

# The next steps for apprenticeship



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## CHAPTER 4.

# Shaping the relationship between vocational and academic education

## Socioeconomic trends and their implications for the future of apprenticeships

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### 4.1. Introduction

#### 4.1.1. Challenges

Vocational education and training (VET) in general, and apprenticeships in particular, are comparatively high on the agenda of organisations such as the EU (Council of the European Union, 2018), ILO (2017), OECD (2018a), Smith and Kemmis (2013) or Cedefop (2018). High-quality apprenticeships supposedly provide valuable and attractive alternatives to academic pathways into working life, as has been the case for many years in countries like Austria, Germany, Switzerland and a few more. In these countries, quality apprenticeships explain the comparatively low share of university graduates. At the same time, the vocational sector and the academic sector have been highly separated in terms of their educational mission, social stratification, and economic function (Wolter, 2019, p. 24).

However, there are controversial views on whether this approach is still efficient for knowledge-based societies and economies based less on practical work and more on theory and research-driven innovations. Are apprenticeships relics from the age of industrialisation, but lack the power to deal with knowledge work, digitisation, and complex social and moral challenges? Is there a need for more graduates from universities and fewer from VET? Are apprenticeships attractive for the increasing share of school leavers eligible for university studies? Will apprenticeships remain for occupations in the craft and trade sector with less demanding theoretical requirements? Will VET erode in favour of ac-

ademic education? Alternatively, will vocational and academic education converge?

A major issue for the future of apprenticeships is the relationship between vocational and academic education. This is particularly relevant for countries with a developed apprenticeship system, since part of the system overlaps with specific segments in the higher education system. Many of the following considerations come from the perspective of countries with developed apprenticeship systems, particularly Germany. However, these considerations may also be important for those who are about to design and strengthen their VET system.

This article starts from the assumption that the historic division into two separated education sectors is not appropriate to meeting the requirements of modern societies and economies. In contrast, both vocational and academic education need to reflect, with regard to certain segments, on how best to design programmes that combine practical skills, theory-based knowledge, and values empowering young people to master fast-changing work processes and become responsible citizens. From the policy point of view, this leads to the question of how best to design the relationship between the two key education sectors.

This chapter examines:

- (a) socioeconomic trends: educational aspirations and preferences of school leavers, future skill demand, and developments in the higher education sector;
- (b) the potential implications of these trends for the future of apprenticeships;

- (c) possible approaches ahead regarding the relationship between vocational education and academic education.

### 4.2. Socioeconomic trends

Academics and practitioners can only analyse and design VET systems within their societal, economic, and educational context. For example, apprenticeships need to be attractive for school leavers, correspond to a demand for qualified labour in particular economic sectors, and develop competences that are different to those in alternative educational programmes. Conversely, this means that the apprenticeships' importance and attractiveness depend on school-leaver educational aspirations and preferences, employer recruitment policies, and the competence profiles of graduates from competing education institutions.

Following this line of reasoning, the position of apprenticeships might change if contextual factors such as young persons' educational preferences, employer demand and recruitment policies, and university academic programme profiles should alter. Before addressing the future relationship between vocational education and academic education, it is necessary to analyse major developments with regard to the following questions:

- (a) what educational aspirations and preferences do young people pursue, particularly regarding their choice of vocational or academic programmes as possible pathways into working life?
- (b) what kind of future skills and competences do companies demand to tackle future challenges in their economic sector?
- (c) what competence profiles result from academic programmes offered specifically by universities with a strong emphasis on the employability of their graduates?

#### 4.2.1. Educational aspirations and preferences of school leavers

Generally speaking, aspirations toward higher degrees have increased in almost all countries that belong to the Organisation for Economic

Cooperation and Development (OECD) (OECD, 2018b, p. 55). The number of students has also increased, changing the student body composition and the character of many universities considerably. Between 1965 and 2010, the number of young people eligible for studying in universities rose from approximately 7% to 48.5% (Jacob and Solga, 2015, p. 163; Wissenschaftsrat, 2014, p. 107). However, not all those who are eligible, actually join a university. In Germany, in 2010, the transition rate of school leavers eligible to enrol in an academic programme at universities reached 77.8% while the rate at universities of applied sciences reached 39.9% (Wissenschaftsrat, 2014, p. 107). In 2017, 29.2% of newly enrolled apprentices in Germany were also eligible to study at a university (BIBB 2019, p. 141). Dropout rates at German universities are comparatively high: in 2016, the overall rate at the bachelor level was at 32% for universities and 25% for universities of applied sciences (Heublein and Schmeizer, 2018), compared to 10.5% in the UK in 2015/16 (HESA, 2018, Chart 9).

These statistical data depict the following trends:

- (a) overall, there is a clear trend for young people to gain the opportunity of enrolling in academic courses and graduating from a university;
  - (b) while the number of students has increased considerably, the number of apprenticeships fell. Since 2013, the number of young people joining academic programmes in Germany has outnumbered those embarking on a dual apprenticeship;
  - (c) in Germany – and different from Switzerland – a large number of school leavers who are eligible to study at a university still decide to take up an apprenticeship.
- What factors do school leavers take into account when deciding to embark on either a vocational or an academic programme? Research shows a number of reasons, which scholars can group into three types (Wissenschaftsrat, 2014, pp. 54–59):

- (a) individual factors include the interest in a specific subject or occupational area. Certain school leavers also mention their reluctance to move too far from home: in this case,

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they may favour an attractive apprenticeship in their home region over an academic programme in a city far away;

(b) economic factors refer to present and future earnings, financial independence, job security, degree of autonomy, and potential opportunities for career advancement;

(c) social factors address not only the social expectations of the parents and peer groups as the most influential reference groups, but also the status and prestige of an occupation or study programme. To a certain degree, the name of a study programme or an apprenticeship may affect the decision (Wissenschaftsrat, 2014, p. 59).

Research also shows that many school leavers take the decision for an academic or a vocational programme under uncertainty. In Germany, surveys show that more than 20% of school leavers who are eligible for an academic programme are uncertain about taking the right opportunity (Euler and Severing, 2019, p. 10).

The university sector's expansion resulted in a more heterogeneous composition of students. Increasingly students come from non-privileged social backgrounds. Many of them take up their studies at university after completing vocational programmes. For example, in Germany, graduates from apprenticeships can embark on an academic programme after two years of practice and an entrance test, even without having the formal entrance qualification for universities. In the UK – with a different admission system at universities – approximately 11% of graduates enter an academic programme after gaining a vocational qualification (UCAS, 2017). In the Netherlands, there is a smooth transition from a modularised, four-level vocational system into the HBO (*Hoger Beroepsonderwijs*), a kind of university of applied sciences (Busse and Frommberger 2019, pp. 60–61). In most countries, there are students who passed a certain kind of vocational programme before taking up their academic studies.

It is hardly surprising that a different composition of the student population also means different student motives and objectives. Research into first year student study motives in 2000 compared with those in 2011 revealed that ca-

reer perspectives have gained more relevance. Job security, earning opportunities, occupational status, and labour market demand rank high in the list of decision factors (Wissenschaftsrat, 2015, pp. 53, 138–139, 148). While academic programmes are more compatible with these high-ranking motives, people regard vocational programmes as superior in serving motives such as reconciling family and job, immediate financial independence, and time for private interests. Interest in the scientific discipline is still a major motive but has partly lost ground to employability issues.

**4.2.2. Future skills demand**

Part of the traditional perspective on vocational and academic education is the simplified view that VET programmes promote practical skills and occupational socialisation, while academic programmes primarily result in a transfer of knowledge and scientific methods. This functional attribution corresponds to the view, or the equally simplified view, that competences gained in VET are relevant for qualified jobs at the middle level of the occupational hierarchy while academic competences qualify for management and professional tasks in the upper part of the hierarchy.

Irrespective of where the persons have acquired the competences and how management have organised work processes in companies, there is a trend in advanced societies toward more challenging, high-order skills and competences and increased demand for purported hybrid competences integrating practical action and theoretical reflection: knowing, doing and being, as well as systematic and case-based learning. At this juncture, it remains an open question whether these trends lead to academic drift (Neave, 1979) in VET or vocational drift in academic education.

Developments in digital technology – including artificial intelligence, robotics, nanotechnology and 3D printing – strongly influence the demand for future skills. These technologies and their application require entire industries and their employees to adjust. In contrast, education policies are often quite slow to respond to needs that emerge in the wake of disruption. Analyses

by supra-national organisations, such as the OECD (2016), World Bank (2016), International Labour Organization (ILO, 2015), and United Nations Educational, Scientific and Cultural Organisation (UNESCO) (UNESCO, 2016) try to isolate present developments and transform these into more or less imperative considerations for future trends. As a result, experts identify specific skills at quite a general level, which they then have to transform into concrete terms for policy-making in the various sectors of an education system, including VET. Based on this research, there is a shift from routine work tasks that machines and people do, to creative work that requires high-order cognitive skills (creating and innovating, evaluating and critical thinking, analysing) and key competences, such as social and entrepreneurial skills and ability in self-organised learning. Organisations usually expect that their future employees will accomplish complex problem-solving in technology-rich environments.

Education has to shift its practices toward the acquisition of key competences, which are relatively stable over time. Certain competences closely relate to coping with developments in digital technology, others are more generic and go far beyond problem solving in technology-rich environments (OECD, 2016). Key competences such as critical thinking, complex problem-solving, creativity, innovativeness, cognitive flexibility, and entrepreneurial attitudes need to be anchored in exemplary tasks and challenges.

One cannot 'think critically' in isolation; critical thinking must be linked to given tasks, events, structures, and persons.

The combination of key competences, expert knowledge, and practical skills can be phrased as hybrid competences. This term indicates that separating practical from theoretical, and vocational from academic competences, as well as the corresponding assignment to different education sectors, does not adequately address the demand for future skills. On the contrary, modern work organisations require flexible people who are competent to integrate practical skills, have a cognitive understanding of work processes and key competences to solve problems in teams, and contribute to innovations.

Presumably, the described trend functions differently in diverse occupations. There might still be occupations, which predominantly rely on practical and other skills, while other occupations require high-end theoretical knowledge and research capabilities. With regard to vocational and academic education, there are segments in each area that remain specific and exclusive. However, there are also overlaps and converging areas focused on the development of hybrid competences, that cannot be clearly assigned to the vocational or academic area. Figure 4.2.

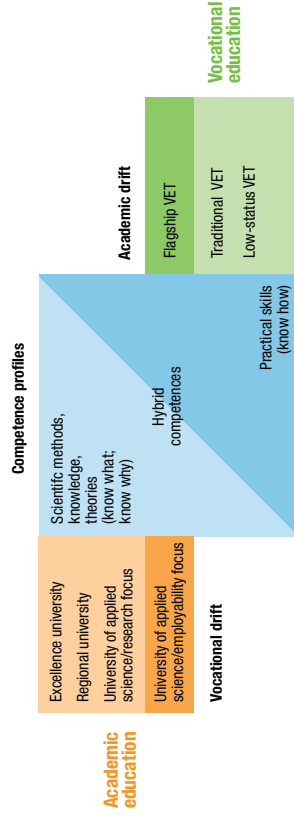
Since the number of employees in knowledge-based occupations with a considerable proportion of creative and/or learning tasks has

Figure 4.1. Future skills that correspond to dominant labour market work tasks



Source: Euler, 2017.

Figure 4.2. Competence profiles within different areas of academic and vocational education



Source: Euler, D. (University St.Gallen).

increased continuously (Wissenschaftsrat, 2014, p. 30), it is likely that the area of hybrid competences will gain further relevance. How will employers react to these trends? Will they continue recruiting future employees via quality apprenticeships? Or will they favour the recruitment of graduates from universities?

4.2.3. Vocational drift in academic institutions

Figure 4.2. already suggests that academic and vocational education is split into different segments, due to the development of particular competence profiles for the various segments. For example, in vocational education there are apprenticeships with a strong emphasis on practical skills (such as hairdressing, plumbing) and those with a high share of knowledge work (including office management, computer programming). The same applies for academic education. Universities in most countries are vertically differentiated. While the terminology differs, in many countries there are older universities with a stronger emphasis on research and younger universities of applied sciences with a stronger focus on teaching. There is also a distinction between public and private, as well as multidisciplinary and single-discipline universities. Certain universities accentuate their specialised character by describing themselves as an elite or excellence university, or they are proud to show that they are a member of a prestigious club like the Russell Group in the UK. Within this context,

profile and become research-oriented or vocational-oriented, or they follow a diversification strategy and offer programmes of both types under the same roof.

Overlaps with VET programmes occur when a university is partly or completely active in quadrants 2 and 3; the reasons for this may be diverse. A strong driver is the reality that, in many countries, universities of applied sciences originate from certain kinds of vocational institutions. While a few of these work toward research-oriented universality status, many stick to their roots and offer practice-oriented programmes. Another reason relates to the Bologna process, with its stronger emphasis on employability. Employability as a characteristic of study programmes requires that education institutions explicitly consider non-scientific labour market requirements. Certain parties interpret employability narrowly and claim an immediate transformation of economic demands into curricula; others treat employability as a general principle, but not as a necessity for the design of study programmes. Certain private universities adopt the narrow interpretation of employability. They start their business in quadrant 3 by designing vocational-oriented programmes in occupations for which companies in their region expressed a demand. In certain countries, formerly vocational programmes (such as in the health sector) move into the academic sector, because interested stakeholders want to upgrade the branch's reputation.

4.3. Potential implications for the future of apprenticeships

The following trends seem relevant for the relationship between vocational and academic education:

- (a) in a growing number of economic sectors, competences for dealing with knowledge-intensive work make up an increasing share of occupational profiles. Consequently, supported hybrid competences, which combine theory-based reflection and practice-related action, gain relevance;

- (b) vocational and academic education are internally segmented into differently profiled study programmes at universities and apprenticeship occupations of different attractiveness in the VET system. Vocational-oriented study programmes and high-end apprenticeship occupations overlap in terms of addressing hybrid competences and preparing young people for similar types of work processes;
- (c) based on this factual analysis, the key questions for envisaging the future of apprenticeships is how the key actors deal with the already recognisable, but yet still open trends:
  - (i) how will young school leavers who are eligible to study at a university decide whether to opt for a university or an apprenticeship when planning their career? Will they still opt for an apprenticeship, be it on transit into university or as a springboard into a non-academic career?
  - (ii) how will employers adjust their recruitment strategy for qualified personnel if they can also choose between Bachelor graduates from practice-oriented universities and apprentices whom the employers socialised and trained in their companies? (iii) how will politicians who are committed to boosting VET act in this policy field? Will they restrict access to university? Or will they promote new ideas and concepts?

Depending on these actors' behaviour, apprenticeships and their relationship to academic education may evolve differently. Based on the analyses, it is possible to pursue two approaches:

- (a) normative approach: academics draft a desirable future, along with a number of conceptual ideas on how educational institutions can achieve this future.
- (b) descriptive approach: academics depict possible futures, along with a number of appraisals on the implications for the future of apprenticeships.

This chapter follows up on the second approach.

Table 4.1. Strategic approaches and potential implications for apprenticeships

Strategic approach / Implementation leverages	Potential implications for apprenticeships
<p><b>1</b></p> <ul style="list-style-type: none"> <li>Keep higher education exclusive – remove overlaps between vocational and academic education:                             <ul style="list-style-type: none"> <li>Reduce publicly funded places at universities</li> <li>Regulate admission to universities restrictively, especially for VET graduates</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Traditional separation of general / academic and vocational education continues; permeability from vocational into academic education reduced; attractiveness of apprenticeships suffers</li> <li>Sharpening the general education selection processes for gaining admission to exclusive institutions</li> <li>Private universities might fill the gaps; social imbalances / polarisation increase</li> <li>VET as a catch-all for low achievers and failures in general education</li> </ul>
<p><b>2</b></p> <ul style="list-style-type: none"> <li>Increase attractiveness of vocational programmes and pathways:                             <ul style="list-style-type: none"> <li>Design a coherent transition from initial VET into continuous VET and attractive career positions (<i>Berufsberatung/berufshilfe</i>)</li> <li>Upgrade titles and descriptions of initial and continuous VET programmes and degrees (Wissenschaftsrat, 2014, p. 59)</li> <li>Make attractive vocational pathways visible in career services and counselling</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Self-contained, multistaged pathways into a career on a purely vocational track. Impact depends on the companies' employment options and the school leavers' aspirations</li> <li>Approach applies primarily for vocational occupations in the lower ranks of the reputation hierarchy with problems to fill apprenticeship vacancies</li> <li>The perception already exists that upper-rank, VET system apprenticeships overlapping with academic programmes, are sort of flagships that provide particular options after graduation</li> </ul>
<p><b>3</b></p> <ul style="list-style-type: none"> <li>Improve permeability from vocational into academic education:                             <ul style="list-style-type: none"> <li>Link apprenticeships with additional subjects / modules suitable to gain admission to academic programmes (e.g., <i>Berufsmaturität</i> in Switzerland)</li> <li>Grant eligibility to academic programmes with vocational degree, with / without additional requirements</li> <li>Extend target groups in VET eligible for admission into academic programmes (Wissenschaftsrat, 2014, p. 90)</li> <li>Credit vocational degrees against modules in study programmes</li> <li>Remove financial barriers preventing entitled persons from VET enrolling in academic programmes</li> <li>Provide specific support for students moving from vocational into academic programmes</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Approach might increase VET's attractiveness, as it provides new opportunities after completing the apprenticeship. A few apprentices will make use of and combine competences in different sectors, while others will stay on in practice after apprenticeship</li> <li>Risk of VET becoming a transit passage for academic education; ultimately, academic education is the gold standard</li> <li>Paradoxically, VET supposedly gains attractiveness through the opportunity to leave the vocational track</li> </ul>

Strategic approach / Implementation leverages	Potential implications for apprenticeships
<p><b>4</b></p> <ul style="list-style-type: none"> <li>Implement models merging vocational and academic programmes and degrees:                             <ul style="list-style-type: none"> <li>Improve the coherence of programmes aiming at an integrated provision of vocational and academic learning experiences</li> <li>Strengthen dual studies (<i>Duales Studium</i>), especially the version that includes an apprenticeship <sup>(13)</sup></li> <li>Elaborate and test innovative models like study-integrated apprenticeships (<i>Studienintegrierte Ausbildung</i>) providing new options of merging vocational and academic programmes for new target groups <sup>(14)</sup></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Dual studies incorporating an apprenticeship strengthens VET if the vocational part provides a perceivable added value for the students</li> <li>Dual studies only incorporating work experiences are increasingly attractive for employers, as they can match the practical part with the companies' requirements. This will weaken apprenticeships considerably.</li> <li>Study-integrated apprenticeships increase the attractiveness of apprenticeships, as the decision with regard to the next stage in the educational pathway is postponed to the point when the apprentices have gained substantial experience in the vocational and academic parts of the programme. There is also, to a certain extent, soft pressure on the companies to offer high-quality apprenticeships in order to convince apprentices to stay on in the company after graduation.</li> </ul>
<p><b>5</b></p> <ul style="list-style-type: none"> <li>Develop a parallel, but separate vocational track architecture covering the entire pathway from apprenticeship to academic degrees                             <ul style="list-style-type: none"> <li>Introduce dedicated bachelor and master degree programmes for students embarking on university studies from (initial / continuous) VET (e.g. Denmark; Cedefop, 2012, p. 14; Rauner, 2018)</li> <li>Consider introducing short-course degree programmes (e.g., associate degrees similar to those offered in the U.S. or the Netherlands; Busse and Frommberger 2019, pp. 62-63)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>VET in general and apprenticeships in particular may be valorised, as academic degrees can be achieved without switching to general education curricula</li> <li>Merging apprenticeships and academic programmes and crediting vocational achievements in academic programmes are easier to organise</li> <li>Open issue: Does the formal equivalence between vocational and scientific study programmes correspond to the perception of equivalence by key actors such as school leavers and companies?</li> </ul>

Source: Euler, D. (University St.Gallen)

<sup>(13)</sup> There are many variants with different terminology (Wolter, 2019, pp. 35-38; Wissenschaftsrat, 2013). For example, in Germany there are dual studies along with an apprenticeship, and dual studies that only incorporate work experiences into academic programmes. In other countries, the latter is known as cooperative education (Canada, Deisinger, 2019b, p. 57) or degree apprenticeships (UK).

<sup>(14)</sup> Study-integrated apprenticeships (Euler and Seuring, 2019, pp. 12-14) cover an innovative concept that is currently in the process of being implemented in the German Federal State of Hamburg. Young people eligible to study at universities start an apprenticeship in one of the high-end occupations. On top of their vocational education in vocational schools and a company, apprentices complete modules in complementary bachelor programmes at a university. The curricula of the apprenticeships and the academic programmes are coordinated. Based on the experiences gained in the first year, the apprentices decide on the next steps in their education career: They either complete only the apprenticeship or they opt for dual studies and complete an apprenticeship and a bachelor programme. Beyond this, they may decide to quit the apprenticeship and focus on completing a bachelor programme. During the first year, the apprentices also benefit from a career coach who supports them in the decision-making process.

#### 4.4. Conclusion

The relationship between vocational and academic education is ever changing. In countries with an elaborated apprenticeship system, developments occur in a tense environment comprising historically hardened segmentation, newly arising competition, and innovative new concepts (Hemkes, 2018, p. 2). Hence, everything seems possible in the future. The clock may turn back to the old separation, policy-makers might fine-tune existing approaches along the lines of extending permeability between the two areas, or they could introduce and implement new approaches up to, and including, fundamental institutional changes on a larger scale. There will possibly not be only one future scenario, but many different future scenarios at the same time in different regions and sectors.

The influences on the developments will come from two sides. On the supply side, stakeholders in the vocational and the academic sector might work for or against the implementation of any of the five strategies outlined above. Most likely, personal and institutional interests will differ; probably, different strategies will be explored and implemented in different economic sectors, regions, and institutions. On the demand side, the future behaviour of school leavers and companies as two key stakeholders will be vital. Most of all, these stakeholders will determine the future significance and weight of apprenticeships when reflecting on their aspirations and deciding on their pathway into working life and a career. Correspondingly, companies will do their cost-benefit analysis and decide on their preferred recruitment for qualified staff.

In many economic sectors, the occupational demand for qualified staff with hybrid competences is evident. This demand will clearly influence the design of educational programmes. It might strengthen the academic drift in vocational education, if former occupational areas in the VET system move into the higher education sector. Correspondingly, it might reinforce the vocational drift in certain segments of the higher education sector if specific types of universities or departments in universities design and offer study programmes with a strong emphasis on

practical application in occupational areas. As a result, specific new types of universities, (multi-sector institutions), may arise. This institutional type is known by several names including colleges of further education, community college, polytechnic, technical college and technical and further education (TAFE) (Friedel et al., 2014, p. 28). The design principles of quality apprenticeships (alternating learning venues; integrating work-based learning; merging theory and practice) serve as a major reference point for the establishment of educational programmes. 'Structural and didactical similarities and convergences between the two large education subsystems (higher and vocational education) indicate that vocationalisation is not fading but has the potential to emerge in a new coating' (Deissinger 2019a, p. 307). Therefore, organisational and institutional frameworks might change, but vocational education, in one form or another, will endure.

Open futures are always fertile grounds for research. Among others, the following (still broad) questions deserve consideration when designing future research agendas:

- (a) given the emergence of some academic programmes turning more vocational and some vocational programmes turning more academic: will vocational education be merged into universities and largely disappear as a self-contained education sector? Will apprenticeships erode in favour of academic education? Or will education programmes with new competence profiles arise and spread the specific principles of apprenticeships on a new level?
- (b) can the concept of hybrid competences provide a sound foundation to connect apprenticeships with requirements often summarised as 'future skills'? How can the concept be put into concrete terms to become operational in VET?
- (c) which school leavers eligible to enrol in academic programmes will find high-quality apprenticeships attractive? Which factors do they take into account when deciding on their pathway into a career?

#### 4.5. References

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