that they were overqualified. In the other fields of study, the majority of graduates reported being matched with their current job with the highest proportion noted in the field of Natural Sciences (73%). The category “Other” was the field with the highest proportion of graduates among the other fields reporting being undereducated (23%).

Figure 122: Vertical mismatch by field of study and graduation cohort



	ETT	AH	SSJ	BAL	HEA	NS	TE	Other	ETT	AH	SSJ	BAL	HEA	NS	TE	Other
	2016/17*								2020/21*							
undereducation	2%	13%	16%	9%	4%	22%	15%	0%	5%	6%	8%	4%	15%	9%	15%	23%
match	33%	59%	53%	50%	48%	44%	50%	30%	47%	50%	47%	46%	50%	73%	49%	42%
overeducation	65%	28%	30%	41%	48%	33%	35%	70%	49%	44%	45%	50%	35%	18%	37%	35%

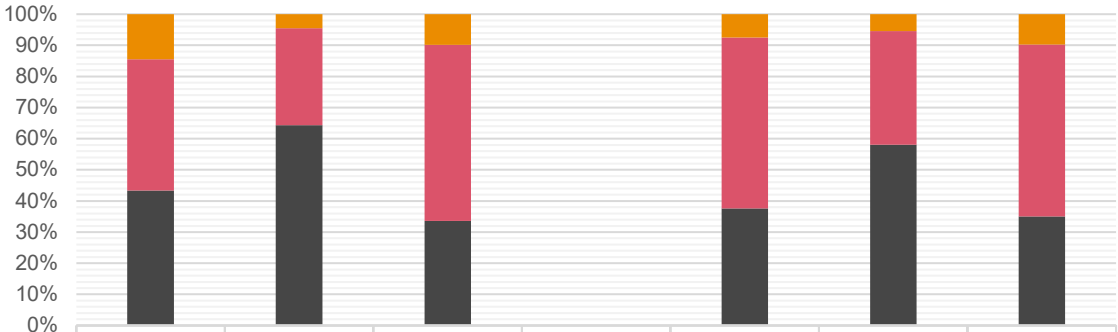
**Statistically significant findings*

Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

5.4.1.3. Vertical mismatch by variables related to employment

Figure 123 illustrates the statistically significant relationship between the type of employment and vertical mismatch, as observed in both cohorts. It is evident that the highest percentage of graduates who were identified as vertically mismatched are employed within the public sector in both cohorts. In the 2016/17 cohort the percentage of graduates employed in the private sector that are vertically mismatched is the lowest. The highest percentage of graduates who are overeducated is in the public sector (64%) and the highest percentage of graduates who are undereducated is found in self-employment (14%). In the 2020/21 cohort, the percentage of graduates stating that their job requirements align with their educational qualifications is approximately the same in self-employment and private sector (57% and 55% respectively). The highest percentage of graduates who are overeducated is again in the public sector (58%) and the highest percentage of graduates who are undereducated is found now in the private sector (10%).

Figure 123: Vertical mismatch by type of employment and graduation cohort

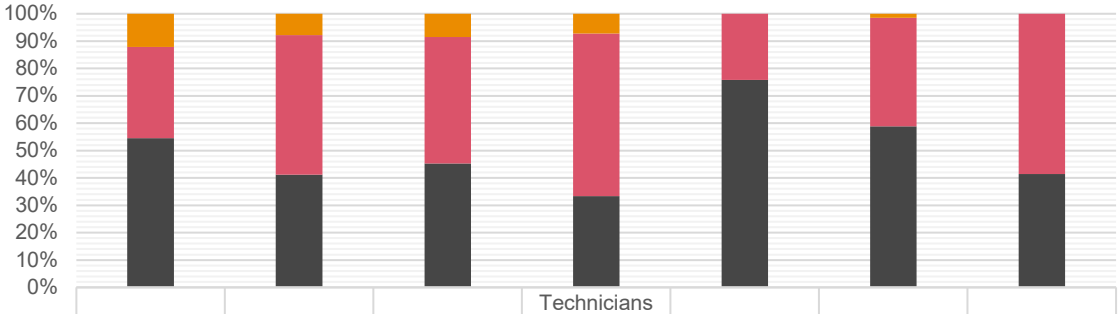


	self-employed	public sector	private sector		self-employed	public sector	private sector
	2016/17*				2020/21*		
undereducation	14%	4%	10%		8%	5%	10%
match	42%	31%	57%		55%	37%	55%
overeducation	43%	64%	34%		38%	58%	35%

**Statistically significant findings*

Figure 124 demonstrates the extent of vertical mismatch according to categories of occupations based on ISCO-88 taxonomy for both cohorts together, due the small number of graduates in specific occupational categories. A very large percentage (76%) of graduates in the category of Clerical Support Workers reported that they were overeducated. Moreover, more than half of graduates employed in occupations that fall into the categories Services and Sales workers and Armed Forces (59% and 55% respectively) reported being overeducated. The categories Elementary Occupations, Managers or Professionals had also considerable percentages of graduates being overeducated (41%-45%). The category Technicians and Associate Professionals had the lowest percentage of graduates (33%) reporting being overeducated among other occupational categories. The occupational category Armed Forces had the highest percentage of graduates (12%) reporting being undereducated among other occupational categories.

Figure 124: Vertical mismatch by occupation

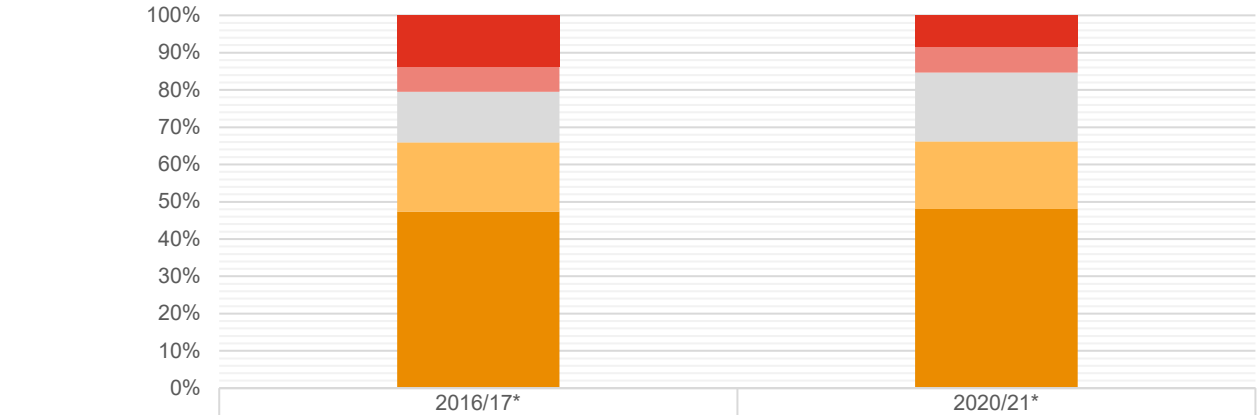


	Armed Forces Occupations	Managers	Professionals	Technicians and Associate Professionals	Clerical Support Workers	Service and Sales Workers	Elementary Occupations
undereducation	12%	8%	8%	7%		1%	
match	33%	51%	46%	59%	24%	40%	59%
overeducation	55%	41%	45%	33%	76%	59%	41%

5.4.2. Horizontal mismatch

The discrepancy between an employee's attended field of study and the field required by their job, also referred to as horizontal mismatch, has gained growing attention in the literature. Measuring horizontal mismatch is important since compared to well-matched employees, horizontally mismatched workers generally experience a wage differential, are less satisfied with their jobs, and are more likely to regret their program of study (Somers et al., 2019).This sub-section presents data regarding the extent of horizontal mismatch but also findings regarding the relationship between horizontal mismatch and demographic variables and variables related to the graduates' Higher Education studies and type of employment.
In the context of this study, graduates were asked to indicate the extent to which their current employment was aligned with the field of the program of study from which they graduated. Graduates' responses by graduation cohort, are presented in Figure 125. It is evident that the majority of graduates in both cohorts reported that their current employment is in line with the field of their program of study (68%). The percentage of graduates who reported being horizontally mismatched was 21% in 2016/17 and 15% in 2020/21. Therefore, it can be inferred that horizontal mismatch does not be appear to be a significant obstacle.

Figure 125: Horizontal mismatch by graduation cohort



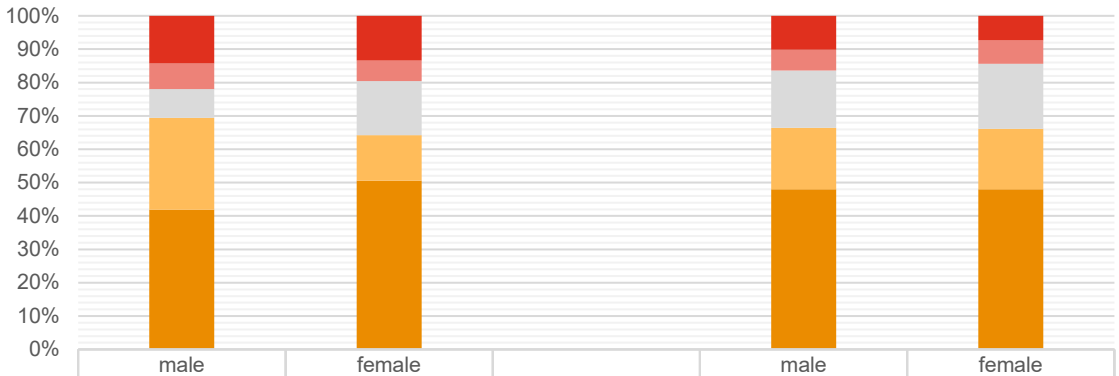
	2016/17*	2020/21*
5 no, absolutely not	14%	8%
4	7%	7%
3	14%	19%
2	19%	18%
1 yes, absolutely	47%	48%

**Statistically significant findings*

5.4.2.1. Horizontal mismatch by demographic variables

The relationship between horizontal mismatch and gender is shown in Figure 126. In the 2016/17 cohort, significantly more males than females indicated that their current job matches the field of their program of study (70%, as opposed to 65%) and significantly more females than males (16% as opposed to 9%) indicated that their job moderately matched the field of their studies. The percentage of males and females that reported a horizontal mismatch was similar (22% and 19% respectively). In the 2020/21 cohort, the majority of both male and female graduates indicated that their current job matches the field of their program of study (66%). Similar percentage of males and females reported that their job moderately matched the field of their studies (17% and 19% respectively) while the minority of males and females reported being horizontally mismatched (16% and 7% respectively).

Figure 126: Horizontal mismatch by gender and graduation cohort

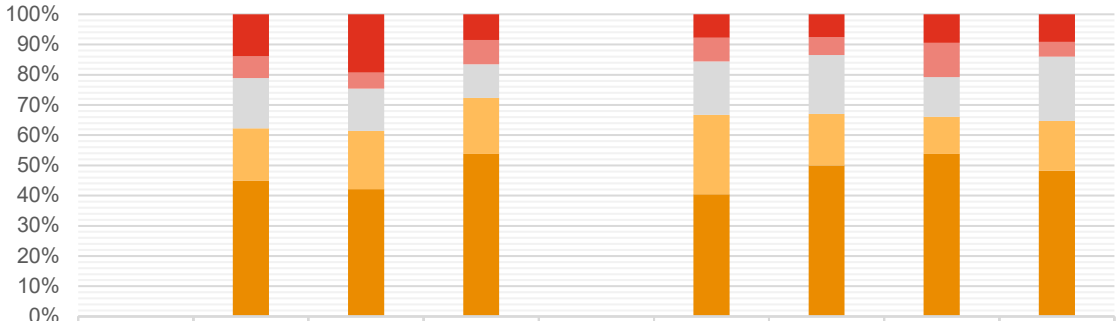


	male	female	male	female
	2016/17*		2020/21	
5 no, absolutely not	14%	13%	10%	7%
4	8%	6%	6%	7%
3	9%	16%	17%	19%
2	28%	14%	18%	18%
1 yes, absolutely	42%	51%	48%	48%

**Statistically significant findings*

No statistically significant differences were found in the extent of horizontal mismatch by age at the time of the survey. In the 2016/17 cohort, the percentages of graduates reporting horizonal mismatch in each age group ranged from 17%-24% whereas in the 2020/21 cohort between 14%-20%, as depicted in Figure 127.

Figure 127: Horizontal mismatch by age (at time of the survey) and graduation cohort



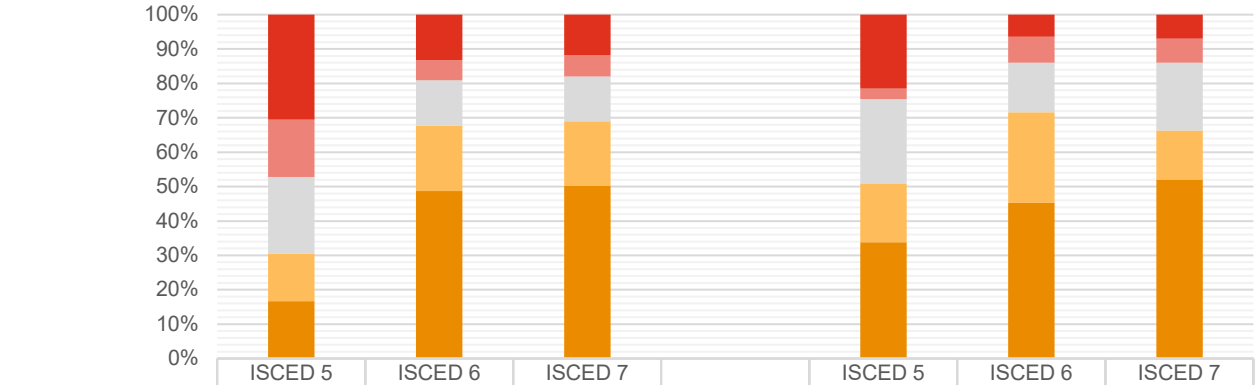
	under 25	25 to 29	30 to 34	35 and over	under 25	25 to 29	30 to 34	35 and over
	2016/17				2020/21			
5 no, absolutely not		14%	19%	9%	8%	8%	9%	9%
4		7%	5%	8%	8%	6%	11%	5%
3		17%	14%	11%	18%	20%	13%	21%
2		17%	19%	19%	26%	17%	12%	16%
1 yes, absolutely		45%	42%	54%	40%	50%	54%	48%

5.4.2.2. Horizontal mismatch by variables related to Higher Education studies

The association between horizontal mismatch and the level of studies was statistically significant in both cohorts, as shown in Figure 128. In both cohorts, ISCED 5 had the highest percentage of graduates reporting

that they were horizontally mismatched and moderately matched. Specifically, in the 2016/17 cohort the majority of ISCED 5 graduates (48%) reported being horizontally mismatched while the majority ISCED 6 and ISCED 7 graduates reported a match between the field of their degree and their current job (68% and 69% respectively). At ISCED level 6 and ISCED level 7 the percentage of graduates who reported being horizontally mismatched was 19% and 18% respectively. In the 2020/21 cohort, the majority of graduates in all ISCED levels reported a well-match between the field of their degree and employment. However, the percentage of these well-matched graduates was much higher for ISCED 6 and ISCED 7 levels (71% and 66% respectively) than for ISCED 5 (51%). ISCED 5 had the highest percentage of graduates reporting being horizontally mismatched (25%) than ISCED level 6 (13%) and ISCED level 7 (14%) and also the highest percentage of graduates reporting being moderately matched. Comparisons between the two cohorts, show that percentages of graduates reporting a horizontal mismatch were lower in all levels of study in the 2020/21 cohort than in the 2016/17 cohort.

Figure 128: Horizontal mismatch by ISCED-level and graduation cohort



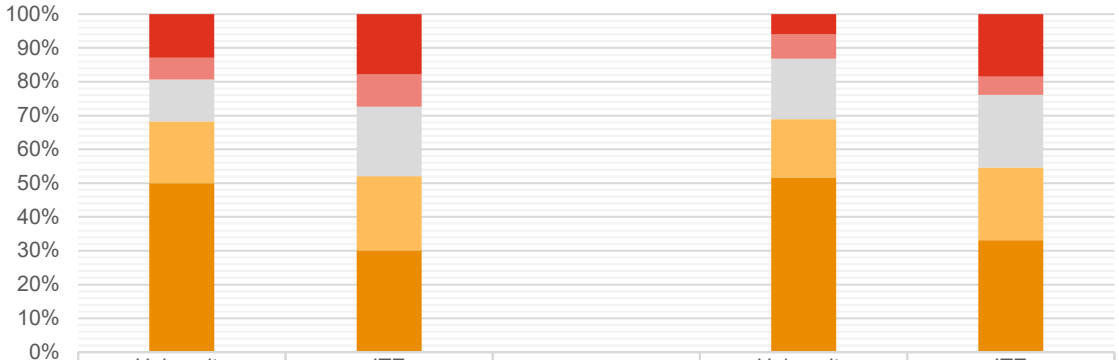
	ISCED 5	ISCED 6 2016/17*	ISCED 7		ISCED 5	ISCED 6 2020/21*	ISCED 7
5 no, absolutely not	31%	13%	12%		22%	6%	7%
4	17%	6%	6%		3%	7%	7%
3	22%	13%	13%		25%	14%	20%
2	14%	19%	19%		17%	26%	14%
1 yes, absolutely	17%	49%	50%		34%	45%	52%

**Statistically significant findings*

In both cohorts, statistically significant associations were noted. In both cohorts, a higher percentage of graduates from ITE were employed in jobs that did not align well with their field of study compared to University graduates. Specifically, in the 2016/17, 28% of graduates from ITE and 19% of graduates from Universities reported being horizontally mismatched. The corresponding percentages in the 2020/21 cohort were lower, i.e., 23% and 13% respectively. Approximately 20% of graduates from ITE and Universities reported that their job matched the field of their program of study to a moderate extent in both cohorts (with the exception of University graduates in the 2016/17 cohort).

Figure 129 displays the extent of horizontal mismatch by type of HEI. In both cohorts, statistically significant associations were noted. In both cohorts, a higher percentage of graduates from ITE were employed in jobs that did not align well with their field of study compared to University graduates. Specifically, in the 2016/17, 28% of graduates from ITE and 19% of graduates from Universities reported being horizontally mismatched. The corresponding percentages in the 2020/21 cohort were lower, i.e., 23% and 13% respectively. Approximately 20% of graduates from ITE and Universities reported that their job matched the field of their program of study to a moderate extent in both cohorts (with the exception of University graduates in the 2016/17 cohort).

Figure 129: Horizontal mismatch by type of HEI and graduation cohort

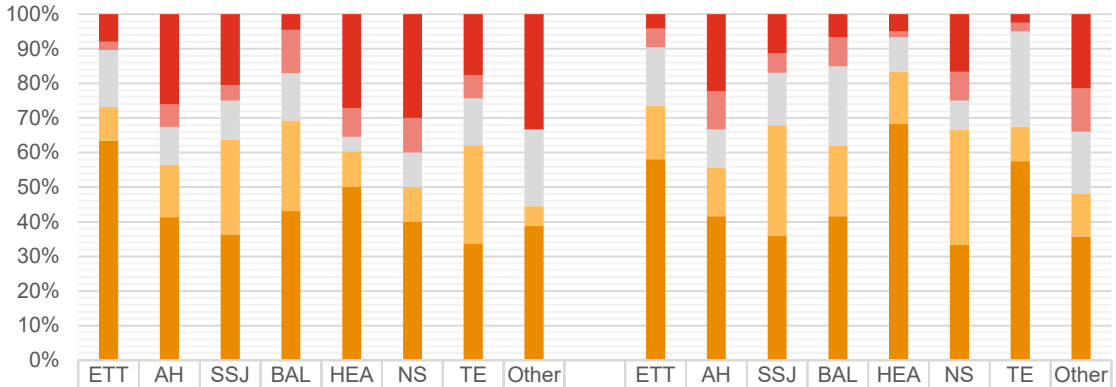


	University	ITE		University	ITE
	2016/17*			2020/21*	
5 no, absolutely not	13%	18%		6%	18%
4	6%	10%		7%	5%
3	12%	21%		18%	22%
2	18%	22%		17%	22%
1 yes, absolutely	50%	30%		52%	33%

**Statistically significant findings*

Statistically significant associations were also found between horizontal mismatch and field of study (Figure 130). In the 2016/17 cohort, the fields of Natural Sciences, Health, Other and Arts and Humanities had more than 30% of graduates reporting that their job did not align with the field of their degree (40%, 35%, 33% and 33% respectively). The fields of Education and Teacher Training and Business, Administration and Law had the lowest percentages of horizontally mismatched graduates (10% and 17% respectively). On the other hand, in the 2020/21 cohort, the fields of Arts and Humanities and the category "Other" had more than 30% of graduates indicating they were employed in jobs which were unrelated to their field of study (33% and 43% respectively). The fields of Education and Teacher Training, Health and Technology and Engineering had the lowest percentages (<10%) of graduates reporting being horizontally mismatched. The fields of Technology and Engineering and Business, Administration and Law had approximately 25% of graduates reporting an alignment between their job and field of study to a moderate extent (23% and 28%).

Figure 130: Horizontal mismatch by field of study and graduation cohort



	ETT	AH	SSJ	BAL	HEA	NS	TE	Other	ETT	AH	SSJ	BAL	HEA	NS	TE	Other
	2016/17*								2020/21*							
5 no, absolutely not	8%	26%	20%	5%	27%	30%	18%	33%	4%	22%	11%	7%	5%	17%	3%	21%
4	2%	7%	5%	12%	8%	10%	7%		5%	11%	6%	8%	2%	8%	3%	13%
3	16%	11%	11%	14%	4%	10%	14%	22%	17%	11%	15%	23%	10%	8%	28%	18%
2	10%	15%	27%	26%	10%	10%	28%	6%	16%	14%	32%	20%	15%	33%	10%	13%
1 yes, absolutely	63%	41%	36%	43%	50%	40%	34%	39%	58%	42%	36%	42%	68%	33%	58%	36%

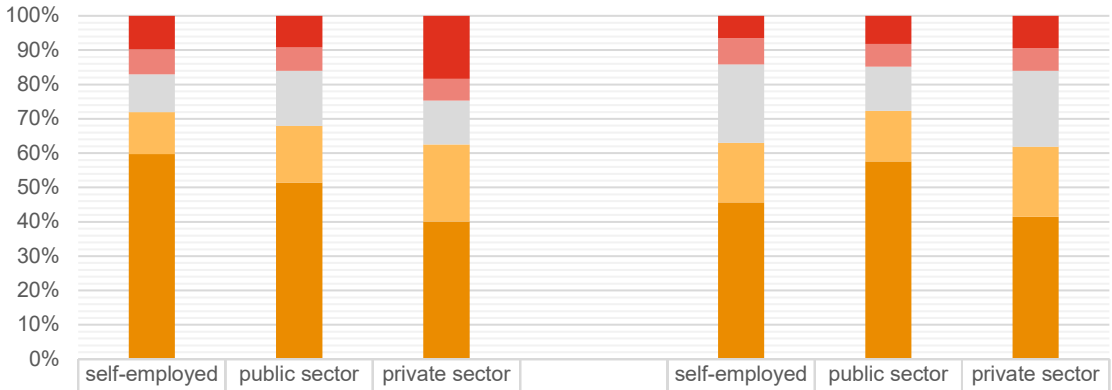
**Statistically significant findings*

Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

5.4.2.3. Horizontal mismatch by variables related to employment

In this sub-section, Figure 131 presents the association between horizontal mismatch by type of employment which was found to be statistically significant in both cohorts. In the 2016/17 cohort, graduates employed in the private sector experience horizontal mismatch to a greater extent (24%) than graduates who are self-employed (17%) or employed in the public sector (16%). In the public sector, 16% of graduates reported being matched to a moderate extent, while the corresponding percentages in the private sector and for self-employed were 13% and 11% respectively. The highest percentage of graduates reporting finding jobs that aligned well with their field of study was in the category of self-employment (72%). In the 2020/21, approximately 15% of graduates in all categories of type of employment reported being horizontally mismatched. Approximately 22% of self-employed graduates and graduates in the private sector reported a moderate alignment between their job and their field of study. This percentage was much lower in the public sector (13%). The public sector had the highest percentage of graduates (73%) reporting that their employment aligned well with their field of study.

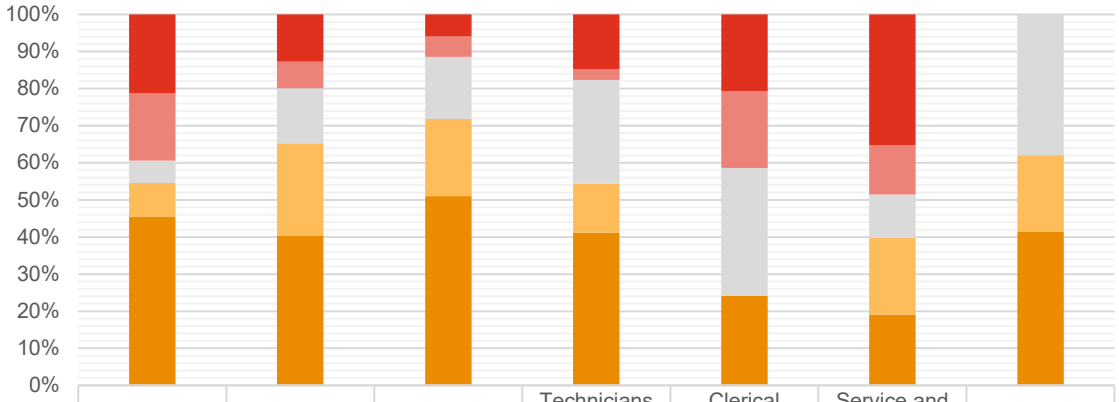
Figure 131: Horizontal mismatch by type of employment and graduation cohort



	self-employed	public sector	private sector		self-employed	public sector	private sector
	2016/17*				2020/21*		
5 no, absolutely not	10%	9%	18%		7%	8%	9%
4	7%	7%	6%		8%	7%	7%
3	11%	16%	13%		23%	13%	22%
2	12%	17%	22%		17%	15%	20%
1 yes, absolutely	60%	51%	40%		46%	58%	41%

The relationship between horizontal mismatch and occupation was also explored (Figure 132). The classification of occupations was based on the International Standard Classification of Occupations ISCO-08. Due to the small number of graduates reporting their occupation, the categories Skilled Agricultural, Forestry and Fishery Workers, Craft and Related Trades Workers, Plant and Machine Operators, and Assemblers were excluded from the present exploration since the number of graduates within each of these categories was below 30. Moreover, findings are presented for both cohorts together. According to Figure 132, the majority of graduates in the occupation categories Clerical Support Workers and Service and Sales Workers reported that their current employment did not align with the field of their studies (42% and 48% respectively). The category Clerical Support Workers had also a considerable percentage of graduates (34%) reporting a moderate match between their job and the field of their degree. On the other hand, in the occupational categories Professionals, Technicians and Associate Professionals, Managers and Elementary Occupations more than half of graduates reported finding an employment which was in line with the field of their program of study. In the occupational category Elementary Occupations, all graduates were employed in jobs that were related to the field of their studies, as none reported misalignment between employment and field of study. The categories Clerical Support Workers and Service and Sales Workers had high percentages of graduates reporting that their jobs were not relevant to their field of study (42% and 48% respectively).

Figure 132: Horizontal mismatch by occupation



	Armed Forces Occupations	Managers	Professionals	Technicians and Associate Professionals	Clerical Support Workers	Service and Sales Workers	Elementary Occupations
5 no, absolutely not	21%	13%	6%	15%	21%	35%	0%
4	18%	7%	6%	3%	21%	13%	0%
3	6%	15%	17%	28%	34%	12%	38%
2	9%	25%	21%	13%	0%	21%	21%
1 yes, absolutely	45%	40%	51%	41%	24%	19%	41%

5.4.3. Over-skilling and under-skilling

Over-skilling refers to the situation where an employees' skills exceed those required by their job. It is therefore a form of skills underutilisation in the workplace. Over-skilling has been emerging as a key measure of mismatch in the recent literature, in preference to the more commonly used overeducation (Kostas Mavromaras, 2012)This is because qualifications reflect certified skills, mostly acquired in initial education while a great deal of skills are acquired during employment. Moreover, employees with the same level of formal qualifications may display different degrees of competency and in different areas according to their field of study (OECD, 2011). On the other hand, under-skilling refers to employees who report that their skills and competences are lower than those required by their current job. It is possible that graduates' skills may be below the level needed because the expertise needed for their jobs has changed over time, due to several reasons (e.g., emerging new technologies).

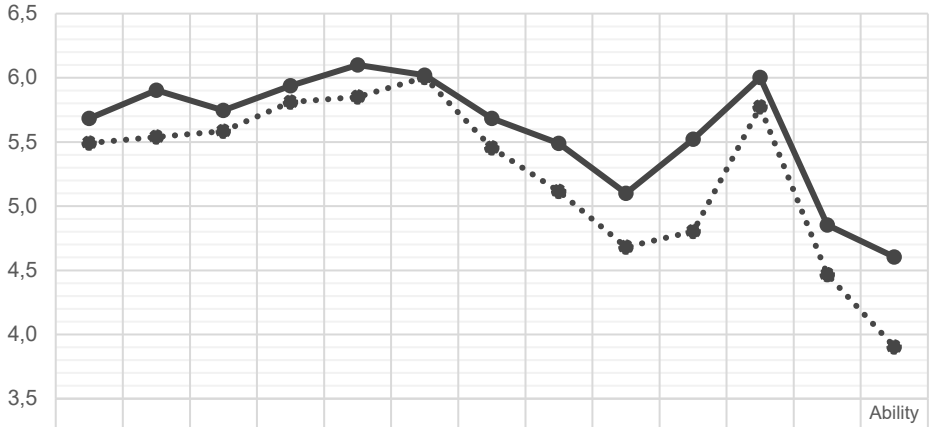
In the context of this study, over-skilling and under-skilling were measured in respect to a number of key skills under four main categories: hard, soft, digital and green skills (Table 9). Graduates were asked to evaluate their own current level of each skill as well as the level required by their current job, on a seven-point rating scale (where 1 indicated low level of competence and 7 very high). Thus, in the context of this study over-skilling and under-skilling were subjectively measured.

Table 9. Types of skills assessed in the context of NGTS

Hard skills
1. Mastery of your own field or discipline
Soft Skills
2. Analytical thinking
3. Ability to rapidly acquire new knowledge
4. Ability to coordinate activities
5. Ability to work productively with others
6. Ability to make your meaning clear to others
7. Ability to come up with new ideas and solutions
8. Willingness to question your own and others' ideas
9. Ability to present products, ideas or reports to an audience
10. Ability to write and speak in a foreign language
Digital Skills
11. Ability for applied use of information and communication technologies (ICT, e.g., text processing, working with tables, retrieve information from the internet, e-mail)
12. Ability for advanced use of information and communication technologies (ICT, e.g., programming, syntax in statistical software)
Green Skills
13. Ability to make decisions towards environmental sustainability and a resource-efficient society and act accordingly

Figure 133 and Figure 134 present all skills assessed, the average scores reported for their current level and level required by their work for graduates in cohorts 2016/17 and 2020/21 respectively. In the 2016/17 cohort, graduates reported that they possess a high level of all skills assessed (average scores above 4,5). The highest average score for own level was noted for the soft skill "Ability to work productively with others" (average score 6,1) while the lowest for the green skill "Ability to make decisions towards environmental sustainability and a resource-efficient society and act accordingly" (average score 4,6). Graduates also indicated that their current jobs require a high level of all types of skills (most skills with average scores above 4,5). The skill with the highest average score for required level by employment was "Ability to make your meaning clear to others" (average score 6) while the green skill had the lowest (average score 3,9). It is evident that graduates' own level of skills is significantly higher than the corresponding required by their current work (except for the soft skill "Ability to make your meaning clear to others" for which there is an absolute match between own and required level) thus indicating over-skilling. Statistically significant differences between current own level and the level required by their job were noted for all skills (indicated by an asterisk in Figure 133) except for the soft skill "Ability to make your meaning clear to others". The largest discrepancy between current own level and the level required by current employment relates to the skills "Ability to write and speak in a foreign language" (+0,7) and "Ability to make decisions towards environmental sustainability and a resource-efficient society and act accordingly" (+0,7).

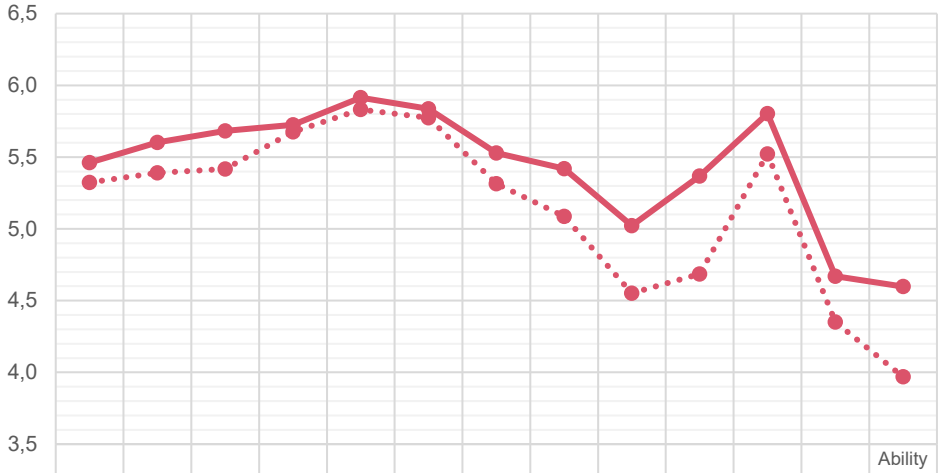
Figure 133: Current own level and required level of skills by job for the 2016/17 cohort.



	Mastery of your own field or discipline*	Analytical thinking*	Ability to rapidly acquire new knowledge*	Ability to coordinate activities*	Ability to work productively with others*	Ability to make your meaning clear to others	Ability to come up with new ideas and solutions*	Willingness to question your own and others' ideas*	Ability to present products, ideas or reports to an audience*	Ability to write and speak in a foreign language*	Ability for applied use of information and communication technologies*	Ability for advanced use of information and communication technologies*	Ability to make decisions towards environmental sustainability and a resource-efficient society and act accordingly*
Current Level	5,7	5,9	5,7	5,9	6,1	6,0	5,7	5,5	5,1	5,5	6,0	4,9	4,6
Required Level	5,5	5,5	5,6	5,8	5,9	6,0	5,5	5,1	4,7	4,8	5,8	4,5	3,9
Discrepancy	0,2	0,4	0,2	0,1	0,2	0,0	0,2	0,4	0,4	0,7	0,2	0,4	0,7
Current Level Std. Deviation	1,4	1,2	1,3	1,3	1,2	1,2	1,3	1,4	1,8	1,5	1,3	1,9	1,8
Rquired Level Std. Deviation	1,7	1,6	1,6	1,5	1,4	1,3	1,6	1,7	2,0	2,0	1,5	2,1	2,0

In the 2020/21 cohort, recent graduates also reported that they possess a high level of all skills assessed (average scores above 4,5). The highest average score for own level was noted once more for the soft skill "Ability to work productively with others" (average score 5,9) while the lowest for the green skill "Ability to make decisions towards environmental sustainability and a resource-efficient society and act accordingly" (average score 4,6). Recent graduates also indicated that their current jobs require a high level of all types of skills (all skills with average scores above 4,0). Two skills had the highest average scores for required level by employment: "Ability to make your meaning clear to others" and "Ability to work productively with others" (average score 5,8) while the green skill had the again the lowest average score (average score 3,9). Over-skilling is also evident here. The mean current own level reported is also higher than the corresponding required level by their current employment (with the exception of the soft skill "Ability to co-ordinate" for which there is an absolute match between own and required level). Statistically significant differences between current own level and the level required by their job were noted for nine skills (indicated by an asterisk in Figure 134): six soft skills, two digital skills and the green skill. The largest discrepancy between current own level and the level required by current employment relates again to the skills "Ability to write and speak in a foreign language" (+0,7) and "Ability to make decisions towards environmental sustainability and a resource-efficient society and act accordingly" (+0,6 mean discrepancy).

Figure 134: Current own level and required level of skills by job for the 2020/21 cohort.



	Mastery of your own field or discipline	Analytical thinking*	Ability to rapidly acquire new knowledge*	Ability to coordinate activities	Ability to work productively with others	Ability to make your meaning clear to others	Ability to come up with new ideas and solutions*	Willingness to question your own and others' ideas*	Ability to present products, ideas or reports to an audience*	Ability to write and speak in a foreign language*	Ability for applied use of information and communication technologies*	Ability for advanced use of information and communication technologies*	Ability to make decisions towards environmental sustainability and a resource-efficient society and act accordingly*
Current Level	5,5	5,6	5,7	5,7	5,9	5,8	5,5	5,4	5,0	5,4	5,8	4,7	4,6
Required Level	5,3	5,4	5,4	5,7	5,8	5,8	5,3	5,1	4,6	4,7	5,5	4,4	4,0
Discrepancy	0,1	0,2	0,3	0,0	0,1	0,1	0,2	0,3	0,5	0,7	0,3	0,3	0,6
Current Level Std. Deviation	1,4	1,4	1,3	1,4	1,4	1,4	1,4	1,4	1,7	1,6	1,4	1,9	1,7
Rquired Level Std. Deviation	1,6	1,6	1,6	1,5	1,4	1,5	1,7	1,7	2,0	2,1	1,6	2,1	2,0

Over-skilling and under-skilling were also explored according to specific demographic variables and variables related to graduates' Higher Education studies. For this purpose, a discrepancy score was calculated for each skill by subtracting the required level from the corresponding current. Thus, positive discrepancies signalled over-skilling, whereas the negative discrepancies signalled under-skilling. Figure 134, Table 10 and Table 11, show over-skilling and under-skilling for sub-categories of graduates in cohorts 2016/17 and 2020/21 respectively according to demographic variables and variables related to their studies in Higher Education. Each row represents a different sub-category of graduates and each column a specific skill. For each skill, graduates' current own level and the level required by current work were compared using a paired t-test for each sub-category of graduates Each row represents a different sub-category of graduates and each column a specific skill. The cells with a plus (+) sign indicate an over-skilling area, whereas the cells with a minus (-) sign indicate an under-skilling area, based on the discrepancy between current own level and the level required by employment for each skill. The signs in **red** font indicate a statistically significant discrepancy (i.e., the mean current level was found to be statistically different from the corresponding mean required level for that specific sub-category).

According to Table 10, it is evident that for the 2016/17 cohort, in all sub-categories of graduates statistically significant over-skilling was reported. On the other hand, no statistically significant under-skilling was reported. Some interesting findings are presented below:

- Male graduates reported being significantly over-skilled in all types of skills assessed. On the other hand, females reported being significantly over-skilled in five soft skills (Analytical thinking, Ability to work productively with others, Willingness to question your own and others' ideas, Ability to present products, ideas or reports to an audience and Ability to write and speak in a foreign language), in advanced digital skills and in relation to the green skill "Ability to make decisions towards environmental sustainability and a resource-efficient society and act accordingly".
- All three age groups reported being over-skilled in five soft skills (Analytical thinking, Ability to work productively with others, Willingness to question your own and others' ideas, Ability to present products, ideas or reports to an audience and Ability to write and speak in a foreign language) and in the green skill "Ability to make decisions towards environmental sustainability and a resource-efficient society and act accordingly". Only the age group "30-34" indicated being significantly over-skilled in terms of both basic and advanced digital skills, while the age group "35 and over" reported being over-skilled in terms of advanced digital skills.
- ISCED 7 graduates were found to be significantly over-skilled in all skills assessed except for two (the hard skill "Mastery of your own field or discipline" and the soft skill "Ability to make your meaning clear to others"). ISCED 5 graduates were found to be under-skilled in terms of the hard skill (although this was not a statistically significant finding). The mastery of own field is directly linked with the program of study completed in Higher Education. This raises questions regarding the content of the relevant programs of study as these should equip higher education graduates with field-specific knowledge, skills and abilities. However, these graduates have completed their studies five years ago, and it might be the case that the requirements of their workplace to have changed drastically. ISCED 6 graduates were found to be under-skilled in terms of three skills: two soft skills and in basic digital skills. This was not however a statistically significant finding. Graduates at all ISCED levels reported being significantly over-skilled in advanced-digital skills.
- Graduates in the field of Education and Teacher Training, Arts and Humanities and Technology and Engineering reported being over-skilled in all skills assessed. Graduates in the field Education and Teacher Training were found to be significantly over-skilled in most skills, compared to graduates in other fields. Graduates in the field of Natural Sciences were not found to be significantly over-skilled in any skill assessed while graduates in the field of Business, Administration and Law were the only ones found significantly over-skilled in terms of hard skills. Graduates in the field category "Other" were found to be under-skilled in terms of two soft skills and in advanced digital skills but the differences found between current own level and the level required by current work were not statistically significant.

Table 10: Comparisons of graduates' own level of skill and the level of skill required by their job (paired samples t-test) within sub-categories of graduates according to demographic variables and variables related to Higher Education studies for the 2016/17 cohort

	Hard Skill	Soft Skill									Digital Skill		Green Skill
Skill #	1	2	3	4	5	6	7	8	9	10	11	12	13
2016/17	Mastery of your own field or discipline	Analytical thinking	Ability to rapidly acquire new knowledge	Ability to coordinate activities	Ability to work productively with others	Ability to make your meaning clear to others	Ability to come up with new ideas and solutions	Willingness to question your own and others' ideas	Ability to present products, ideas or reports to an audience	Ability to write and speak in a foreign language	Ability for applied use of information and communication technologies	Ability for advanced use of information and communication technologies	Ability to make decisions towards environmental sustainability and a resource-efficient society and act accordingly
Gender													
Male	+	+	+	+	+	+	+	+	+	+	+	+	+
Female	+	+	+	+	+	-	+	+	+	+	-	+	+
Age at time of the survey													
under 25													
25 to 29	+	+	+	+	+	+	+	+	+	+	-	+	+
30 to 34	+	+	+	+	+	+	+	+	+	+	+	+	+
35 and over	+	+	+	+	+	-	+	+	+	+	+	+	+
Level													
ISCED 5	-	+	+	+	+	+	+	+	+	+	+	+	+
ISCED 6	+	+	-	+	+	-	+	+	+	+	-	+	+
ISCED 7	+	+	+	+	+	+	+	+	+	+	+	+	+
Fields													
ETT	+	+	+	+	+	+	+	+	+	+	+	+	+
AH	+	+	+	+	+	+	+	+	+	+	+	+	+
SSJ	+	+	-	+	+	+	+	+	+	+	+	+	+
BAL	+	+	+	+	+	-	+	+	+	+	+	+	+
HEA	+	+	+	+	+	-	+	+	+	+	+	+	+
NS	+	+	+	-	+	+	+	+	+	+	+	+	+
TE	+	+	+	+	+	+	+	+	+	+	+	+	+
Other	+	+	+	+	-	-	+	+	+	+	+	-	+

Note: Red bold signifies statistically significant differences between graduates' own level of skill and the level required by their current job. The + symbol signifies over-skilling and the – sign under-skilling.

Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

Table 11, illustrates the relevant findings for the 2020/21 cohort. Again, in all sub-categories of graduates statistically significant over-skilling was reported but no statistically significant under-skilling. However, it is evident that there are more instances of under-skilling for recent graduates. Some interesting findings are presented below:

- Both genders were found to be significantly over-skilled in terms of three soft skills (Willingness to question your own and others' ideas, Ability to present products, ideas or reports to an audience, Ability to write and speak in a foreign language), basic and advanced digital skills and the green skill "Ability to make decisions towards environmental sustainability and a resource-efficient society and act accordingly".
- All age groups reported significant over-skilling in relation to three soft skills (Willingness to question your own and others' ideas, Ability to present products, ideas or reports to an audience, and Ability to write and speak in a foreign language) and the green skill. Older participants were found to be significantly over-skilled in approximately half of the skills assessed (these included soft, digital, and green skills). Participants in the age-group "under 25" reported being under-skilled in terms of mastery of own field.
- ISCED 7 graduates were significantly over-skilled in all skills assessed except for one skill (Ability to work productively with others). In terms of the skill "Ability to make your meaning clear to others", ISCED 7 graduates were found to be under-skilled, while ISCED 6 graduates indicated being under-skilled in terms of the hard skill "Mastery of your own field or discipline" (although this was not a statistically significant finding). As these graduates have completed their studies quite recently, this finding raises questions regarding the relevance of the content of their programs of study. ISCED 5 and ISCED 7 graduates were significantly over-skilled in terms of basic and advanced digital skills, as well as in terms of the green skill. ISCED 6 graduates were also over-skilled in terms of basic and advanced digital skills and in terms of the green skill but to a statistically significant extent.
- Graduates in the field of Business, Administration and Law reported being over-skilled in all skills assessed but only in seven skills this reported over-skilling was statistically significant. Graduates in the field of Health reported being under-skilled in half of the skills assessed (including the hard skill Mastery of own field). Graduates in all fields were over-skilled in terms of both digital and green skills however this over-skilling was not statistically significant in all fields. An alarming finding is that recent graduates from the fields of Education and Teacher Training, Health, Technology and Engineering and the category "Other" reported under-skilling in terms of mastery of own field.

Table 11: Comparisons of graduates' own level of skill and the level of skill required by their job (paired samples t-test) within sub-categories of graduates according to demographic variables and variables related to Higher Education studies for the 2020/21 cohort

	Hard Skill	Soft Skill									Digital Skill		Green Skill
Skill #	1	2	3	4	5	6	7	8	9	10	11	12	13
2020/21	Mastery of your own field or discipline	Analytical thinking	Ability to rapidly acquire new knowledge	Ability to coordinate activities	Ability to work productively with others	Ability to make your meaning clear to others	Ability to come up with new ideas and solutions	Willingness to question your own and others' ideas	Ability to present products, ideas or reports to an audience	Ability to write and speak in a foreign language	Ability for applied use of information and communication technologies	Ability for advanced use of information and communication technologies	Ability to make decisions towards environmental sustainability and a resource-efficient society and act accordingly
Gender													
Male	+	**+**	**+**	+	+	+	**+**	**+**	**+**	**+**	**+**	**+**	**+**
Female	+	+	+	+	-	-	+	**+**	**+**	**+**	**+**	**+**	**+**
Age at time of the survey													
under 25	-	+	**+**	-	-	-	-	**+**	**+**	**+**	+	**+**	**+**
25 to 29	+	+	+	+	-	+	+	**+**	**+**	**+**	**+**	+	**+**
30 to 34	+	+	**+**	+	+	-	**+**	**+**	**+**	**+**	**+**	**+**	**+**
35 and over	+	+	+	+	+	-	**+**	**+**	**+**	**+**	**+**	**+**	**+**
Level													
ISCED 5	+	+	-	+	+	**+**	+	+	**+**	**+**	**+**	**+**	**+**
ISCED 6	-	+	**+**	-	-	-	+	**+**	+	**+**	+	+	**+**
ISCED 7	**+**	**+**	**+**	**+**	+	-	**+**	**+**	**+**	**+**	**+**	**+**	**+**
Fields													
ETT	-	**+**	+	**+**	-	-	+	**+**	**+**	**+**	**+**	**+**	**+**
AH	+	**+**	**+**	-	-	-	+	+	+	**+**	+	**+**	**+**
SSJ	+	+	+	+	**+**	+	-	+	+	**+**	**+**	+	**+**
BAL	+	+	**+**	+	+	+	**+**	**+**	**+**	**+**	+	**+**	**+**
HEA	-	-	-	-	-	-	+	+	**+**	**+**	+	**+**	**+**
NS	+	+	+	-	+	-	+	+	+	+	+	+	+
TE	-	+	+	-	-	+	+	+	+	+	+	**+**	+
Other	-	+	-	-	-	+	+	+	+	**+**	+	**+**	+

Note: Red bold signifies statistically significant differences between graduates' own level of skill and the level required by their current job. The + symbol signifies over-skilling and the – sign under-skilling.

Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

Table 12 and Table 13 present findings from a different type of analysis for the 2016/17 and 2020/21 cohorts respectively. In the context of this analysis, the discrepancy between graduates' own level of each skill and the level of skill required by their job was calculated and compared among different sub-groups of graduates (based on demographic variables and variables related to their Higher Education studies) using independent samples t-test. Red bold text signifies statistically significant differences among mean discrepancy skill scores between sub-categories of graduates based on demographic variables or variable related to their studies. The fill colour of each cell indicates the level of discrepancy, with light red indicating negative mean discrepancy signalling under-skilling, light yellow indicating positive mean discrepancy of low magnitude signalling over-skilling to a low extent and green indicating positive mean discrepancy of high magnitude (>0,5) signalling greater over-skilling.

According to Table 12, statistically significant differences in mean discrepancy scores among the two genders were found in five soft skills (Ability to rapidly acquire new knowledge, Ability to make your meaning clear to others, Ability to come up with new ideas and solutions, Willingness to question your own and others' ideas and Ability to present products, ideas or reports to an audience) and in both basic and advanced digital skills. Males reported being over-skilled to a lager extent than females in the afore-mentioned skills. In terms of the age at time of the survey, statistically significant differences in mean discrepancy scores among the four age groups were found in the hard skill, in both basic and advanced digital skills. The age group of 30-34 demonstrated a higher discrepancy level of digital skills, surpassing other age groups, thus suggesting greatest over-skilling. In relation to the level of study, statistically significant differences in mean discrepancy scores among the three ISCED levels were found in four soft skills (Ability to rapidly acquire new knowledge, Ability to coordinate activities, Ability to present products, ideas or reports to an audience and Ability to write and speak in a foreign language), in basic digital skills and in terms of the green skill. ISCED 5 graduates were found to be over-skilled to a higher extent than graduates at higher ISCED levels in three soft skills (Ability to rapidly acquire new knowledge, Ability to coordinate activities and Ability to present products, ideas or reports to an audience), in basic digital skill and in terms of the green skill. ISCED 7 graduates reported being over-skilled to a higher extent than graduates in other ISCED levels in terms of soft skill "Ability to write and speak in a foreign language". Finally, with regards to the field of study, statistically significant differences in mean discrepancy scores among graduates in the various fields of study were found in the soft skill "Ability to write and speak in a foreign language" and the green skill. Graduates in the field of Education and Teacher Training had the highest over-skilling score than graduates in other fields in terms of communicating in a foreign language while graduates in the field of Natural Sciences had the highest over-skilling score in terms of the specific green skill assessed.

Table 12: Comparisons of average discrepancy skill score (between graduates' own level of skill and the level of skill required by their job) by demographic variables and variables related to Higher Education studies (independent samples t-test) for the cohort 2016/17

	Hard Skill	Soft Skill									Digital Skill		Green Skill
Skill #	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
2016/17	Mastery of your own field or discipline	Analytical thinking	Ability to rapidly acquire new knowledge	Ability to coordinate activities	Ability to work productively with others	Ability to make your meaning clear to others	Ability to come up with new ideas and solutions	Willingness to question your own and others' ideas	Ability to present products, ideas or reports to an	Ability to write and speak in a foreign language	Ability for applied use of information and	Ability for advanced use of information and	Ability to make decisions towards environmental sustainability and a resource-efficient society and act
Gender													
Male	0,3	0,4	**0,4**	0,3	0,3	**0,2**	**0,5**	**0,6**	**0,6**	0,6	**0,6**	**0,7**	0,6
Female	0,1	0,3	**0**	0,1	0,2	**-0,1**	**0**	**0,3**	**0,3**	0,7	**0**	**0,2**	0,8
Age at time of the survey													
under 25													
25 to 29	0,2	0,5	0,2	0,2	0,3	0	0,2	0,3	0,3	0,6	**0**	**0,2**	0,7
30 to 34	0	0,3	0,1	0,1	0,2	0,1	0,1	0,4	0,4	0,9	**0,5**	**0,7**	0,6
35 and over	0,2	0,3	0,1	0,1	0,2	-0,1	0,4	0,5	0,6	0,6	**0,1**	**0,2**	0,7
Level													
ISCED 5	-0,1	0,6	**1,0**	**0,7**	0,2	0	0,3	0,5	**0,9**	**0**	**0,6**	0,7	**1,6**
ISCED 6	0,2	0,3	**0**	**0**	0,2	-0,1	0,2	0,2	**0,2**	**0,4**	**-0,1**	0,2	**0,4**
ISCED 7	0,2	0,4	**0,2**	**0,2**	0,3	0,1	0,3	0,5	**0,5**	**0,9**	**0,4**	0,5	**0,8**
Fields													
ETT	0,1	0,3	0,1	0,2	0,4	0,1	0,2	0,4	0,5	**1,2**	0,3	0,5	**0,8**
AH	0,5	0,4	0,5	0,3	0,4	0	0,2	0,4	0,5	**0,9**	0,2	0,4	**1,2**
SSJ	0	0,5	-0,2	0	0,3	0,1	0,3	0,4	0,5	**0,5**	0,2	0,2	**0,8**
BAL	0,3	0,2	0,1	0	0,1	-0,1	0,2	0,3	0,4	**0,5**	0	0,3	**0,5**
HEA	0,1	0,3	0,2	0,1	0,1	-0,1	0,3	0,1	0,5	**0,3**	0	0,6	**0,1**
NS	0,5	0,5	0,2	-0,2	0	0,2	0,3	0,5	1,0	**1,0**	0,6	0,4	**1,4**
TE	0	0,6	0,4	0,3	0,2	0,1	0,3	0,5	0,3	**0,4**	0,3	0,3	**0,7**
Other	0,3	1,3	0,3	0,2	-0,4	-0,1	0,3	0,8	0,3	**0,2**	0,6	-0,1	**1,6**

Note: Red bold text signifies statistically significant mean differences between mean discrepancies between subcategories of each demographic variable or variable related to graduates' studies. The fill colour of each cell indicates the level of discrepancy, with light red being negative, yellow being moderately positive and green being more than moderately positive.

Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

Table 13 presents the same type of analysis for the 2020/21 cohort. In relation to gender, no statistically significant differences in mean discrepancy scores among the two genders were found. Regarding the age of participants at the time of the survey, there appears to be statistically significant differences in mean discrepancy scores in terms of two soft skills (Ability to present products, ideas or reports to an audience and Ability to write and speak in a foreign language). Older participants appear to be over-skilled to a higher extent than the younger ones in terms of both soft skills. In relation to the level of studies, statistically significant differences in mean discrepancy scores were found in terms of the soft skill “Ability to make your meaning clear to others” and in advanced digital skills. Specifically, ISCED 5 graduates appear to be over-skilled in the terms of the specific soft skill, ISCED 6 graduates under-skilled and ISCED 7 graduates completely matched. Furthermore, ISCED 5 graduates were found to be over-skilled to a higher extent than graduates at other ISCED levels in terms of advanced digital skills. Finally, with regards to the field of study, statistically significant differences in mean discrepancy scores among graduates in the various fields of study were found only in relation to the hard skill i.e., Mastery of own field. Graduates in the fields of Arts and Humanities and Natural Sciences had the highest over-skilling score. Graduates in the fields of Health, Technology and Engineering and Other had negative mean discrepancy scores suggesting under-skilling with graduates in the field of Health having the highest negative score. Graduates in the field of Education and Teacher Training were found to be matched.

Table 13: Comparisons of average discrepancy skill score (between graduates' own level of skill and the level of skill required by their job) by demographic variables and variables related to Higher Education studies (independent samples t-test) for the cohort 2020/21

	Hard Skill	Soft Skill									Digital Skill		Green Skill
Skill #	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
2020/21	Mastery of your own field or discipline	Analytical thinking	Ability to rapidly acquire new knowledge	Ability to coordinate activities	Ability to work productively with others	Ability to make your meaning clear to others	Ability to come up with new ideas and solutions	Willingness to question your own and others'	Ability to present products, ideas or reports to an	Ability to write and speak in a foreign language	Ability for applied use of information and	Ability for advanced use of information and	Ability to make decisions towards environmental sustainability and a resource-efficient society
Gender													
Male	0,1	0,3	0,3	0,1	0,1	0	0,3	0,4	0,4	0,6	0,4	0,4	0,7
Female	0	0,1	0,1	0	0	0	0,1	0,3	0,4	0,8	0,2	0,3	0,5
Age at time of the survey													
under 25	-0,1	0,2	0,3	-0,1	-0,2	0	0	0,4	**0,4**	**0,5**	0,2	0,4	0,5
25 to 29	0,2	0,2	0,1	0,1	0	0,1	0,2	0,3	**0,3**	**0,4**	0,3	0,2	0,4
30 to 34	0,3	0,3	0,3	0	0,1	-0,1	0,3	0,4	**0,9**	**1,0**	0,5	0,6	0,8
35 and over	0	0,1	0,2	0,2	0,1	-0,1	0,4	0,3	**0,3**	**0,9**	0,2	0,3	0,7
Level													
ISCED 5	0	0,1	-0,2	0,1	0,1	**0,5**	0,4	0,4	0,7	0,7	0,6	**0,8**	0,7
ISCED 6	-0,1	0,1	0,2	-0,1	-0,1	**-0,1**	0,1	0,4	0,3	0,4	0,2	**0,2**	0,5
ISCED 7	0,2	0,2	0,3	0,2	0	**0**	0,2	0,3	0,5	0,8	0,3	**0,3**	0,7
Fields													
ETT	**0**	0,3	0,2	0,2	0	0	0,2	0,3	0,5	0,7	0,4	0,3	0,5
AH	**0,6**	0,7	0,8	-0,3	-0,1	-0,3	0,3	0,3	0,4	1,2	0,5	0,6	1,2
SSJ	**0,3**	0,2	0,3	0,3	0,3	0	0	0,3	0,5	0,9	0,4	0,3	0,7
BAL	**0,2**	0,2	0,3	0,1	0,1	0	0,3	0,4	0,5	0,6	0,2	0,2	0,7
HEA	**-0,5**	-0,4	0	-0,2	-0,1	-0,2	0,2	0,4	0,5	1,2	0,2	0,5	0,8
NS	**0,6**	0,4	0,4	-0,2	0,3	-0,4	0,4	0,5	0,1	0,5	0,3	0,1	0,6
TE	**-0,1**	0,1	0,1	-0,1	-0,1	0,4	0	0,3	0,2	0,2	0,3	0,5	0,5
Other	**-0,2**	0	-0,3	-0,3	-0,2	0	0,3	0,1	0	0,5	0,2	0,6	0,2

Note: Red bold text signifies statistically significant mean differences between mean discrepancies between subcategories of each demographic variable or variable related to graduates' studies. The fill colour of each cell indicates the level of discrepancy, with light red being negative, yellow being moderately positive and green being more than moderately positive.

Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

5.5.Career Guidance and Counselling

During the last years career counselling services for students has received important demand and admittedly it is becoming an increasingly relevant procedure in the current configuration of the labour market and in the context of life-long education. In the context of the National Graduate Tracking Survey, a section was added in the EUROGRADUATE questionnaire by the Department of Higher Education on career counselling in Upper Secondary Education but also during Higher Education studies. The aim was to explore the extent to which students in Upper Secondary and Higher Education receive career guidance, the dimensions of career counselling received but also to evaluate the usefulness and impact of these services.

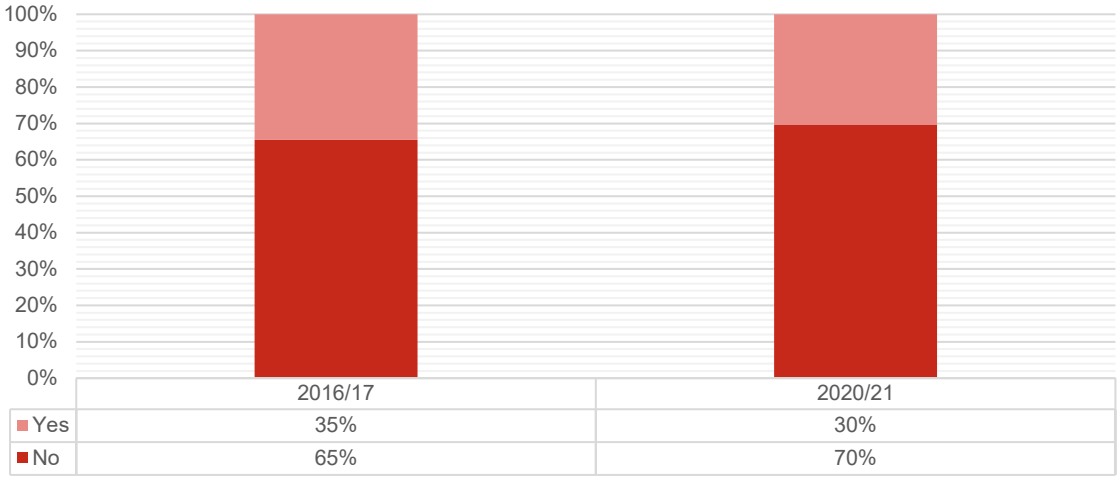
5.5.1. Career Guidance and Counselling in Upper Secondary Education

The purpose of guidance and counselling in Upper Secondary Education is to assist students in their studies and to ensure that they acquire the knowledge and skills to make informed decisions regarding their education and career. Guidance and counselling should help students to get to know and understand themselves by identifying their individual capabilities, interests, and skills, but also to provide students with sufficient basic knowledge and abilities to facilitate their academic planning, foster self-reflection regarding their career paths, and motivate them to engage in active citizenship. Thus, it is evident that guidance counsellors can have a significant impact (among other things) on students' expectations for the future, setting realistic educational and career goals as well as on achieving these goals.

The main aim here was to explore the extent to which students in Upper Secondary Education receive career guidance, but also to evaluate the provision and impact of career counselling and guidance. It should be noted that only ISCED 5 and ISCED 6 graduates responded to questions regarding career counselling in Upper Secondary Education as the focus here was on the transition between Upper Secondary and Higher Education.

The percentage of ISCED 5 and 6 graduates who received counselling while studying in Upper Secondary Education is shown in Figure 135. It appears that in both cohorts approximately one third of graduates received guidance while studying in Upper Secondary Education (35% for the 2016/17 cohort and 30% for the 2020/21 cohort).

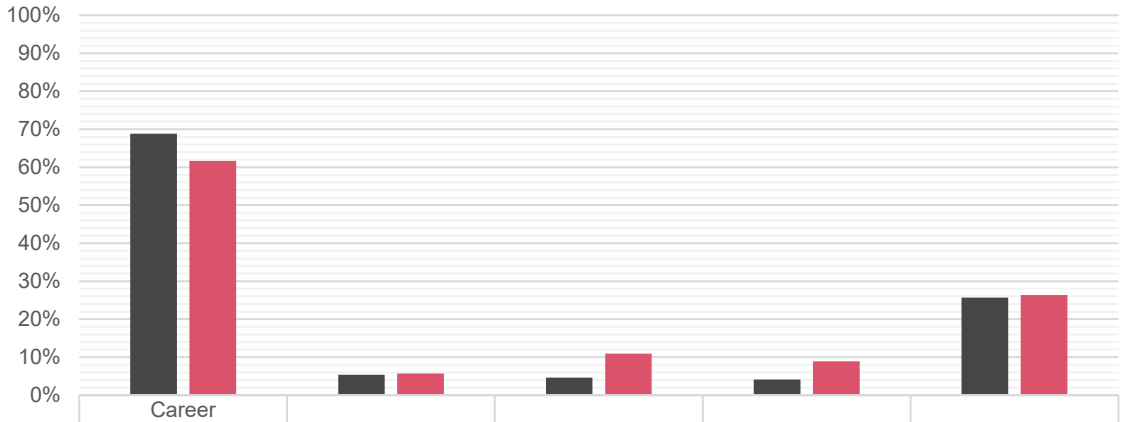
Figure 135: Graduates receiving career guidance and counselling in Upper Secondary Education by graduation cohort



Graduates who received career guidance while in Upper Secondary Education were also asked to indicate the provider of career guidance. According to Figure 136 in both cohorts, graduates indicated that the Career Counselling and Educational Services of the Ministry of Education, Sport, and Youth was the main provider

(69% and 62% for the 2016/17 and 2020/21 cohorts respectively). It is worth mentioning that a considerable percentage of graduates (26%) in both cohorts indicated that they turned also to relevant providers from the private sector.

Figure 136: Providers of career guidance while graduates were in Upper Secondary Education by graduation cohort



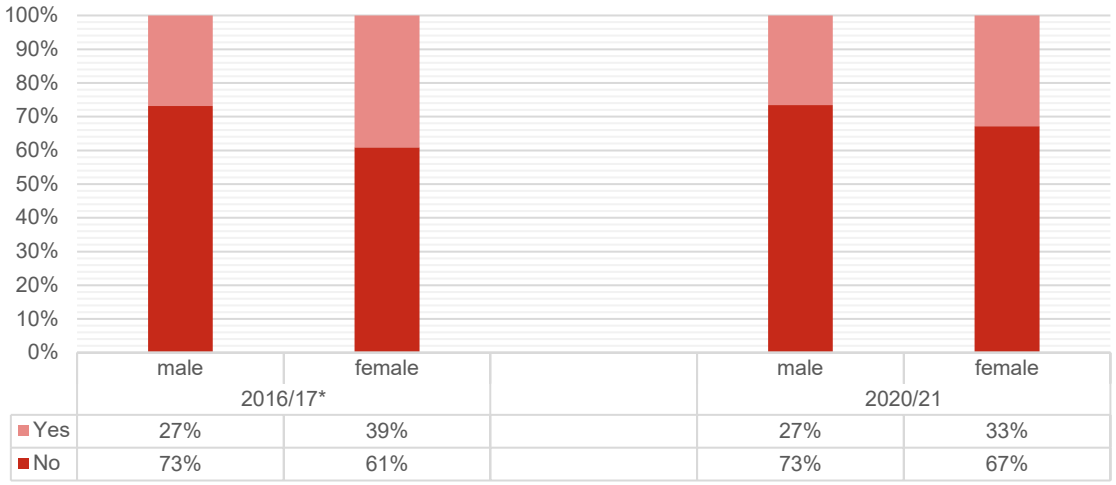
	Career Counselling and Educational Services (CCES) of the Ministry of Education, Sports and Youth (M.O.E.S.Y)	Human Resource Development Authority	Career Counselling Services of Youth Board of Cyprus	Other Public Sector Body	Other Private Sector Body
2016/17	69%	5%	5%	4%	26%
2020/21	62%	6%	11%	9%	26%

Note: Graduates could provide more than one answer in this question

5.5.1.1. Career Guidance and Counselling in Upper Secondary Education by demographic variables

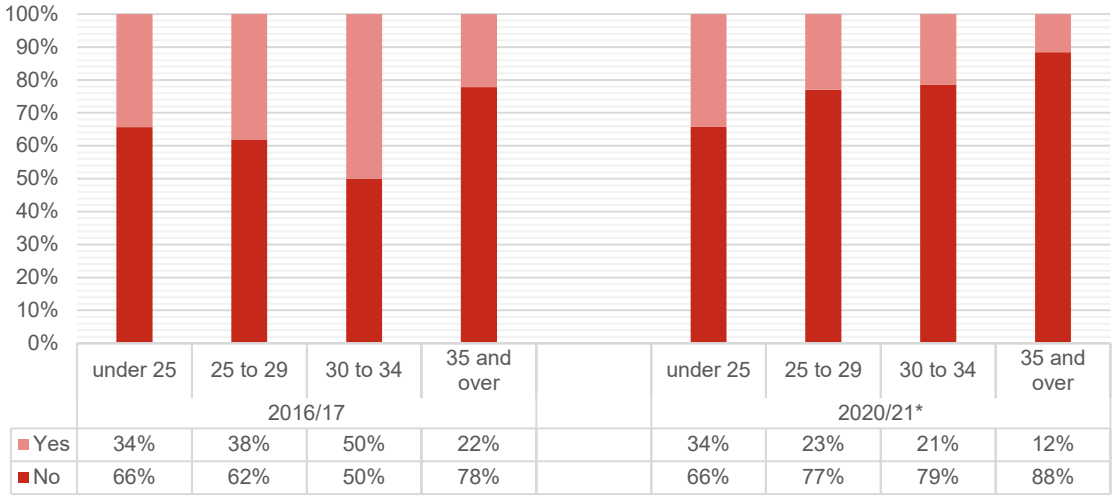
In relation to the gender of graduates who received career counselling while in Upper Secondary Education, it is evident in Figure 137 that more females than males received guidance in both cohorts. These differences among genders were statistically significant only within the 2016/17 cohort.

Figure 137: Graduates receiving career guidance and counselling in Upper Secondary Education by gender and graduation cohort



Regarding age at graduation, Figure 138 presents the percentages of participants that received career guidance during their secondary education studies. In the 2016/17 cohort, in all age groups the majority of graduates (>49%) reported that they did not receive career guidance while in Upper Secondary Education. The only exception was the age group 30-34 in which half of graduates reported receiving career guidance while the other half reported not receiving guidance. In the cohort 2020/21, again the majority of graduates (>65%) in all age groups reported not having received career guidance while in Upper Secondary Education. In particular, the age group "35 and over" had the lowest percentage of graduates receiving career guidance (12%) and the age group "under 25" the highest (34%). These differences among the age groups are statistically significant only for the 2020/21 cohort. Comparisons between the 2016/17 and 2020/21 cohorts show that for all age groups, percentages of graduates receiving guidance have decreased, with the exception of the "under 25" group for which the percentage of participation remained the same.

Figure 138: Graduates receiving career guidance and counselling in Upper Secondary Education by age (at graduation) and graduation cohort

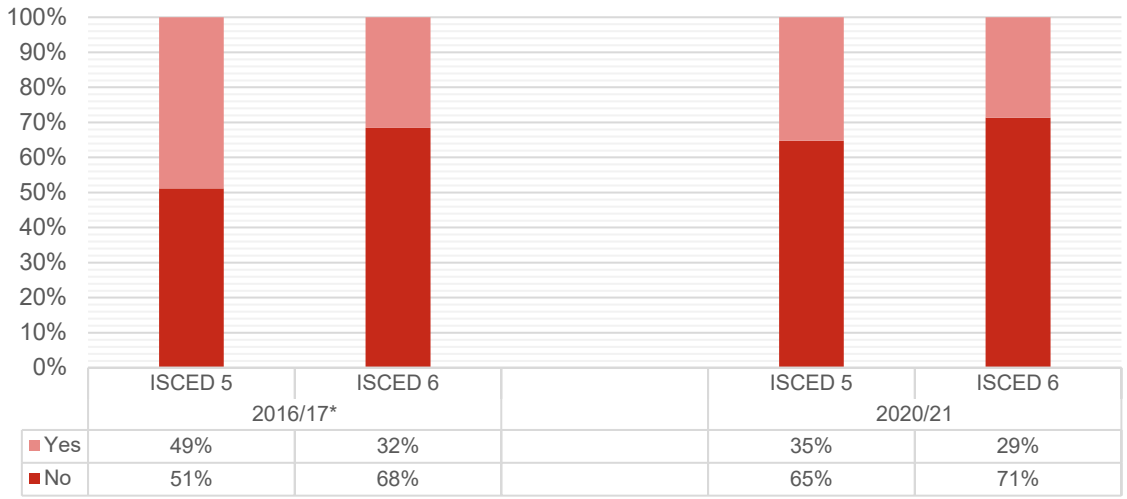


**Statistically significant findings*

5.5.1.2. Career Guidance and Counselling in Upper Secondary Education by variables related to Higher Education studies

Figure 139 shows the percentage of graduates receiving career guidance according to ISCED levels. Statistically significant differences were found only within the cohort 2016/17. Specifically, in the cohort 2016/17 half of ISCED 5 graduates (51%) reported receiving career guidance while the corresponding percentage for ISCED 6 graduates was lower (32%). In the cohort 2020/21, similar percentages of ISCED 5 and ISCED 6 graduates reported receiving guidance (35% and 29% respectively). Comparisons between the two cohorts (from the 2016/17 to the 2020/21), indicated that there was a decrease (14%) in the percentages of both ISCED 5 and ISCED 6 graduates who received guidance.

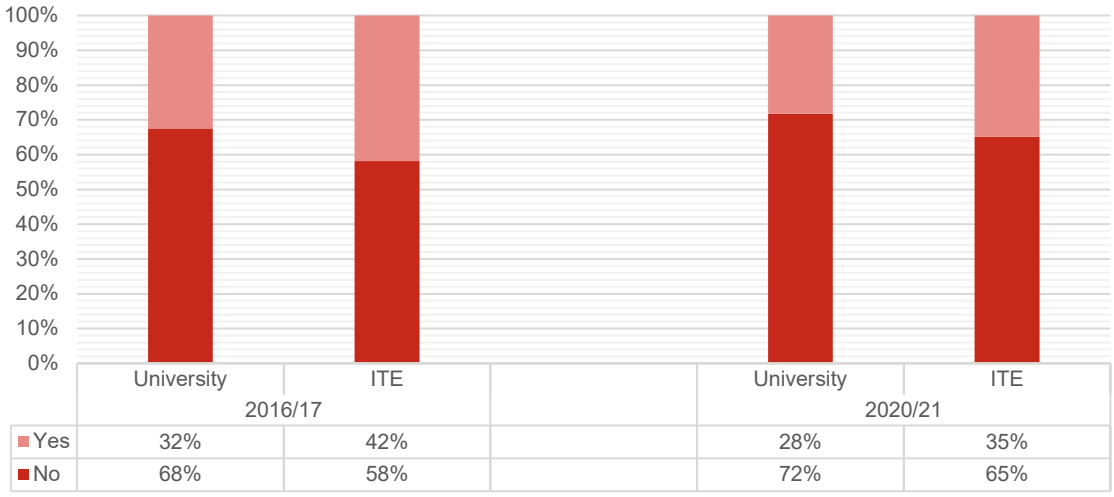
Figure 139: Graduates receiving career guidance and counselling in Upper Secondary Education by ISCED-level and graduation cohort



**Statistically significant findings*

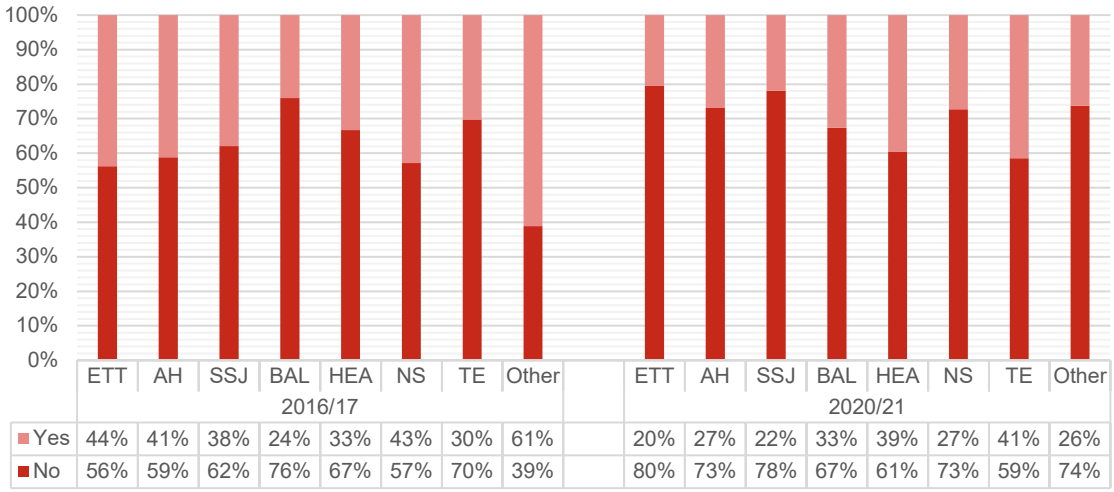
In relation to the type of HEI from which they graduated, Figure 140 shows that within both cohorts participation percentages of graduates from ITE were higher than the corresponding percentages of University graduates. These differences in participation rates were not statistically significant within either cohort.

Figure 140: Graduates receiving career guidance and counselling in Upper Secondary Education by type of HEI and graduation cohort



In terms of the relationship between participation in career guidance in Upper Secondary Education and the field of study, Figure 141 illustrates that there were no statistically significant differences in participation rates among field of study within both cohorts. The fields “Other” (61%) and Technology and Engineering (41%) had the highest percentages of graduates receiving career guidance in the cohorts 2016/17 and 2020/21 respectively. The fields of Business Administration and Law (24%) and Social Science and Journalism (22%) had the lowest participation rates in the cohorts 2016/17 and 2020/21 respectively. Comparisons between the two cohorts (from 2016/17 to 2020/21) reveal that in most fields of study there was a decrease in participation rates (the largest decrease was noted in the field category “Other”). In two fields of study however there was an increase in the percentages of graduates receiving career guidance; these are Business Administration Law and Technology and Engineering (9% and 11% respectively).

Figure 141: Graduates receiving career guidance and counselling in Upper Secondary Education by field of study and graduation cohort



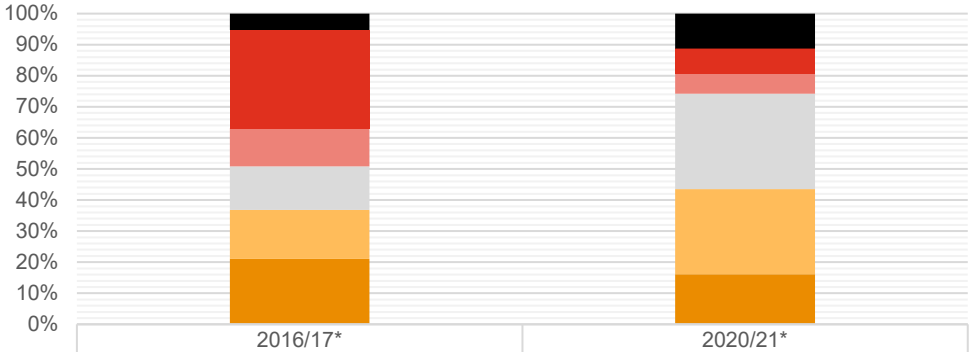
Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

5.5.1.3. Career Guidance and Counselling provided by the Career Counselling and Educational Services (CCES) of the Ministry of Education, Sport, and Youth (MESY)

This section presents findings in relation to career guidance provided by the CCES of the MESY. Particularly, graduates who reported that they received support from the CCES while studying in Upper Secondary Education, were also asked to evaluate various aspects of the career counselling services and guidance received. Graduates were asked to provide their evaluation scores on a five-point scale (1=very useful and 5 =not at all useful).

One significant aspect of career guidance is to provide information on the nature and requirements of various professions (skills, qualifications, working hours, earnings, etc.). Figure 142 presents whether graduates were provided this information and, if yes, how useful it was. It is evident that the majority of graduates in both cohorts received information from the CCES on the nature and requirements of various professions. Statistically significant differences were found between the two cohorts regarding the usefulness of this aspect. A higher percentage of recent graduates (2020/21) evaluated this aspect as moderately (31%) and highly useful (43%) than 2016/17 graduates (14% and 38% respectively).

Figure 142. Usefulness of guidance by the CCES (MESY) in providing information on the nature and requirements of various professions by graduation cohort

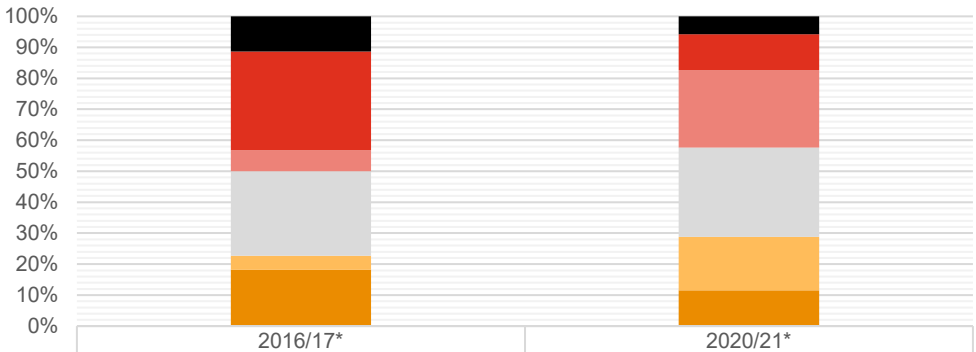


	2016/17*	2020/21*
Not applicable (this aspect was not included)	5%	11%
5 Not at all useful	32%	8%
4	12%	6%
3	14%	31%
2	16%	27%
1 Extremely useful	21%	16%

**Statistically significant findings*

Another important aspect of career guidance is the provision of information regarding labour market's needs in terms of skills and qualifications (e.g., digital skills, green skills, etc.). Graduates' responses regarding the provision of such information by the CCES and its usefulness by cohort are presented in Figure 143. Statistically significant differences were found between the two cohorts. In the 2016/17 cohort a higher percentage of graduates indicated that they were not provided this kind of information (11% as opposed to 6%). Also, more 2016/17 graduates evaluated this aspect as not at all useful (32%) and a lower percentage of graduates as extremely useful (18%) compared to 2020/21 graduates (12% and 12% respectively). A considerable percentage of graduates in both cohorts evaluated this aspect as moderately useful. Although, this aspect of career guidance is very important for making education and training choices, it appears that overall graduates did not find it very useful.

Figure 143: Usefulness of guidance by the CCES (MESY) in providing information regarding labour market's needs in terms of skill and qualifications by graduation cohort

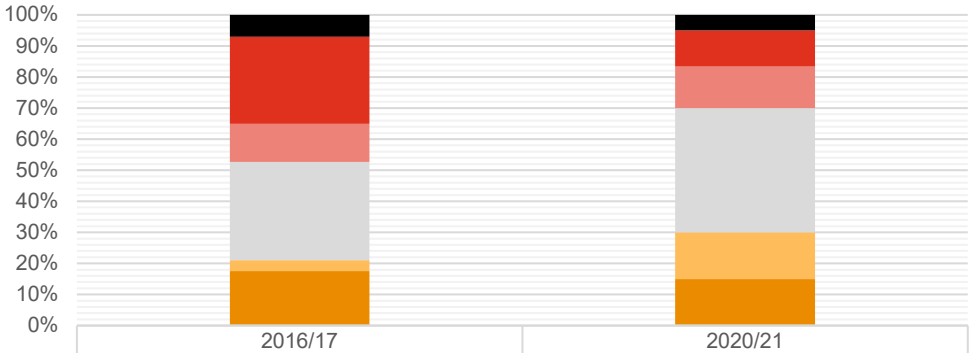


	2016/17*	2020/21*
Not applicable (this aspect was not included)	11%	6%
5 Not at all useful	32%	12%
4	7%	25%
3	27%	29%
2	5%	17%
1 Extremely useful	18%	12%

**Statistically significant findings*

In order for students to be able to make informed decisions regarding occupational choices, they need information regarding the needs of the labour market in terms of specific jobs/ occupations. Figure 144 presents graduates' evaluations of this aspect of guidance provided by the CCES. Most graduates in both cohorts evaluated this aspect as moderately useful. In the 2016/17 cohort, more graduates evaluated this aspect as not useful (40%) as opposed to very useful (22%). The opposite pattern is observed in the 2020/21 cohort, i.e., more graduates evaluated this aspect as very useful (30%) as opposed to not useful (27%).

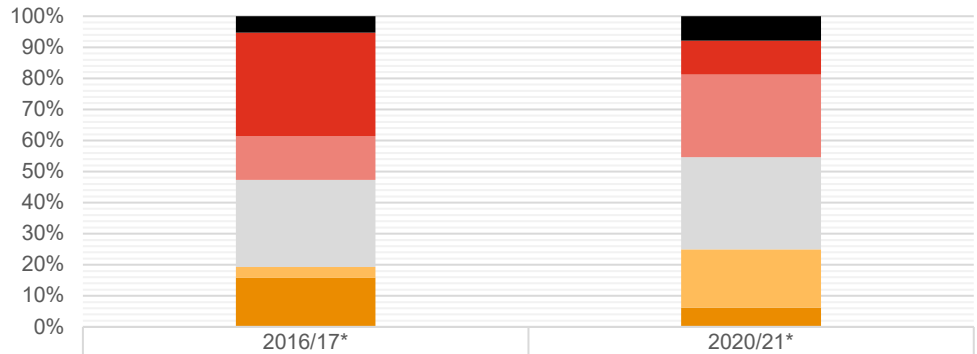
Figure 144: Usefulness of information provided by the CCES (MESY) regarding the needs of the labour market in terms of specific jobs/occupations by graduation cohort



	2016/17	2020/21
Not applicable (this aspect was not included)	7%	5%
5 Not at all useful	28%	12%
4	12%	13%
3	32%	40%
2	4%	15%
1 Extremely useful	18%	15%

As the working world becomes increasingly complex and fast-moving students need to be informed about national and international socio-economic and cultural developments (such as globalisation, technological transformation, climate change, green transition, blue economy etc.) as they will be called to make more decisions regarding their education. Figure 145 presents graduates' views regarding the usefulness of this dimension of guidance by cohort. In both cohorts, a large percentage of participants did not find this dimension useful (47% and 39% for 2016/17 and 2020/21 respectively). A considerable percentage within both cohorts found this dimension as moderately useful (28% and 30% respectively). These differences between the two cohorts were found to be statistically significant. Thus, it can be said that graduates' evaluation scores were not very positive.

Figure 145: Usefulness of information provided by the CCES (MESY) about national and international socio-economic and cultural developments by graduation cohort

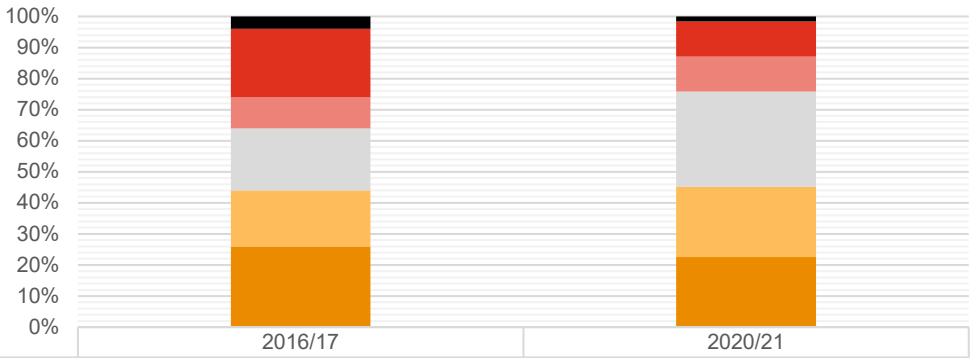


	2016/17*	2020/21*
Not applicable (this aspect was not included)	5%	8%
5 Not at all useful	33%	11%
4	14%	27%
3	28%	30%
2	4%	19%
1 Extremely useful	16%	6%

**Statistically significant findings*

One important activity of career guidance is to help individuals to reflect on their interests, ambitions, skills and talents. Figure 146 presents the usefulness of guidance provided by the CCES in identifying and understanding individual abilities, interests, skills, and talents. Most graduates in both cohorts evaluated this aspect from useful to very useful (44% and 46% in the 2016/17 and 2020/21 cohorts respectively). A considerable percentage evaluated this activity as moderately useful in both cohorts (20% and 31% in the 2016/17 and 2020/21 cohorts respectively). Differences in graduates' evaluations between the two cohorts were not statistically significant. Overall, graduates' evaluations regarding the guidance they received by the CCES in identifying their abilities, interests, and skills were positive.

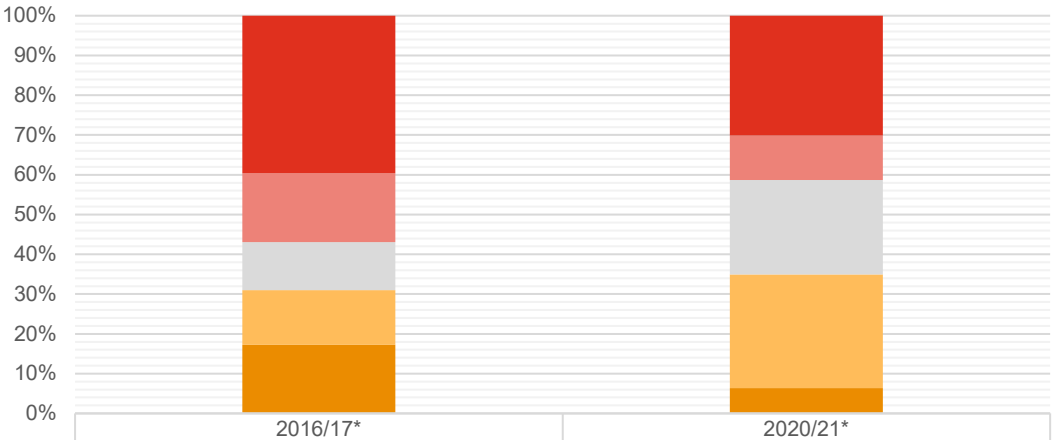
Figure 146: Usefulness of guidance by the CCES (MESY) in identifying and understanding own abilities, interests, skills, and talents by graduation cohort



	2016/17	2020/21
Not applicable (this aspect was not included)	4%	2%
5 Not at all useful	22%	11%
4	10%	11%
3	20%	31%
2	18%	23%
1 Extremely useful	26%	23%

Graduates were also asked to evaluate the impact of the guidance they received by the CCES on the choice of the specific program of study from which they graduated (Figure 147). It is evident that most graduates in both cohorts indicated that guidance received did not have an impact on the choice of program of study in Higher Education. In particular, the majority of both 2016/17 and 2020/21 graduates (57% and 41% respectively) of the participants did not find the guidance of the CCES to have an impact when choosing a program of study in Higher Education. A higher percentage of 2020/21 than 2016/17 graduates (35% and 28% respectively) indicated that guidance by the CCES had an impact to a high extent on their choice of a Higher Education program of study. These differences between the cohorts were found to be statistically significant.

Figure 147: Impact of guidance provided by the CCES (MESY) on the choice of the specific program of study from which they graduated by graduation cohort.



	2016/17*	2020/21*
5 not at all	40%	30%
4	17%	11%
3	12%	24%
2	14%	29%
1 to a very high extent	17%	6%

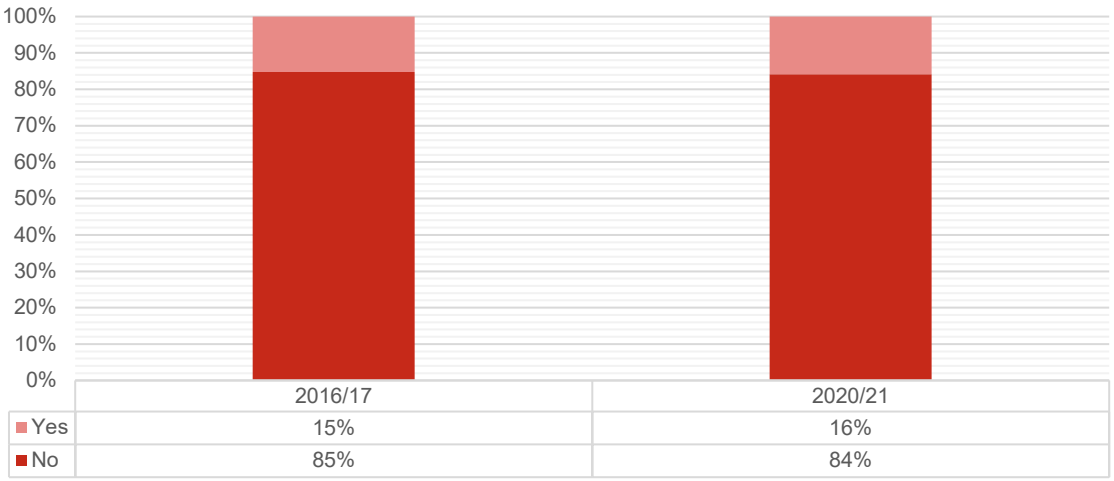
**Statistically significant findings*

5.5.2. Career Guidance and Counselling in Higher Education

Career guidance is a lifelong process. It has a critical role to play in smoothing transitions of young individuals as they make choices regarding education, training, learning routes, mobility, and engagement with the labour market. Career counselling in Higher Education is equally important as it can help Higher Education students make decisions regarding further studies and/or future career paths, formulate a set of attainable goals and a plan of action. This sub-section focuses on findings regarding the experiences of graduates who received career counselling during studies in Higher Education.

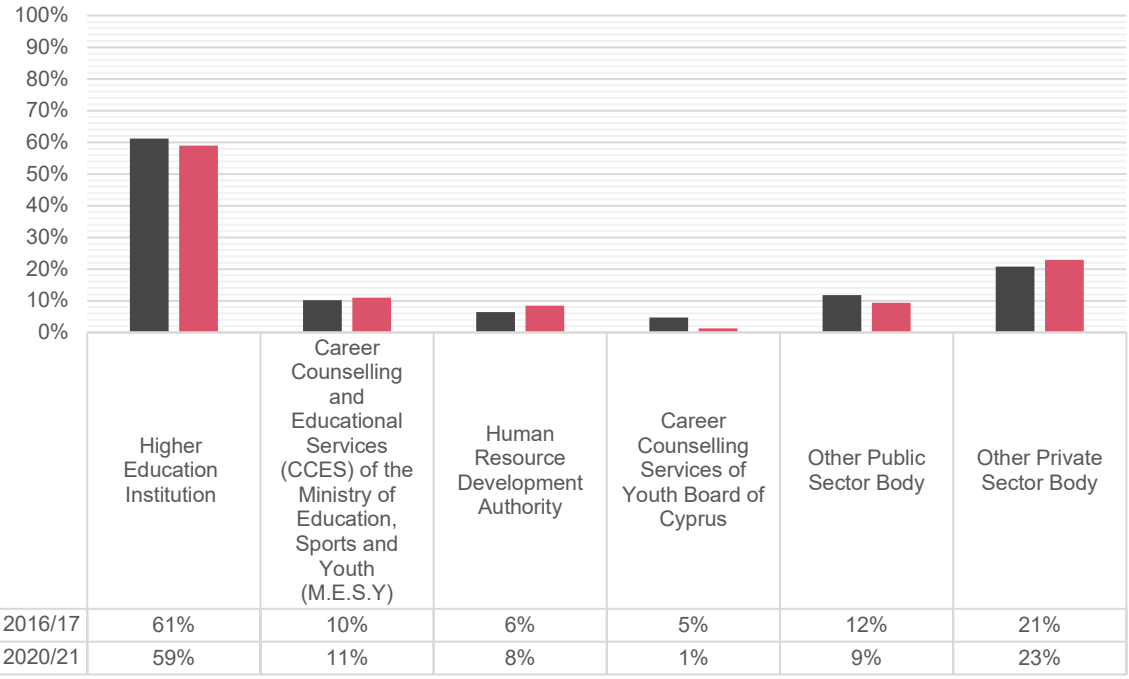
Figure 148 presents the percentage of graduates who received career counselling while studying in Higher Education. It is evident that in both cohorts, a small percentage of graduates (15-16%) received career guidance during their Higher Education studies.

Figure 148:Graduates receiving career guidance and counselling during Higher Education studies by graduation cohort



Regarding the provider of career counselling in Higher Education, graduates indicated that the main provider was their Higher Education Institution (Figure 149). In particular, 61% and 59% of 2016/17 and 2020/21 graduates respectively received career guidance from their HEI. Graduates indicated as a second choice for career guidance (while in Higher Education) relevant provisions from the private sector (21% in 2016/17 and 23% in 2020/21). Only a small percentage of graduates turned to the CCES of the MESY for career guidance while studying in Higher Education (10% in 2016/17 and 11% in 2020/21).

Figure 149: Providers of career guidance and counselling during Higher Education studies by graduation cohort



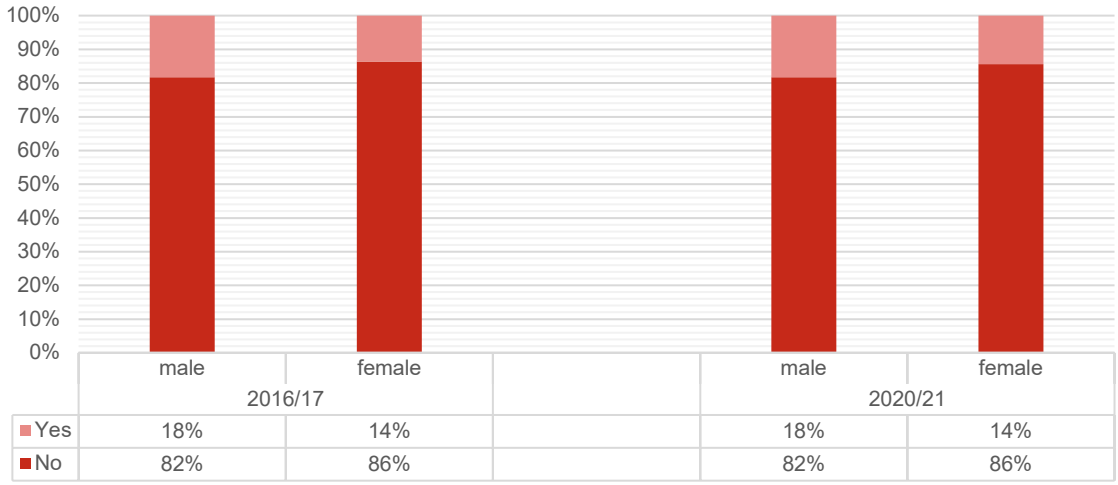
	Higher Education Institution	Career Counselling and Educational Services (CCES) of the Ministry of Education, Sports and Youth (M.E.S.Y)	Human Resource Development Authority	Career Counselling Services of Youth Board of Cyprus	Other Public Sector Body	Other Private Sector Body
2016/17	61%	10%	6%	5%	12%	21%
2020/21	59%	11%	8%	1%	9%	23%

Note: Graduates could provide more than one answer in this question

5.5.2.1. Career Guidance and Counselling in Higher Education by demographic variables

Figure 150 presents the percentage of graduates who received career counselling while studying in Higher Education by gender. In both cohorts, more males than females (18% and 14% respectively) received career guidance during Higher Education studies. These differences among males and female graduates were not statistically significant different.

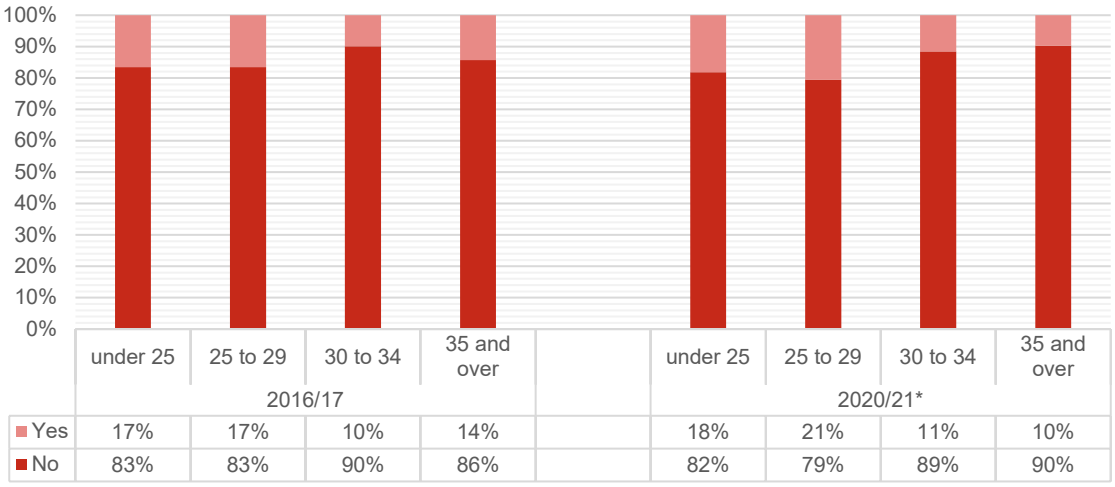
Figure 150: Graduates receiving career guidance and counselling during Higher Education studies by gender and graduation cohort



	male	female	male	female
	2016/17		2020/21	
Yes	18%	14%	18%	14%
No	82%	86%	82%	86%

Regarding the participation in career guidance activities by age at graduation, Figure 151 shows that young graduates had higher participation than mature graduates within both cohorts. Only in the cohort 2020/21, the differences in participation rates among the various age groups is statistically significant. In particular, the highest percentage of graduates participating in career guidance activities belongs to the 25-29 age group (21%) while the lowest to the 35 and over (10%).

Figure 151: Graduates receiving career guidance and counselling during Higher Education studies by age (at graduation) and graduation cohort



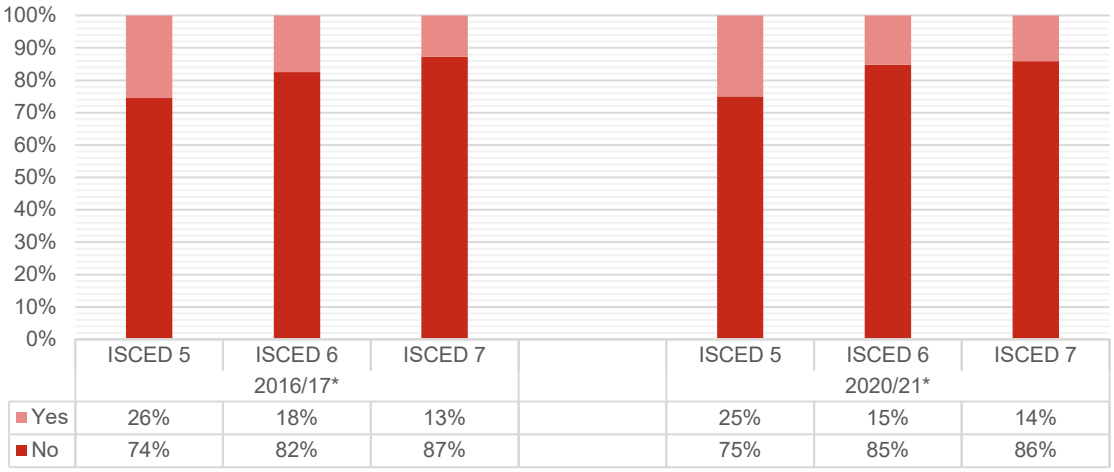
	2016/17				2020/21*			
	under 25	25 to 29	30 to 34	35 and over	under 25	25 to 29	30 to 34	35 and over
Yes	17%	17%	10%	14%	18%	21%	11%	10%
No	83%	83%	90%	86%	82%	79%	89%	90%

**Statistically significant findings*

5.5.2.2. Career Guidance and Counselling in Higher Education by variables related to Higher Education studies

Figure 152 shows the percentage of graduates receiving career counselling while in Higher Education according to the level of their degree. ISCED 5 level had the highest percentage of graduates receiving career guidance in Higher Education (26% and 25% for 2016/17 and 2020/21 cohorts respectively) while ISCED 7 the lowest (13% and 14% for 2016/17 and 2020/21 cohorts respectively). These differences in participation rates according to ISCED levels were found to be statistically significant in both cohorts.

Figure 152: Graduates receiving career guidance and counselling during Higher Education studies by ISCED-level and graduation cohort

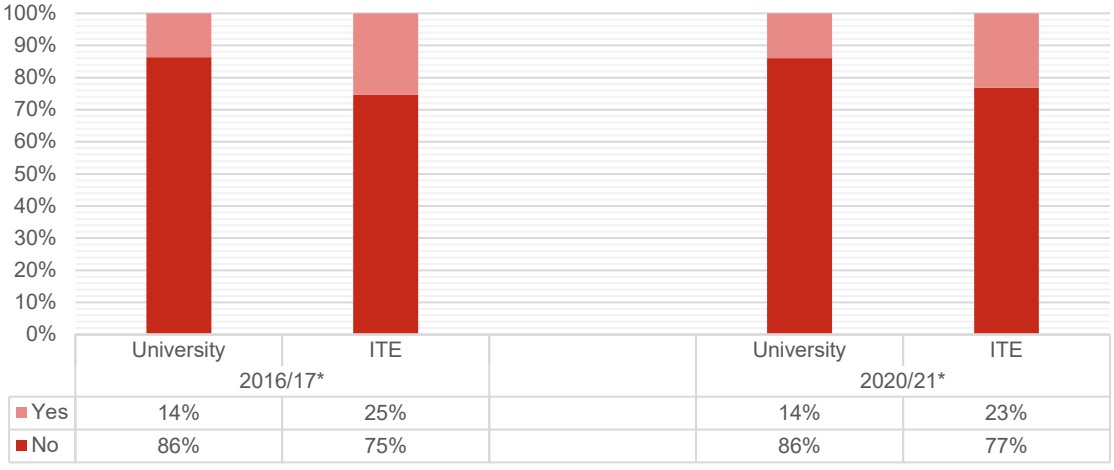


	ISCED 5	ISCED 6 2016/17*	ISCED 7	ISCED 5	ISCED 6 2020/21*	ISCED 7
Yes	26%	18%	13%	25%	15%	14%
No	74%	82%	87%	75%	85%	86%

**Statistically significant findings*

Regarding the percentages of graduates who received career counselling during Higher Education studies by the type of HEI, significantly more graduates in ITE received guidance than graduates in Universities within both cohorts (25% and 23% for 2016/17 and 2020/21 cohorts respectively). This was somewhat expected as only ITE offer programs of study at ISCED level 5 and, based on Figure 153, ISCED 5 graduates had the highest participation rates in career guidance activities.

Figure 153: Graduates receiving career guidance and counselling during Higher Education studies by type of HEI and graduation cohort



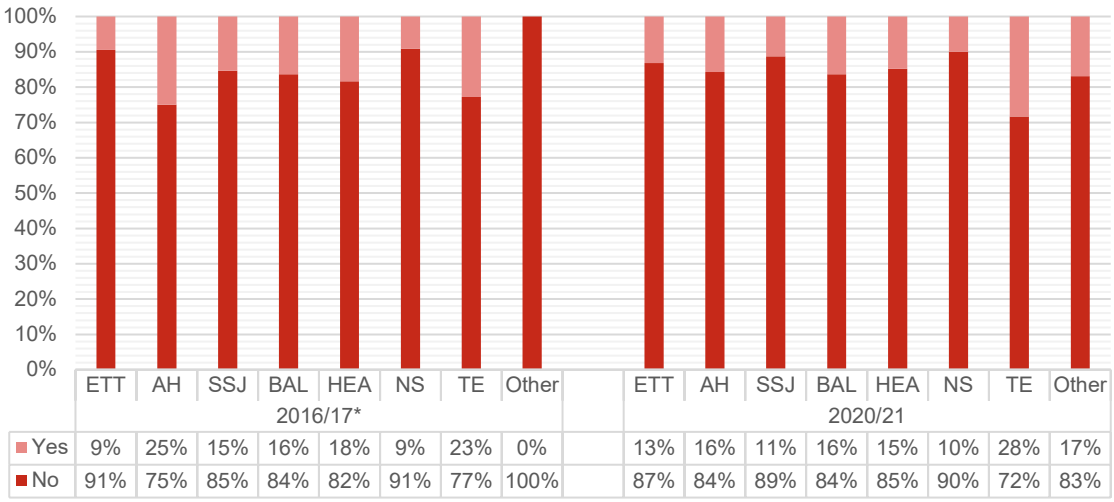
	University	ITE 2016/17*	University	ITE 2020/21*
Yes	14%	25%	14%	23%
No	86%	75%	86%	77%

**Statistically significant findings*

Statistically significant differences regarding the proportion of graduates who received career guidance during Higher Education studies by field of study were found only in the 2016/17 cohort (Figure 154). Particularly, in the 2016/17 cohort, the field with the highest participation percentage was Arts and Humanities (25%) while the field with the lowest was the category “Other” (0%). In the 2020/21 cohort, the field with the highest

percentage of 2020/21 graduates who received guidance was Technology and Engineering (28%) while the lowest was Natural Sciences (10%).

Figure 154: Graduates receiving career guidance and counselling during Higher Education studies by field of study and graduation cohort



	2016/17*								2020/21							
	ETT	AH	SSJ	BAL	HEA	NS	TE	Other	ETT	AH	SSJ	BAL	HEA	NS	TE	Other
Yes	9%	25%	15%	16%	18%	9%	23%	0%	13%	16%	11%	16%	15%	10%	28%	17%
No	91%	75%	85%	84%	82%	91%	77%	100%	87%	84%	89%	84%	85%	90%	72%	83%

**Statistically significant findings*

Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering.

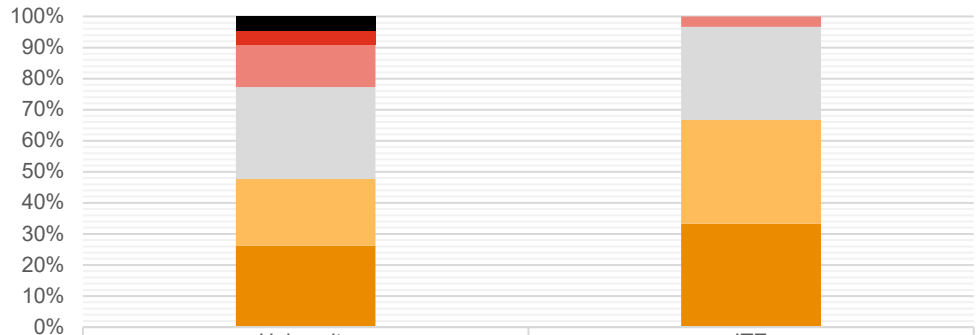
5.5.2.3. Career Guidance and Counselling provided by Higher Education Institutions

This section focuses on career guidance and counselling provided to graduates while in Higher Education by their HEI. In Cyprus, career guidance is usually offered by Careers Offices in Universities and other HEIs, which are responsible for advising students and alumni on employment, career prospects and postgraduate studies abroad. Graduates who have indicated that they received career guidance by their HEI were asked to evaluate the usefulness of these services, on a five-point rating scale (1= extremely useful and 5=not at all useful).

As the number of graduates within each cohort that received career guidance by their Higher Education Institutions was quite small, findings are presented for both cohorts together. Moreover, as the findings presented here are of particular interest to HEIs, these are presented by type of HEI.

Figure 155 presents the usefulness of guidance in providing information on the nature and requirements of various professions (skills, credentials, working hours, pay, etc.) by type of HEI. Overall graduates appear to be positive in their evaluations. Graduates from ITE were more positive as 66% indicated that they found this aspect as useful to very useful. The corresponding percentage for University graduates was 48%. Approximately one third of graduates in both types of HEIs indicated that this aspect of guidance was moderately useful.

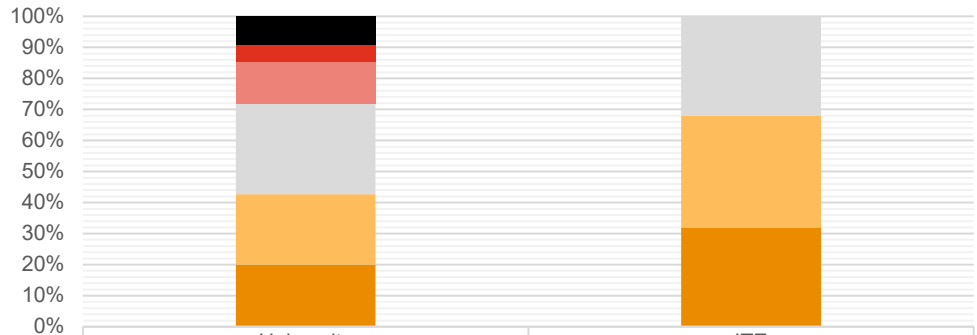
Figure 155: Career guidance and counselling provided by HEIs- Usefulness of guidance in providing information on the nature and requirements of various professions by type of HEI



	University	ITE
Not applicable (this aspect was not included)	5%	0%
5 Not at all useful	5%	0%
4	14%	3%
3	30%	30%
2	22%	33%
1 Extremely useful	26%	33%

In terms of the usefulness of guidance in providing information regarding the skills and qualifications needed by the labour market (such as digital skills, green skills, etc.), Figure 156 shows that 68% of graduates from ITE evaluated this aspect as useful to extremely useful and the remaining 32% as moderately useful. The corresponding percentages for University graduates was 43% and 29% respectively. Only, University graduates provided negative evaluations as to the usefulness of this aspect.

Figure 156: Career guidance and counselling provided by HEIs- Usefulness of guidance in providing information regarding labour market's needs in terms of skill and qualifications by type of HEI

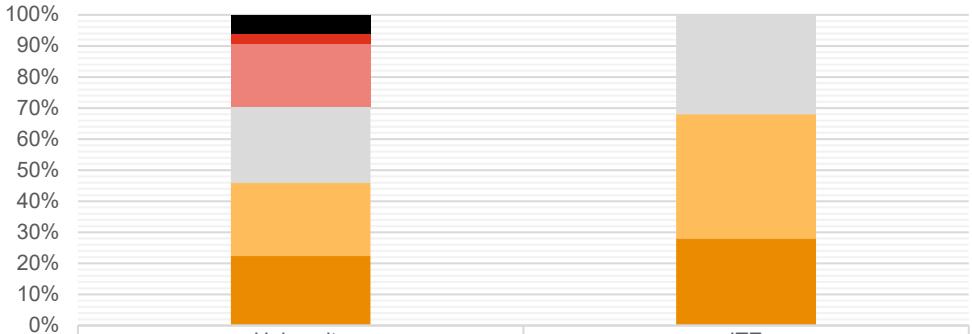


	University	ITE
Not applicable (this aspect was not included)	9%	0%
5 Not at all useful	5%	0%
4	13%	0%
3	29%	32%
2	23%	36%
1 Extremely useful	20%	32%

In line with the previous findings, according to Figure 157, graduates from ITE appear again to be very positive in their evaluations regarding the usefulness of guidance in providing information on the needs of the labour

market in terms of specific jobs/ occupations (68%). One third of graduates from ITE evaluated this dimension as moderately useful while no graduate stated that this aspect was not useful. In Universities, 46% of graduates evaluated this aspect as useful to extremely useful, 25% as moderately useful and 24% as not useful. These differences between graduates' responses by type of HEI were not found to be statistically significant.

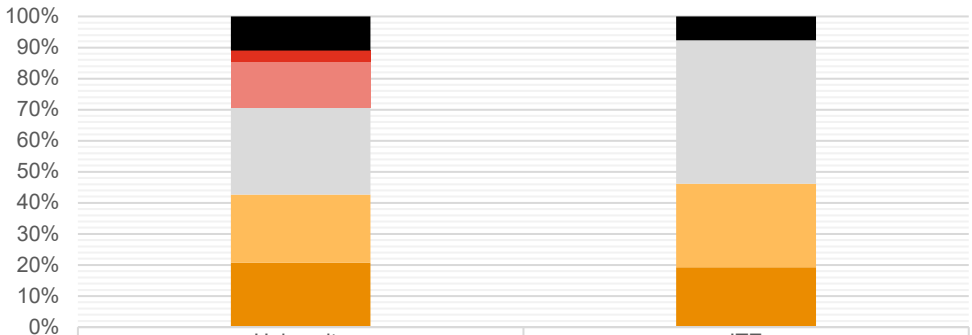
Figure 157: Career guidance and counselling provided by HEIs- Usefulness of guidance in providing information on the needs of the labour market in terms of specific jobs/occupations by type of HEI



	University	ITE
Not applicable (this aspect was not included)	6%	0%
5 Not at all useful	4%	0%
4	20%	0%
3	25%	32%
2	24%	40%
1 Extremely useful	22%	28%

Figure 158 presents findings regarding the usefulness of guidance in providing information about national and international socio-economic and cultural advancements. The majority of graduates from Universities and ITE (46% and 43% respectively) found this aspect of guidance as useful to very useful. A higher percentage of graduates from ITE than from Universities (46% as opposed to 28%) evaluated this aspect as moderately useful. Once more, no graduate from ITE evaluated this aspect as not useful while the corresponding percentage for graduates in Univeristy was 19%.

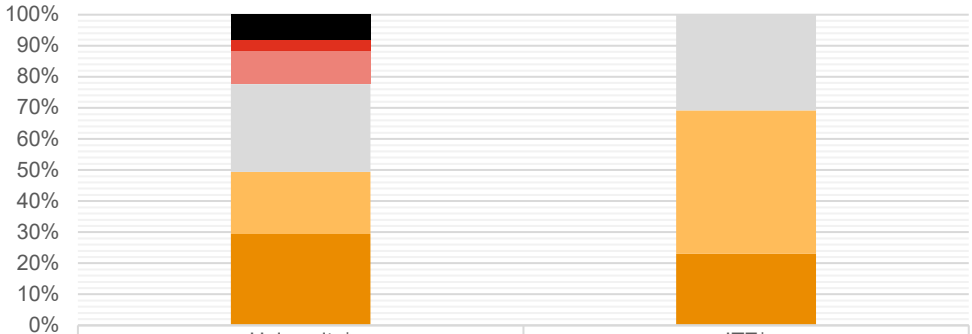
Figure 158: Career guidance and counselling provided by HEIs- Usefulness of guidance in providing information about national and international socio-economic and cultural developments by type of HEI



	University	ITE
Not applicable (this aspect was not included)	11%	8%
5 Not at all useful	4%	0%
4	15%	0%
3	28%	46%
2	22%	27%
1 Extremely useful	21%	19%

As already mentioned, one important goal of career guidance and counselling is to improve individual's self-awareness, i.e., to help individuals develop an understanding of their own abilities, talents and interests. Figure 159 presents graduates' evaluations of guidance received in gaining self-awareness. Statistically significant differences were found among graduates from Universities and ITE. A higher percentage of graduates from ITE evaluated this aspect as useful to very useful (69%) compared to University graduates (49%). Similar percentages were noted in the category moderately useful while only University graduates provided negative evaluations for the usefulness of this aspect.

Figure 159: Career guidance and counselling provided by HEIs- Usefulness of career guidance and counselling in identifying and understanding individual abilities, interests, skills, and talents by type of HEI

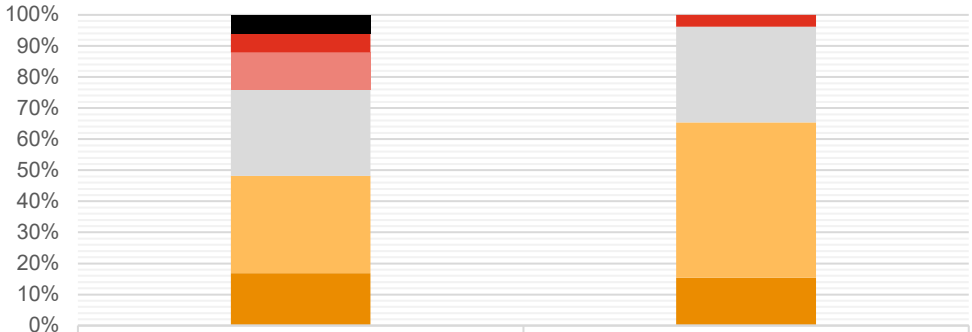


	University*	ITE*
Not applicable (this aspect was not included)	8%	0%
5 Not at all useful	4%	0%
4	11%	0%
3	28%	31%
2	20%	46%
1 Extremely useful	29%	23%

**Statistically significant findings*

Career guidance can help individuals achieve their career goals. Specifically, career guidance and counselling can help individuals develop a personalised career plan that considers skills, interests, and talents, but also barriers. Figure 160 presents graduates' evaluations of guidance received in developing such a plan while in Higher Education. The majority of graduates from Universities and ITE reported that they found this aspect as useful to very useful (48% and 65% respectively). A considerable percentage of graduates from both Universities and ITE evaluated this aspect as moderately useful (28% and 31% respectively).

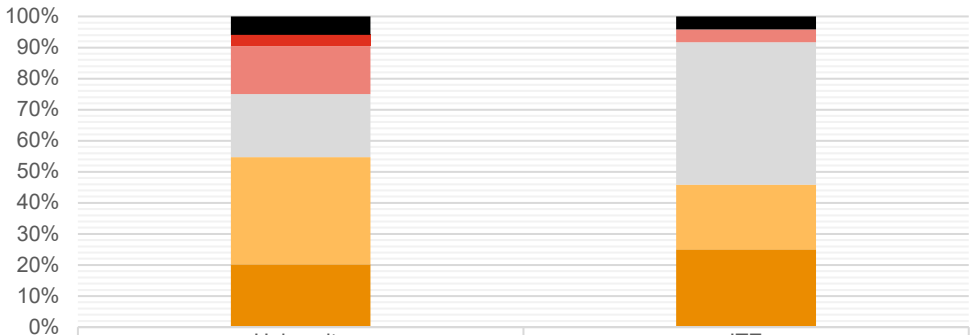
Figure 160: Career guidance and counselling provided by HEIs- Usefulness of career guidance in developing a personal career plan by type of HEI



	University	ITE
Not applicable (this aspect was not included)	6%	0%
5 Not at all useful	6%	4%
4	12%	0%
3	28%	31%
2	31%	50%
1 Extremely useful	17%	15%

Career guidance and counselling has an important role to play in providing information regarding mobility opportunities and in encouraging participation in mobility programs in Higher Education. It is evident from Figure 161 that more graduates from Universities evaluated positively this aspect than graduates from ITE. In particular, 55% of University graduates have found this aspect as useful to very useful while 20% as moderately useful. In ITE, 46% of graduates evaluated guidance regarding mobility programs as moderately useful and another 46% as useful to very useful.

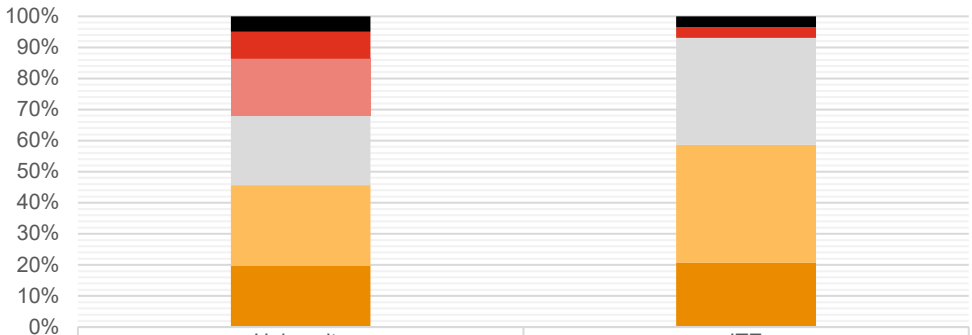
Figure 161: Career guidance and counselling provided by HEIs-Usefulness of guidance in providing information regarding mobility opportunities and taking advantage of mobility programs by type of HEI



	University	ITE
Not applicable (this aspect was not included)	6%	4%
5 Not at all useful	4%	0%
4	15%	4%
3	20%	46%
2	35%	21%
1 Extremely useful	20%	25%

Career guidance in Higher Education can provide students with information regarding funding opportunities for the purposes of further studies. It is evident from Figure 162 that more graduates from ITE evaluated this aspect positively than graduates from Universities. Specifically, a higher percentage of graduates from ITE found this aspect to be useful to very useful (59%) than University graduates (46%). A considerable percentage of graduates from ITE found this aspect of guidance moderately useful (34%) while the corresponding percentage for University graduates was lower, i.e., 22%. A very small percentage of graduates from ITE stated that this aspect was not useful (3%), but this percentage was much higher for University graduates (28%).

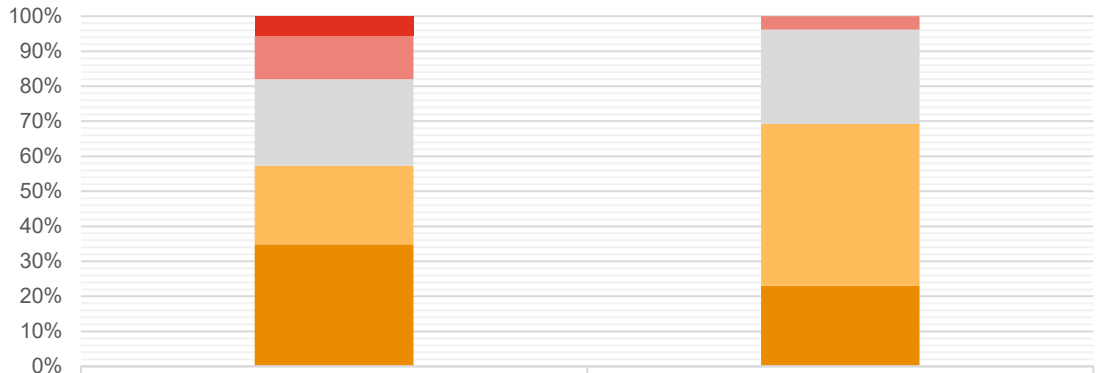
Figure 162: Career guidance and counselling provided by HEIs -Usefulness of guidance in providing information of funding opportunities for further studies by type of HEI



	University	ITE
Not applicable (this aspect was not included)	5%	3%
5 Not at all useful	9%	3%
4	19%	0%
3	22%	34%
2	26%	38%
1 Extremely useful	20%	21%

Gaining work experience while in Higher Education is considered important as it facilitates the transition into the world of work, allows students to gain some work experience during studies and also helps students in making decisions regarding their future career. Acknowledging the value of work experience while studying, as per Figure 163, more than half of graduates from Universities and ITE evaluated this aspect of guidance as useful to very useful (57% and 69% respectively). Only 18% of University graduates and 4% of graduates from ITE reported that they did not find this aspect useful.

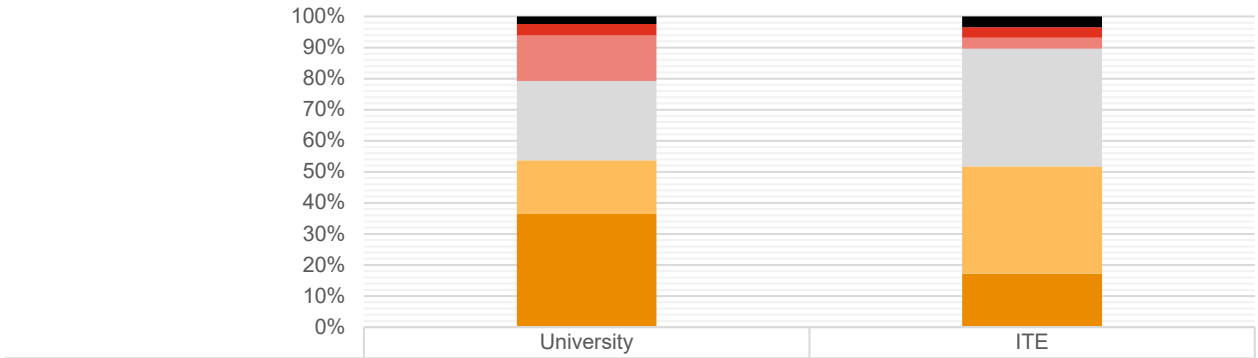
Figure 163: Career guidance and counselling provided by HEIs -Usefulness of guidance in providing information on opportunities to gain work experience by type of HEI



	University	ITE
5 Not at all useful	6%	0%
4	12%	4%
3	25%	27%
2	22%	46%
1 Extremely useful	35%	23%

The job market is a fast-evolving landscape due to technological advancements, rapidly evolving industries, changing economy conditions, amongst various other factors. Students need to develop the necessary skills to be able to navigate this dynamic landscape. These skills include preparing a CV, preparing for job interviews, employing effective job search strategies, etc. Figure 164 shows that the majority of graduates from Universities and ITE evaluated this aspect as useful to very useful (54% and 51% respectively), while lower percentages of graduates from Universities and ITE as moderately useful (26% and 38% respectively). Only, 19% of University graduates and 6% of graduates from ITE evaluated this aspect as not useful.

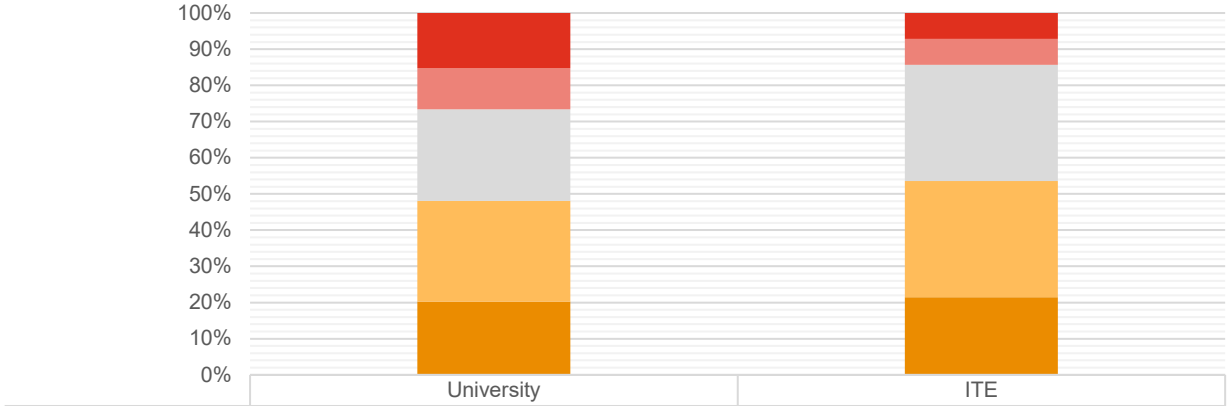
Figure 164: Career guidance and counselling provided by HEIs -Usefulness of guidance in developing job market navigation skills by type of HEI



	University	ITE
Not applicable (this aspect was not included)	2%	3%
5 Not at all useful	4%	3%
4	15%	3%
3	26%	38%
2	17%	34%
1 Extremely useful	37%	17%

Graduates were also asked to indicate the extent to which the career guidance and counselling received by their HEI contributed to finding employment after graduation. It should be noted that only graduates who started looking for employment after graduation responded to this question. According to Figure 165, 48% of University graduates and 53% of graduates from ITE stated that guidance received had a big contribution to finding a job after graduation. A percentage of 26% of University graduates and 14% of graduates from ITE indicated that the contribution of guidance received while in Higher Education was small in finding a job after graduation.

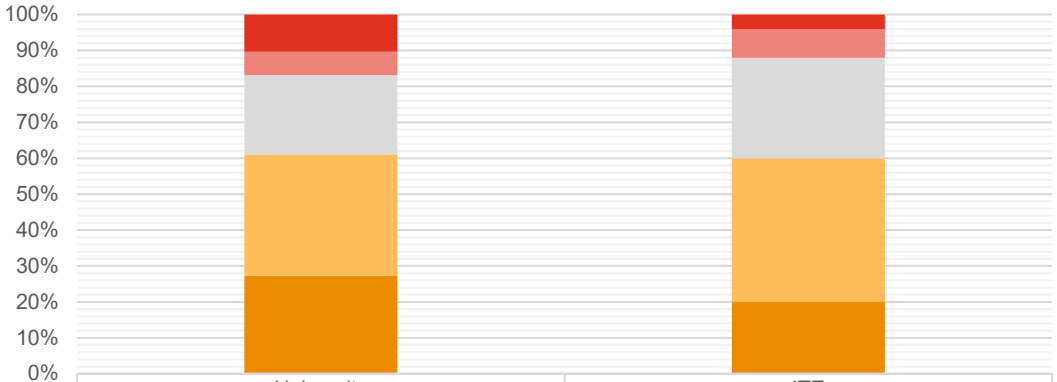
Figure 165: Career guidance and counselling provided by HEIs -Contribution of guidance and counselling received to finding employment after graduation by type of HEI



	University	ITE
5 not at all	15%	7%
4	11%	7%
3	25%	32%
2	28%	32%
1 to a very high extent	20%	21%

Finally, graduates were also asked to indicate the extent to which the career guidance and counselling received by their HEI contributed to the decision to pursue further studies after graduation. Only graduates who continued their studies after graduation responded to this question. It is evident from Figure 166 that guidance received by HEIs had an impact on the decision to pursue further studies for graduates from both Universities and ITE. Specifically, 61% of University graduates and 60% of graduates from ITE indicated that guidance received played a significant role in the decision to continue their studies in Higher Education. In contrast, 16% of University graduates and 12% of graduates from ITE reported that they did not find guidance to have any impact on this decision.

Figure 166: Career guidance and counselling provided by HEIs – Contribution of guidance and counselling received to the decision to pursue further studies after graduation by type of HEI



	University	ITE
5 not at all	10%	4%
4	6%	8%
3	22%	28%
2	34%	40%
1 to a very high extent	27%	20%

5.6. Upskilling and reskilling during employment

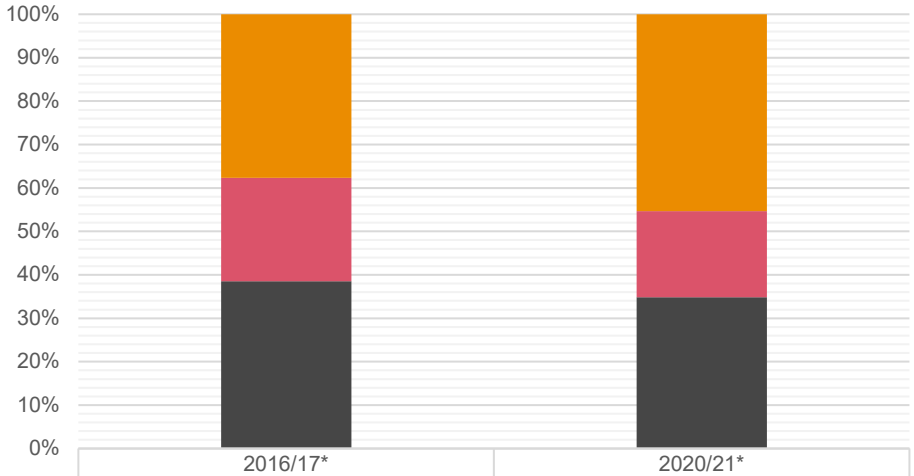
Upskilling and reskilling activities prepare employees for recent and fast-approaching developments, which may require more agility. While there is an association between them, upskilling differs from reskilling in the sense that it doesn't aim to shift employees into new roles. Specifically, upskilling relates to learning new and enhanced skills that concern the graduate's current role, a "levelling up" of his/her skills. Upskilling is typically a more intentional learning process where one usually elevates his/her current skills through skills development courses, certifications, or mentorship programs. Upskilling enhances an employee's existing skills (Duncan Gallie et al., 1991). In contrast, reskilling prepares current workers for different roles. Reskilling involves learning new cross-functional skills and is highly important if one would like to change his/her career path and engage in a different role. Both upskilling and reskilling activities are considered important as they prepare the workforce and companies to adjust and handle fast changing market conditions and fast developing technologies.

In the context of this study, graduates' participation in upskilling and reskilling activities during employment was also explored. In particular, the extent to which graduates are participating in upskilling and reskilling activities while also the reasons for participation were explored. Only graduates who indicated they were employed or self-employed responded to questions regarding upskilling and reskilling activities.

5.6.1. Participation in upskilling and reskilling activities during employment

Graduates were asked to indicate their participation in upskilling and reskilling activities in the past year, but also to indicate whether these training activities were offered by their employer (on a compulsory and/or voluntary basis). Figure 167 shows that the majority of graduates in both cohorts participated in upskilling and reskilling activities in the past 12 months. Particularly, a significantly higher percentage of 2016/17 graduates (63%) reported to have participated in upskilling and reskilling activities than 2020/21 graduates (55%). This was somehow expected as 2020/21 graduates completed their Higher Education studies relatively recently. It is observed that 39% of 2016/17 graduates and 35% of 2020/21 graduates participated in training activities offered by their employer either on a compulsory or voluntary basis. This suggests that employers acknowledge the need and benefits of providing continuous professional development to their employees. It is also observed that 24% of 2016/17 graduates and 20% of 2020/21 graduates participated in upskilling and reskilling activities on their own initiative and by this way demonstrating their commitment and motivation for learning. These differences in participation rates in upskilling and reskilling activities between the two cohorts were found to be statistically significant.

Figure 167: Graduates' participation in upskilling and reskilling activities during employment the past 12 months by graduation cohort



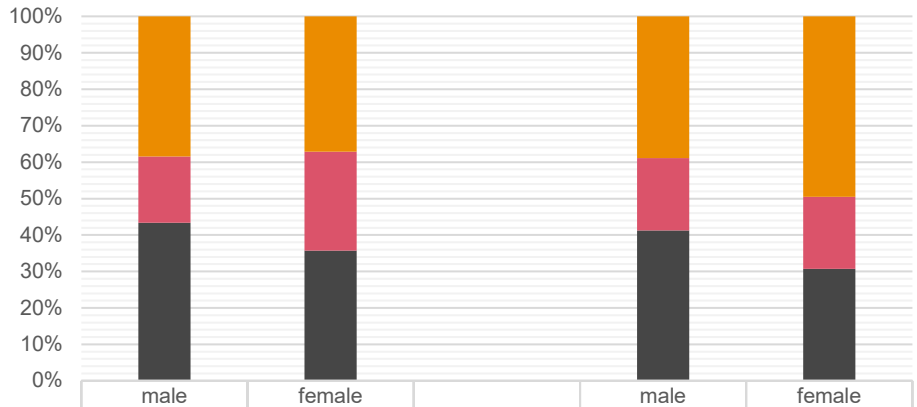
	2016/17*	2020/21*
No	38%	45%
Yes, in upskilling and/or reskilling training activities pursued by me (not offered by my employer)	24%	20%
Yes, in upskilling and/or reskilling training activities offered by my employer (on a voluntary and/or compulsory basis)	39%	35%

**Statistically significant findings*

5.6.1.1. Participation in upskilling and reskilling activities during employment by demographic variables

Statistically significant differences were found between males and females regarding their participation in upskilling and reskilling training in the past 12 months within both cohorts (Figure 168). In the 2016/17 cohort, the percentage of males and females who did not participate in upskilling and reskilling training activities was quite similar (38% for males and 37% for females). However, significantly more males (43%) than females (36%) participated in training activities provided by their employer while more females (27%) than males participated in training activities on their own initiative. In the 2020/21 cohort, a higher percentage of female graduates (50%) than males (39%) reported not participating in upskilling and training activities. Again, more males (41%) than females (31%) participated in training activities provided by their employer. Similar percentages were noted among both genders for participation in training activities on their own initiative.

Figure 168: Graduates' participation in upskilling and reskilling activities during employment the past 12 months by gender and graduation cohort

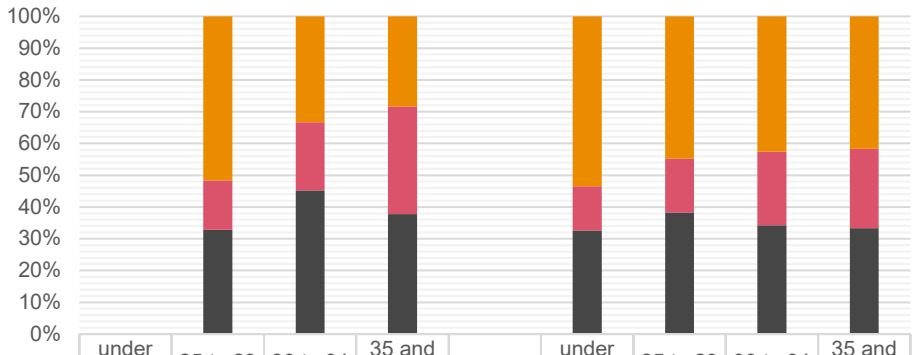


	2016/17* male	2016/17* female	2020/21* male	2020/21* female
No	38%	37%	39%	50%
Yes, in upskilling and/or reskilling training activities pursued by me (not offered by my employer)	18%	27%	20%	20%
Yes, in upskilling and/or reskilling training activities offered by my employer (on a voluntary and/or compulsory basis)	43%	36%	41%	31%

**Statistically significant findings*

Participation in upskilling and reskilling training activities during employment the past 12 months by age at the time of the survey is shown in Figure 169. As already mentioned, in the 2016/17 cohort, only a very small number of participants belonged in the age group "under 25" and therefore this group was excluded from this exploration. In the 2016/17 cohort, participants over the age of 35 had the highest participation rate in upskilling and reskilling training activities during employment, reaching 69% while participants from the age group "25 to 29" the lowest (48%). The majority of graduates in all age groups that reported participating in upskilling and reskilling training activities during employment, also reported that these activities were offered by their employer on a compulsory or voluntary basis. The age group with the highest percentage of participation rate in training activities based on their own initiative was "35 and over". The differences in participation rates in upskilling and reskilling training activities during employment in the past 12 months by age at the time of the survey were statistically significant for the 2016/17 cohort. In relation to the 2020/21 cohort, the age group "under 25" had the lowest participation rate in upskilling and reskilling training activities during employment among the age groups (47%), while the other age groups had similar participation percentages. Again, the majority of graduates in all age groups that reported participating in upskilling and reskilling training activities during employment, also reported that these activities were offered by their employer on compulsory or voluntary basis and the age group "35 and over" again had the highest percentage of participation rate in training activities based on their own initiative.

Figure 169: Graduates' participation in upskilling and reskilling activities during employment the past 12 months by age (at time of the survey) and graduation cohort



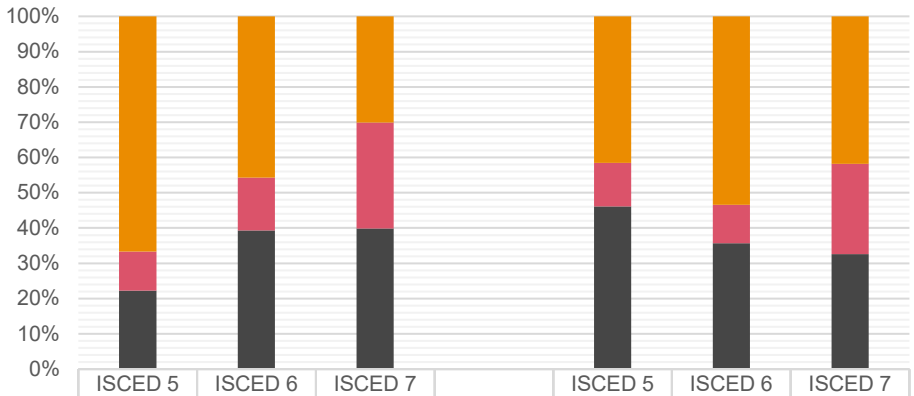
	2016/17*				2020/21			
	under 25	25 to 29	30 to 34	35 and over	under 25	25 to 29	30 to 34	35 and over
No		52%	33%	28%	53%	45%	43%	42%
Yes, in upskilling and/or reskilling training activities pursued by me (not offered by my employer)		16%	21%	34%	14%	17%	23%	25%
Yes, in upskilling and/or reskilling training activities offered by my employer (on a voluntary and/or compulsory basis)		33%	45%	38%	33%	38%	34%	33%

**Statistically significant findings*

5.6.1.2. Participation in upskilling and reskilling activities during employment by variables related to Higher Education studies

Participation in upskilling and reskilling activities during employment by level of studies is presented in Figure 170. In the 2016/17 cohort, ISCED 7 graduates had the highest participation percentage (70%) in upskilling and reskilling activities during employment while ISCED 5 graduates the lowest (33%). In particular, ISCED 7 graduates reported the highest participation percentage in both categories of upskilling and reskilling activities i.e., the ones provided by employer (40%) but also on their own initiative (30%). In the 2020/21 cohort ISCED 5 and ISCED 7 graduates reported the same participation percentage (58%) in upskilling and reskilling activities during employment. ISCED 5 graduates reported the highest participation percentage in upskilling and reskilling activities provided by employer (46%) while ISCED 7 had the highest percentage in participating in upskilling and reskilling activities based on their own initiative (26%). These differences in participation rates in upskilling and reskilling activities by the level of studies were found to be statistically significant.

Figure 170: Graduates' participation in upskilling and reskilling activities during employment the past 12 months by ISCED-level and graduation cohort

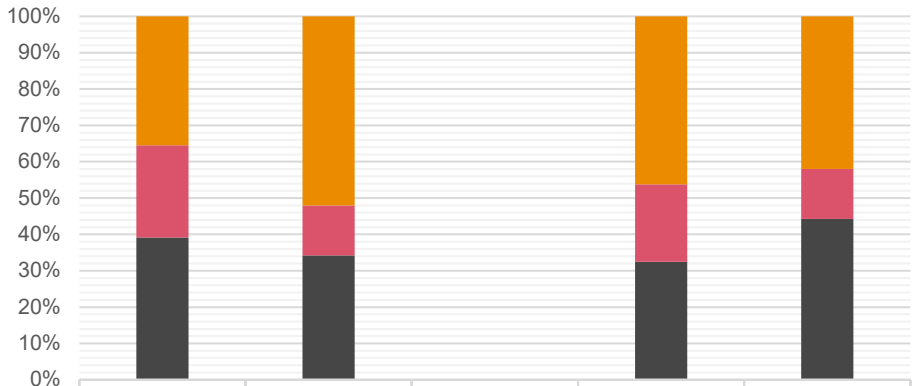


	ISCED 5	ISCED 6 2016/17*	ISCED 7		ISCED 5	ISCED 6 2020/21*	ISCED 7
No	67%	46%	30%		42%	53%	42%
Yes, in upskilling and/or reskilling training activities pursued by me (not offered by my employer)	11%	15%	30%		12%	11%	26%
Yes, in upskilling and/or reskilling training activities offered by my employer (on a voluntary and/or compulsory basis)	22%	39%	40%		46%	36%	33%

**Statistically significant findings*

Participation rates in upskilling and reskilling activities during employment by type of HEI from which participants graduated is presented in Figure 171. Statistically significant differences were found in participation rates in upskilling and reskilling activities during employment among graduates from Universities and ITE within both cohorts. In particular, in the 2016/17 cohort, the participation rate of University graduates (64%) was higher than the corresponding percentage of graduates from ITE (48%). University graduates had also higher percentages of participation in both types of upskilling and reskilling training activities (provided by their employer and those undertaken based on their own initiative). In the 2020/21 cohort, the pattern is not the same. University graduates had a lower participation rate (54%) compared to graduates from ITE (58%) in upskilling and reskilling activities. Graduates from ITE also had higher percentages (44%) of participation in upskilling and reskilling training activities provided by their employer than University graduates (33%) while University graduates had higher participation rates (21%) in upskilling and reskilling training activities undertaken based on their own initiative (14%).

Figure 171: Graduates' participation in upskilling and reskilling activities during employment the past 12 months by type of HEI and graduation cohort

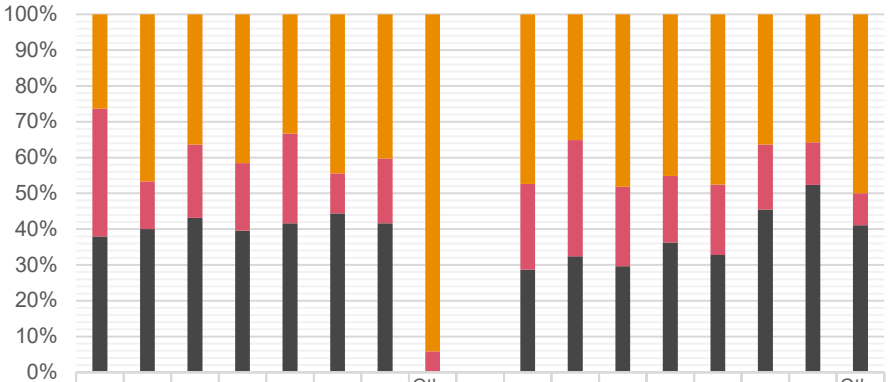


	2016/17* University	2016/17* ITE		2020/21* University	2020/21* ITE
No	36%	52%		46%	42%
Yes, in upskilling and/or reskilling training activities pursued by me (not offered by my employer)	25%	14%		21%	14%
Yes, in upskilling and/or reskilling training activities offered by my employer (on a voluntary and/or compulsory basis)	39%	34%		33%	44%

**Statistically significant findings*

Participation rates in upskilling and reskilling activities during employment were also explored by field of study (Figure 172). In the cohort 2016/17 there were statistically significant differences in participation rates in upskilling and reskilling activities between the various fields of study. Overall, the majority of graduates in all fields (except the field "Other") participated in upskilling and reskilling activities during employment in the past 12 months with graduates in the field of Education and Teacher Training noting the highest participation rate (74%). Graduates in the field Natural Sciences had the highest participation rate in upskilling and reskilling activities provided by employers (44%) while graduates in the field of Education and Teacher Training had the highest participation rate (36%) in upskilling and reskilling activities undertaken based on their own initiative. In the 2020/21 cohort, the majority of graduates in all fields (except the field "Other") participated in upskilling and reskilling activities during employment. Graduates in the field of Arts and Humanities (65%) had the highest overall participation rate while graduates in the field "Other" the lowest (50%). Graduates in the field of Technology and Engineering had the highest participation in employer-provided training (52%) while graduates in the field of Arts and Humanities in training undertaken based on their own initiative (32%).

Figure 172: Graduates' participation in upskilling and reskilling activities during employment the past 12 months by field of study and graduation cohort



	2016/17*								2020/21							
	ETT	AH	SSJ	BAL	HEA	NS	TE	Other	ETT	AH	SSJ	BAL	HEA	NS	TE	Other
No	26%	47%	36%	42%	33%	44%	40%	94%	47%	35%	48%	45%	48%	36%	36%	50%
Yes, in upskilling and/or reskilling training activities pursued by me (not offered by my employer)	36%	13%	20%	19%	25%	11%	18%	6%	24%	32%	22%	19%	20%	18%	12%	9%
Yes, in upskilling and/or reskilling training activities offered by my employer (on a voluntary and/or compulsory basis)	38%	40%	43%	40%	42%	44%	42%	0%	29%	32%	30%	36%	33%	45%	52%	41%

**Statistically significant findings*

Note: Fields of study ETT-Education and Teacher Training, AH-Arts and Humanities, SSJ-Social Sciences and Journalism, BAL-Business Administration Law, HEA-Health, NS-Natural Sciences (including Mathematics), TE-Technology and Engineering. Other includes Agriculture, Forestry, Fisheries, Veterinary and Services

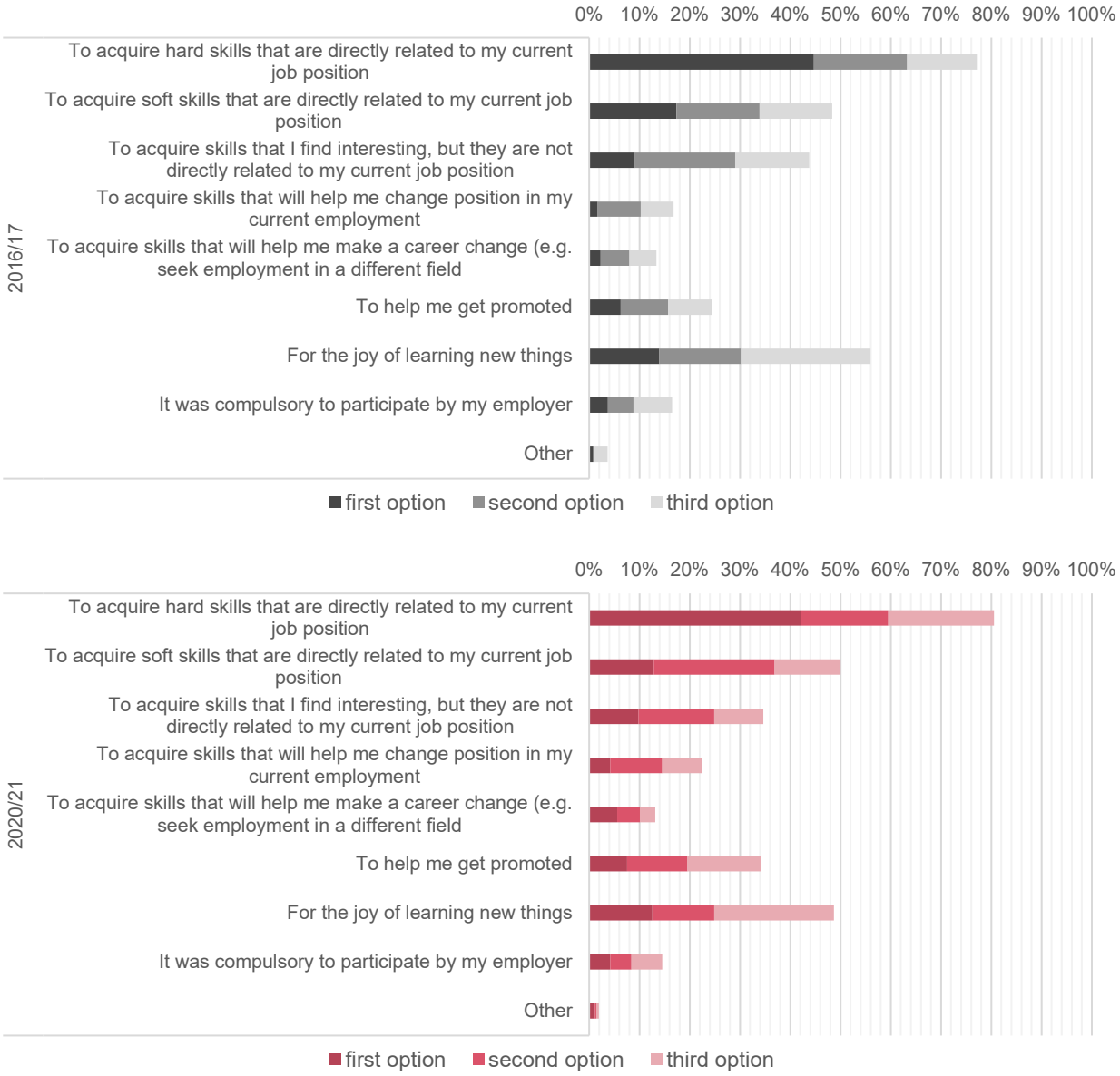
5.6.2. Reasons for participating in upskilling and reskilling activities during employment

The reasons why graduates were involved in upskilling and reskilling activities were very important to explore. For instance, did graduates feel that they were short of hard or soft skills, did they want to use upskilling or reskilling activities for getting a promotion, for making a career change or for their personal development? Thus, the current sub-section explores the reasons behind graduates' involvement in upskilling and reskilling training activities. In the context of this study, graduates were asked to indicate the reasons they participated in upskilling and/or reskilling training activities in the past 12 months. A list of eight reasons was provided and graduates were asked to select up to three reasons ranked in order of importance (with the first option being the most important reason).

As indicated in Figure 173, the results seem to be consistent between the two cohorts. The reason selected by most graduates (either as a first, second or third choice) for participating in upskilling and reskilling activities was the acquisition of hard skills that were related to their current job position (77% and 81% for the 2016/17 and 2020/21 graduates respectively). This finding raises questions regarding how well graduates are equipped with the workplace skills they need from their Higher Education studies. The second reason selected was for the joy of learning for the 2016/17 graduates (56%) while for the 2020/21 graduates the acquisition of soft skills (50%). The third reason was the acquisition of soft skills for the 2016/17 graduates (48%) while for the 2020/21 graduates (50%) the joy of learning (49%). Based on the above findings it becomes obvious that graduates participated in upskilling and reskilling activities mainly to enhance their hard and soft skills. This might suggest that they recognise the need to constantly update and/or to acquire new skills in order to adjust to rapidly changing skill demands. It is very positive that a high percentage of graduates selected the joy of learning as an important reason for participating in upskilling and reskilling activities during employment. This suggests an interest in learning and personal development which are significant traits of lifelong learners. Interestingly lower

percentages of graduates (24% and 34% for 2016/17 and 2020/21 respectively) indicated that they participated in training activities for getting a promotion. An important benefit for participating in upskilling and reskilling activities is to acquire the necessary skills to successfully change career. However, this reason was selected by the lowest percentage of graduates in both cohorts.

Figure 173: Reasons for participating in upskilling and reskilling activities during employment by graduation cohort

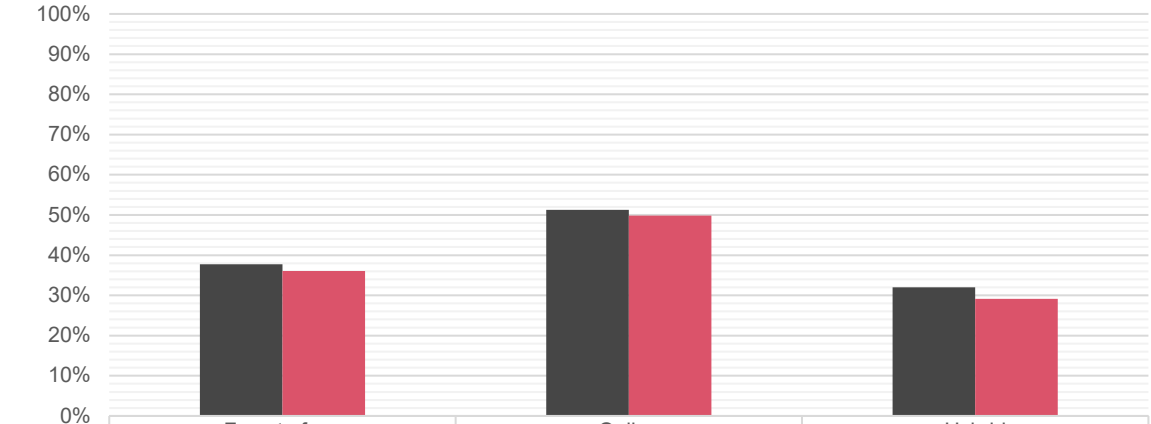


5.6.3. Delivery of upskilling and reskilling training activities

Upskilling and reskilling activities can take many forms, such as online, face-to-face or hybrid. This sub-section presents the delivery format of the upskilling and reskilling training activities in which graduates participated in the past 12 months. According to Figure 174, in both cohorts, online training was the most used method, accounting for 51% of the training in the 2016/17 cohort and 50% in the 2020/21 cohort. This was somewhat expected as after the Covid-19 pandemic online learning has become a popular trend. A considerable

percentage of graduates indicated that they participated in upskilling and reskilling training activities conducted in a face-to-face format (38% in the 2016/17 cohort and 36% in the 2020/21 cohort). It is evident that although online training is easy and convenient, training employee using a face-to-face format has still a number of advantages (such as keeping trainees engaged, allowing more interactions etc.). A lower percentage of graduates indicated that they participated in hybrid-style training programs in both cohorts (32% in the 2016/17 cohort and 29% in the 2020/21 cohort).

Figure 174: Delivery of upskilling and reskilling training activities during employment by graduation cohort



	Face to face	Online	Hybrid
2016/17	38%	51%	32%
2020/21	36%	50%	29%

Note: Participants could select more than one answer in this question

6. Challenges and Limitations

During the implementation of the first cycle of the National Graduate Tracking Survey and the EUROGRADUATE Survey for 2022, a number of challenges and limitations, of different extent and weight, were faced, which needed to be effectively addressed. More specifically, the most prominent of those challenges were:

1. Difficulties in contacting the graduates:
    - Multiple HEIs requested a legal memo, being concerned about data protection regulations, (see Appendix II: Legal Memo relating to communication with graduates) for initial communication with the graduates for invitation for participation in the survey. This caused delays in survey launch (survey launched on the 1st of February 2023 instead of the 30th of January 2023).
    - Technical difficulties faced by the HEIs when sending out either the invitation or the reminder communications to their graduates, such as:
        - Unavailability of email accounts/ software (a couple of cyber-attacks at HEIs occurred during the survey), which delayed or prevented from sending some of the reminders to the graduates, as per the agreed schedule.
        - Restrictions on the number of emails some HEIs were permitted by their software to send per day, which resulted in minor delays in sending the invitations/ reminders to graduates.
    - Difficulties, in some instances, in successfully sharing the relevant information to the graduates. In more detail:
        - There were cases where communications were not sent in the correct manner (e.g., wrong body text or attachments) or in an incomplete manner (e.g., missing information that the HEIs had to complete/ adjust themselves, such as the Unique IDs and the personalized URLs of their graduates).
        - There were cases where a considerable amount of time and effort had to be spent in repeatedly, providing step by step guidance to the HEIs representatives on how to complete the process of sending out the invitations/ reminders to their graduates, mainly focusing on using the mail merge functionality.
    - Unavailability of contact details retained by the HEIs for all their graduates for either T+1 or T+5 cohorts (graduates of academic years 2016/17 and 2020/21).
2. Inability to control the dates in which the HEIs' representatives were completing the tasks required for the survey launch (e.g., provision of the number of graduates for each cohort) and sending out the relevant communications for the survey, resulting in delayed invitations/ reminders sent or in omitting sending some of the communications required.
3. The questionnaire length was rather extensive (completion required around 30 minutes on average) which has negatively affected the response rates, as various respondents had started completing the questionnaire but never finished it. Due to the extensive length of the questionnaire, the respondents may have developed fatigue and lost interest, resulting to incomplete answers and/or rushed responses. Additionally, the reference to a questionnaire (in the invitation/reminder communications, as well as in the introductory/ starting pages) demanding (at least) "20 minutes" to complete may have deterred graduates from taking the survey. Lengthy questionnaires may also deter certain groups of people, such as those with low motivation or limited attention spans from participating, potentially leading to biased sample representation.
4. The tight timeframes of this project did not allow for enough time to: firstly, prepare better for the development of the survey, and secondly, to increase awareness of the public, and especially of the graduates. Visibility activities assisted towards the latter; however, the time pressure did not allow for the best possible results to be achieved.
5. Unavailability of a central database from the Ministry's side, where pseudonymised general (demographic) information would be available, resulted in various limitations during the data cleansing process. For specific missing values (e.g., age, date of birth, field of study, ISCED level), a few additional rounds of requests to HEIs were held, which in some cases led to removing specific responses due to tight timeframes and delays in responses.

In general, it is easily understood that the main challenges and limitations faced during the first cycle of the National Graduate Tracking Survey and the EUROGRADUATE Survey for 2022, resulted from the process of contacting the graduates, in accordance with the Data Protection regulations, as well as the tight timeframes for the implementation of the survey. Namely, the need for having the HEIs act as liaison for the communication of messages from the Ministry of Education, Sport, and Youth to the graduates, without allowing for the necessary time to properly explain, for them to digest, the actions/ responsibilities expected from their side, resulted in various challenges, inefficiencies and (on some occasions) mistakes. However, managing to find a better solution/ workaround for the future cycles (e.g., the MESY to be granted access to graduates' contact details for directly sharing the communication through the dedicated platform created), would greatly increase efficiency and potentially result in higher response rates.

While valuable insights have been provided through the survey for the graduates of both cohorts, it is essential to also acknowledge and address the following data cleansing and processing limitations that may have an impact on findings and conclusions:

- **Data Quality and Accuracy:** One of the primary challenges in this project has been ensuring the accuracy and completeness of the data collected. The findings rely on self-reported information from graduates, which may be subject to recall bias, social desirability bias and other inaccuracies.
- **Non-response Bias:** The data is based on voluntary participation, which may introduce selection bias. Graduates who chose to respond to the survey may differ systematically to those who did not, potentially skewing the results. Although various actions were undertaken to encourage participation, response rates were low. When response rates are low, there is an increased risk of nonresponse error. Additionally, missing data to certain questions of the questionnaire may have introduced nonresponse error at question level.
- **Small Sub-group Analysis:** For certain subgroups (especially in the field of study per cohort comparisons), the sample size may have been relatively small, which can be a limiting factor in relation to statistical power and reliability of conclusions drawn from these subgroups.
- **Weighting**: The results presented in this report are, unless explicitly stated otherwise, weighted based on the ranking procedure, considering the following variables: "Cohort", "Gender", "Age at Graduation", "Degree ISCED level", "Degree Field" and "HEI type". It is noted that, for the population frequencies for each of the afore-mentioned variables, data provided from HEIs was used. However, such information was not available for the "Age at Graduation" and hence Eurostat data for 2017 and 2021 were used as an approximation for performing the weighting.

7. Conclusions

The implementation of the first cycle of the National Graduate Tracking Survey 2022 strongly supports the feasibility and significance of developing a national mechanism for tracking Higher Education graduates on a longitudinal basis. Developing a national mechanism and participating in relevant European Surveys is essential in order to meet Cyprus' objectives of strengthening its graduate tracking capabilities and enabling meaningful comparisons with other European countries.

The findings presented in the current report serve as a testament to the successful collection of data that can be effectively compared across Higher Education graduate cohorts. The results not only provide valuable insights but also hold significance for shaping policy agendas, as detailed information on important matters such as graduate satisfaction with their Higher Education studies and experiences, labour market outcomes, as well as on different types of skills mismatches are provided. More specifically, graduates were asked to express their views regarding questions that belonged to six broad thematic areas: "Education History", "Employment", "Skills/ Competencies", "Regional Mobility", "Career Counselling in Upper Secondary Education and Higher Education" and "Upskilling and Reskilling during Employment". Significant insights can be drawn from the comprehensive statistical analysis conducted on questions related to each thematic area. This in-depth examination of the data produces a plethora of valuable information that can inform decision-makers, guide policy development, and enhance our understanding of the various aspects addressed within the survey.

In relation to the first thematic area several conclusions are brought forward. Traditional modes of teaching and learning would predominate during the respondents' studies in Higher Education, with over 50% reporting considerable use. Simultaneously, limited utilisation of non-traditional methods was reported, as well as limited opportunities for participation in internships and work placements offered in the context of graduates' programs of study, indicating room for potential improvements in hands-on and work-related learning experiences. It was evident that graduates were very positive towards work-related experiences during their Higher Education studies, as a substantial percentage reported engaging in labour market activities either offered by their HEIs or as a result of their own initiative. A noteworthy finding is that a higher proportion of graduates reported gaining this labour market experience during studies in a related field. The international experiences during studies for both cohorts were quite limited (15%). Graduates from both cohorts also reported high satisfaction with their studies, while admitting that their studies had a positive impact on their professional career and personal development. Limited pursuit of further education is detected - a significant finding given the relatively small proportion of graduates who continued their studies in Higher Education.

Several important conclusions can also be drawn from the questions linked to the labour market participation of graduates. The analysis reveals that, in both cohorts, a high percentage of graduates are actively participating in the labour force, with 90% of the graduates of the older cohort and 82% of the younger one stating that they are currently employed. Notably, a very high percentage of Cypriot graduates from both cohorts have found employment in Cyprus, with more than 90% choosing to work in the country. The survey also reveals changes in the employment patterns of graduates. The proportion of European graduates finding employment in Cyprus increased from 7% to 13% in both cohorts, while the proportion of Cypriots and non-Europeans remaining in Cyprus after their Higher Education decreased by 3% and 4% respectively. Most participants are employed in the private sector in both cohorts, with a significant percentage also employed in the public sector. Regarding key aspects of job quality (job security, working hours and earnings), a high percentage of graduates reported having contracts of unlimited duration (more than 70% for both cohorts). The contracted working hours of respondents from both cohorts are relatively similar, while the actual working hours differ significantly. Significant differences in actual working hours are found among graduates from various fields of study, with graduates in the field of Health reporting a high number of actual working hours reaching the maximum permitted by European regulations and Cyprus Law. Median annual earnings of the older cohort were significantly higher (20.400 euros) than that of the recent one (16.800 euros). This difference is further emphasised by the gender pay gap, with males earning significantly more than females in both cohorts. As expected, ISCED 7 graduates reported the highest median earnings among graduates with lower-level qualifications. Time taken to find a job after graduation was also explored. It was evident that it took a longer time for graduates in the 2016/17 cohort to find employment (median time of 17,1 months), compared to the 2020/21 cohort (median time 8,0 months), however 2016/17 graduates had more time available to find a job after graduation (i.e., five years as opposed to one year after graduation for 2020/21 graduates). It is also

important to note that a higher proportion of graduates reported finding a job after graduation in the 2016/17 cohort (60%), when compared to graduates in the 2020/21 cohort (46%). Significant variations were found in time taken to find a job according to the level of studies but also by the field of study. Specifically, in the cohort 2016/17 ISCED 5 graduates reported longer time taken than ISCED 6 and ISCED 7 graduates while the opposite was true in the 2020/21 cohort where ISCED 5 graduates reported a median time taken of only 3,7 months. In relation to the field of study, in the 2016/17 cohort, graduates from the field of Social Sciences and Journalism reported the longest time taken (approximately 40,6 months) and graduates from the field of Health the shortest, while in the cohort 202020/21 graduates from the field of Education and Teacher Training had the highest time taken, when graduates from the field of Arts and Humanities the lowest. The survey also assesses job satisfaction, which on average appears to be moderate to high in both cohorts with marginal gender differentials. Interestingly, graduates aged 35 or older in the 2016/17 cohort exhibit the highest job satisfaction.

The findings also shed light on the international mobility of graduates and specifically regarding the number of graduates who are now located in a different country from that of graduation for work or further learning. The analysis reveals that the percentage of mobile graduates in both cohorts is relatively modest, standing at 9% for the older cohort and slightly higher at 10% for the younger one. Particularly, an interesting trend emerges regarding gender differences in international mobility. In both cohorts, males exhibit a higher propensity to migrate compared to their female counterparts, suggesting that male graduates are more inclined to seek opportunities outside the country. Additionally, age at graduation plays a significant role in graduates' mobility, as younger graduates are more likely to embark on international journeys in search of career prospects compared to the older ones. This pattern highlights the dynamic nature of young graduates seeking diverse experiences abroad. When considering the graduates' level of study, bachelor's graduates are found to be more mobile. A detailed examination of the field of study reveals interesting insights. In the older cohort, the field of Natural Sciences records the highest proportion of mobile graduates, at 18%, while in the younger one, Health emerges as the leading field with 31% of its graduates choosing international paths.

Graduates' successful transition into the labour market hinges on finding employment that aligns with their educational qualifications and field of study. Findings suggest a high extent of overeducation and over-skilling which does not come as a surprise. Cyprus has one of the highest percentages of Higher Education graduates in the age groups 25-34 in the EU, thus indicating the high educational level of the workforce. Specifically, a substantial percentage of graduates, approximately 46% in both cohorts, reported that they are overeducated for their current positions. Interestingly, gender differences emerge in this context. In the older cohort, the percentages of males and females that felt overeducated were equal to 41% and 49% respectively. On the contrary, the younger cohort exhibited an opposite pattern, with over half of females reporting feeling well-matched with their jobs (51%) and a smaller percentage reporting overeducation (43%). Most males (48%) perceive themselves as overeducated with a lower percentage reporting a well-match (42%). Most graduates in both cohorts (68%) reported that their current employment aligns with their field of study. However, a significant proportion of graduates, 21% in the older cohort and 15% in the younger one, held contrary opinions, indicating some degree of misalignment between their education and job roles. Graduates also assessed their proficiency in various skills and the expected skill levels for their current jobs. Graduates in both cohorts reported high proficiency in all assessed skills. Graduates also indicated that their current jobs require high levels of various skills, suggesting that their education has equipped them well for their roles. All graduates indicated over-skilling in all types of skills assessed (hard, soft, digital, and green skills). Interesting findings emerged regarding graduates' current own level of skills compared to the level of skills required by their job within and between different sub-groups of graduates (based on demographic variables and variables related to their Higher Education studies).

The survey's results also shed light on the provision of career counselling and guidance in Upper Secondary and Higher Education. While Upper Secondary Education seems to offer more comprehensive support, there is room for improvement to increase the effectiveness of services provided by the Career Counselling and Educational Services of the Ministry of Education, Sport, and Youth. Findings underscore the importance of enhancing career guidance services to better support students in making informed decisions regarding their education and employment. Graduates do not appear to participate in career counselling and guidance activities while in Higher Education. Higher Education students need to be encouraged to take advantage of the career guidance services provided by their HEI and become aware of the many benefits of career counselling in setting and achieving their career goals.

Graduates' involvement in upskilling and reskilling activities during their employment has additionally yielded several significant insights. It is apparent that graduates actively engage in upskilling and reskilling activities during their employment. It was observed that a higher percentage of graduates from the 2016/2017 cohort (63%) reported their participation in these activities compared to the 2020/21 cohort (55%). This indicates that a larger proportion of earlier graduates actively pursued opportunities to enhance their skills through additional training. When asked about the primary motivation for participating in upskilling and reskilling activities, a consistent pattern appeared across both cohorts as graduates state that they were mainly driven by the desire to acquire hard skills that align with their current job roles. This finding might suggest that graduates recognise the need to constantly update and/or to acquire new skills in order to adjust to rapidly changing skill demands. Online training was the prevalent method of choice, but face-to-face sessions were also used. These results underscore the importance of continuous learning and skill development in the contemporary workforce.

In conclusion, the statistical analysis of the raw data produced, and the results of the study revealed several notable trends. Most graduates experienced traditional teaching and learning methods, implying a potential need for innovation in educational approaches. Graduates reporting having international experiences during their studies were limited, emphasising the need for broader exposure to universal perspectives. On the other hand, graduates reported high satisfaction with their studies and a positive impact on their personal and professional development, supporting the value of Higher Education. Moreover, a substantial percentage of graduates transitioned smoothly into the labour market, and job satisfaction was generally encouraging, with many graduates having secured stable employment with unlimited-term contracts. However, a significant percentage felt overeducated and over-skilled for their positions, stressing the importance of skill alignment in the workforce. This highlights the importance of policies for tackling mismatch through better labour-market information and efficient job placement services (CEDEFOP, 2010). The identification of emerging skill needs, and better labour market intelligence thus becomes a priority. The National Graduate Tracking Survey, along with National Employers' Skill Survey (which are both part of the Department of Higher Education's project in the RRP), aim to provide labour market information to relevant policy makers and stakeholders. More in-depth analysis is currently in progress with the use of regression models for making predictions and exploring significant relationships (such as factors influencing/ predicting employment, factors having an impact on the acquisition of high levels of skills, on vertical and horizontal mismatch, etc.) based on National Graduate Tracking Survey data. The possibility of developing forecasting models based on findings from both National Graduate Tracking and National Employers' Skill Surveys will also be explored in the context of this project, aiming at making future projections regarding the skills needed by the labour market.

Key recommendations for future roll outs are in preparation to ensure the support of Higher Education Institutions, and the improvement of the availability of up-to-date contact information. As far as the target group is concerned, all relevant results of the other studies, along with the EUROGRADUATE pilot survey comparative report, show that it is advantageous to compare graduates at an early stage in the labour market (one year after graduation) with graduates who had some years' time to further develop their career (five years after graduation). No significant technical difficulties were encountered by using the computer-assisted interviewing framework for the questionnaire. Future cycles of the NGTS should explore ways to improve response rates, combining survey data with data from administrative sources, revising the legal framework, developing a central database with graduates' contact details and making the NGTS more visible to current students of Higher Education Institutions, graduates, as well as to the general public.

8. References

Ali, B. J. a. A. G., 2021. An Empirical Study of Employees' Motivation and Its Influence Job Satisfaction. *International Journal of Engineering, Business and Management,* Volume 5(2), pp. 21-30.

Anja Rossen, C. B. A. W., 2019. Patterns of Overeducation in Europe: The Role of Field of Study. *IZA Journal of Labor Policy,* 9(1).

C. Meng et al., 2005. *Student Time Allocation, the Learning Environment and the Acquisition of Competencies,* s.l.: Research Gate.

CECC, C. E. a. C. C. -., 2021. *Competitiveness Report for Cyprus,* Nicosia: Cyprus Economy and Competitiveness Council.

CEDEFOP, 2010. *The skill matching challenge - Analysing skill mismatch and policy implications,* Luxembourg: Publications Office of the European Union.

CEDEFOP, 2010. *The skill matching chellenge,* Luxembourg: Publications Office of the European Union, 2010.

Comission, E., 2020. *Education and Training Monitor 2020.* [Online]
Available at: https://op.europa.eu/webpub/eac/education-and-training-monitor-2020/en/
[Accessed July 2023].

Council, C. E. a. C., n.d. *Cyprus Economy and Competitiveness Council.* [Online]
Available at: http://www.ecompet.cy/ecompet/ecompet.nsf/page06_en/page06_en?opendocument

CYSTAT, n.d. *CYSTAT.* [Online]
Available at: https://cystatdb.cystat.gov.cy/pxweb/el/8.CYSTAT-DB/8.CYSTAT-DB__Education__Tertiary%20Education__1.Students/0751010G.px/

DHE Cyprus, 2020-2021. *Mapping of the Educational Field of Higher Education in,* Nicosia: MESY.

Duncan Gallie et al., 1991. Patterns of Skill Change: Upskilling, Deskilling or the Polarization of Skills?. *Work, Employment and Society,* 5(3), pp. 319-351.

EU Council, T. C. O. T. E. U., 2017. Official Journal of the European Union. *Council Recommendations,* 423(01).

EUROGRADUATE, 2022. *Eurograduate Survey 2022.* [Online]
Available at: https://www.eurograduate.eu/index_html
[Accessed 3 October 2023].

European Association for Quality Assurance in Higher Education, E., 2015. *Standards and Guidelines for Quality Assurance in the European Higher Education (ESG),* Brussels, Belgium.: s.n.

European Commission, E., 2021. *European Education Area Quality education and training for all,* s.l.: European Commission.

Fisher, C. D., 2010. Happiness at Work. *International Journal of Management Reviews;WILEY Online Library,* Issue https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1468-2370.2009.00270.x, pp. 384-412.

Kostas Mavromaras, S. M., 2012. Overskilling dynamics and education pathways. *Economics of Education Review,* pp. 619-628.

Lene Lottrup, U. K. S. H. M. &. A. G. C., 2015. A Determinant of Office Workers' Work Ability and Job Satisfaction, Landscape Research. *The Workplace Window View,* Volume 40:1, pp. 57-75.

M. Symeonaki et al., D. P. G. S., 2020. *EUROGRADUATE pilot survey, Country report Greece, European Union, Directorate-General for Education, Youth, Sport and Cultur,* Greece: Publications Office of the European Union.

Meng, C. M. e. a., 2006. *Discipline-Specific or Academic? Acquisition, Role and Value of Higher Education Competencies. Maastricht: ROA.,* s.l.: s.n.

Meng, C. W. K. M. K. &. U. M. (., 2020. *EUROGRADUATE Pilot Survey. Design and implementation of a pilot European graduate survey. Luxembourg: Publications Office of the European Union. https://doi.org/10.2766/629271,* s.l.: s.n.

MESY Cyprus, C. Q. F. C., 2008. *THE CYPRUS QUALIFICATIONS FRAMEWORK.* [Online]
Available at: https://www.cyqf.gov.cy/index.php/en/diagram
[Accessed July 2023].

MESY Cyprus, n.d. *Higher Education Institutions.* [Online]
Available at: https://www.highereducation.ac.cy/index.php/en/citizens-info-serv-he-institutions-en#
[Accessed July 2023].

MESY, C., n.d. *Cyprus Qualifications Framework.* [Online]
Available at: https://www.cyqf.gov.cy/index.php/en/diagram

MESY-DHE, n.d. *Higher Education Cyprus Ministry of Education Sport and Youth.* [Online]
Available at: https://www.highereducation.ac.cy/index.php/en/dae/minyma-diefthyntrias

OECD, 2011. Right for the Job:. In: *OECD Employment Outlook.* s.l.:OECD, pp. 191-233.

OECD, 2022. *Part-time employment rate (indicator),* s.l.: OECD.

OECD, 2023. *Education GPS; The World of Education at Your Fingertips;Economic & social outcomes.* [Online]
Available at: https://gpseducation.oecd.org/revieweducationpolicies/#!node=41761&filter=all

Somers et al., ,. M. A. C. S. J. G. W. &. v. d. B. H. M., 2019. Horizontal Mismatch between Employment and Field of Education: Evidence from a Systematic Literature Review. *Journal of Economic Surveys,* 33(2), pp. 567-603.

Symeonaki et al, P. D. a. S. G., 2023. Quantitative Demography and Health Estimates, The Springer Series on Demographic Methods and Population Analysis 55,. *Measuring transition smoothness into European labour market(s), In: C. H. Skiadas, C. Skiadas (eds.),.*

UNESCO Institute for Statistics, U.-U., 2012. *International Standard Classification of Education ISCED 2011,,* Montreal, Canada: UNESCO Institute for Statistics.

Unger, M. a. J. R., 2020. *Eurograduate pilot survey - Country report Austria,* s.l.: Directorate-General for Education, Youth, Sport and Culture (European Commission).

Union, E., 2015. Official Journal of the European Union. *Council Decision (EU) 2015/1848 of 5 October 2015 on guidelines for the employment policies of the Member States for 2015.*

Υπηρεσία, Σ., 2021. ΑΠΟΓΡΑΦΗ ΠΛΗΘΥΣΜΟΥ ΚΑΙ ΚΑΤΟΙΚΙΩΝ 2021. *ΠΡΟΚΑΤΑΡΚΤΙΚΑ ΑΠΟΤΕΛΕΣΜΑΤΑ .*

Appendix I: Informed Consent

Informed Consent for participation in the National Graduate Tracking and the EUROGRADUATE surveys

The National Graduate Tracking Survey and the EUROGRADUATE survey aim to collect data on the experiences of Cypriot and European graduates during their studies in Higher Education and the impact of these experiences on their professional lives and their lives as European citizens. Graduates are asked to fill in **an online questionnaire** that is common for both surveys. The main topics that the graduates are asked about in the questionnaire are the characteristics of their study programme, skills acquired, learning pathways and modes of learning, international mobility and labour market outcomes. Personal characteristics of the graduates, such as their personal and social background and health status serve to better understand different graduate groups.

The National Graduate Tracking Survey is being conducted for the first time in Cyprus (and will be conducted every year from now on) in order to collect data for policy planning with the aim of improving the connection between the Educational System and the labor market at national level. It is noted that the National Graduate Tracking Survey is funded by the Cyprus Recovery and Resilience Plan. EUROGRADUATE 2022 is a transnational scientific survey project covering 17 European countries (including Cyprus) and is coordinated by a consortium of research centers and organizations with the main coordinator being the German Center for Higher Education and Science Research (DZHW). The two surveys in Cyprus will be carried out by the Department of Higher Education of the Ministry of Education, Sport and Youth (Kimonos and Thoukydidou Corner, Akropoli, 1434 Nicosia, Cyprus), in cooperation with PricewaterhouseCoopers (PwC) Cyprus Limited (PwC Central, 43 Demostheni Severi Avenue, CY-1080 Nicosia, Cyprus).

You have been sent this invitation from the Higher Education Institution from which you graduated on our behalf, without us receiving your contact details. **This ensures that you can take part in the surveys anonymously, without us knowing your name and address.**

Your responses to the questionnaire will be analysed by PwC Cyprus for scientific and statistical purposes and published in such a way that any inference based on individual survey participants and their individual answers is no longer possible. Furthermore, we will provide the respective data in pseudonymised (without names) form to the institutions conducting EUROGRADUATE: German Centre for Higher Education and Science Research (DZHW, Lange Laube 12, 30159 Hannover, Germany) and Institute for Advanced Studies (IHS, Josefstädter Straße 39, AT-1080 Vienna, Austria). Data processor is the HIS Hochschul-Informations-System eG (Goseriede 9, 30159 Hannover, Germany). The data will be merged by IHS and DZHW into a cross-national dataset, ensuring that it is impossible to identify individuals. Key findings will be published in the same way across countries, together with the findings in the partner countries. In addition, all responses will be made available anonymously via the Research Data Centre of the DZHW to the participating institutions of the EUROGRADUATE countries and scientists and other users for teaching, scientific and statistical non-profit purposes.

All participating organisations (the Ministry of Education, Sport and Youth, PWC and the EUROGRADUATE consortium) take the necessary technical and organisational measures to protect your information from any unauthorised access. The surveys are conducted in line with the requirements of the European General Data Protection Regulation (GDPR), the Act of 10 May 2018 on the protection of personal data, and applicable national laws (i.e., Law 125(I)/2018 – “Law providing for the Protection of Natural Persons with regard to the Processing of Personal Data and for the Free Movement of such Data” of 2018).

Consent

Your participation in the two surveys is voluntary. Not participating will not have any negative consequences for you. At one point in the questionnaire, one question is asked about your health. Unless you skip this section, answering the question constitutes explicit consent to the use of this data.

It goes without saying that the surveys comply with all legal provisions of data protection. We assure you:

- that we do not store your contact data together with the data provided in the questionnaire,

- that we treat your contact information as strictly confidential and do not disclose it to third parties,
- that all the data provided in the questionnaire are used solely for teaching, scientific and statistical purposes and that they are made available **anonymously** to the participating institutions of the EUROGRADUATE countries and scientists and other users for teaching, scientific and statistical non-profit purposes,
- that the data provided in the questionnaire, as well as the data on the way the questionnaire was processed will be kept for a maximum of 10 years after the project. This does not apply to anonymised data,
- that contact data will be deleted after the end of the last wave of EUROGRADUATE survey,
- that your contact details and the data provided in the questionnaire will be deleted immediately upon revocation of your consent,
- if the survey data can still be assigned to identifiable persons, you have the right to know what data are stored about you, to correct the data stored about you, to restrict the purposes for which the data are being used, the right of opposition to processing of your data, the right to withdraw your consent for the future, as well as the right to complain to the relevant supervisory authority, the Office of the Commissioner for Personal Data Protection (Iasonos 1, 1082 Nicosia, Cyprus).

The observance of all data protection measures is monitored by the data protection officer of the PwC project team.

In case of questions about general information on the research project or about data protection, the staff members of both the Ministry of Education, Sport and Youth and PwC Cyprus will be happy to support:

- Revecca Nicolaidou (PwC): Tel: +357 22555646 | Email: cy_graduatetracking@pwc.com
- Alexandra Petridou (MESY): Tel: +357 22800966 | Email: apetridou@moec.gov.cy

Appendix II: Legal Memo relating to communication with graduates

Please see below some high-level comments relating to the initial communication that the institutions will perform with the graduate students to invite them to participate in the survey.

1. Pursuant to the provisions of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data and repealing Directive 95/46/EC (the "**GDPR**"), data controllers and data processors must process personal data on a lawful basis.
2. The use of the personal data of the graduate students, being the data subjects, and more specifically their contact information (i.e., email address and/or telephone number) by the institutions for the purposes of inviting them, either via email or via SMS, to participate in the survey as part of the project "Development of a National Graduate Tracking Mechanism and Design and Implementation of an Employer's Skills Survey" constitutes processing of personal data. Each institution should ensure that it meets the requirements for lawful processing before inviting each graduate student to participate in the survey, depending on which of the following scenarios is applicable:
    i. **Scenario A**: The graduate student opted out from the processing of his or her personal data for the purposes of communicating surveys for research or statistical analysis.
    ii. **Scenario B**: The graduate student consented to the processing of his or her personal data for the purposes of communicating surveys for research or statistical analysis.
    iii. **Scenario C**: The graduate student neither consented nor opted out from the processing of his or her personal data for the purposes of communicating surveys for research or statistical analysis.
3. Considering the relevant provisions of the GDPR and applicable data protection laws, please see below our high-level comments as to lawfulness of the processing of personal data (i.e., the use of the contact details of the graduate students for the purpose of communicating to them the survey) for each particular scenario:

    (i) Scenario A:

    Given that the graduate student expressly chose to opt-out from communications relating to the participation in surveys for research or statistical analysis, there is no legal basis for the processing of his or her personal data for the purposes of inviting him or her to participate in the survey. In this respect and to the extent that such communication was specifically opted-out (e.g., opting out for direct marketing or promotional material may not equate to an opting out from this communication), we take the view that the institution should not proceed with the processing of the personal data of the graduate student to communicate to him/her the survey since such communication may be rendered unlawful pursuant to the provisions of the GDPR and applicable data protection laws.

    (ii) Scenario B:

    The institution may consider relying on the following ground:

    Lawful basis of consent: The data subject has given consent to the processing of his or her personal data for one or more specific purposes (Article 6(1)(a) of the GDPR). Where the processing is based on consent, the data controller should be able to demonstrate that the data subject has consented to the processing of his or her personal data (Article 7(1) of the GDPR). If the data subject's consent is given in the context of a written declaration which also concerns other matters,

the request for consent should be presented in a manner which is clearly distinguishable from the other matters, in an intelligible and easily accessible form, using clear and plain language (Article 7(2) of the GDPR). Further, the consent must be freely given by the data subject to the data controller (Article 7(4) of the GDPR).

Provided that the graduate student consented to the processing of his or her contact details for communications relating to the participation in surveys for research or statistical analysis and/or future communications and/or related processing activities by the institution and provided that such consent meets the above mentioned requirements, we take the view that the lawful basis for the processing of the personal data of the graduate student to communicate to him or her the survey could be achieved on the basis of consent.

(iii) Scenario C:

The institution may consider relying on the following grounds:

a) Lawful basis of public interest: The processing of personal data of the data subject is necessary for the performance of a task carried out by the data controller which is in the public interest (Article 6(1)(e) of the GDPR).

   The processing of the contact details of the graduate student by the institution shall be carried out for the purposes of inviting the graduate student to participate in the survey which is conducted by a public authority, being the Ministry of Education, Sport and Youth and the whole project is financed by the Recovery and Resilience Facility of the European Commission and national funds. The specific objectives of this project are to develop and implement a National Graduate Tracking Mechanism, a National Employers' Skills Survey and the EUROGRADUATE Survey in Cyprus with the ultimate goal of collecting data that will help fully understand the gap between the skills acquired by graduates of Higher Education Institutions and the skills required by the industry that will employ them. This will be achieved via the development of appropriate infrastructure and implementation of the most effective dissemination activities by the Ministry of Education, Sport and Youth.

   In this respect, we take the view that the lawful basis for the processing of the contact details of the graduate student to communicate to him or her the survey could be achieved on the basis of such processing of personal data being necessary for the performance of a task (i.e., to invite graduate students to participate in the survey) carried out in the public interest. For this, we have assumed that the Ministry of Education, Sport and Youth has the authority to conduct the survey as part of the project.

b) Lawful basis of legitimate interest: The processing is necessary for the purposes of the legitimate interests pursued by the data controller or by a third party, except where such interests are overridden by the interests or fundamental rights and freedoms of the data subject which require protection of personal data (Art. 6(1)(f) of the GDPR).

   It should be noted that at any rate the existence of a legitimate interest would need careful assessment including whether a data subject can reasonably expect at the time and in the context of the collection of the personal data that processing for that purpose may take place (in the future). The interests and fundamental rights of the data subject could in particular override the interest of the data controller where personal data is processed in circumstances where data subjects do not reasonably expect further processing.

   It could be argued that the communication by the institution to the graduate as regards the participation in the survey may constitute a legitimate interest which is not unlawful, it is reasonably expected by the graduate student and is not expected to derive any direct benefits to the institution. Given the overall goals of the project to which the survey forms part of, the legitimate interest pursued by this communication corresponds to the general public interest that the society may derive from such a project. In addition, the use of personal data of the graduate student is not expected to have a negative impact on him/her and could potentially even have a positive impact on him or her given that the participation in the survey gives the graduate student the chance to win a gift.

In this respect, we take the view that the lawful basis for the processing of the personal data of the graduate student to communicate to him or her the survey could be achieved on the basis of legitimate interests. Taking into consideration that this processing of the personal data by the institution shall be solely for the purposes of communicating the survey to the graduate student, this shall be non-intrusive to the graduate student and its respective rights and freedoms. As an additional measure to safeguard the respective rights and freedoms of the graduate student, the institution may provide an easy-to-use opportunity for the graduate student to opt-out from any future related communication. By way of an example, this may be in the form of (i) an 'unsubscribe' option where the communication is in the form of an email or (ii) a 'Stop SMS' option where the communication is via SMS.