

Chapter 2. Developing the foundations of the vocational education and training system in Estonia

Only about one-quarter of the youth cohort enters vocational programmes at the upper secondary level, many of those with weak school attainment. Many students in Estonia attend full-cycle schools, which provide general education throughout the 12 grades, which biases the decision against vocational education and training (VET). While dropout rates have fallen, around one-quarter of entrants failing to complete. Apprentice numbers, although increasing, remain low and limited to adults. This chapter gives a set of recommendations that aim at removing the bias against VET and reducing dropout, while continuing to develop work-based learning. It also recommends better monitoring of VET participation by gender and student background.

Introduction

This chapter looks at the foundations of the vocational education and training system

Foundations mainly concerns the programmes in vocational schools, at upper secondary level, which young people enter in grade 10 – recognising that entrants to these programmes are also sometimes adults. Higher level post-secondary programmes, and transitions to higher education are addressed in Chapter 3.

Despite many strengths in the system, one challenge is low VET participation

As set out in Chapter 1, the strengths of the Estonian VET system, arising in large part from a sequence of recent reforms, are extensive. One of the challenges that remains arises partly because a relatively small part – about one-quarter – of the youth cohort enters VET, much less than in most European countries and less than comparable Nordic countries. In some strong vocational training systems, half or more of the youth cohort enter VET. Quite apart from the undoubted quality of vocational training systems, in Switzerland or Germany, there is an advantage in scale, because it means that the system naturally attracts some high ability students, who often go on into senior roles and become role models for young people considering whether to enter VET or general education. For example, in Switzerland, of top performers on the Programme for International Student Assessment (PISA), 25% enter the most demanding apprenticeship programmes leading to the professions of electronics engineer, commercial employee, optometrist and medical laboratory technicians¹ (Swiss Coordination Centre for Research in Education, 2014_[1]). This helps to sustain a virtuous circle, in which young people want to enter vocational programmes because they aspire to follow these role models.

VET in Estonia tends to concentrate many students with weak school attainment

In Estonia, by contrast, VET tends, partly just because of its small scale, to concentrate those with the weakest basic skills and often special needs, and contains very few of the strongest performers. Dropout rates are worrying. Statistics on these points follow below. This means that a VET qualification may signal low ability to prospective employers, or to higher education institutions, handicapping a VET graduate even if they have received good quality training. Young people with ability and ambition will also be aware of this effect, and may therefore wish to avoid VET.

Achieving the target of 35% of young people entering VET would improve its status

Estonia's aspiration to increase the proportion of young people entering VET (to 35%) would in itself help to increase the status of VET. But, in a choice-driven system, increasing the proportion of young people who enter VET will depend on making VET more attractive, and that in its turn will depend on improved status for VET. This chapter therefore sets out some ideas about how to achieve that end.

Four main issues are addressed in this chapter, largely building on Estonia's existing direction of reform

First, consolidating existing reforms, the school network needs to ensure that the choice of VET or general education is not biased by a default option of remaining in the same full-cycle school. Second, reflecting Estonia's own target, action on drop out needs to build incentives for schools and teachers to tackle drop out, and to provide the tools to them to achieve this. Towards this end, basic skills gaps (literacy and numeracy) need to

be addressed in a sustained way. Third, work-based learning needs to be further developed in schools through attention to workplace experience (and not just practical training). Apprenticeship, including the potential of youth apprenticeship, needs to be developed. Fourth, some equity issues need to be addressed, in terms of the variation, by gender, region and language spoken at home, in VET participation.

Characteristics of entrants and labour market outcomes

Entrants to VET tend to have weaker school results

The outcomes from upper secondary VET need to be assessed in relation to the characteristics of the student intake. In Estonia, of basic school graduates with very low-grade point averages (below 3.3), about 70% enter VET tracks (their choices on this point may be limited), while of those with top scores in GPA (above 4.6), only 2% opt for VET (Ministry of Education and Research, 2017^[2]). In CEDEFOP's recent pan-European survey of attitudes towards VET, 70% of respondents in Estonia agreed that students with low grades are directed towards vocational education (CEDEFOP, 2017^[3]). So although in Estonia the choice of a general or VET track is formally up to the student, the effects are highly selective, with most low-performing students strongly concentrated in the VET track.

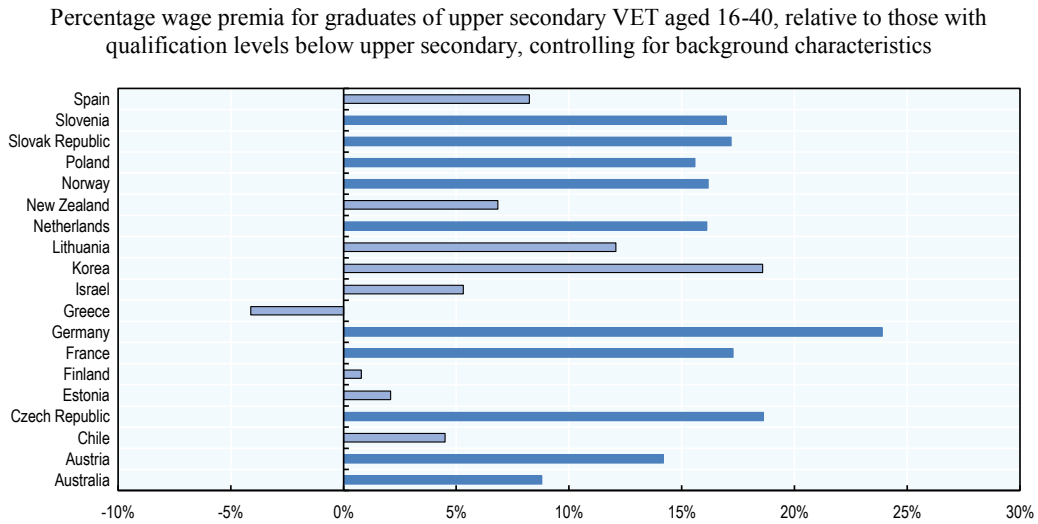
Against that background the comparative earnings figures look good

Recent graduates with upper secondary VET qualifications earned slightly more than their counterparts with general upper secondary qualifications: for 2009 graduates, those with upper secondary vocational qualifications earned EUR 763 on average, those with general upper secondary qualifications EUR 705 on average (and those with basic education only earned just EUR 541 on average) (Jaggo, Reinhold and Valk, 2016^[4]). There are a couple of elements here – the weakest students tend to drop out completely (40% of those with GPA's less than 3.29 drop out in the first year) and are therefore excluded from the analysis, while at the other end of the spectrum the best-performing students in general upper secondary education will go straight into higher education and will therefore also be excluded. That said, the figures still suggest that upper secondary VET is transitioning many young people into adequate, if not the best jobs.

But other research tells a more pessimistic story

While upper secondary VET, as noted above, seems to yield labour market outcomes similar and a bit better to general education, other sources show that its added value is not always very clear. The wages of upper secondary VET graduates are little different from wages of individuals with similar characteristics (age, gender and parental education) but with lower (below upper secondary) qualifications (Figure 2.1). The same analysis shows that, in some countries, VET yields a large wage premium. (CEDEFOP, 2013^[5]), comparing outcomes in the labour market for graduates at ISCED 3 and 4 for 20-34 year-olds, found that in Estonia, although VET, relative to general education, increased the speed at which the first job after graduation is acquired, it also increased the risk that an individual was overqualified in their job. The risk of unemployment was not identifiably different between the two groups [see Table 21 in (CEDEFOP, 2013^[5])]. One other indicator of outcomes is the risk of not being in education, training, or employment (NEET). In 2012, the OECD Survey of Adult Skills, a product of the Programme for the International Assessment of Adult Competencies (PIAAC) data showed that graduates from VET programmes were almost three times as likely to be NEET (21%), at the time of the survey, as graduates from general programmes (7%) (Figure 2.2).

Figure 2.1. In Estonia, limited evidence for a wage premium from VET among young adults



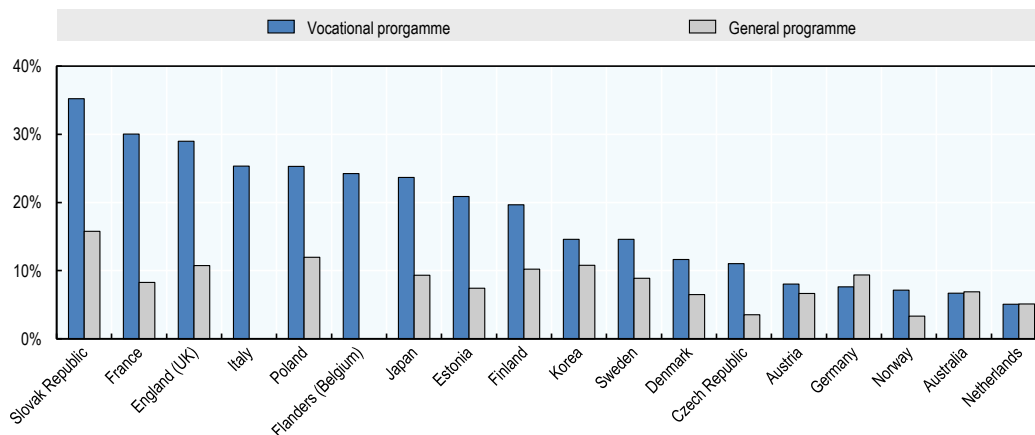
Note: Coefficients from the ordinary least squares (OLS) regression of log hourly earnings, adjusted for age, gender and parental education. Wage outliers above the 99th percentile and below the 1st percentile were dropped. Results that are statistically significant (at 5%) are in a darker tone. Lighter bars show premia too small for the difference from zero to be statistically significant. Those still in education are excluded from the analysis. Results are presented only for countries with a sufficient number of observations, and where VET can be distinguished from academic programmes.

Source: Calculations based on OECD (2015_[6]), OECD Survey of Adult Skills (PIAAC) (Database 2012, 2015), www.oecd.org/skills/piaac/publicdataandanalysis/.

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Figure 2.2. VET graduates are more likely to be NEETs

Percentage of different upper secondary graduate groups (18-26) who are NEET, by programme orientation



Note: Upper secondary VET includes programmes classified as ISCED 3C long, ISCED 3B and ISCED 3A identified by countries as vocationally oriented. For some countries results are not reported due to an insufficient number of observations.

Source: Calculations based on OECD (2015_[6]), OECD Survey of Adult Skills (PIAAC) (Database 2012, 2015), www.oecd.org/skills/piaac/publicdataandanalysis/.

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The main challenges

The structure of school institutions may bias students against the choice of VET

Full-cycle schools may bias students against VET

Many students in Estonia attend full-cycle schools, which provide general education throughout the 12 grades. There were 149 of these schools in 2017, compared with a few hundred basic schools offering grades below upper secondary (Ministry of Education and Research, 2017_[2]). In full-cycle schools, young people in grade 9, at around the age of 15, face a choice about whether to remain in the same school and continue general education (although some students have to leave their basic education schools to enter academic gymnasiums), or alternatively, to move to a vocational school to pursue a vocational programme. Two factors may bias this decision against VET. One, suggested by some experts in Estonia (Ministry of Education and Research, 2017_[2]), is that the guidance offered by the school, formally and informally, may be biased in favour of staying in the same school, either because of the school's direct financial interest (often in the context of demographic pressures on school rolls) or simply because teachers have an understandable bias in favour of their own institution and what it offers relative to alternative institutions. The other factor is that for students themselves at the age of 15, as they emerge into adulthood, friends and peer groups are extraordinarily important, and this will provide a powerful incentive for them to retain their friendship groups in their existing school. The net effect of all these factors is to powerfully bias choice away from vocational education in full-cycle schools.

Although there is no systematic selection between tracks, individual institutions can be selective

A decade ago, Darmody (2008_[7]) described the process of competitive searching for a “good” upper secondary school place in Estonia. Although, formally, students can choose between general education and VET, in practice, some of the gymnasias, particularly in cities, tended to demand good grades and good behaviour. Only 12% of schools reported that they accepted all applicants. Geography also plays a big part in the selection process, as parents in rural areas sometimes have to send their children many kilometres to school. Dropout rates peak at grade 10, indicating the stresses of transition. Schools use entrance tests, but the admission requirements are school specific and there is no regulation over the admission rules (Pöder and Lauri, 2014_[8]). Overall and region-specific demographic changes substantially affect the scope for competition.

Drop out and challenges in basic skills

Dropout rates are worrying

Drop out has many costs to both individuals and society as a whole (Anspal et al., 2011_[9]). Including those who change study area or school, around one out of five students drop out every year (19% in 2015/16). Around one-quarter of students drop out in their first year of VET, but many of them start again (Ministry of Education and Research, 2017_[2]). Some drop out because they have found a job, or another study programme that suits them better, but only one out of ten of those who dropped out finish their vocational studies later on (Espenberg and al., 2012_[10]). The end result is that in 2012, 21% of 20-28 year-olds have completed only basic education and lack upper secondary qualifications (Figure 2.3). This is a surprisingly high figure when set against the outstanding results

achieved by many young Estonians in PISA for 15-year-olds. Such achievement should be, in principle, a solid foundation for continued upper secondary education; a number of countries - such as Canada, Germany and Poland - with worse PISA results, do better on this measure.

Table 2.1. Dropout rates in vocational programmes have fallen since 2013/14

Type of study	2011/12	2012/13	2013/14	2014/15	2015/16
EQF 2 and EQF 3 (including VET without basic education requirement)	39.3%	34.7%	38.3%	36.4%	24.9%
EQF 4 IVET ('upper-secondary VET')	17.7%	18.1%	19.4%	17.3%	16.1%
EQF 4 and EQF 5 (including post-secondary VET)	22.1%	22.2%	23.9%	22.7%	21.7%
Total	19.8%	20.2%	21.8%	20.3%	19.2%

Note: Drop outs exclude those who applied but never actually came to study, those who changed specialty in the same curriculum group (narrow field of study) in the same institution, or those who left and were readmitted within 31 days and continued studies in the same curriculum group. European Qualifications Framework (EQF).

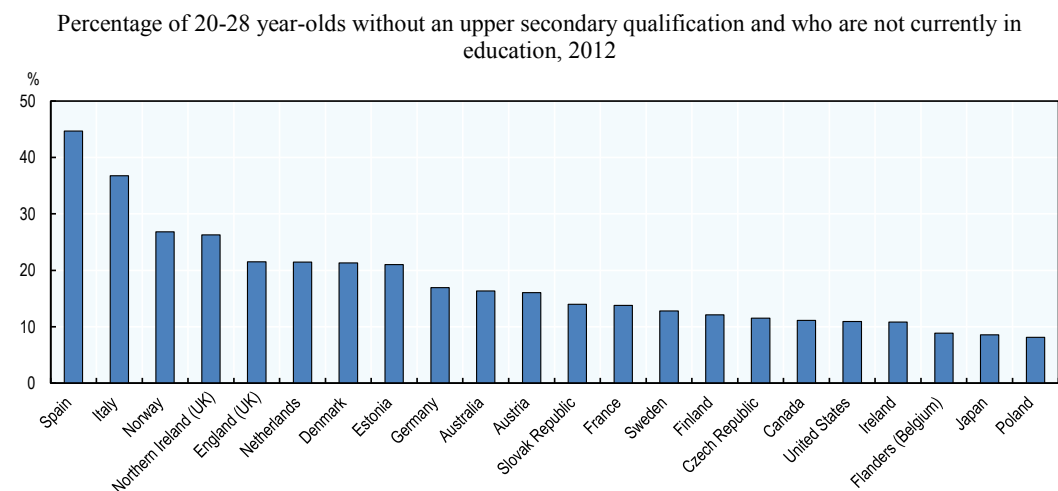
Source: Adapted from Ministry of Education and Research (2017^[2]), *Background Report for OECD on Vocational Education and Training (VET) in Estonia*,

www.hm.ee/sites/default/files/uuringud/oeed_vet_background.pdf

A reduction in dropout rates is part of Estonia's lifelong learning strategy

Dropout rates have been falling (Table 2.1) and as part of its lifelong learning strategy, Estonia has set a target to reduce dropout rates: the aim is to reduce the percentage of those aged 18-24 with at most lower secondary education and who are not in further education and training from 10.5% (the 2012 figure) to below 9% by 2020 (Ministry of Education and Research, 2014^[11]).

Figure 2.3. In Estonia, one out of five young people have not completed upper secondary education



Note: Adults with foreign qualifications and 1st generation migrants who obtained their highest qualification prior to entering the country are excluded. For some countries results are not reported due to insufficient number of observations.

Source: Calculations based on OECD (2015^[6]), OECD Survey of Adult Skills (PIAAC) (Database 2012, 2015), www.oecd.org/site/piaac/publicdataandanalysis.htm.

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The incentives on teachers and school leaders to prevent drop out are mixed at best

One often unspoken challenge is that the incentives on schools to prevent drop out are often lacking. Students at risk of dropping out are often demotivated, and may struggle with their classwork, or, because of other problems or stresses on their lives, display behavioural difficulties. These students will therefore usually present the greatest teaching challenges, and if they do not appear at the school, the immediate effect will be to ease the pressure on teachers. Of course, most teachers and school leaders recognise that it is their professional responsibility to seek to engage those at risk, and prevent drop out, but there are few rewards for them or their institutions from doing so.

There are no funding incentives encouraging VET schools to tackle drop out

Funding levels in VET are set by the State Commission for Vocational Education. The commission decides on priority programmes, what they should cost, and how many students should be enrolled in them. The numbers of funded study places in each school and each programme in individual VET schools is determined for a three-year planning period, following consultation between government, industry and the schools. This schools funding arrangement remains in place, even if the planned number of students is not recruited, regardless of drop out. So drop out has no direct financial cost to a school (Santiago et al., 2016_[12]). This arrangement is apparently now under review, with the government integrating some amount of performance funding (dependant on completion rates).

Table 2.2. VET graduates have lower numeracy and literacy skills than general education programmes' graduates

Numeracy performance in score points of those aged 16-34 with upper secondary as highest qualification, (standard errors in brackets)

	Numeracy			Literacy		
	Academic	VET	Difference	Academic	VET	Difference
Australia	279 (3)	266 (3)	13	294 (3)	274 (3)	20
Austria	311 (4)	274 (2)	37	307(3)	272 (2)	35
Denmark	299 (3)	278 (3)	21	300 (2)	269 (3)	31
Estonia	294 (2)	264 (3)	30	297 (2)	269 (3)	28
Finland	311 (2)	280 (2)	31	319 (2)	290(2)	29
France	285 (2)	248 (2)	37	295 (2)	260 (2)	35
Germany	306 (3)	268 (3)	38	308 (2)	267 (3)	41
Norway	293 (3)	276 (3)	17	319 (2)	286 (2)	33
Netherlands	314 (2)	279 (2)	35	294 (2)	275 (3)	19
Spain	270 (2)	254 (7)	16	278 (2)	258 (5)	20
Sweden	297 (3)	281 (3)	16	299 (2)	281 (3)	18

Note: Adults who obtained their highest qualification outside the country, those with foreign qualifications and 1st generation migrants who obtained their highest qualification prior to entering the host country are excluded.

Source: Calculations based on OECD (2015_[6]), OECD Survey of Adult Skills (PIAAC) (Database 2012, 2015), www.oecd.org/site/piaac/publicdataandanalysis.htm.

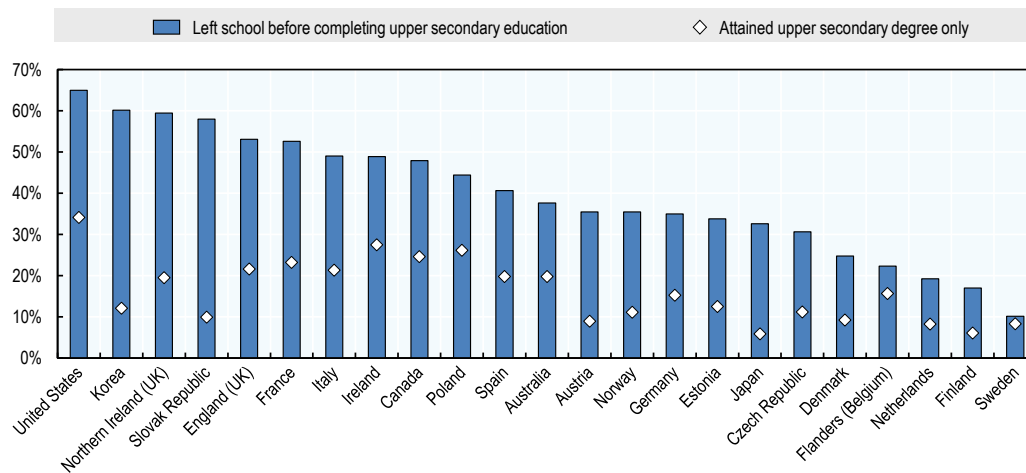
There is strong evidence that weak basic skills are a cause of drop out

One potential cause of drop out is weak basic skills, in link also to weak school attainment. Of those with a grade point score on graduation from basic school of under

3.3, nearly 40% drop out in the first year of upper secondary VET studies, compared with only 9% of their counterparts with scores of at least 4.3. As in other countries, those aged 16-34 with upper secondary vocational education as their highest qualification have weaker basic skills than those with general academic upper secondary qualifications² (Table 2.2). Of those who have not completed upper secondary school, 34% have low numeracy skills, compared to 13% of those who have completed upper secondary education (Figure 2.4).

Figure 2.4. Some early school leavers lack numeracy skills

Percentage scoring below level 2 in numeracy among (a) those aged 20-28 without upper secondary education, (b) those whose highest qualification is at upper secondary level



Note: Adults with foreign qualifications and 1st generation migrants who obtained their highest qualification prior to entering the country are excluded, 16-65 year olds.

Source: Calculations based on OECD (2015^[6]), OECD Survey of Adult Skills (PIAAC) (Database 2012, 2015), www.oecd.org/site/piaac/publicdataandanalysis.htm.

StatLink  <https://doi.org/10.1787/888933921795>

Work-based learning and apprenticeships

While work-based learning is required, it does not necessarily include experience with employers

For VET programmes leading to EQF 3, 4 and 5, work-based learning (WBL) is expected to be at least 50% of the programme (Ministry of Education and Research, 2017^[2]). However, WBL is defined as including both work practice at enterprises, and practical workshops in school. There is evidence that there is a particular value on experience in actual workplaces, because of the potential for learning multiple soft skills (such as dealing with customers) and because of the value of contact with employers. (Chankseliani, Keep and Wilde, 2017^[13]), for example, describe the diverse literature which emphasises the value of learning through demanding, difficult work, and how this can engage and empower the learner in ways that cannot be replicated by off-the-job training.

In Estonia, the OECD team were told that the proportion of actual work practice in enterprises within “work-based learning” is monitored by the Ministry of Education and Research, and through the quality assurance regime, so that individual vocational schools would not be permitted to run programmes offering minimal or zero actual workplace experience to students.

Apprenticeship is currently a small-scale programme for adults

At present, apprenticeship is very small in scale in Estonia with around 1 300 places in 2017. Since 2007, in principle VET programmes (that can lead to EQF levels 2-5) can be offered as apprenticeships, with at least two-thirds of the programme taking place in the enterprise. The principles of the apprenticeship system design are consistent with many international models (Box 2.1). While the programme is intended to be applicable both to incumbent workers needing to upskill or reskill, and new recruits, in practice the programme has been dominated by adult incumbent workers, with an average age of 38 for apprentices. It has not proved possible to interest employers in taking youth apprentices. Given the success of youth apprenticeship in some other countries, this must be a concern.

Box 2.1. Apprenticeship in Estonia

In an Estonian apprenticeship, the school, the enterprise and the apprentice sign a contract (*praktikaleping*), where the duties and responsibilities of each party are outlined. An individualised curriculum specifying the learning outcomes is attached to the contract. One-third of the curriculum is delivered at a VET institution with an emphasis on theoretical training, and two-thirds at an enterprise; the apprentice has two appointed supervisors, one at the school and another at the workplace. Apprentices receive a wage during the training at the enterprise and a study allowance during studies at school. Unless the apprentice already has a work contract, the wage is agreed upon in the tripartite contract and it cannot be lower than the minimum salary set by the government. Studies are complete after passing a professional or vocational examination. The apprenticeship is in most (but not all) cases launched on the initiative of the school, and the school co-ordinates the development of a curriculum and the admission process of apprentices.

An apprenticeship programme is usually funded through the State-commissioned study places scheme. The school covers the training at school, supervisors’ training and salary for the school supervisor. The school can transfer up to 50% of the cost of the study place to the enterprise to cover the salary cost of workplace supervisors.

In 2017 there were about 1 300 apprentices, up from 700 the previous year. With funding from the European Social Fund, it is intended to create 8 000 additional places by 2020. Development activities will focus on training and co-operation between supervisors at schools and at enterprises, best practices will be shared, and the best enterprises will be acknowledged. Resources will be created on how to implement work-place learning and pilots will be run. By the end of 2016, 185 work practice (internship) supervisors and supervisors in apprenticeship training had received continuing professional development (CPD) training.

Source: Ministry of Education and Research, (2017^[21]), *Background Report for OECD on Vocational Education and Training (VET) in Estonia*, www.hm.ee/sites/default/files/uuringud/oeed_vet_background.pdf.

Large variations in VET participation, by gender and language and region

VET systems are expected to serve both aspiration and inclusion

All countries face competing pressures on their VET systems. On the one hand, as discussed here in the context of Estonia, many countries are seeking to raise the status of their VET systems so that VET is, and is seen to be, of high status and high quality: an option that can be a good choice for higher achieving young people, including those with aspirations to continue their studies in higher education. At the same time, in Estonia, as in many other countries, a large proportion of those young people who face the greatest challenges in their school attainment choose, or are selected into, vocational programmes. VET therefore has to serve a very important equity function, integrating and supporting many of the young students facing the greatest challenges. Meeting both of these challenges at the same time, so that VET is a vehicle for both aspiration and inclusion, creates significant policy dilemmas, particularly when it comes to deciding how demanding the VET programmes should be.

Some large disparities in VET participation exist between different demographic groups

Many of the broader challenges of inclusion are addressed here under the heading of drop out. But there are also equity challenges faced by particular groups. Only 10% of girls who graduate in bigger cities, having studied in Estonian, choose VET, whereas in North-East Estonia, 60% of boys with Russian as the instruction language, opt for VET. Of learners who have not achieved B1 in Estonian by the end of basic school (presumably mostly those with Russian mother tongue), two-thirds have continued in VET (Ministry of Education and Research, 2017^[2]). The OECD team were told that monitoring of these potential equity issues is quite systematic, but did not necessarily lead to any firm diagnosis of action.

Recommendations

To address the challenges described, the following recommendations are advanced:

- Recommendation 2.1. Remove the risk of bias in the student's decision on whether to pursue general education or VET by continuing measures to separate upper secondary institutions from basic schools. Take advantage of local synergies to pursue collaboration between upper secondary general schools and VET schools, and merge general and VET schools where it is useful to do so.
- Recommendation 2.2. Tackle drop out by improving the financial incentives on schools to discourage drop out, and share wisdom on measures to encourage retention. To improve retention, and to support progression to higher level programmes, increase the attention given to the numeracy and literacy of students.
- Recommendation 2.3. Recognising its value, continue to develop work-based learning in enterprises as an essential part of the VET system. Building on existing quality assurance measures, set targets for employer-based work-based learning within VET programmes so that this element is formalised and made transparent through effective measurement. Explore options to overcome the barriers to youth apprenticeships.

- Recommendation 2.4. In the interests of equity, continue to monitor by gender/language spoken at home/region access and drop out. Use the evidence of monitoring to launch a policy development initiative to respond to disparities, developing appropriate responses through stakeholder consultation.

Analysis and supporting arguments

Develop the school network so as to eliminate potential bias in the choice between VET and general education.

Recommendation 2.1. Remove the risk of bias in the student's decision on whether to pursue general education or VET by continuing measures to separate upper secondary institutions from basic schools. Take advantage of local synergies to pursue collaboration between upper secondary general schools and VET schools, and merge general and VET schools where it is useful to do so.

On this issue, the government is pursuing some welcome action

The Ministry of Education and Research had, by 2017, founded about a dozen new state-run upper secondary schools in different regions, with plans to reach 24 by 2023. The ministry intends this reform to develop stronger co-operation between these general education institutions and VET schools, to reduce barriers between different types of school and ensure more efficient use of resources (Ministry of Education and Research, 2017^[2]).

This process is welcome, but needs to go further

One option would be for the ministry to take over responsibility for grades 10-12 within existing full-cycle schools, and establishing a clear break point at grade 9. In the first instance, this might involve establishing a divide within existing schools, but over time, a separation would develop, given separate governance arrangements, with both vocational and general upper secondary education at grades 10-12 managed mainly by central government, while basic schools in grades 1-9 would be managed by municipalities. This separation would help to establish grade 9 as a point where students decide on their choice of VET or general track, without any default option of simply staying in the same school.

Collaboration and in some cases mergers, between general and VET schools should be encouraged

The common governance arrangements for general and VET schools at grades 9-12 would and should also help to reinforce links between the two types of school, and in some cases mergers. Closer links would preserve the strategic objective of permeability between the two pathways and allow the sharing of equipment and infrastructure. This would build on some existing good Estonian experience, including:

- VET institutions provide optional vocational courses (i.e. in the fields of information and communication technology [ICT], car technician, facility services, woodworking, music) to the learners of basic school or general upper-secondary school (Ministry of Education and Research, 2017^[2]).
- Three state-owned institutions (one general upper-secondary school, two VET institutions) in the county of Viljandi arranged a joint campaign for basic school graduates to introduce learning opportunities at the upper-secondary level (Ministry of Education and Research, 2017^[2]).

This parallels initiatives in other countries

Norway and Sweden maintain some integrated, VET and general education upper secondary schools. Other types of measures such as increasing the number of general subject courses within vocational programmes (this has been the case in Norway), or to offer students a menu of options drawn from both general education and vocational programmes. Sweden has modularised vocational programmes, such that students enrolled in upper secondary VET can transfer completed courses to any other programme at the upper secondary level, including general education (Skolverket and ReferNet Sweden, 2016^[14]).

Tackle drop out and address the basic skills of students

Recommendation 2.2. Tackle drop out by improving the financial incentives on schools to discourage drop out, and share wisdom on measures to encourage retention. To improve retention, and to support progression to higher level programmes, give attention to the numeracy and literacy of students.

Funding arrangements should provide financial incentives for schools to retain students

To address drop out, the first priority is to provide incentives on VET institutions to reduce drop out. As argued in the OECD's review of school resources in Estonia (Santiago et al., 2016^[12]), and in line with plans already under way in Estonia to introduce performance-based funding, Estonia should introduce, for VET institutions, an element of student per capita funding associated with retention and completion. This might, for example link funding for schools to head counts of students who are attending VET programmes (rather than, as at present, just to planned numbers of students in particular fields of study). This would incentivise recruitment and retention. One element of the per capita funding might also be associated with a measure of completion. Such measures would need to be handled carefully to avoid the risk of institutions “gaming” the funding regime, for example by avoiding the admission of students who are at risk of drop out, or in other ways (Santiago et al., 2016^[12]).

As well as incentives, VET institutions need the tools to tackle drop out

There are a myriad of initiatives in different countries, and often multiple tools are helpful, bearing in mind that quite diverse factors may be responsible for drop out in individual cases. Some European experience is summarised in the report of the RESL.EU exercise (RESL.EU, 2013^[15]). There is also extensive experience in the United States: the National Dropout Prevention Center proposes 15 strategies to prevent drop out, including, for example, personalised learning strategies, family engagement, after-school and out-of-school opportunities, mentoring and tutoring, professional development for the staff most involved in dropout prevention, and school-community collaboration, among other strategies (National Dropout Prevention Center, 2018^[16]). The foundation of any approach to drop out is a mechanism to identify those at risk, so that interventions can be targeted on them, and an individualised approach, recognising that the causes of drop out are diverse. Strong career guidance, ensuring that students are fully understand the programmes of study which they pursue in the light of career aspirations which have been developed in the context of professional counselling, is also associated with lower levels of drop out. Career guidance is discussed in Chapter 4 of this report.

Increased attention to literacy and numeracy can help to tackle drop out

As described above, weak basic skills are closely correlated with drop out, strongly suggesting that weak basic skills are a cause of drop out, most plausibly because numeracy and literacy are foundational skills, underpinning the capacity to learn other types of knowledge and skills. This means that one very promising way of tackling drop out might be to undertake targeted efforts to tackle weak numeracy and literacy. As an indicator of the potential, one study in England (United Kingdom) showed that, of a group of further education students identified as needing remedial basic skills support, those that went on to receive that support were fully three times less likely to drop out than those who did not receive such support (Basic Skills Agency, 1997_[17]). (While the group who opted to receive support in this study were probably more motivated, the size of the difference strongly suggests that basic skills support promoted successful completion).

Box 2.2. The I-BEST programme, Washington State in the United States

The I-BEST programme combines basic skills teaching and professional training, typically in a classroom setting in which there is both a basic skills educator and a professional trainer. The professional training, offered in fields of skills shortage, yields college credits and contributes to a certificate credential. I-BEST programmes are available in every community and technical college. Individuals must score below a certain threshold on an adult skill test and qualify for adult basic education to participate in an I-BEST programme. In practice, this translates to around 2% of basic skills students.

Studies measuring the impact of I-BEST in Washington State found that I-BEST students earn more credits and are more likely to complete a programme than a comparable group of students not participating in the programme. Evidence on the link between participation in I-BEST and earnings is less conclusive, although this might be due to changing economic conditions.

Source: Kuczera, M. and S. Field (2013_[18]), *A Skills beyond School Review of the United States*, OECD Reviews of Vocational Education and Training, <http://dx.doi.org/10.1787/9789264202153-en>.

Sometimes contextual learning may help students in vocational programmes to acquire basic skills

Some care needs to be taken with remedial basic skills education. For those who have struggled with mathematics through basic school, extra maths classes in grades 10-12 vocational programmes may be demotivating or ineffective, and could simply precipitate drop out. One alternative is contextual learning, in which numeracy and literacy skills are conveyed in the context of other learning programmes. Contextual learning is theoretically convincing, and there have been successful programmes, but it can be demanding of teachers and is usually resource-intensive. The I-BEST model in the United States is one promising initiative of this type (Box 2.2). In Norway, the Transition Project identifies the lowest performing students at the end of school year 10 and in upper secondary education and provides them with additional support in core skills. The project

works with teachers to provide concrete strategies for making Norwegian, English and mathematics more meaningful to students' lives. It also instructs teachers on ways to provide basic remediation to struggling students when this may not have been the focus in secondary teachers' pre-service preparation (OECD, 2012_[19]).

But there are other strong reasons to encouraging strong basic skills in vocational programmes

The prevention of drop out is only one of many reasons for emphasising numeracy and literacy in vocational programmes. These foundational skills underpin further learning and the capacity to adapt, both in work, and in the context of further and higher education (Heckman, 2008_[20]). Pathways of progression are vital if VET is not to be a dead end – issues which are considered in depth in Chapter 3. This also means that basic skills should not just be seen as a remedial exercise for those with particular weaknesses, but also as a foundation for further learning which will be essential for those who aspire to continue to higher education and other post-secondary programmes. Strong literacy and numeracy skills are also associated with entrepreneurship and success in business activities, and with a lowered risk of poverty (World Bank, 2012_[21]).

Continue efforts to develop work-based learning

Recommendation 2.3. Recognising its value, continue to develop work-based learning in enterprises as an essential part of the VET system. Building on existing quality assurance measures, set targets for employer-based work-based learning within VET programmes so that this element is formalised and made transparent through effective measurement. Explore options to overcome the barriers to youth apprenticeships.

Special attention should be given to work practice with employers in VET programmes

There are grounds for giving special attention to work practice in enterprises, as opposed to school workshop training, in the context of Estonia's definition of work-based learning, which includes both. While this is already recognised in Estonia in practice through the regulatory role of the ministry and through quality assurance, it is an important issue which deserves to be formalised. In the first instance, data should be systematically collected on the extent of workplace experience in VET programmes. This might then provide a basis for setting a minimum expectation on the required amount of workplace experience. For example, in Sweden, students enrolled on three-year upper secondary vocational provision must spend at least fifteen weeks applying their skills in workplaces. In the Netherlands, school-based VET includes the requirement that all students pursue at least 20% of their time in work placements with employers (i.e. not just in school workshops) (Fazekas and Litjens, 2014_[22]). One advantage of this model is that the availability of work placements then provides a means of guiding the mix of provision in VET towards the needs of the labour market. In the Netherlands, for example, data are collected on the relative difficulty of finding work placements in different fields, and those entering VET are warned off fields which, although sometimes popular with students, offer few work placements. This may be upsetting for the students at the time, but it is better to find out that employers have little interest in recruiting individuals in a particular field of study before, rather than after, training in that field.

Evidence shows that apprenticeships smooth transition to the labour market

There are also grounds for pursuing efforts to encourage youth apprenticeships. While initial attempts to launch youth apprenticeship in Estonia have not been successful, because employers are apparently reluctant to participate, the potential advantages of youth apprenticeship are so strong that continued efforts are justified. In summary, the evidence shows that apprenticeships smooth transitions to work (Nilsen and Bratberg, 2000_[23]; Samek et al., 2013_[24]; Kuczera, 2017_[25]). Overall, countries with a high share of young people in apprenticeships have lower rates of disconnected youth and youth experiencing a difficult transition to employment (Quintini and Manfredi, 2009_[26]).³ Apprenticeships help to engage disconnected youth as they offer an opportunity to learn and connect to the world of work through a form of learning that might be more appealing than more academic programmes (CEDEFOP, 2017_[3]; Kis, 2016_[27]).

But to expand, they need to meet the needs of young people better

Some apprenticeship systems serve primarily to transition young people from school to work. In Switzerland for example, in 2014/15, three-quarters (76%) of apprentices were under 20. But other countries have a more even mix of adult and youth apprentices, with some of the adults already having significant work experience. In Germany in 2014, around 56% of apprentices were under 20, and a further 20% were between 21 and 23-years-old, the older apprentices being a mix of those who complete the academic upper secondary *Abitur* before entering apprenticeship, and others who have often spent some time in pre-apprenticeship programmes (Mühlemann, 2016_[28]). In 2010 and 2011, 20-year-olds and older represented more than 50% of all apprentices in Finland (Stenström and Virolainen, 2014_[29]).

Estonia's tight labour market should facilitate youth apprenticeship

In Estonia, low unemployment rates and skills shortages in at least some areas should, in principle, provide fertile ground to encourage youth apprenticeship. For employers, there is a learning curve with apprenticeship. Some employers are already becoming familiar with adult apprenticeships and how they work. One might start small, and encourage youth apprenticeship in a particular industry or region where circumstances are most favourable. It would also be worthwhile considering the offer of a special incentive to employers to take young apprentices. Employers who do so are in effect providing part of the school to work infrastructure which benefits everyone. Some other countries, such as Korea and Norway, provide employers with financial incentives. While the evidence is that these incentives have a limited impact, symbolically they may be important, and might help to launch youth apprenticeship in Estonia.

The wage paid to apprentices might be too high in Estonia to encourage the development of apprenticeships for young people

In some countries, apprentice wages commonly increase gradually but substantially over the period of the apprenticeship, reflecting increasing skills and productivity (Kuczera, 2017_[25]). In Estonia, there is a requirement to pay the minimum wage to apprentices, but only the work placement bit of the training programmes⁴ (Ministry of Education and Research, 2017_[2]). Estonia might consider the implementation of an apprentice wage, lower than the minimum wage, to convince employers to take on younger apprentices.

Monitor and respond to variations in VET participation

Recommendation 2.4. In the interests of equity, continue to monitor by gender/language spoken at home/region access and drop out. Use the evidence of monitoring to launch a policy development initiative to respond to disparities, developing appropriate responses through stakeholder consultation.

Large differences in participation rates need to be investigated

While it would not be reasonable to expect that every demographic group would or should display exactly the same propensity to pursue VET programmes, some of the large disparities which can be observed in Estonia suggest that some other factors may be at work, and these could be limiting or narrowing career aspirations or expectations. One year after graduation from basic school, 38% of students opting for Russian-speaking instruction were in VET tracks, compared with just 25% of those opting for Estonian-speaking instruction (Santiago et al., 2016_[12]).

The policy objective is to ensure that young people from all demographic groups have similar opportunities to realise their potential

The objective of policy in this area is to ensure that all individuals should have the fullest opportunity to achieve their potential, and that different demographic groups defined by language spoken at home, gender or region should have the same opportunities. Sometimes, raw disparities in participation rates may signal that this is not happening. The policy response needs to be modulated. For example, for girls graduating from basic schools in Tallinn and other large cities, it may not be in the best interests of all 90% of them to enter general education, recognising that some of them with weaker academic performance may find it very difficult to enter higher education, and a general upper secondary education may not equip them as effectively for the labour market as a vocational programme would do. One response might be more active and effective guidance targeted at this group. Some of it may need to address gender stereotypes in target professions. This point is further discussed in Chapter 4.

A key test is whether, if any group is over-represented in VET, that provides them with good opportunities for careers and further learning

Similarly, in the North East of the country, 60% of Russian speakers choose VET tracks. It would be helpful to know their labour market outcomes. One response to this finding might be to further explore the extent to which this group progresses into further and higher education. If they do so, then the VET track may not be inhibiting their career prospects. If 70% of any demographic group choose VET, it would be reasonable to expect a proportion of them to be able to benefit from further and higher education. Many of the observed variations in participation between demographic groups certainly reflect attitudes and aspirations that have developed over long periods.

The policy response to observed differences needs to be developed carefully

While monitoring already takes place extensively, the OECD team were told that policy responses are limited. This is challenging territory, since observed disparities in education participation often reflect a complex mix of choice and constraint. Often the policy response will need to be multi-faceted, so as to change career expectations and stereotypes. With this in mind Estonia should consider launching a funded initiative to address the equity issues in VET, and to explore with multiple stakeholders some potential solutions. There is scope to explore experimental initiatives in individual schools and regions to address equity challenges.

Notes

¹ It should be noted that in some countries some of the occupations listed here require enrolling in a university programme.

² Of course comparison of scores from the Survey of Adult Skills (PIAAC) between track orientation need to take into account that those in pre-vocational tracks at age 15 have much weaker performance in maths and literacy than their peers in general tracks, as shown in PISA.

³ Quintini and Manfredi (2009_[26]) show that in countries with regulated labour markets and strong apprenticeship systems, such as Germany, about 80% of school leavers succeed in integrating into the labour market, a marked contrast to countries without strong work-based training such as Italy and Spain. However, this advantage fades over time, as participants in other types of education establish a foothold in the labour market.

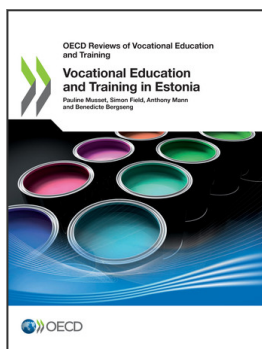
⁴ Apprentices receive a wage during the training at the enterprise and a study allowance during studies at school. Unless the apprentice already has a work contract, the wage is agreed upon in the tripartite contract and it cannot be lower than the minimum salary set by the government. The minimum monthly gross salary in 2017 is EUR 470, (full-time work), the average monthly gross salary in 2016 was EUR 1 146 (Ministry of Education and Research, 2017_[2]).

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