

Guidelines for Graduates Tracking Surveys'

**"MOonitoring Trends In Vietnamese graduates'
Employment"**

MOTIVE Project

Deliverable 6.5.

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein"

Guidelines for Graduates' Tracking Survey are mainly based on more than 20 years experience in developing graduates' surveys in Italy of AlmaLaurea Interuniversity Consortium, coordinator of the 609781 **MOTIVE Project**. The guidelines want to provide some insights on the methodology to run the graduates' tracking survey, from the selection of the cohort to the presentation of the results, as a guide for developing and improving similar surveys in Vietnam.

Contents

I.1 Introduction	4
I.2 MOTIVE survey on Graduates Tracking	6
I.2.1 Key research questions	6
I.2.2 Definition of the target group and graduate coverage.....	7
I.2.3 Survey method	8
I.2.4 Sample size, return rate	10
I.2.5 Main split variables	11
I.3 Techniques for identifying graduates	14
I.3.1 Administrative archives.....	14
I.3.2 Obtaining high responses rates.....	15
I.4 Cleaning data and check for representativeness.....	17
I.5 Statistical procedures and graphic representation of results.....	18
I.6 Dissemination and use	22
I.6.1 Potential uses of graduate tracking data	22
I.6.2 Analysis of graduate tracking data	23
I.6.3 Sharing of graduate tracking data	23
References.....	26

I.1 Introduction

Tracking graduates can provide crucial intelligence on the quality of learning and training programmes in higher education sector and the extent to which they meet labour market needs. The global employment issue and the labour sector are transforming very rapidly, and the indicators related to the trends are expected to be accelerated after the COVID-19 pandemic. Most jobs will disappear by 2040 and will be replaced by new ones. From the demand size, highly skilled and socially engaged people are both requested in an increasing trend.

At European level, the Commission's New Skills Agenda for Europe (2016) emphasised the need for countries to have a 'better understanding of the performance of graduates'. To achieve this, the Commission proposed a new initiative on: 'graduate tracking to improve information on how graduates progress in the labour market'¹.

The surveys regarding the employment status of graduates become more and more important for many countries and regions with the intention to lay the ground for sustainable European wide graduate research.

The employability of graduates leaving education and training is in this sense a matter of many countries. In this context, as European Union underline as well, *"skills are a pathway to employability and prosperity. With the right skills, people are equipped for good-quality jobs and can fulfil their potential as confident, active citizens. In a fast-changing global economy, skills will largely determine competitiveness and the capacity to drive innovation. They are a pull factor for investment and a catalyst in the virtuous circle of job creation and growth. They are key to social cohesion"* (EC, 2016).

Each country, expect from Higher education graduates to set a positive impulse to the economy and society in terms of innovation, creativity and entrepreneurship.

The need to invest in education and training represents a crucial requirement in maintain and improve deployable skills in the country population.

The most important step to achieve these policy goals is the availability of quality data that allows for conclusions and recommendations in a comparative perspective. Such data will

¹ http://europa.eu/rapid/press-release_IP-16-2039_en.htm

help the sector to have larger view of aspects and outcomes of higher education, such as unemployment, the quality of the education-job match, career development and prospects, skills and competencies, international experiences of graduates, etc.

Vietnam faces the same problems and challenges, and MOTIVE project can represent an important contribution for future actions and initiatives in Graduates Tracking survey.

The aggregate pilot survey in the universities that are part for the MOTIVE Project could comprise surveys of all types of higher education graduates, at different years after graduation.

Such survey can to analyse main indicators such as the employment status of graduates (employment/unemployment rate), employment characteristics of the main job, etc.

The ability to track graduates is also considered a core component of effective Quality Assurance systems as it provides a mechanism for gathering intelligence on skills utilisation in the labour market and placement rates.

I.2 MOTIVE survey on Graduates Tracking

Employment status survey could represent a new approach of analysing the graduates employment in an aggregate way. The pilot survey was run in the universities that are part of the MOTIVE project.

One of the first question for the implementation of the Vietnamese employment status survey is whether to use surveys or administrative data. A survey can hardly be based on administrative data. Careers of graduates can be tracked by combining data from universities' administrations with typically, privacy and social security data restrictions. Mostly this is due to data protection regulations and/or because variables necessary to combine the different sources are missing. Some variables such as skills and competences, employments status, income, etc. cannot be captured by each university administrative data. Online surveys are recommended as the survey method to be used by all participating Higher Education organizations as they facilitate data collection and processing, thus presenting the most cost-efficient method. A diversity of survey methods, tools or softwares should be avoided in order to not impair the comparability of data.

Recommendations on the design of a Vietnamese graduate study should cover the following three dimensions: Institutional coverage, degree coverage and time of observation of a Vietnamese graduate study:

- ✓ Institutional coverage: the consortium should unanimously agree to the coverage of graduates from the universities involved.
- ✓ Degree coverage: according to the stakeholders, graduates from Bachelor or equivalent level and Master or equivalent level form the core group of graduates to be covered. When looking at the International Standard Classification of Education (ISCED) orientations, a clear majority of stakeholders recommends the inclusion of all orientations in the survey.
- ✓ Time of observation: the time of (first) observation according to the Ministry of Education and Training (MOET) recommendation should within a year after graduation.

I.2.1 Key research questions

The main research questions the graduate tracking measure is trying to answer are important to be clear on this upfront as it informs what data needs to be collected.

Common questions that graduate tracking can answer include:

- ✓ How well provision matches labour market needs (the proportion of graduates entered employment, their starting salaries, were the skills acquired during their programme/training used, etc.) and/or how well did it support graduates progress to further learning.
- ✓ How particular types of qualifications and training (e.g. apprenticeships) are meeting expectations (what proportion gain employment in their field and level of study/training, how many progress to further learning, to what extent is employment sustained).
- ✓ At a supplier level (Higher education institution), the appropriateness of the content of courses or training.

There may be additional questions for specific programmes, which acknowledge that different programmes may be expected to achieve different outcomes of graduates. It may be advisable to develop key questions for specific groups to allow results to be compared.

The pilot study covers the following key topics: employment status, job characteristic, job activity sector, job satisfaction, income, etc.

1.2.2 Definition of the target group and graduate coverage

A clear definition of the target group (graduates) is essential. The target group should be defined as follows:

Graduates from the academic year T. Given that the survey will take place in the second part of the year T+1, the report covers therefore graduates at 1 year after graduation.

The pilot survey should include all graduates on the basis of the Vietnamese Higher Education classification (bachelor, master, associate degree)².

² AlmaLaurea case and experience: comments on some cohorts which have not been investigated: the AlmaLaurea survey did not include those graduates who have achieved more than an academic qualification. In particular, as for first- and second-level degree holders, only the second-level degree has been taken into consideration, whereas in case of students having two degrees of the same level, only the first one (i.e., in terms of graduation date) was considered for the analysis. If a student earned a Primary Education Sciences degree programme and then a second cycle degree, prominence has been given to the second-cycle degree. It was also decided to exclude the graduates who have earned an academic degree on the basis of special conventions. This case mainly regards: workers of the health sector whose professional experience were acknowledged by the University of Chieti-Pescara, which awarded them a first-level degree in one of the health sectors' faculties; the members of the armed forces and police officers who have concluded the degree-course in Management and Organisational Sciences at Tuscia University or the Business Legal Expert first-level degree programme

Graduates are not defined by place of birth or residence, but by the city in which they graduated from a higher education programme in the academic year T.

In principle, all institutions involved in MOTIVE initiative offering programmes on bachelor, master and associate degree.

It is also necessary to define the potential graduate population to be covered. This includes considering which graduates/school leavers to include in the survey. For example: to include early leavers (could help policy makers understand the reasons why some individuals have left their programme and what interventions could include programme retention); to include graduates that have migrated since completing their studies (helps provide a rounded view of a programme and specific approaches may need to be adopted); to include international students or those taking part in mobility experiences in the country.

It is also necessary to consider which education and training programmes should be covered and which providers are in scope. It is preferable to have the scope as large as possible.

1.2.3 Survey method

The pilot survey will be an online-survey. The consortium can provide the suggestions and recommendation of the questionnaire based on AlmaLaurea Interuniversity Consortium experience at Italian level. The Vietnamese partners will decide how and where host the data collection centrally in Vietnam.

Qualitative or quantitative studies? How to choose

It is often difficult to choose between quantitative and qualitative research design. As well described by Lowhorn, a researcher may choose a design because he or she is more familiar with one method or because the choice is influenced by others, for instance by a colleague recommendation. However, a research will be more helpful if the decision is based on a well-considered, suitable design rather than on the simple choice of the design that is more familiar or comfortable to the researcher.

Quantitative Research establishes (see Tabel 1 for the main assumptions) statistically significant conclusions about a population by studying a representative sample of it. The population consists of the entire group being studied. It does not matter if the population is

at Aquila University or the first-level degree programme in Security legal sciences at Rome Tor Vergata University (AlmaLaurea, 2020)

broad or narrow, but each individual fitting the description of the group being studied must be included.

Quantitative research can be usually of two types: experimental or descriptive. Experimental research tests the accuracy of a theory by determining if the independent variable(s) (controlled by the researcher) causes an effect on the dependent variable. Often, surveys, correlation studies, and measures of experimental outcomes are used to establish causality within a credible confidence range.

Descriptive research measures the sample at a moment in time and simply describes the sample's structure. Although this is not seen as a statistically robust or difficult exercise, a good description of the variables helps the researcher evaluate the statistical output in the proper context.

Within quantitative methods, one of the tools used is the survey that includes cross-sectional and longitudinal studies using questionnaires or interviews for data collection with the intent of estimating the characteristics of a large population of interest based on a smaller sample of that population.

Qualitative Research describes an event in its natural setting. It is a subjective way to look at life as it is lived and an attempt to explain the studied behaviour. Rather than design an experiment and artificially control the variables, qualitative researchers use anthropological and ethnographic methods to study the participants.

Instead of providing a broad view of a phenomenon that can be generalized to the population, qualitative research seeks to explain a current situation and only describes that situation for the chosen group. Since only a current situation is observed, all qualitative research is done on the field.

Case studies are types of qualitative methods: the researcher explores a single entity or phenomenon ('the case') bounded by time and activity (e.g., a program, event, institution, or social group) and collects detailed information through a variety of data collection procedures over a sustained period of time.

Table 1 - Quantitative and qualitative methods: summary of main assumptions

Quantitative Method	Qualitative Method
Reality is something that can be studied objectively.	Multiple realities exist in any given situation: these multiple perspectives, or voices, of informants (i.e., subjects) are included in the study.
The researcher should remain distant and independent from what he researches	The researcher interacts with those he/she studies and actively works to minimize the distance between the researcher and those being researched.
The research is based primarily on deductive forms of logic and theories and hypotheses are tested in a cause-effect order.	The research is based on inductive forms of logic; categories of interest emerge from informants (subjects), rather than being identified a priori by the researcher.
The goal is to develop generalizations that contribute to theory that enable the researcher to predict, explain, and understand some phenomenon.	The goal is to uncover and discover patterns or theories that help explain a phenomenon of interest.

In conclusion whereas quantitative research seeks to validate a theory by conducting an experiment and by numerically analysing the results, qualitative research seeks to reach a theory capable of explaining the observed behaviour. In this way, it can be said that quantitative research is more deductive and qualitative research is more inductive. The selection of the appropriate research approach in a given study should be based upon the problem of interest, the available resources, the skills and training of the researcher, and the addressees of the research.

Concerning the AlmaLaurea surveys, inferred to Italian graduates' population, quantitative research is the best choice: such approach in fact reflects the need of a statistically and solid base of results.

1.2.4 Sample size, return rate

The precise sampling strategy will be determined by the consortium in close collaboration with the partners involved (taking the characteristics of the specific organization into account) to strive for a minimum number of respondents providing reliable outcomes for different gender, age, socioeconomic background and broad field of study groups.

Once the target population for a graduate follow-up study has been established, for various reasons, mainly economic, a sampling procedure is often necessary. Sampling consists of

selecting a part of the population so that the information provided by the members of the sample can be extended to the study's target population. Two related aspects are taken into consideration in the sampling procedure:

- ✓ The number of units in the sample, which provides a level of statistical error.
- ✓ The representativeness of the sample in relation to the population through the use of sample segmentation variables.

Upon designing the study, the error selection significantly affects the sampling volume.

Segmentation variables can be used to guarantee representativeness. The variables make it possible to define groups of similar individuals with similar behaviours. Segmentation variables are also chosen according to the objectives of the study. They define the strata within the sample, which must be complete to make the sample representative.

The research team should define the variables to be represented in the sample. Possible variables in a Graduate Survey could be:

- ✓ Field of study
- ✓ Gender
- ✓ Home town
- ✓ Year of graduation

The need to have reliable data down to degree-course level, led AlmaLaurea to systematically extend its employment status survey to all post-reform graduates from the whole calendar year. So, sampling procedure is the more often used one.

I.2.5 Main split variables

Throughout this report, results will be presented in particularly along four main split variables with respect to the higher education programme graduated from:

- ✓ Employment rate
- ✓ Gender
- ✓ Field of study

With respect to field of study, to guarantee reliable and between the nine pilot universities comparable results, it was suggested to distinguish 10 broad fields of study, on the basis of UNESCO's ISCED-F 2013 classification, which is also used by all participating countries to report data to EUROSTAT.

In the original, the classification of broad fields has 10 fields. Appendix 1.1 of this chapter shows the International Standard Classification of Education (ISCED-F 2013) narrow study programmes clustered in these ten broad fields of study:

Appendix 1.1: Fields of study International Classification

CODE	BROAD FIELD
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 (ICTs)
07	Engineering, manufacturing and construction
08	Agriculture, forestry, fisheries and veterinary
09	Health and welfare
10	Services

However, the Vietnamese partners take out individual fields of study from some broad fields in order to consider them separately, because they expect different situations on the labour market. For example, the broad field "02 Arts and humanities" includes studies as diverse as art, fine arts, humanities, etc. It can be assumed that the labour market of differs one form another also in terms of income. On the other hand, the broad field "04 Business, administration and law" includes business and law, two areas that can be considered separately due to the large number of students and graduates.

This classification, which has been adapted for the project, initially affects the data collection (and therefore has an impact on the sampling). For the analysis, these fields must be at least partially aggregated again, as some universities have too few graduates in some fields, which otherwise cannot be analysed. But, due to the broader classification in the data collection, the analysis can be made more flexible:

Appendix 1.2: Adapted fields of study – MOTIVE survey

MS	STUDY FIELD
614	Educational and training science
622	Humanity
681	Tourism, Hospitality, Sport and Personal Services
714	Educational and training science
721	Arts
722	Humanity
731	Social science and behaviour
732	Journalism and information
734	Business and Administrative studies
738	Laws
748	Computer science and information technology
751	Technical sciences and technology
752	Engineering
754	Manufacturing and processing
762	Agriculture, forestry and fisheries
764	Veterinary medicine and health
776	Social service
781	Tourism, Hospitality, Sport and Personal Services
785	Environment and protection

I.3 Techniques for identifying graduates

One of the most important elements for conducting a graduate follow-up study is to have a good, up-to-date database with the alumni's addresses, telephone numbers and email addresses.

The greater or lesser reliability of the institution's database depends on several factors, such as the degree of the graduates' geographic and employment mobility, their place of origin, etc. It also depends, for example, on the type of address supplied by the students. The parents' address is normally more reliable than the students' while they are at university.

Following a list of some of the techniques used to refine and improve the database of our alumni's addresses.

I.3.1 Administrative archives

Databases at the university's career and employment centers. The graduates' address database should be generated by adding and combining all the databases that the institution has at its disposal. As a result of the decentralization of the enrolment process or other types of circumstances, sometimes several student databases are distributed throughout the university's different offices. Before looking externally for other sources of information that would help us to complete and update our graduates' database, we must check whether there are other internal bases that have been inadvertently overlooked. In this sense, the institutions that have career and employment centers or other similar services for new graduates should start with these services' databases, since they are normally kept up to date.

Databases at public administration offices. In some countries, the public administration's databases can be used to obtain information. However, in others, data protection laws prohibit the transmitting of information without the explicit consent of the person concerned.

Professional associations. For some degrees, graduates must become a member of the corresponding professional association. Yet, graduates normally join an association although it is not compulsory. These professional associations have updated databases and their collaboration in graduate follow-up studies can be crucial.

Student and alumni associations. In some cases, graduates form alumni associations, usually based on student associations. These associations' databases are normally more up to date than the institutions'. The patronage and promotion of this type of associations by the institution will facilitate their collaboration in our graduate follow-up study.

Acts and ceremonies. In relation to the aforementioned points, we can take advantage of anniversaries or any type of acts, ceremonies or celebrations to ask the attendees to update the information available in our database. Likewise, these types of acts can be used, where necessary, to ask the attendees directly for the information we require for our graduate follow-up study or we can conduct a small validation test of the data collection instrument – the questionnaire.

Snowball technique. The Snowball technique starts with a small number of subjects to obtain information on a much larger group thanks to contacts and data provided by each member of the small group. When contacting graduates after graduation, they usually feel grateful and willing to collaborate by providing addresses, telephone numbers and/or email addresses of their old classmates. The technique thus allow to add our database with up-to-date addresses.

Other techniques. Other methods for obtaining information on graduates include Internet search engines; the reliance on specialized companies; contacting employers; advertise the study in the media.

These techniques present a range of possibilities for the institution or the service in charge of conducting the graduate follow-up study. The ideal situation would be to have a good internal database and not rely on external sources and other types of techniques to complete this information.

1.3.2 Obtaining high responses rates

Main challenge to any survey is to achieve a sufficient response rate to allow results to be disaggregated to answer all the key research questions. Considering the available budget for such surveys (web survey CAWI clearly has lower costs that telephone survey method CATI). In order to boost survey response rates, some activities should be considered:

- ✓ Having a survey short and clear. Longer surveys generally have a lower response as participants can lose interest or do not have the time to complete all the questions.

- ✓ Sending regular reminders. Reminder actions are an important way to increase survey response rates. Evidence from many graduate tracking studies indicates that at least two reminder actions should be undertaken.
- ✓ Use of helpdesk. During data collection, some graduates may have questions about the graduate tracking survey, such as specific elements of its content or technical issues. To address this, universities should provide advice and guidance about answering the questionnaire (telephone and/or online).
- ✓ Using mobile apps or mobile friendly online surveys that make it easier to respond with the electronic device they use most often.

Below is an illustration of a tracking survey that achieves a high response rate.

AlmaLaurea offers a wide databank of curriculum vitae that collects information both on graduates having a long work experience and on newly graduated students. This is a unique databank, since it collects data that have been certified by the different universities taking part to the consortium³. This databank, available on-line since 1996, enriches every year of at least 150.000 new curricula (both in Italian and in English) and on 2022 the total number of curricula amounted to more than 3,500,000 units.

The AlmaLaurea databank, result of the combination of different kinds of data, acquired at different stages, is the tool used by AlmaLaurea. The data collected can be divided into the following categories.

Official data: they are provided by the graduate's university. They regard faculty, degree course, expected graduation mark, duration of the degree course.

Data provided by the graduand: self-certification containing information about course attended abroad, work experiences and training made while studying; languages studied, IT skills and the availability to move abroad.

Data are used only as aggregate for the production of (anonymous) statistics at disposal of the Ministry to assess universities and of AlmaLaurea to implement the surveys. A part of this documentation feeds the CVs of each graduated, that are included in the databank of AlmaLaurea, upon agreement. At any time graduates can modify their curricula directly on-line. These modifications mainly regard postgraduate work and training experiences.

For several years AlmaLaurea has provided a number of services to its graduates. Among them: checking and updating of official curricula; possibility to browse and reply to job offers; job offers alert service; notice board for postgraduate training offers; certification of graduates' achievements for public competitions purposes and/or scholarships abroad;

availability of their CVs in English. The provision of wide services to graduates is central for graduate retention, which in turn is essential for constant database updating.

I.4 Cleaning data and check for representativeness

The following checking list (Schomburg, 2003, p. 172) can be useful to check the consistency of the questionnaire:

Has the questionnaire been completed by a member of the target group? This check is especially important as it is easily possible that the addresses you received are not the ones you actually wanted. During this period of the implementation of the survey you have the opportunity to correct these mistakes. Questionnaires which were not completed by members of the target group are left out of the survey (no data entry), but they are counted for the proportion of results.

Is the questionnaire answered completely? In some cases, you will receive questionnaires which were not completed properly without being given a good reason for this (e.g. unemployment). These questionnaires were generally left out of the survey, too, but are counted for the proportion of returns.

Check if the questionnaire has been filled seriously! It is not easy to describe how to check whether the completion of the questionnaire has been done seriously. If, for example, you take the responses/the long list items for the question with a five point scale you may suppose a lack of seriousness if a plausible pattern for the ticked responses cannot be seen. This check can be very time-consuming if it is done systematically. Besides, it is not very plausible why many interviewees should bother to purposely give foolish answers. Therefore, we recommend, that you only casually look for signs of lack of seriousness while doing the general check. However, only during the process of data analysis it is possible to do this kind of check more systematically.

Check the questionnaires for clearness and consistency! It is the most costly phase within the check of the questionnaires to check the clearness and consistency of the answers. It will happen more often that the interviewees do not keep to the formulated rules given in the questionnaire:

- ✓ even though they are asked to tick one time only, you will find two items being marked
- ✓ some interviewees may tick "other" without ticking the corresponding box;
- ✓ for a five point scale, you may find two ticks in one line or a tick between two boxes

- ✓ you can find invalid response code
- ✓ incoherence of responses

Obviously, these problems depend on the type of data collection method adopted.

I.5 Statistical procedures and graphic representation of results

Once the database has been cleaned up, and the information is more reliable, the data has to be analysed. It is recommended to use an appropriate statistical programme for this task (e.g. Nvivo, R, Stata, SAS, SPSS, etc.). Procedures will be not further described here but it is advised to read the relevant literature or to let the work done by a statistical expert.

As part of the processing procedure, it is necessary to generate frequency and percentage tables according to the variables and to produce tables in which independent and dependent variables are cross correlated. Simple statistical operations are useful for data analysis. For quantitative variables measures of the central tendency such as mean, median or mode contribute a great deal to data interpretation. In a similar way, measures of dispersion such as range or standard deviation or variance are useful for determining the behaviour of the variables.

Finally in order to know the weight some variables have on others, it could be important to determine the correlations between the variables and to measure their influence by the means of a multivariate analysis. Interpretation of multivariate analysis should be done carefully and with help of expert knowledge.

The effective representation and dissemination of the results of statistical analyses are as important as correctly conducting the analysis itself. An incomplete, ambiguous table or the ineffective communication of results can compromise the whole research effort.

This section will therefore deal with the main theoretical aspects to be taken into consideration when drawing up the tables on completion of research analysis. We will focus especially on the presentation of results coming from descriptive (monivariate, bivariate or multivariate) analyses.

Descriptive results may be represented in table or graphic form. Although the graphic format does not generally add any further information compared to a table – indeed graphs usually contain less information – the graph doubtless has great communicative impact, and is easily understood by readers with little knowledge of statistics.

Regardless of the data presentation method adopted, the title of the table or graph must be such as to communicate the subject matter of the analysis, the variables considered, and the type of statistical analysis carried out (e.g. if it is a frequency distribution or the calculation of an average). The table (and its title) must be “self-explanatory”, in other words, contain all the elements necessary to enable its interpretation without the reader having to refer back to the text of which it is part.

Of no little importance are the cases of no response (i.e. when individual interviewees fail to answer a specific question) or missing information (i.e. unavailable data). The researcher may decide to include this annotation or not, depending whether he/she considers this important for the correct interpretation of the table as a whole.

Presenting results in Table Form. A well presented table must be efficient (i.e. cost as little as possible), complete (i.e. contain all the information required for correct understanding) and appropriate (i.e. be in line with the research aims). The right balance is given by the so-called parsimonious principle: the table should provide only information that is useful for the understanding of that particular table – too many numbers risk confusing the reader.

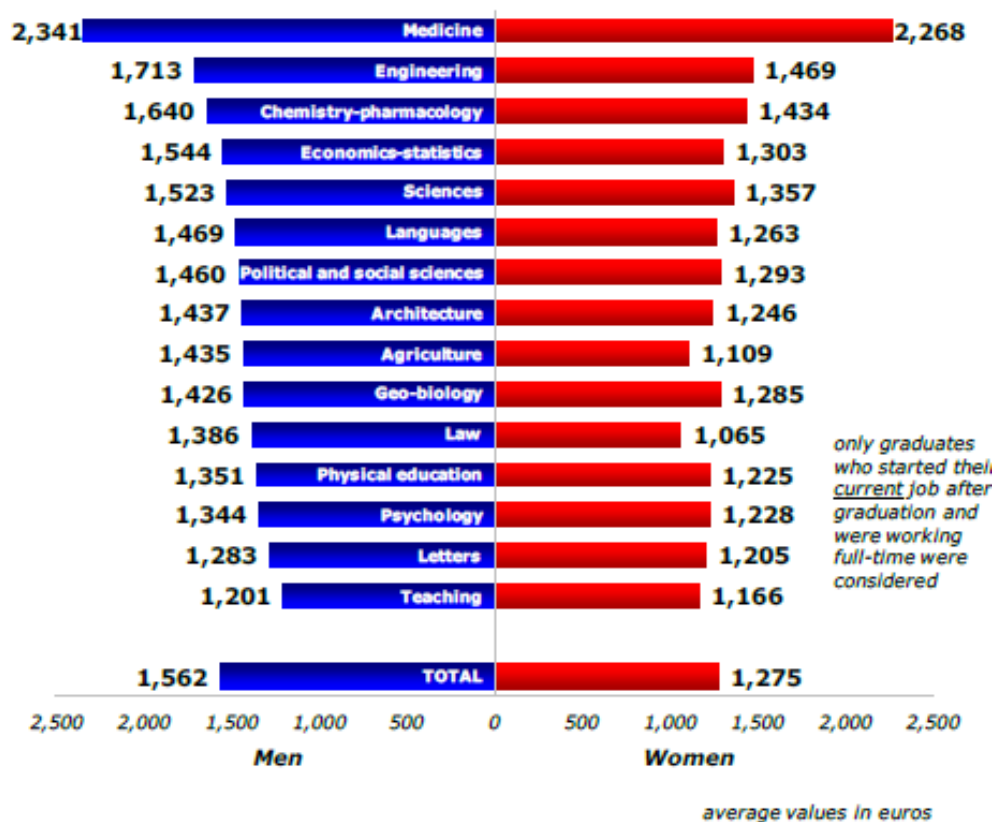
Presenting results in Graphic Form. As mentioned, graphic presentation is very effective and considerably helps reader comprehension of the data proposed. In order to construct a graph correctly, care must be taken with the reference scale of the axes. Any variation in scale will considerably alter the visual perception of the reader, minimising or enhancing the value differences reported.

Showing data in graphic form has the great advantage of selecting and evidencing the key information presented in a table. As all the figures contained in a table cannot be transferred, for legibility's sake, to the simpler graphic format, care must be taken to retain the most important values.

Monovariate, bivariate or multivariate analyses have different presentation tools and techniques. Given their easy readability, graphs are used to highlight the main characteristics of the population observed. The most widely used graphic formats are bar diagrams (with columns or bars), the histogram, the pie chart (or aerogram), the frequency curve and the broken-line diagram.

Diagrams are mainly used to present absolute or relative frequency distributions. Bar or column diagrams are frequently used to compare distributions of the same variable in two different populations; paired or opposing bar diagrams are especially used to compare male and female populations.

Example 1: Pre-reform graduates from the class of 2005 in employment at five years after graduation: net monthly earnings by gender and subject grouping



The opposing bar diagram shown in example 1 very effectively highlights the differences between two different groups – here men and women. The title tells the reader immediately that the subject is the net monthly earnings at five years after graduating. The researcher has chosen to order the bars in descending order of male earnings, a method that immediately shows the different net monthly earnings distribution among men and women in each discipline: for example, the men in the medicine grouping earn much more than their women colleague in the same group.

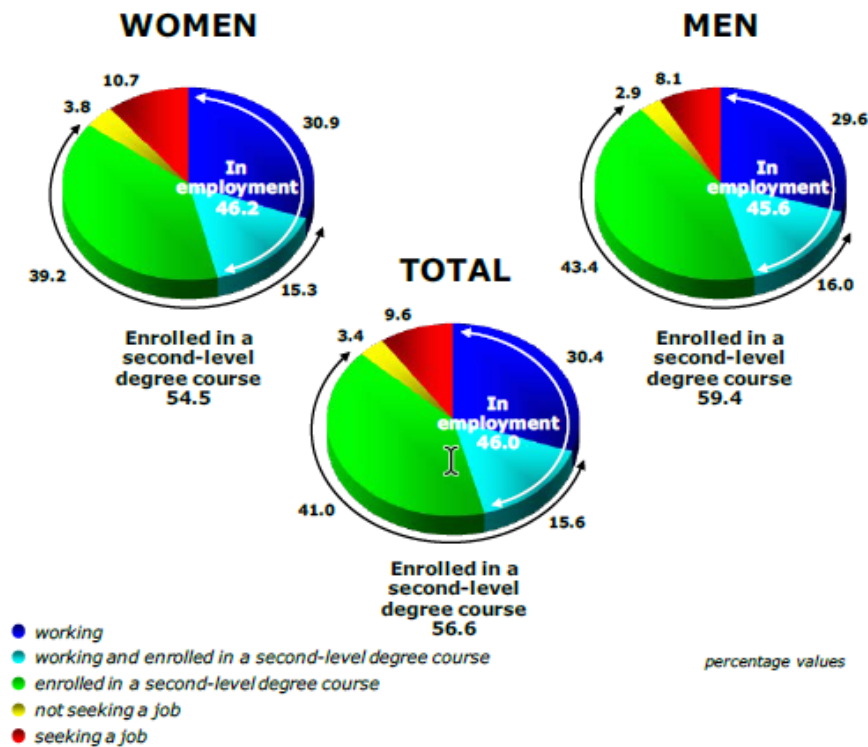
The scale of reference is given on the x-axis making the variation span immediately clear to the reader.

Pie charts or aerograms are used to give a clear picture of the whole situation. Aerograms can be either split bar diagrams or pie charts.

Example 2 gives three pie charts showing the frequency of employment and further training conditions at one year by gender. The title again immediately evidences the object of the analysis (work and training experiences).

Each graph has a separate heading that clearly indicates the graduate populations considered (here women, men and total). In addition, the graphs are set side by side allowing the reader to make easy comparisons. As the graphs refer to the relative distribution of the same variable, the legend at the foot of the charts refers to all.

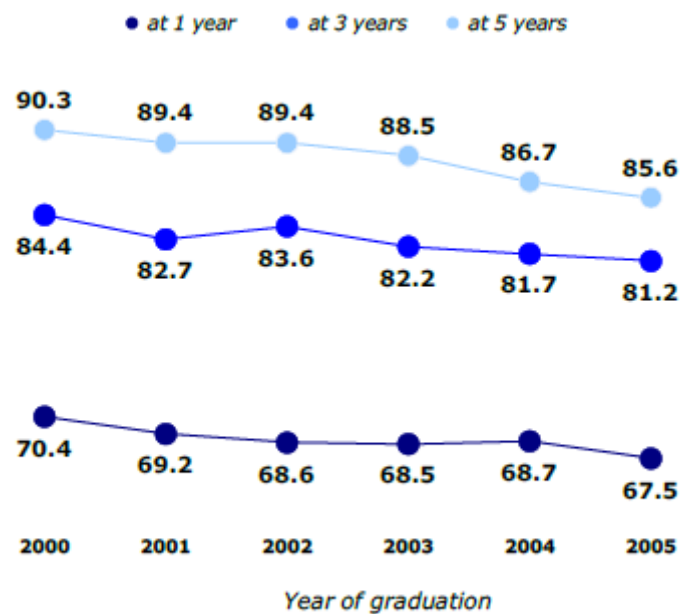
Example 2 - First-level 2009 graduates: employment and further training conditions at one year after graduation by gender



Broken-line diagrams are also used to indicate the employment situation since this type of data representation effectively illustrates progression over time.

The graph given in Example 3 compares a series of historical data showing employment rate at one, three and five years after graduation. The title clearly anticipates the sort of information to be found in the subsequent graph. The dots are joined by a line that gives an immediate visual picture of the employment trend in recent years.

Example 3 - Pre-reform graduates from the 2000-2005 classes: employment rate at one, three and five years after graduation (percentages value)



I.6 Dissemination and use

In this section we try to explore the various of ways data from graduate tracking can be used and how the information has been disseminated so that the society at large as well as all stakeholders can use it and the analysis is shared.

I.6.1 Potential uses of graduate tracking data

Graduate tracking data has been shown in various EU and EEA countries to provide value to a range of stakeholders: from the individual orientation to the provider and national levels, serving policy makers and practitioners, and include:

- ✓ Careers advisors, learners and parents: enabling stakeholders to compare programmes and providers and make more-informed decisions. Some have also produced average starting salaries for graduates in particular occupations/sectors
- ✓ Providers: providing intelligence to inform the effectiveness of particular programmes and areas where they can improve their curriculum/training programmes.
- ✓ Quality assurance agencies: as an external tool to measure the quality of provision.
- ✓ Ministry of Education or equivalent (education policy makers): to monitor policy implementation and identify areas of improvement. It has also been used to test the

effectiveness of pilot and new programmes, so compare the supply of graduates with labour market forecasts and the economic returns for particular training programmes.

- ✓ Labour market actors: to understand the proportion of graduates that progress to particular sectors and to what extent they stay in the sector.
- ✓ Labour market researchers: to understand the benefits and value of particular education or training programmes.

I.6.2 Analysis of graduate tracking data

In order to meet the needs of different stakeholders described above, graduate tracking data needs to be analysed at various levels. The level of detail will depend on sample sizes, but should ideally include analysis by:

- ✓ Occupation/sector of studies, to identify the effectiveness of higher and vocational programmes in meeting employer/economic needs.
- ✓ ISCED/EQF level, to identify the salary/employment rates for learners on different level programmes and any vertical mismatches (e.g. over qualification).
- ✓ Programme type, to demonstrate the impact and effectiveness of particular programmes.
- ✓ Geographical distribution, to explore any differences in outcomes and whether providers/graduates in particular areas need additional support (e.g. remoted or o mountain areas).
- ✓ Graduate characteristics (such as sex, ethnicity, age, socio-economic background, study abroad etc.), to explore how the outcomes of particular groups of graduates compare to their peers

To be meaningful, any analysis needs to be benchmarked against a similar comparison group. For example, a provider of similar type and size, and those based in similarly prosperous areas in terms of labour market opportunities. Additionally, the outcomes of graduates could be compared to a similar set of individuals that are non-graduates.

I.6.3 Sharing of graduate tracking data

The extent to which graduate tracking measures can be used by various stakeholders depends on how information is disseminated. Countries have adopted a range of

approaches to dissemination and must be taken into consideration the national and institutional rules in terms of confidentiality, data protection and privacy. Can represent and effective practice:

- ✓ Providing summary data in an easily accessible format, either online or in print. This allows a range of stakeholders, including parents, learners and users of labour market data, to gain headline insights from the information.
- ✓ Providing comparison tables to allow key stakeholders to compare the effectiveness of particular providers and programmes, if sample sizes allow. This can be either produced specifically for careers advisory services or published so that it is accessible to learners and parents.
- ✓ Allowing raw data to be available to researchers, providers and other interested stakeholders. This should only be provided if sufficient safeguards are in place to avoid the data being misused.
- ✓ Provide friendly data in easily data visualization format (e.g. infographics).

The presentation of graduate tracking data should be accompanied by information on the methodology for conducting the graduate tracking measure and any data limitations. This could potentially be through a technical annex that sets out the key survey questions, sampling criteria (if any), responses/response rates and extent to which the response matches the graduate population, groups that are under-represented, data sources used, matching criteria, and any issues on the quality and accuracy of the data.

In all countries, to the Higher education sector is given the task to prepare students for life. This task is connected to different dimensions, such as a good entrance on the labour market, long-term graduates employability, handling skills (required in an international context and dynamic labour market), as well as to promote engaged citizenship and democratic values. The basis provided for further learning is crucial, as graduates throughout their employment path and experience will be confronted with challenges requiring new skills or with changes in the labour market making their previously acquired skills obsolete. An additional aspect that should be considered is represented by the basis provided by the higher education study programme to acquire managerial, entrepreneurial and/or leadership skills. Entrepreneurs are seen as the backbone of the current and future labour market. Entrepreneurial skills are not only relevant for entrepreneurs but also for those employed by companies to look beyond the traditional boundaries of their job and to provide creative solutions. In this sense, it is of crucial importance for the higher education



Co-funded by the
Erasmus+ Programme
of the European Union

system to look into approaches that stimulate the basis provided to students with respect to entrepreneurial skills. To what extent this is related and the assessment of academic experience, the MOTIVE questionnaire developed under the Erasmus+ Project implemented in Vietnam with 9 pilot universities, can represent an important baseline for further studies.

References

- AlmaLaurea Interuniversity Consortium (AlmaLaurea). (2020). Methodological notes to the online database:
https://www.almalaurea.it/sites/almalaurea.it/files/docs/universita/occupazione/occupazione18/note-occupazione2019_en.pdf
- European Commission (EC). (2013). The skill mismatch challenge in Europe, in (European Commission, ed., 2013a), Employment and social developments in Europe 2012, Chapter 6, pp. 351–394, Brussels: European Union:
<https://data.consilium.europa.eu/doc/document/ST%205571%202013%20ADD%209/EN/pdf>
- European Commission (EC). (2016). A New Skills Agenda for Europe. Working together to strengthen human capital, employability and competitiveness, Communication from 175 the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions, Brussels: European Union, doi:
<https://ec.europa.eu/transparency/regdoc/rep/1/2016/EN/1-2016-381-EN-F1-1.PDF>
- European Commission EC. (2017). Communication from the Commission to the European Parliament, the Council, the European economic and social committee and the committee of the regions on a renewed EU agenda for higher education COM/2017/0247 final
- International Standard Classification of Education: [https://ec.europa.eu/eurostat/statistics-explained/index.php/International_Standard_Classification_of_Education_\(ISCED\)#Implementation_of_ISCED_2011_.28levels_of_education.29](https://ec.europa.eu/eurostat/statistics-explained/index.php/International_Standard_Classification_of_Education_(ISCED)#Implementation_of_ISCED_2011_.28levels_of_education.29)
- International Standard Classification of Education:
<http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-fields-of-education-and-training-2013-detailed-field-descriptions-2015-en.pdf>
- H. Schomburg, Handbook for Graduate Tracer Studies, Centre for Research on Higher Education and Work, University of Kassel, 2003
- Ministry of Education and Training of Vietnam (MOET), Circular No. 26/2021/TT-BGDĐT - Prescribing scientific research activities of students in higher education institutions
- Ministry of Education and Training of Vietnam (MOET), Circular No. 7/2022/TT-BGDĐT - Career counseling and business startup support in education institutions