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Challenges in the Transition From Apprenticeships to Higher Education in England, Germany, and Norway

Johannes Karl Schmees [1], Tim Migura [2], Bill Esmond [1], Dietmar Frommberger [2], and Eli Smeplass [3]

[1] Institute of Education & Skills, University of Derby, UK
[2] Institute of Education, Vocational and Business Education, Osnabrück University, Germany
[3] Faculty of Social and Educational Sciences, Norwegian University of Science and Technology, Norway

Correspondence: Tim Migura (tim.migura@uos.de)

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Abstract

The transition from technical and vocational education and training to higher education is particularly challenging for apprenticeship graduates. These challenges are not only bureaucratic or logistical but also reflect deeper systemic inequalities. In many countries, apprenticeship routes at the upper secondary level are disproportionately chosen by disadvantaged groups in relation to class, gender, and/or race. As a result, the limited, time-consuming, and inconsistently regulated progression pathways in place contribute to the reproduction of social inequality. This article examines how such structural barriers are embedded in three national apprenticeship models in England, Germany, and Norway, where access to apprenticeship qualifications is primarily mediated by the labour market. In England, higher-level apprenticeship routes combine company-based learning with part-time participation in institutional education. In Germany, the parallel or "dual" model integrates school-based and company-based training, while Norway's sequential model structures apprenticeships as successive phases in schools and workplaces. In comparing these models, we conclude that despite differences across transition routes and claims to improve permeability, the divide between vocational and academic education persists across all three systems, thereby reinforcing rather than reducing systemic inequality.

Keywords

case study; comparative analysis; cross-national; higher education; pathways; permeability; transition; TVET

1. Introduction

Discussions on permeability mostly refer to the transition from technical and vocational education and training (TVET) to higher education. This is why the Austrian *berufsbildende höhere Schule* (vocational college), which combines a TVET qualification with a higher education entrance qualification, is considered the "best practice" (Deißinger et al., 2013, p. 8). However, transitions between TVET and an increasingly stratified higher education system are not necessarily developing as smoothly in the context of apprenticeships, which require substantive workplace training (Frommberger, 2019; Sender & Kriesi, 2021). By contrast with vocational schooling that may provide additional university preparation, apprenticeship graduates have been prepared explicitly for working life and therefore face disadvantages when attempting to transition to academic pathways. In many countries, apprenticeship routes are not only considered dichotomous to academic education, but they are also structurally and symbolically positioned as inferior. These routes often serve students from working-class or otherwise marginalised backgrounds, compounding issues of educational inequality. Consequently, the promise of equal opportunity through education remains unfulfilled for many apprenticeship graduates, raising critical questions about how education systems reproduce, rather than resolve, social divisions. Additionally, the higher education destinations are often of comparatively low value and may be seen as diverting or discouraging students from authentic higher education rather than as modes of access (Boliver, 2015; Brint & Karabel, 1989; Grubbs, 2020). Therefore, this article investigates the extent to which education systems support or hinder progression from apprenticeships to higher education, with apprenticeships defined as educational routes where access to qualifications is mediated by the labour market (Esmond, 2020; Fuller & Unwin, 2009).

The challenges and obstacles that persist throughout the transition from apprenticeships are closely monitored. In this article, we analyse options for permeability into higher education for apprenticeship graduates at upper secondary level—level 4 of the European Qualification Framework (EQF). A comparative approach is applied across countries that have different apprenticeship structures implemented. Our goal with this study is twofold: firstly, we aim to illustrate the common barriers encountered across different countries and, secondly, to highlight the differences in permeability between these countries. The central question posed in this article addresses the issue of equality between TVET, on the one hand, and general/higher education on the other. For apprenticeship graduates, access to higher education can be constrained by limited pathways and perplexing regulatory frameworks (Knight et al., 2022; for Germany, see Freitag et al., 2011; for Norway, see Schmees et al., 2024). These individuals may face marginalisation or rejection by (traditional) universities during the admissions process (Coulson et al., 2017; Jones et al., 2019; Pilz, 2019) and may possess inadequate academic skills due to the circumscribed nature of their school-based education (Spöttl, 2013, p. 466). Vocational expertise is frequently regarded as inconsequential within higher education settings (Gale, 2022). Simultaneously, level 4 EQF apprenticeship pathways are pursued by marginalised groups, in numerous countries, particularly in terms of class, gender, and/or race. Consequently, these individuals encounter additional forms of discrimination. Therefore, apprenticeship holders are, from a structural, organisational, and individual perspective, most likely *not* to progress into higher education despite increasing permeability claims.

At the *structural* level, student access to higher education marks the central concept that widens or closes possibilities for permeability between TVET and higher education (e.g., Bernhard, 2019, pp. 132–134). However, even in countries where TVET is regarded as relatively prestigious, such as Austria, Germany, and

Switzerland, access from apprenticeships to higher education is the exception rather than the rule. The concept behind the expression "equivalent not equal" (for Germany, see Eckelt, 2016, chapter 6.3; for Austria and Germany, see Schwabe-Ruck & Schlögl, 2014) has been used to legitimise obstacles and time-wasting that vocationally qualified students face when pursuing academic qualifications. The implementation of the EQF has resulted in the establishment of eight distinct levels of qualifications. Level 4 represents a qualification in upper secondary education, Level 5 an intermediate qualification, and levels 6, 7, and 8 correspond to bachelor's, master's, and PhD qualifications, respectively. This has served to further clarify the distinction between vocational and general/academic education. In Germany, for instance, it is possible to progress from EQF level 4 in general education to academic education at EQF level 6. However, this progression is significantly restricted for vocationally qualified students who are at the same EQF level. Furthermore, the progression is rendered even more challenging for those who possess an apprenticeship qualification, thereby supporting claims that permeability is more restricted for those who qualify from more work-related forms of TVET (Frommberger, 2019, pp. 24–25).

At the *organisational* level, recognition of prior learning (RPL) as well as the connections between TVET and higher education institutions are central to enable permeability (Bernhard, 2019, pp. 132–134). In England, for instance, despite a long-standing tradition of RPL in TVET, progression into higher education, which is usually from general education, tends to emphasise direct links to the study destination. It is inevitable that progressions from apprenticeships, which are more oriented to industry expectations, will not align in the same way. The "connections between TVET and higher education institutions" refer to models where the transfer from TVET to higher education is implemented through cooperating institutions in the sense that a vocational school, college, or workplace learning are closely connected to higher education to enable students' progression (Frommberger & Schmees, 2022). However, forms of hybridisation often fail to acknowledge workplace learning. Exceptionally, cooperative studies, often also referred to as dual studies, are degree programmes in Germany that combine work placements with higher education. But also, for these programmes, access is not guaranteed to apprenticeship holders at EQF level 4, illustrating that without student access, permeability has little meaning. Students graduating from cooperative studies programmes, in turn, face difficulties by themselves if they plan to progress into a master's or doctoral programme at a traditional university. While there are alternative options to obtain a master's degree also at a university of applied sciences or a cooperative studies university, the degree-awarding power for a doctorate is, in general, restricted to universities alone (Behrenbeck, 2022; Meurer, 2018; Schmees, 2022).

At the *individual* level, the majority of students enrolled in TVET in most countries are from working-class backgrounds (Avis & Atkins, 2017). It has been demonstrated that institutions of higher education, most notably those of a prestigious reputation, either refuse to accept these students (Coulson et al., 2017; Jones et al., 2019) or are not prepared for the diversity that follows their admission (Reay et al., 2009). Additionally, vocational knowledge is frequently not recognised by the more prestigious and well-resourced institutions that determine what is of value in higher education, whilst being its providers (Gale, 2022). It is evident that apprenticeship schemes exhibit a heightened prevalence of underprivileged individuals and a pronounced emphasis on vocational expertise when compared to the broader context of TVET. It can be claimed that the higher education destinations of apprenticeship graduates, due to the reasons mentioned, are likely to be less prestigious forms of higher education. The potential for an individual to benefit from the structural permeability mechanisms is contingent upon the assessment of appropriateness by the gatekeepers (Banscherus et al., 2016, p. 9; Schröder & Dehnbostel, 2019).

The barriers on the structural, organisational, and individual levels delineated above form the background of our investigation of transitions from apprenticeships to higher education. In order to comprehend the intricacies of these barriers at different levels and their multiple interactions in the diverse case studies of England, Germany, and Norway, potential transition pathways are initially identified and then discussed, supported by secondary data and/or statistics.

2. Methodology

Taking a comparative approach enables us to look beyond national explanations and reveal the structural patterns that influence the permeability between vocational and higher education in different systems. By examining three countries with distinct apprenticeship models and higher education systems, we can identify how formal progression opportunities are influenced by underlying institutional factors, such as the symbolic value of vocational knowledge, the stratification of higher education, and the impact of policy on access. This perspective enables us to look beyond context-specific barriers and interrogate whether educational reforms genuinely expand social mobility—or merely reproduce existing hierarchies in new forms.

The primary research method is a comparative case study analysis (Kroon & Sturm, 2007) between England, Germany, and Norway. In this approach, the cases are firstly analysed in-depth before a comparison is carried out. These cases were selected based on their distinct (and different) apprenticeship structures, which provide a diverse set of cases for comparison (Gerring, 2007, p. 89). This allows us to consider the impact of different apprenticeship models on the transition to higher education. This way, we are able to detect variations due to the design of the apprenticeship models. Our data basis comprises education reports, government documents, national statistics, and academic research. We, therefore, refer to the different designs of apprenticeship models in England, Germany, and Norway comparatively. In England, apprenticeship routes are increasingly fragmented, combining company-based learning with institution-based studies in varying ways across occupational orientations and levels of study (Esmond, 2020; Esmond & Atkins, 2022). In Germany, the dual apprenticeship can be characterised as a parallel company-based and school-based structure (Frommberger & Schmees, 2024). And, in Norway, the sequential model consists of successive phases in school and corporations (Smeplass & Schmees, 2023; Virolainen & Tønder, 2018). In all three cases, apprenticeships at EQF level 4 represent the initial qualification from which the possible transition pathways to higher education are analysed.

Finally, our analysis takes into account different routes from apprenticeship to higher education. As indicated in prior studies (Frommberger & Schmees, 2024; Schmees et al., 2024), systems usually provide multiple routes to higher education. In order to systematise those routes, we imply a vertically and horizontally organised structure of the education system (Wilbers, 2014, p. 21). The vertical structure is indicated, for example, by different levels of qualifications and the horizontal structure by different education subsystems with different aims and contents, for example, TVET, general/higher education, and increasingly hybrid forms (for the latter, see Schmees, 2022). When transitioning from apprenticeships to higher education, we can then distinguish horizontal, vertical, and lateral transitions (Hemkes, 2018; Hemkes & Wilbers, 2019; Wilbers, 2014). Horizontal transitions refer to pathways where another qualification on the same qualification level is done in another educational subsystem. Vertical transitions refer to transitions to a higher qualification level but in the very same education subsystem. Finally, lateral transitions refer to a

combined transition (horizontally and vertically) at the same time. Then, three different routes from apprenticeships to higher education can be traced (see Figure 1):

1. Diagonal routes from apprenticeships to higher education (lateral transitions);
2. Routes via higher TVET qualifications (vertical transition + horizontal transition);
3. Routes via general education (in Germany, however, as part of the school-based TVET system) on the same qualification level, that have to be added to the existing apprenticeship qualification before entering higher education (horizontal transition + vertical transition).

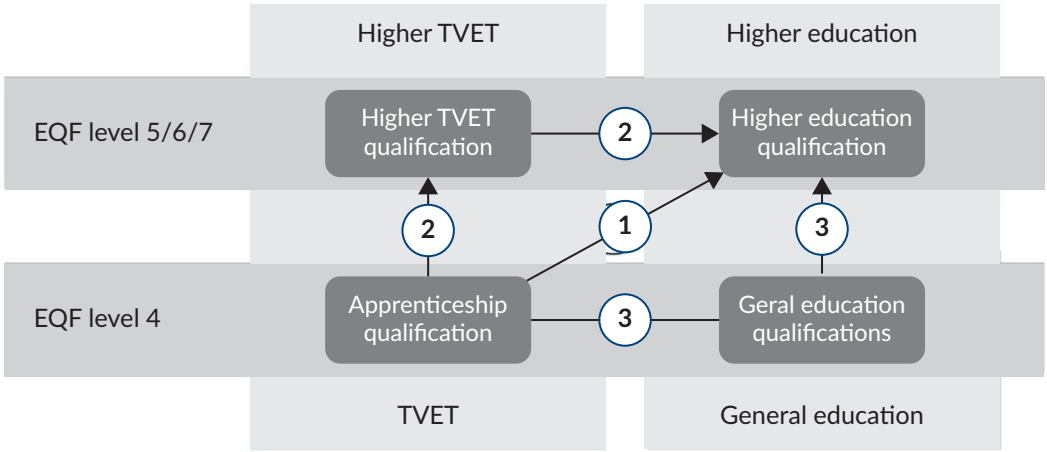

Figure 1. Conceptualisation of the three routes into higher education.

The following sections present the three country case studies. After a brief introduction to the national context, the case-specific transition pathways from apprenticeships (EQF level 4) to higher education are described in the context of the heuristic model. Finally, each case study will discuss how the possibilities of transferring from apprenticeships to higher education are contributing to educational mobility. Table 1 provides an overview of the transition paths identified in the case studies. Within the case studies, we present applied versions of Figure 1, except for the case of England, as the degree apprenticeship is at the same time a potential way into higher education, as it is itself a higher education programme already.

Table 1. Important pathways from TVET to higher education.

Cases	Route 1 (diagonal)	Route 2 (higher TVET)	Route 3 (general education)
England	Degree apprenticeship (combined higher education and higher apprenticeship qualification)		n.a.
Germany	Work experience plus admission test	Higher TVET (*Aufstiegsfortbildung*)	*Fachoberschule* (FOS)/*Berufsoberschule* (BOS)
Norway	Y Pathway or 23/5 rule	TVET college (*Fagskole*)	Supplementary programme

3. England: Innovation or Re-Drawing Barriers?

In England, the recent innovation of "degree apprenticeships," which combine a degree with certified higher-level work experience (and sometimes professional qualifications), appears to have provided a route to higher education for apprentices. This has been hailed by policymakers as a success; yet this apparent triumph is deceptive. Simply put, progression to these studies predominantly occurs from substantially different educational routes and different social groups than the working-class young people who dominate apprenticeships at EQF level 4. Instead, degree apprenticeships widely attract senior staff, such as managers and professionals who are already employed. In this sense, we can identify English degree apprenticeships not as a successful route from TVET into higher education, but as an alternative route into higher education for those who have already achieved some degree of mobility within the workforce. Alternatively, the recruitment of less academically successful young people directly into degree apprenticeships, promoted by some universities, can be described as a diversion (Brint & Karabel, 1989) from conventional higher education for direct entrants.

Apprenticeships in England include a wide range of substantially different provisions. The most self-evident distinction is by level (from EQF level 3 to postgraduate level). The higher levels include: higher-level apprenticeships, usually at EQF level 5 (sub-bachelor), and degree apprenticeships at bachelor's and postgraduate levels. The current structure of apprenticeships has been determined by legislation rather than by industry needs, although some employers have been involved in the design of qualifications by so-called "trailblazer groups" that have brought educators and other stakeholders together to design them. Neither the level, length, nor associated qualifications are determined in advance of this design process. Moreover, these qualifications differ even at the same level: an apprenticeship in engineering at EQF level 4 can include a two-year college course, leading to an upper-secondary qualification, alongside work experience; a course in hairdressing or beauty therapy is more likely to be provided entirely in the workplace (Esmond, 2020). The apprenticeship standard mandates that apprentices be given 20% of their time as "off-the-job training," but there are no strict requirements as to what this includes or where it takes place (Esmond, 2020).

Apprenticeships in England have long been distinguishable as a less favourable TVET route than in other European countries, such as Germany. During the early post-war period, they provided an option for low-attaining young people seeking to leave school early to enter the labour market, with apprenticeships combining full-time work and part-time day or evening study; apart from small numbers of engineering apprentices progressing to part-time "higher national certificates" in their final year, questions of higher-level progression hardly arose. The divide between sectors widened with the explosion of youth unemployment in the 1980s, as apprenticeships became the name given to competency-based qualifications offered by a private training market (Fuller & Unwin, 2009). By contrast, over the same period, higher education expanded from participation below 20% to over 40% of the age cohort, the beneficiaries including lower-achieving middle-class youth in schools and further education colleges (Hodgson & Spours, 2015; K. Orr, 2020). Consequently, apprenticeships have lost much of their former character as a direct entry route to work, supported by educational provision that could provide a platform for more senior roles in the workforce at a later stage.

3.1. Introduction of Apprenticeship-Only Pathways

More recent attempts to introduce apprenticeship routes at higher levels have had a difficult history. Entry into English higher education through an apprenticeship route first took the form of "higher level" apprenticeship (Dismore, 2014). Motivated by a government drive towards quasi-market diversity, including the encouragement of private providers, its introduction was seen as an alternative to full-time bachelor's degrees, which had long remained the main mode of study in English higher education (Higher Education Funding Council for England, 2010; National Committee of Inquiry into Higher Education, 1997). The numbers on these courses remained low compared to part-time higher education in colleges, which had been undermined by the withdrawal of grant funding (Esmond, 2012, 2015). Without the support of significant financial investment, growth was insubstantial, as captured by a series of reports (e.g., Joslin & Smith, 2013). Smith et al. (2015) recorded the three-year progression rate of advanced (i.e., EQF level 4) apprentices as falling from 11.2% in 2006/2007 to 8.8% in 2009/2010. In common with other vocational routes, the transitions of young people from this generation were frequently irregular and disrupted: Whilst the progression of the 2006/2007 cohort into higher education over seven years stood at 19.3%, only 58% of these students progressed within three years, whilst 42% progressed between four and seven years after completing their apprenticeship. Meanwhile, a shift to older apprentices was accomplished at a stroke by re-designating adults on a work-based "train to gain" route as apprentices. Smith et al. (2015, p. 9) reported an increase in the total of advanced apprentices who were aged 25+ from 115 or 0.3% of the total in 2006/2007 to 25,015 or 40% of the total in 2010/2011.

The policies of conservative-led governments from 2010 proved more successful, through reforms designed to raise both the profile and quality of apprenticeships, as well as the level of study that most apprenticeships provide. Changes in apprenticeship policy since 2015 have centred on the introduction of new apprenticeship standards (routes with fewer knowledge-based qualifications and with rigorous end-tests replacing competency assessments) and a compulsory levy imposed on employers (Richard, 2012; Wolf, 2015). For employers unwilling to spend this levy on training new entrants to the business, degree apprenticeships offered the chance to spend it on management qualifications for their senior staff. These reforms, taken together, have allowed UK governments—positioning apprenticeships as a diversification of higher education—to increase the proportion of apprenticeships at higher levels even as the total number of apprenticeships has declined. The number of approved standards was much higher at EQF level 4 and above, and these were funded at significantly more favourable levels. Thus, 33% of apprenticeships started in 2022/2023 were at higher levels, whilst intermediate level (EQF level 3) apprenticeships had fallen from 65% of the total (prior to the reforms) to only 23% of the total. The total number of apprenticeships at all levels remains lower than before the reforms (Foley, 2021; Powell, 2024). Conversely, the number of higher education entrants studying on degree apprenticeships has more than quadrupled since 2015/2016. This now stands at 13.2%, almost one-seventh, of the total entrants to degree studies (Department for Education of the UK, 2024).

3.2. More Higher Study, Less Progression

This has transformed apprenticeships from a system in which progression to higher education was largely excluded to a system in which apprenticeship now *includes* study at higher levels. Work-based and work-related learning have become recognised components of many degree courses, a change easily

represented as a convergence of higher and vocational sectors. Pullen et al. (2024) argue that degree apprenticeships now provide a route through which adults can progress into higher education in a way that was not previously available. Albeit in an impoverished way, this supports the entry to higher education of those who have found themselves in, or close to, more responsible positions at work. In this, they have favourable opportunities to carry out the requirements of their apprenticeship compared to those studying at earlier levels (Esmond, 2020).

This reform, however, does not represent an increase in progression from TVET courses at EQF level 3 and below. Instead, it has introduced a new route within higher education. From the perspective of access for disadvantaged students, this shift appears to have widened rather than diminished the divide, as degree apprenticeships and higher-level apprenticeships become more frequent opportunities for middle-class staff (Fuller & Unwin, 2017). In 2022/2023, 48% of starting apprenticeships were undertaken by entrants aged 25 and over, who were often senior managers. Evidence of contributions to social mobility remains partial, with even providers reluctant to claim degree apprenticeships as evidence of widening participation (Cavaglia et al., 2022; Lillis & Bravenboer, 2022; Pullen et al., 2024). Reflecting the market policies of recent years, it has been argued that apprenticeship in England may be less likely to promote permeability than to assure the educational success of those already socially advantaged. The appearance of apprenticeships at degree level coincides with the discontinuation of apprenticeships at lower levels of study, from which progression to degree study has become as improbable as ever, but with fewer apprenticeships at lower levels to start with. Rather than a new ladder of opportunity, apprenticeships in England have had many of the lower rungs kicked away.

4. Germany: Between Permeability and the Educational Divide

The German TVET system offers a broad spectrum of initial and further vocational qualifications (Frommberger, 2025; Frommberger & Schmees, 2024), aimed at diverse target groups and sectors and providing a range of options for further studies. In numerous cases, these programmes offer the opportunity to obtain TVET qualifications that can be utilised to directly access higher education. In certain instances, hybrid qualifications are also offered, integrating vocational and higher education (in particular, cooperative degree programmes). In general, approximately one-third of students in Germany transfer to higher education via vocational pathways rather than via general education (Autor:innengruppe Bildungsberichterstattung, 2024, pp. 209–215).

The development of these diverse pathways between vocational and higher education has been a historical process. In Germany, there is a long-standing tradition of acquiring a higher education entrance qualification through TVET (Buchholz & Pratter, 2017; as cited in Autor:innengruppe Bildungsberichterstattung, 2024; see also Frommberger, 2021). The expansion of TVET pathways leading to higher education entrance qualifications constituted a central component of the so-called educational expansion in the 1970s. In this respect, TVET in Germany serves to develop opportunities for a target group that did not complete general upper secondary education. In this regard, TVET fulfils a compensatory function.

However, these opportunities, i.e., to be permitted to transfer to a course of study via TVET, are not traditionally associated with the dual apprenticeship model (EQF level 4). Here, the acquisition of recognised vocational qualifications is predicated on training that takes place predominantly in the company and is

supplemented by learning in vocational schools. The transition from dual apprenticeships to employment is a relatively effective process. However, it lacks connections to higher education. This dead end of apprenticeships has shaped the political and scientific discourse on TVET for decades. Particularly since the 1970s, there have been ongoing discussions and demands for the integration of apprenticeships with the higher education entrance qualification. Notwithstanding the implementation of pilot programmes, a direct link between the two has not been established to date.

4.1. Diversified Routes From Apprenticeships to Higher Education

With regard to the representation of transitions in Figure 1, the following transitions can be distinguished (see Figure 2):

1. Transitions from apprenticeships to higher education via work experience and an admission test;
2. Transitions through higher TVET qualifications;
3. Transitions through school-based university entrance qualifications as part of school-based TVET.

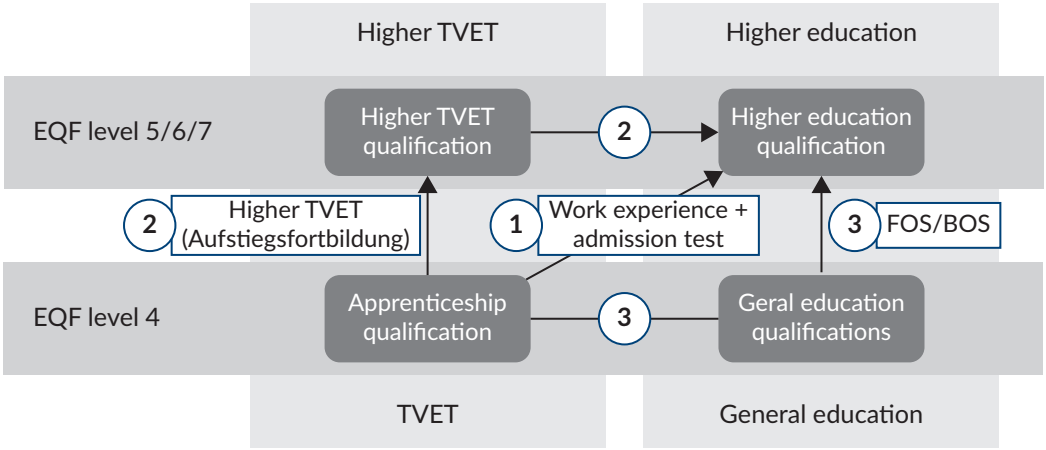

Figure 2. Transition routes to higher education in Germany.

Since the beginning of the 2000s, this structural deficit has been partially compensated for by changes to the admission regulations for higher education access in the higher education acts of the federated states. The prevailing regulations stipulate that, in each federated state, individuals who have not obtained a general qualification for university admission at school, but a vocational qualification, may also be admitted to university studies. In order to be considered for this position, it is necessary to have a minimum of three years of professional experience, which must have been gained following the conclusion of the apprenticeship programme. Prospective students are then required to undertake an admission test offered by the target university. If the necessary criteria are met, it is possible to undertake a programme of study that is closely related to the training occupation (Standing Conference of the Ministers of Education and Cultural Affairs, 2009). It should be noted that the regulations pertaining to the admission test are subject to variation depending on the federated state. Some federated states have additional regulations. In the state of Hesse, for instance, the admission test can be omitted if they achieve a certain grade in their apprenticeship qualification.

Vocationally qualified people who have successfully completed an apprenticeship are presented with the opportunity to pursue an additional qualification in a TVET school after their apprenticeship. For this purpose, the specialised upper secondary school (FOS) and the two-year full-time vocational school (BOS) are available at the upper secondary level (EQF level 4), offering programmes that combine vocational training with general education in specific occupational fields (see also Dörffer & Bernhard, 2025). This generally two-year full-time school course enables students to obtain both a subject-specific and a general university entrance qualification. The latter is contingent upon the student's selection of a second foreign language. Since the general higher education entrance qualification depends primarily on advanced knowledge in general education, this pathway is assigned to general education in the presented conceptualisation, although the FOS/BOS are part of the school-based TVET system.

An alternative pathway to higher education is represented by higher TVET. Graduates of higher TVET are awarded the sequential titles of *vocational specialist* (EQF level 5), *bachelor professional* (EQF level 6), and *master professional* (EQF level 7), thus obtaining a general higher education entrance qualification. This allows them to study in a programme that is not related to their apprenticeship.

In addition to these pathways, which are closely related to vocational education and training, a study by Ordemann et al. (2023) shows that a relevant proportion of people begin an apprenticeship even though they already have a school-based higher education entrance qualification. However, many of these people do not remain in the training occupation but instead begin a study programme following their apprenticeship qualification. This pathway is not included in the analysis, as a university entrance qualification is already available; nevertheless, it seems important to mention that such educational pathways are also common in Germany.

4.2. The Educational Divide and Its Consequences

The German Qualifications Framework (DQR; Deutscher Qualifikationsrahmen, 2024) reflects the political desire for equivalence of qualifications in the different subsystems of general, vocational, and higher education. Within this framework, initial TVET qualifications are positioned at the same level as general education degrees. Higher level TVET qualifications, such as the bachelor professional and the master professional, are classified within the same EQF-level as university bachelor's and master's degrees. This mapping and comparison of the different qualification levels in the DQR serves to transparently present the politically desired value of the qualifications. However, the hypothesis that the formal mapping of qualifications facilitates actual transition opportunities—or even legally enshrined entitlements—for horizontal or diagonal mobility bears little resemblance to reality. The higher education subsystem recognises vocational qualifications only to a very limited extent. Transitions from a bachelor professional qualification to a university-based master's degree programme are infrequent and largely confined to a few exceptions, predominantly within part-time programmes offered by private universities. Conversely, there is also an absence of systematic recognition or credit transfer from academic to vocational pathways.

The number of students at universities in Germany who were able to take up studies via the aforementioned admission regulations under federal higher education law has increased in the last two decades, but remains at a relatively low level overall, at around two percent of all students. Despite initiatives to admit non-traditional students to universities, the political target of five percent was not met (Stifterverband für die Deutsche

Wissenschaft, 2022, p. 32). In 2022, only 12,676 students started a degree course at higher education without a general school-based permission for higher education. In comparison to the year 2007, when only 3,940 of the mentioned students started studying, the number has almost tripled but remains at a significantly low level (Nickel & Thiele, 2024, p. 5). Significant differences in the numbers can be seen between the federated states, between the types of higher education institutions, and between the subject areas. The number of this group of students is above average at universities of applied sciences (Spangenberg & Quast, 2023, p. 34). The vast majority of these students are enrolled in programmes, and their average age is notably higher than that of traditional students (Nickel & Thiele, 2024, p. 8).

A significant rationale for the expansion of higher education to people with vocational qualifications pertains to the promotion of is equal opportunities. This particular vocational pathway into higher education is predominantly utilised by people who come from families where the parents do not possess academic qualifications (Wolter, 2018). The most significant obstacles encountered by individuals from non-academic households pertain to the transition to institutions that offer university entrance qualifications and the subsequent transfer to a university (Stifterverband für die Deutsche Wissenschaft, 2022, p. 86). Even when vocationally qualified students start a university programme, the success rate of students whose parents are not academics is proportionally lower. Only 76% of these non-traditional students complete a bachelor's degree, 40% a master's degree, and 7% a doctorate. In contrast, 82% of students with academic parents complete a bachelor's degree, 55% a master's degree, and 8% a doctorate. As posited by Ordemann et al. (2023, p. 62) and Stifterverband für die Deutsche Wissenschaft (2022, p. 13), success at university remains contingent on educational and familial background. However, it is also true that the opening of higher education, long desired by education and social policy, could only be implemented politically with economic policy efforts to increase the attractiveness of TVET (via these additional access rights).

It has been demonstrated that students whose parents have not obtained an academic degree are significantly more likely than the children of academics to acquire a higher education entrance qualification via a general secondary school followed by attendance at a vocational school like FOS/BOS. Consequently, the FOS/BOS route has been identified as a well-established model for the transition to higher education (Spangenberg & Quast, 2023, pp. 30–33). Dahm and Peter (2023, p. 242) emphasise that the majority of those with a vocational qualification who acquire a higher education entrance qualification at a vocational school, such as an FOS/BOS, after their apprenticeship have only a subject-specific higher education entrance qualification. This means that they have only limited access to universities of applied sciences or subject-specific university courses. However, in FOS/BOS, a general higher education entrance qualification would be a formal opportunity. Nevertheless, such pathways demonstrate that in many cases a period of employment is interspersed with a transition to vocational school in order to obtain a higher education entrance qualification. As a result, these pathways tend to be more fragmented and time-consuming (Spangenberg & Quast, 2023, pp. 30–33). Not mentioned so far is the possibility of obtaining a general higher education entrance qualification via evening classes. These have not been included here as a specific option for those with vocational qualifications due to their generalised nature. Additionally, this possibility is equally time-consuming.

5. Norway: A Multitude of Opportunities Into Higher Education

Established in 1994, the Norwegian TVET system follows a sequential model comprising two years of school-based education followed by two years of company-based apprenticeship training. This approach enables students to gain both classroom learning and workplace experience, preparing them for a variety of career paths. Currently, the system offers 196 distinct qualifications across industries such as healthcare, construction, maritime operations, and technical trades (Norwegian Directorate for Education and Training, 2020). Apprenticeships are central to the system, providing students with hands-on experience and facilitating transition into employment. These structural elements reflect the dual aim of addressing individual learning needs and supporting workforce development (Smeplass & Schmees, 2023).

Higher education in Norway comprises universities, university colleges, and specialised institutions offering bachelor's, master's, and doctoral programmes. Admission to higher education typically requires a higher education entrance certificate, which is usually obtained through academic upper secondary education. Vocational graduates face challenges in meeting this requirement, as their training does not automatically confer a higher education entrance certificate, creating systemic barriers to further education. To address these limitations, Norway has introduced reforms to enhance accessibility, for example, the Competence Reform (2001) that allows individuals aged 25 and older to qualify for higher education through *realkompetanse* (a form of RPL), bypassing traditional academic requirements. This initiative reflects broader efforts to support lifelong learning and adapt the education system to the needs of a changing labour market (Ministry of Church, Education and Research of Norway, 1999; D. Orr & Hovdhaugen, 2014).

5.1. Differentiated Possibilities to Progress From Apprenticeships to Higher Education

In Norway, the higher education entrance certificate is typically required for entry into higher education, as outlined by the Universities and Colleges Act. However, alternative pathways allow students with apprenticeship backgrounds to pursue higher education. These pathways aim to make higher education accessible to a broader range of students, accommodating the needs of those who followed the vocational track during upper secondary education (Schmees et al., 2024). Here, we only discuss pathways from apprenticeships to higher education systematised against the transition types (Figure 3):

1. As for the diagonal route, two distinct pathways exist in Norway, the Y Pathway as well as the 23/5 rule;
2. Also, higher TVET is an option to eventually enter higher education;
3. As for the horizontal pathway, students could opt for the supplementary year.

The Y Pathway (derived from *yrkesfag*, which means vocational) is a specially designed educational route for individuals with a relevant trade certificate, journeyman's certificate, or vocational qualification but who lack general study competence (Direktoratet for høyere utdanning og kompetanse, n.d.). This pathway enables the apprenticeship holder to access higher education programmes, particularly in fields such as engineering, maritime operations, and nautical studies, without needing to meet the traditional academic entry requirements. The Y Pathway is offered by various higher education types across Norway. In addition to technical disciplines, some institutions, like the Inland Norway University of Applied Sciences, offer Y Pathway programmes tailored to fields like service management and marketing. Typically, Y Pathway programmes are designed as bachelor's degrees. Admission requirements are based on the applicant's vocational background, with specific entry criteria determined by each higher education institution.

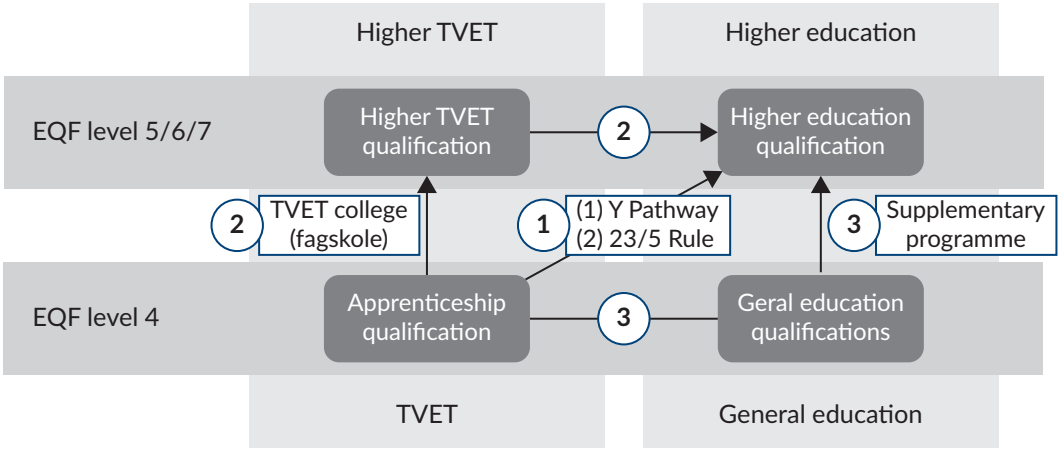

Figure 3. Transition routes to higher education in Norway.

The 23/5 Rule (*23/5-regelen*) offers an alternative entry route into higher education for adults who do not have general study competence. This pathway is open to individuals who are at least 23 years old and have five years of combined work or educational experience following an apprenticeship qualification (or comparable). To fulfil the experience requirement under the 23/5 Rule, applicants must document a minimum of five years of full-time work experience and/or education, with this combined experience totalling the equivalent of five full-time years. Applicants must also complete a set of six core subjects, including English, history, mathematics, science, Norwegian, and social studies, to meet the minimum competency standards for higher education. According to this rule, the student receives a grade point average based on achievements in the mentioned subjects. These must be documented through a diploma or certificate of competence. In addition, and not uncommonly, students also gain points from other documented characteristics or achievements such as science credits, language points, gender points, points for entrance exams, age points (from the age of 24) as well as additional points for (a) military or civil service, (b) folk high schools, (c) higher TVET, or (d) other higher education.

Furthermore, students may choose to continue with a one-year supplementary programme. This pathway has specific requirements for students to complete a specific set of general education subjects and is part of upper secondary education. Students can also complete this programme prior to their apprenticeship, offering flexibility in their educational journey (Ministry of Education and Research of Norway, 2009, 2022).

The *higher TVET* system in Norway, known as *fagskolene*, offers a pathway for apprenticeship graduates to expand their skills at a post-secondary level without requiring general study competence. As noted by the Ministry of Education and Research of Norway (2025), *fagskole* programmes deliver specialised, practical education tailored to labour market needs, typically ranging from six months to two years. Graduates receive qualifications recognised at EQF level 5. Graduates earn either a *fagskolegrad* (60 credits for one-year programmes) or a *høyere fagskolegrad* (120 credits for two years). Both qualifications can facilitate entry to higher education by (a) providing additional admission points for applicants, (b) supporting admission based on RPL (*realkompetanse*), or (c) conferring general study competence for graduates of two-year programmes, provided the programme grants at least 120 credits (NOKUT, n.d.). Completion of a two-year *fagskole* programme confers general study competence, allowing graduates to pursue university or college education if desired. A recently adopted reform now ushers in a paradigm shift, mandating new *fagskole* tracks at EQF

levels 6 and 7 and effectively aligning higher vocational routes with bachelor and master levels (Ministry of Education and Research of Norway, 2025).

5.2. Limited Use of Permeability Options

Among the presented alternative routes to higher education, the supplementary programme remains the most prominent, accounting for 15.4% of total admissions in 2022 (Schmees et al., 2024). This pathway continues to serve as a vital link for vocational graduates seeking a higher education entrance certificate, enabling access to a broad range of higher education opportunities. Other pathways, while impactful, show lower uptake. The Y Pathway, designed for vocationally trained students entering fields such as engineering and maritime studies, accounted for just 0.5% of total admissions in 2022 (Schmees et al., 2024). Its targeted nature demonstrates the potential for tailored programmes to address specific industry needs, but also reflects the limitations of such niche solutions. Similarly, the 23/5 Rule, which accounted for 3.6% of admissions in 2022, provides a crucial avenue for mature students with substantial work experience but limited formal qualifications, offering a flexible re-entry point into higher education (Ministry of Education and Research of Norway, 2022). The *fagskole* system, which has provided TVET at EQF level 5, has experienced remarkable growth, with enrolments doubling since 2016 to over 30,000 students in 2023 (Norwegian Government, 2023). This reflects government efforts to align education with labour market needs, particularly in sectors such as healthcare, technical trades, and maritime industries (CEDEFOP, 2024). Pathways like the fagskole system, Y Pathway, and 23/5 Rule have successfully facilitated transitions in technical and applied disciplines but remain limited in scope. The Y Pathway, for instance, is predominantly geared towards engineering and technical professions, while the fagskole system primarily attracts students in specific sectors such as healthcare or maritime industries, limiting its broader applicability (Norwegian Government, 2023). Expanding these pathways to encompass a wider range of disciplines will significantly enhance their impact. However, despite these successes, alternative pathways collectively contributed to only 21.7% of total admissions to higher education in 2022, indicating the continued dominance of traditional academic routes (Schmees et al., 2024). If we exclude the supplementary programme—since it is, at its core, closely aligned with general education pathways—the share of TVET-based admissions to higher education stands at just 6.3%. This indicates that non-academic routes into higher education, and thus the recognition of vocational knowledge and skills, remain rather limited.

The limited scale of alternative routes highlights ongoing challenges in achieving full educational mobility. While these pathways mitigate traditional barriers imposed by a higher education entrance certificate and create opportunities for apprenticeship graduates, structural inequalities persist. Early educational tracking often funnels students into vocational pathways by age 15 or 16, shaping their aspirations and limiting their chances of pursuing higher education. These decisions perpetuate socioeconomic divides, as TVET students are disproportionately from lower-income or underprivileged backgrounds (Schmees et al., 2024). Addressing these systemic biases is essential to ensure that pathways genuinely promote social mobility (Smeplass & Schmees, 2023). On the other hand, Norway's strong labour market for vocational graduates reduces the incentives for transitioning to higher education. Attractive salaries, job security, and favourable working conditions make TVET an appealing endpoint for many students, often outweighing the perceived benefits of higher education (Barth et al., 2014; Smeplass & Schmees, 2023). This dynamic highlights the need for policies that enhance both the perceived and actual value of higher education for vocational graduates, particularly in non-technical fields.

Despite these challenges, the inclusion of non-traditional students in higher education demonstrates progress toward educational equity. Norway has made strides in addressing inequality, but achieving full mobility requires ongoing efforts to reduce societal biases against apprenticeship graduates, broaden the scope of existing pathways, and create tailored support mechanisms (D. Orr & Hovdhaugen, 2014; Smeplass & Schmees, 2023). Efforts should also focus on providing incentives for apprenticeship graduates to engage with higher education, ensuring that transitions are both accessible and desirable.

6. Comparative Cross-Case Analysis

The case studies indicate that an increasing number of routes are being established to enable individuals with apprenticeship qualifications to access higher education. Depending on individual circumstances and specific aspirations, pathways exist; however, nearly all involve opportunity costs. When additional qualifications are required between completing training and entering higher education, this often includes at least time-related burdens. Such barriers can be particularly challenging for individuals with low socio-economic status. Other hindering factors include a lack of information or family responsibilities (e.g., caregiving duties). Comparing the three cases, we can see that, despite differences, pathways from apprenticeships to higher education are still challenging and more complex than the standard routes into higher education in all three cases.

For Germany and Norway, we analysed Route 1 as an option for a diagonal transfer from apprenticeships to higher education. However, in no case is the access straightforward. In Germany, while there is a possibility to enter higher education with an apprenticeship after three years of work experience and a university-specific admission test, the regulations are very confusing and state—as well as university-dependent (Freitag et al., 2011). Consequently, this route is taken by a very limited number of students. For Norway, we discussed two possibilities for a diagonal entry from apprenticeship to higher education. While the Y Pathway is limited to areas of skills shortage, the 23/5 Rule, similarly to Germany, entails a highly complex admission procedure that is ultimately decided by universities on a case-by-case basis. As in the case of England, these possibilities are located within the most vertically extensive apprenticeship system, ranging from level 2 qualification level to master's degrees. By studying in a degree apprenticeship, students gain both an apprenticeship qualification at the level of studies and an academic degree. However, as analysed in the case study, there are barriers in the system for those with an apprenticeship qualification at level 4 EQF in both the higher education system and the degree apprenticeship system, where mainly people already in middle management positions are enrolled. Also, the participating universities are usually former polytechnics and therefore less prestigious than older universities.

Route 2 is defined as a higher education entrance via higher TVET. In Germany, this route is implemented by a newly established system of three distinct levels of higher TVET. If any of these levels is accomplished, a transfer to higher education is possible. However, very often these transitions are further limited by the type of university and/or the study programme. Furthermore, it is very unlikely that a higher TVET qualification at master's level is accredited towards an academic qualification. Therefore, graduates from higher TVET usually start their academic qualification as university freshers in bachelor's programmes. Also, Norway distinguishes two levels of higher TVET. Diagonal transfer is only possible via level 2, while level 1 is eligible to be supportive in other routes into higher education only.

Route 3 was introduced as another qualification on EQF level 4 in order to enter higher education after a horizontal transition. And if students must acquire additional qualifications either within the general education system or through advanced TVET, it raises the question of how effectively the skills gained during apprenticeships are being recognised. As for Germany, this route is the standard pathway for apprenticeship graduates at EQF level 4 who do not already possess a higher education entrance qualification. The educational pathways at FOS (and BOS) are preparing their students for higher education by mostly covering general subjects, even though those schools are part of the system of TVET schools. These routes take another two to three years, depending on whether the objective is access to universities of applied sciences or traditional universities. A similar possibility exists in Norway, which takes just one year to be completed. However, the requirements for students in the supplementary year are extremely high and very much general education-driven.

As long as profitable outcomes like career pathways, salaries, and prestige continue to be achieved primarily through academic qualifications, these transition pathways from vocational to higher education are relevant for social equality. Although the creation of alternative further education pathways in higher TVET is being addressed, it is still not on an equal footing with academic education. Despite the efforts made to support the transition of people with vocational qualifications into higher education, the numbers are comparatively low. This may be due to the fact that creating transition pathways does not sufficiently address the structural, organisational, and individual barriers that are faced by those with vocational qualifications.

The presentation of the transition pathways and the analysis were carried out on the basis of a heuristic model (Figure 1). Accordingly, a selection of country-specific transition mechanisms was made to ensure comparability of the cases. However, this means that other transition mechanisms are not mentioned in this article. These relate, for example, to educational pathways through general education without taking TVET into account, or individual regulations for private or specific types of higher education institutions, such as the recognition of exceptional individual talents in specialised higher education institutions, for example, for sport, music, and art in Germany (Winter, 2019). Furthermore, the cases and transition routes were primarily presented at a formal-structural level and supported by statistical data. This approach also results in a less detailed depiction of the routes themselves. The limited depth is partly attributable to the need for a uniform basis of comparison, which, on the other hand, provides the possibility for the comparative approach chosen. The partial lack of quantitative presentation of individual transition pathways is due to a lack of data. This applies in particular to the German case.

As our cross-country comparison shows, policy can lay formal bridges only when the supporting institutions and reward structures rise to equal height on both banks. Until vocational and academic credentials share the same societal status, permeability will remain more a design feature on paper than a functioning part of the education landscape. At the same time, it promotes systemic inequality and tends to reinforce it rather than reduce it.

Conflict of Interests

The authors declare no conflict of interests.

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About the Authors

Johannes Karl Schmees is an associate professor for TVET at the Institute of Education & Skills, University of Derby, UK. His research interests are in international and comparative research on TVET systems. Thereby, he is particularly interested in international and bilateral influences on the development of TVET structures.

Tim Migura is a research associate at Osnabrück University in the Department of Vocational Education Studies. His research focuses on the academisation and Europeanisation of health professions in Austria, Germany, and Switzerland, as well as in-company training and teaching activities.

Bill Esmond is a professor of professional education and training in the Institute of Education & Skills, University of Derby, UK. His research seeks to extend international understandings of vocational/workplace practices and their possibilities for social justice.

Dietmar Frommberger has been a professor of vocational education at Osnabrück University since 2017. He previously held a professorship at the University of Magdeburg. His research interests include comparative aspects of TVET research, especially with an international focus, as well as structures and functions of TVET in Germany.

Eli Smeplass is an associate professor of vocational pedagogy at the Department of Teacher Education at the Norwegian University of Science and Technology. Her research explores education, inequality, and professional learning, with a particular focus on vocational pathways. She works at the intersection of sociological theory and pedagogical practice.