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European Quality Assurance
in Vocational Education and Training

Research paper: graduate tracking

Lessons learnt from three case studies on quality assurance arrangements for VET graduate tracking

Colophon

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The Dutch National Reference Point EQAVET (NRP EQAVET) is committed to working on and ensuring educational quality in Dutch upper secondary vocational education (MBO). The NCP is the link between European policy developments, national policy and the way things are done in the Dutch upper secondary vocational education sector. In addition, EQAVET is a European reference framework for quality assurance. Among other things, we perform the important task of bringing together, informing and activating the various stakeholders. The focus is on strengthening the quality in teams of teachers and promoting a culture of quality within teams and at the school. EQAVET brings together all the existing initiatives relating to quality development and quality assurance, allowing these to complement and strengthen each other.

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Introduction

This research paper describes several practices of the current state of VET (Vocational Education and Training) graduate tracking on VET provider level in the Netherlands and other EU member states. Not only is graduate tracking an important topic in relation to improving quality assurance, the European Commission's 'New Skills Agenda for Europe' also emphasizes the importance to better understand the performance of graduates in the labour market and their placement.

The main goal of the paper is to provide guidelines, best practices and lessons learned based on the insights gathered from the three different case studies. In other words, this research paper consists of two main tasks: 1) describing three best practices and 2) providing guidelines, best practices and lessons learned based on these three practices.

This study consists of four parts. In chapter two, we start by explaining the definition of graduate tracking and the added value of tracking graduates. This is followed by an in-depth analysis of three individual case studies (chapter 3, 4 and 5). The case studies describe graduate tracking on three different levels: i) national level; ii) institutional level and iii) learning program level. In chapter 6 we describe the similarities, differences and learned lessons based on these three case studies. The comparative analysis of the case studies produces a set of guidelines, based on these three case studies, for designing and implementing a graduate tracking system (on the three different levels). The paper ends with the conclusions. This chapter also includes recommendations and some general requirements which are the common denominators in the case studies which contribute to successfully track graduates, but also areas in which further research is necessary.

This research paper was written by the National Reference Point (NRP) EQAVET, based on input and experience from the individual researchers mentioned in each of the three case studies. NRP EQAVET aims to strengthen quality assurance in the VET sector both in the Netherlands and Europe. NRP EQAVET has developed various activities in the Netherlands in recent years themed around strengthening quality culture and quality assurance.

1 Graduate tracking

In 2017, the EU Council Recommendation on graduate tracking was published, emphasizing the need to improve the availability and quality of data about the activities of graduates and people leaving higher education and vocational education and training without graduating. Following the EU Council Recommendation, tracking graduates leaving any education of training, especially in VET, is a concern for most members of the EU. The European Commission defines graduate tracking as *the collection of quantitative micro and aggregate data and/or qualitative information about the employment and social outcomes of people leaving higher education and vocational education and training* (VET)[1].

Since the financial crisis in 2008, the employment rate has not fully recovered yet across whole the EU. Moreover, the employment of graduates of VET varies heavily. The recommendation specifically mentions that the systems for collecting, using, and analyzing data are not well developed across the EU. Therefore, the members of the EU are encouraged to improve their current graduate tracking system. Better and more relevant information is required for designing educational programs, improve government policy and to enable the student to make a good choice for their study.

Graduate tracking can be used for different goals, for example for: 1) keeping the curricula up to date to make sure students learn relevant skills for employability or 2) improve career counselling and guidance for current and future students.

Tracking graduates is considered a core component as a mechanism to establish a benchmark on skills utilization, based on skills learned in the learning program. Furthermore, tracking graduates can provide insight in the quality of the learning programs and qualifications and the programs offered in Vocational Education and Training and to a certain extent how well the programs meet the labour market needs and the corresponding placement rates.

Good quality information about what graduates do after leaving their education (with or without a qualification) is essential – as is also highlighted in the EQAVET framework. This information contributes to understanding the causes of for example a mismatch between the graduates' skills and the skills required on the labour market. Improving the quality and availability of data on graduates empowers the ability to track graduates and contributes to several objectives: i) updating (or designing) the curricula to ensure a match between the graduates' skills and the skills required for the labour market, ii) improving career guidance offered by the institutes for their current and future students, iii) contributes to better policy making on a national level, iv) planning for social needs and forecast potential unemployment and v) improve skills matching to the region and therefore contributing to the regions innovation strength and competitiveness.

[1] European Commission, Directorate-General for Education, Youth, Sport and Culture, Beadle, S., Vale, P., Mannsberger-Nindl, S., et al., Mapping the state of graduate tracking policies and practices in the EU Member States and EEA countries: executive summary, Publications Office, 2020, https://data.europa.eu/doi/10.2766/90562

2 Research method

This research consists of two research tasks: 1) describing and analyzing three individual case studies and 2) analyzing common pitfalls and success factors. These tasks contribute to the two main goals of this research paper: 1) describing several practices of the current state of VET graduate tracking on VET provider level in the Netherlands and other EU member states and 2) to provide guidelines, best practices and lessons learned based on the insights gathered from these three different case studies.

The first tasks consist of multiple parts. Starting with generally describing the background of every case study, the method used to track the students, challenges faced, recommendations that can be made based on these challenges and a conclusion. The key research questions for the case studies are: i) which methods are used to track the graduates, ii) which data is collected and utilized for tracking the students, iii) what are the main challenges to overcome when tracking graduates? and iv) what are the key success factors for tracking graduates?

This research paper covers three cases, which track graduates on different levels: 1) national level, 2) institutional level and 3) learning program level. The case studies focus consists of cases of two countries: the Netherlands and Luxembourg. The information collected to write the three different cases is based on desk research and semi-structured interviews. The information from the desk research and interviews are collected to identify what methods are used to track the students and what challenges were dealt with. Following the data collection, the input from the case studies was carefully analyzed to identify recommendations and a conclusion. Specific experts were consulted to verify and provide additional information when certain data was missing. The level of information available differed for each case study, semi-structured interviews were used to collect missing information.

The second task, analyzing common pitfalls and success factors, is based on the information collected for the first task (the case studies). Tracking graduates never happens in a vacuum but takes place within a specific context. Therefore, this research has its limitations as it is impossible to one-on-one compare the studies. Despite these limitations we analyze, combine and compare the case studies to find common denominators for their success.

3 Case study 1: Luxembourg

Background of the case study

Luxembourg aims to improve their quality assurance arrangement for (T)VET graduate tracking by introducing a new quality assurance mechanism. This mechanism (DQMVET), which is currently being designed, allows Luxembourg to visualize indicators for quality and revision needs for initial VET (IVET) based on the pathways learners follow. In Luxembourg IVET is part of the upper secondary education, and accessible for initial and adult learners (with both the same curricula). Most pre-VET studies are followed by students from the ages 12-14. After three years learners can choose from three different levels (NLQF 2, 3 and 4). After completing IVET, and a mandatory module, students can enter the higher education field of their initial study.

VET and quality assurance in Luxembourg

Luxembourg aims to develop a dashboard, the data-based quality monitoring in VET (DQMVET), to provide insight into the learner's pathways by bringing together existing administrative data which is currently under development. The goal of the DQMVET is to create a dashboard based on timely available and reliable data on initial VET with the ability to identify irregularities in the pathways learners follow.

In Luxembourg governance and quality assurance of initial VET is centralized, the Ministry of Education plays a key role at the operational level (for example quality reviews or changing the curricula, which should be updated every five years) and decision making. The purpose of DQMVET is to systematically track learnings to provide insight on early leaving, identify groups of students who cannot seem to find apprenticeship companies or students withdrawing from the programs.

DQMVET is not only limited to monitoring progress, but also aims to predict VET pathways which are more likely to have a higher change on early leaving by students. To accomplish this goal a database is set up which systematically collects data, to 1) assist the Ministry in identifying main characteristics of early leavers and 2) address underlying issues why students are in pathways which do not suit their needs the best. When issues arise from the DQMVET dashboard, the Ministry of Education can closely examine the situation and conduct additional research (interviews or questionaries) to identify contributing factors on which the Ministry of Education can act.

Challenges and recommendations

Luxembourg collects a great deal of administrative data on a central level. The data is automatically collected from the VET provider's registration and management systems. Currently the Ministry of Education uses the data to 1) request to specific responds on different policy (evaluation) areas and 2) monitoring purposes. Every request is individually handled which makes it a time-consuming process. Data collection consists of

multiple institutions and system, due to General Data Protection Regulation (GPDR) this (personal) data can only be shared between the schools and the Ministry of Education as the central authority. Additional data, for example from higher education or from ADEM-OP (a department of the public employment service) would enrich the pathway from the student.

Identifying indicators to provide useful insight into VET (graduate) tracking

Identifying indicators to track the learners' pathways is one of the first difficulties which arises when developing a dashboard to track learners. Combining both monitoring and predictive indicators widens the purpose of the DQMVET, however it takes time (both in developing and identifying) indicators to develop a reliable dashboard. The first issue which arises is the purpose of graduate tracking; there is a major difference in developing indicators for monitoring and predicting. Therefore, it is important to ensure all stakeholders understand how the data collected, provided by the individual schools, will be used by the policy makers. Creating commitment for using the new mechanism depends on how the data and indicators will be used. For example: will low employment rate leads to change in school funding?

An important indicator that should be considered for measuring the quality in VET, in terms of prediction and monitoring, is the student satisfaction. Schools work with different cohort of learners, an indicator which maps the added value of VET (based on the learner's achievement before and after VET) can be helpful, in combination with the student satisfaction) for the individual schools and policy makers.

With rapidly changing labour market needs, data based on the achievement from learners (as mentioned above) based on transferable skills can be linked to the successful employment of students. Which can contribute to identify the most suitable balance, from a policy point of view, between specific knowledge on subjects and soft skills.

The quality of the mechanism depends on the quality of the multi-dimensional analysis; therefore, it is better to not rely on one type of indicator. Indicators alone, for example input indicators such as socio-economic background and student/teacher ratio, are unlikely to provide sufficient insight into the learners' pathway. On the other hand, outcome indicators such as completion ration rate or early leavers will not contribute to predicting learners' pathways. Therefore, we want to stress the importance of combining different types of indicators for monitoring learners' pathways, based on inputs, process and outputs indicators. Other interesting indicators can be data available on the schools, such as data from the school inspection, a self-review or attendance from students.

Transparency

Data on individuals is protected by the GPDR, rendering data from small cohorts or surveys with low responses useless. Not all data is therefore available for analyses. Greater transparency can contribute, particularly when the data is automatically generated and processed into a mechanism. Input is based on data collection from different organizations (in this case schools). Stressing the importance of the quality of the data, by explaining the goal of the mechanism, contributes to the quality of the final monitoring tool. Next to that, it is important to provide simple and clear instructions on data entry.

Preparing for flexibility

Learners are looking for more flexibility on how to complete their program, for example by selecting modules or units to meet their employment aspirations. Many countries have developed a more individualized approach to VET, and the trend in Europe continues to increase the choices offered to learners. Graduate tracking mechanisms need to take into account future changes to the flexibility in the programs.

Resources

Developing a data based graduating tracking mechanism based on (administrative) data requires significant resources associated with cleaning data, combining data from the different resources and analyzing the data to address policy questions. Additionally, it requires the development of public information on how to read the insights in key indicators displayed on the mechanism. In other words, it requires communicative skills alongside technical skills. Commitment on using the mechanism and the quality assurance to provide timely available and reliable insights should not be underestimated. The key in this is starting small.

Conclusions

The purpose of the mechanism of graduate tracking should be clear for all stakeholders and users of the data. We recommend starting small, it is important to identify where to start. It is key to establish goals/objectives for any research conducted before setting up graduate tracking. For example, is it important to identify indicators before building the mechanism? It could be beneficial to pilot before moving to an (expensive) IT solution. When considering different indicators, it is useful to agree on definitions and prepare guidelines on how to read the indicators (and how to collect the data in a standardized matter). Collaborate with a wide range of stakeholders when choosing indicators to implement in mechanism. Implementing a data based graduate tracking and quality mechanism will always require significant resources (in finance, technical and staffing). This should not be underestimated.

4 Case study 2: G4 VET institutes

Background of the case study

Every student has the right to education which is of satisfactory quality. To ensure every student can assume that the programmes they follow provide adequate quality, the Dutch Inspectorate of Education issues a framework. This framework describes the inspection regime for Dutch VET-education. Every four years programs of schools are assessed on basic quality requirements. The framework differentiates between qualitative and quantitative assessments. The quantitative assessments consist of a benchmark, based on four key performance indicators (KPIs): year results, diploma results, starters results and early school leavers[2].

In the recent years there have been numerous debates between the largest VET institutes in the G4[3], the municipalities of the G4 and the Dutch Inspectorate of Education discussing the benchmark set by the framework of the Inspectorate. The VET institutes in the G4 argue they serve a complex group of students consisting of students with diverse (social) backgrounds and circumstances; making it more difficult to meet the standards (KPIs) set by the Inspectorate of Education. In particular, the institutes argue the benchmark does not take into account the specific group of students the G4 VET institutes serve.

According to the Dutch VET Council (MBO Raad in Dutch), the student characteristics and demographics in the G4 (major cities) differ from those outside the G4. The Inspectorate framework does not take any of those factors into account, nor makes any corrections for these factors to the benchmark.

Summarized, the institutes expressed their concerns about the benchmark set by the Inspectorate of Education. The Inspectorate acknowledges the shortcomings in the current framework and offers the institutes an opportunity to prove their claim.

Graduate tracking in the G4

Following these discussions, the VET institutes in the G4 embarked on a journey to better map and understand factors which affect the chance on early school leaving, with a particular focus on the importance of student demographics and background. In addition, the consortium of G4 VET institutes strongly believe that early school leaving is not permanent but can also be temporary. In other words, the students return to school. By conducting this research, the G4 VET institutes want to improve their own steering policy, quality assurance and generate input for the discussions held with the Inspectorate of Education.

[2] Early school leavers, in Dutch *Vroegtijdig School Verlaters* (VSV). People aged between 18-24 years who have left education without a basic qualification, i.e., a diploma in senior secondary general education (havo), pre-university education (vwo), or level 2 of senior secondary vocational education (mbo).
[3] The four major cities in the Netherlands, namely: The Hague, Utrecht, Rotterdam, and Amsterdam (i.e., G4).

Research

The G4 study explains early school leaving, taking into account study characteristics and APCG[4]. The findings present a unique new insight into what happens with students after leaving the VET institutes (with or without a NLQF 2 or higher qualification). Using data from three cohorts, provided by the VET institutes, the Statistics Netherlands (CBS) complemented the data with the labour market position from the students. Enriching the data with extra features from the Statistics Netherlands (CBS) enables the VET institutes to track their students after leaving school.

Dashboard

To maximize the utilization of the generated insights for purpose of quality assurance a dashboard was designed to improve the tracking of graduates. The dashboard can be used to determine the success of the strategies set out by the VET institutes and the performance of the school leavers. The interactive dashboards visualises the position of school leavers, with the option to distinguish between by 1) institution, 2) location, 3) level, 4) learning pathway, 5) domain, 6) vocational training, 7) cohort, and 8) diploma attainment.

Conclusions

The research suggests that not all early school leavers (ESL) without a qualification remain an ESL; 1 out of 12 students return to school. In other words, students marked as early school leaver do not always remain an early school leaver. This provides an alternative promising insight into the student's position: ESL is not necessarily permanent. When comparing the outcomes to the official percentage of ESL students based on the no diploma outflow from study programmes, it was clear that 1 in 5 of the ESL students returns to education in the short term.

A key finding is that obtaining a qualification and student demographics play a significant role in the student's labour market position. For example, school leavers in the G4 without a qualification are twice more likely to end up in an unemployment benefits position than students who obtain a qualification. The same applies for student demographics. Students in APCG areas are twice as likely to end up in an unemployment benefit position. The intersection effect of not obtaining a qualification and living in an APCG area is even more robust.

Challenges and recommendations

VET institutes collect a great amount of data from their student, this data is protected by the General Data Protection Regulation (GPDR). GPDR protects the data from individuals and therefore making data from small cohorts useless. In this specific case the data was enriched by the Statistics Netherlands (CBS). The CBS applies output control, for example only output for groups larger than 10 students is available. This renders data from a lot of VET programmes in combination with NLQF qualification useless; thus, making it impossible for this study to track all the graduates from the institutes. Research design is

[4] APCG, in Dutch *armoedeprobleem-cumulatie-gebied*, refers to a geographical area in which there is a relatively high share of households with low income, a relatively high share of households whose main source of income are social benefits, and a relatively high share of households whose main breadwinner has a non-western migration background.

crucial. The structure and implementation of a study can have great impact on the findings. Therefore, it is crucial to identify risks in the design.

There are multiple structures when working with data supplied from the Statistics Netherlands (CBS). In this case the Statistics Netherlands enriched the data from the G4 VET institutes and returned an aggregated data file (not traceable to individuals). Working with aggregated data makes it impossible to use statistics techniques (for example regressions). However, it is also possible to work in the secured CBS microdata environment. All the microdata remains secure in the CBS environment. This enables the researcher to work with data on an individual level and therefore making it possible to use more complex statistics research techniques. When exporting the results to the outside environment, the CBS conducts an output control to prevent any disclosure risks. Therefore, in the follow up research, the microdata environment is used.

5 Case study 3: Using data to improve the quality of a VET-program in The Netherlands

Background of the case study

Every student has the right to education which is of satisfactory quality. To ensure every student can assume that the programs they follow provide adequate quality, the Dutch Inspectorate of Education issues a framework. This framework describes the inspection regime for Dutch VET-education. Every four years programs of schools are assessed on basic quality requirements. The framework differentiates between qualitative and quantitative assessments. The quantitative assessments consist of a benchmark, based on four key performance indicators (KPIs): year results, diploma results, starters results and early school leavers[5].

This case study focuses on a particular VET-program within a Dutch VET-institution. Due to continuously achieving poor outcomes with regards to the KPIs mentioned above, the education team of this program initiated research to give more meaning to the different sets of data they collect, resulting in targeted interventions to improve the quality of their program.

Pedagogical Childcare Worker

The Pedagogical Childcare Worker (Level 3) VET-program has been showing poor results on year-, starters- and diploma results for years, leading to frustration amongst teachers, students and quality assurance staff. Several action plans have already been implemented, deploying a variety of interventions such as more intensive study career counseling, additional individual tutoring, homework assistance, more learning time and intensifying the intake process. Without achieving the desired results, the education team of the study program felt the need to dig deeper into the available numbers and findings.

Turning signals from data into interventions that fit the target population is a major challenge for any educational institution. It requires a long-term approach and thorough preliminary work. The starting point is the available data: data on early school leavers (part of graduate tracking), diploma results, starters results, year results, attendance and absence percentages, JOB-monitor results[6] and results of employee satisfaction surveys. The VET-program in this case study also collects data during the school year from team meetings, student meetings, individual conversations with students, study progress and often also through conversations with student representatives and sector meetings.

[5] Early school leavers, in Dutch *Vroegtijdig School Verlaters* (VSV). People aged between 18-24 years who have left education without a basic qualification, i.e., a diploma in senior secondary general education (havo), pre-university education (vwo), or level 2 of senior secondary vocational education (mbo).
[6] The JOB-monitor is an annual student satisfaction research amongst all VET-students in the Netherlands implemented by JOB, the Dutch youth organization for VET.

Process

Giving data meaning

The education team of the VET-program started its research by really getting to know terms such as year results, diploma results, etcetera. There is a lot of talk about these terms, but what exactly do the numbers mean? The numbers are mostly about groups of students who left school with or without a diploma. Who were these students again? What was going on with these students? Meaningfully linking the data to the students one had in the classroom provides a very different view of the numbers. Additional explanatory information can be retrieved in the student tracking systems about the circumstances to the school period of specific dropouts. Students who leave institutions without a diploma are difficult to trace. This group can, however, provide the VET-program with a valuable information on how they experienced the program and guidance at the time.

Describing the results of the JOB-monitor in terms of needs

Besides tracking graduates and retrieving more information on why early school leavers left the study program in the first place, the education team also focused on the data collected from current students to improve the quality of their program. The extensive reports of the national JOB-monitor are relatively easy to translate into student needs. The negative scores provide clear guidance to the education team with regards to what they should consider changing or improving. The results of the JOB-monitor often show what students are dissatisfied with, for example about the scheduling of classes. As this showed to be the case in the results, it was interesting for the education team to find out what exactly is wrong with the scheduling: are there too many classes? Too little? At inconvenient times? Or do opinions on this vary much between students? Finding out more about the reasons behind negative scores, through questionnaires or conversations with students, can paint a more complete picture of where specific needs really lie.

Discussing employee satisfaction survey results

Besides the perspective of the student, thoroughly discussing and capturing the needs of the teachers brought balance to the research and strengthened the foundation for the upcoming changes within the programs. Discussing the striking results of the employee satisfaction survey fit very well with the analysis of the JOB monitor. It showed that the satisfaction of the teachers was under considerable pressure. Teachers were particularly bothered by the study attitude of students within their classes. Especially the discrepancy between the students' study attitude at school and the professional attitude at the internship raised questions.

Structural quality assurance dialogue with students

Cyclically engaging with students in dialogue about quality assurance issues you are struggling with as a team produces a constant stream of qualitative data. In this practical study, the format of *Stichting LeerKRACHT*[7], the 'student arena' (format for a meaningful conversation with students), provided the program with valuable additions to the data. Questioning and talking through the perspective and experience of the student brought education much closer to the field.

[7] Stichting LeerKRACHT is a Dutch foundation set up to improve education in the Netherlands.

Resulting activities and interventions

Through the research, it was possible for the education team to translate the data into targeted interventions.

More work-based learning

Shifting the ratio of supervised education time to professional practice provided a greater proportion of work-based learning in the course from the beginning of the study program. Theory and practice are purposefully linked to lesson content and practical assignments. The curriculum is now organized by developmental stages instead of the learning contents of previous courses. The subjects such as Pedagogy, Methodical Work and Communication are now integrated into the modules. This requires core teachers to assume a more all-round teaching role and less as subject specialists.

Changing scheduling of classes

Equal class days in terms of length and intensity was a major desire of the students. Predictability in the weekly rhythm brought peace to the students' full schedules. It brought more balance to the weekly schedule that included sports, internship, work, hobbies, school, friends, family, etcetera.

Increased guidance

The students who dropped out during the program as well as students still following the program indicated that they could hide (too) long. Being taught by many teachers gives them a chance to tell a little bit of their story each time. Two permanent core teachers were chosen for these groups, with the goal of creating a deeper bond between student and teacher.

Workplace

Close contact with the field about the content of classes and practical assignments put the program in closer connection with the field. Intensifying contact about the progress of learning in practice and the student's behavior and attitude at school ensured that student development at school and during their internship could be discussed more easily. Learning in school was more recognizably in the service of learning in practice.

Impact

Pedagogical climate

The most obvious impact was the conversion from 13 subject teachers to two core teachers per class. Students with complex issues bonded more quickly with the teachers who were there for them throughout the week. Additional care was brought in more quickly when needed and accepted by the students with less resistance. The group climate, compared to other years, was much more secure and focused on learning and growth. Seeing and being seen takes a lot of effort for the core teachers at the start of the school year but makes management of the group easier, and the guidance safe and warm. Students with problems and/or doubts are noticed earlier and more clearly. This directly impacts dropout rates and thus the program’s year results.

Program closer to the professional field

Students built a realistic image of their chosen profession faster due to the fact that the educational program was related to the workplace from the beginning of the program. The contacts with the internship location were taken up intensively in the first weeks in order to make a good start in the collaboration between teacher, internship supervisor and student. This also made it easier to transparently find out if the student is in the right place. Pursuing the goal of having students quickly form a realistic picture of their chosen profession sometimes resulted in conversations about suitability already during the first few weeks. The process of reassignment to a more appropriate study program was initiated much more smoothly which has a positive effect on the year's results, and most importantly on the student's well-being.

Satisfaction

The teachers visibly enjoyed having more impact on student and group formation. The first two months of the school year are intensive for the teachers because of the chosen approach, but afterwards it yields a lot that the program benefits of, and that teachers can enjoy for three years.

Challenges and recommendations

Challenges

Coming up with interventions based on available data is manageable. To do this, generating development time for a longer term is essential. Facilitating time and knowledge to elaborate, sustainably implement, evaluate, and develop the interventions is needed to understand the yearly outcomes and diploma results.

Sustaining an approach within an educational system where most programs are organized differently than yours requires constant positioning. From a thorough analysis, you choose an approach that differs from the norm. The approach is noticeably and visibly positive, but not standard in terms of educational logistics and content and therefore it requires constant focus on that the new (positive) results are caused thanks to the different organization.

Recommendations

Using data as a basis for interventions requires an investment so that the people thinking of and implementing interventions understand what the data means. Linking the data to students' experience and perceptions is valuable if you can translate the students' stories to students' needs without judgment. Data can be a strong foundation for a process of change. The most recent data show the effects of interventions very sharply when these are based on the old data.

6 Discussion, conclusions and recommendations

This research, as mentioned earlier, consists of two research tasks: 1) describing and analyzing three individual case studies and 2) analyzing common pitfalls and success factors. These tasks contribute to the two main goals of this research paper: 1) describing several practices of the current state of VET graduate tracking on VET provider level in the Netherlands and other EU member states and 2) to provide guidelines, best practices and lessons learned based on the insights gathered from these three different case studies.

In chapter 6 we analyze common pitfalls and success factors, based on the 4 research questions: i) which methods are used to track the graduates, ii) which data is collected and utilized for tracking the students, iii) what are the main challenges to overcome when tracking graduates? and iv) what are the key success factors for tracking graduates?

Graduate tracking methods

As the case studies illustrate, tracking graduates can be done in various ways. For instance, by using (administrative) data or developing and supplementing this data with surveys. Some graduate tracking mechanisms have implemented a structure to process and analyze data and generate automated output. However, in some cases data is only collected and processed to correspond to specific (policy) needs, which are often more time-consuming and sensitive to errors (quality control).

The range of tracking mechanisms, measures and indicators used differs broadly between the case studies. For example, Luxembourg aims to develop a graduate tracking mechanism to structurally and timely process administrative data into usefully indicators and complements this (based on specific policy needs) with surveys. The purpose of this mechanism is to: 1) assist the Ministry of Education in identifying main characteristics of ESL (early school leavers) and 2) address underlying issues why students are in pathways which do not suit their needs the best. Based on these insights, the Ministry of Education can closely examine the situation and conduct additional research to identify factors on which they can act.

In contrast, the goal of the G4 graduate tracking is initiated by VET institutes and not the Ministry, and their goal is to 1) address shortcomings with the benchmark set by the Inspectorate of Education and 2) generate insights for the purpose of quality assurance and improvement. To accomplish these goals, the G4 created a mechanism - just like in Luxembourg - to systematically track graduates. However, as opposed to Luxembourg, this was not initiated by the Ministry, but the VET institutes themselves. The generated insights will not be used for developing and monitoring policy on a national level but on an institutional level and additionally will generate insights on learning program level.

Summarized, both cases develop a dashboard to track graduates based on a centralized data base. However, the stakeholders differ (Ministry in Luxembourg and the VET institutes in the G4). The third case study uses data to improve the VET-program of a specific program and was initiated by the education team of the specific VET-program. It is recommended to carefully choose the graduate tracking method based on the stakeholders.

Data collected and used

Using data from a standardized source (CBS in the G4 and Ministry in Luxembourg) ensures the quality of the data and provides results which are reproducible, provides the analyzer with the ability to spot trends over time and quickly respond to ad-hoc questions related to graduate tracking. Furthermore, it makes sure that the data processed is protected by the GPDR by using GPDR system which are in place on an institutional level. The design is crucial, in both cases a lot of data from individuals is processed and therefore protected by the GPDR. Both cases had clear goals and thereby made it easier to adhere to the GPDR.

In the third case study, the data collected and analyzed for this purpose is not based on implementing a mechanism but on a one-time analysis. This has both its advantages and disadvantages. A major advantage is the ability to use non-structured data, specifically generated in the context of the learning program, which normally would not be used (not standardized and available for more or all learning programs). Furthermore, the ability to engage with the students in a dialogue about quality assurance produces a constant stream of qualitative data about the perception of the student. In this case the data from multiple sources was combined. Depending on your specific use case, we recommend choosing carefully between a one-time analysis or a data processing mechanism. The advantage of a one-time analysis is a flexibility in the data used and available; therefore, enabling the use of non-standardized data. On the other hand, a data processing mechanism ensures relies on standardized data based on good quality data and generates insight on the graduates on a timely basis.

Challenges overcome

GPDR protects the data from individuals and therefore makes data from small cohorts useless: not all data is available for analysis. This means that the research design is crucial, as the design can have great impact on the findings. For example, data from small cohorts is useless, therefore designing a study which will only generate data on a small group of students doesn't make any sense. The data is protected and data on a small group of students cannot be published or used. However, designing a study in a way this data can be analyzed, but not published (for example in a protected environment from CBS) enables researchers to utilize the data to its full extend and uncover hidden insights. In other words, designing your graduate tracking mechanism in such a way that the data from individuals is usable but not publishable is recommended.

Key success factors

Turning insights from data into interventions that suit the need of the target population is a major challenge for any government, institute or learning program. Long-term planning approach and thorough preliminary work is required. It requires an investment. Facilitating time and knowledge to elaborate, sustainably implement, evaluate, and develop the interventions to improve the position from the graduate is recommended. Data can be a strong foundation for a process of change. However, finding the right indicators is a challenge. When considering different indicators, it is useful to agree on definitions and prepare guidelines on how to read the indicators. It is key to establish goals (and a research design) before setting up a graduate tracking system. In the case studies this implies first combining data from multiple sources and researching which indicators play a crucial role. Collaborating with a wide range of stakeholders is crucial.

However, implementing such a system, which eventually leads to indicators, followed by indicators which can be translated into interventions demands a significant number of resources (finance, technical and staffing). This should not be underestimated, the key in this is starting small. Committing on developing and implementing a mechanism, with the corresponding quality assurance in place, is key to the success of establishing useful interventions.

Using data as a basis for decision making, policy and interventions takes time. It requires a significant investment to ensure the dedicated person has the required skills to, for example: 1) combine data, 2) clean data, 3) select indicators, 4) develop policy, 5) develop interventions, 6) monitor interventions/policy, 7) understand the context of data and 7) assure the quality of all of the above. Therefore, a multi-disciplinary team is required to successfully developed a graduate tracking mechanism. Individually requesting and processing graduate tracking is a time-consuming process and most likely a waste of resources. Developing a data-based graduate tracking mechanism requires resources associated with the above skills. Additionally, it requires the development of public information on how to read the insights in key indicators displayed on the mechanism. In other words, it requires communicative skills alongside technical skills. Commitment on using the mechanism and the quality assurance to provide timely available and reliable insights should not be underestimated.

The trend in Europe continues to increase the choice offered to learners, and therefore offering a more individualized approach to VET. Graduate tracking mechanisms need to take into account future changes to the flexibility in the programs.

Reference list

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