

# TVET System Research

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**Abstract** Research on TVET systems now comes up with various theoretical approaches. Apart from methodological issues, such as ‘typologies’, comparative criteria are crucial theoretical components by which existing TVET systems can be analysed. It is against this background—and not just by looking at the institutional and/or organisational pattern typical of a given TVET system—that underlying factors, such as the evaluation given to TVET, the different cultural imprints, the meaning of TVET and the political attention states dedicate to the field of post-compulsory education in general, should be taken into account. Differences between the German-speaking countries and the Anglo-Saxon world are hereby obvious and a good example for depicting cultural and pedagogical diversity in the field of TVET. The article focusses on various methodological perspectives for the purpose of understanding, among others, these differences.

## 5.1 Introduction

Technical and Vocational Education and Training (TVET) is normally organised in *three different basic modes*: firstly, full-time in a vocational school, college or higher education institution with neither practical training nor employment contract; secondly, as more or less formal skill formation in a company workplace setting, i.e. in some form of contractual employment as a trainee or employee; thirdly, as an acknowledged TVET programme, which uses part-time school-based and company-based modes of learning, sometimes known as ‘dual system’ or ‘alternating TVET’ (Deissinger 2010). In most cases, learners in the latter case also are in some kind of contractual employment which can be an apprenticeship contract.

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However, it is mostly the apprenticeship system which offers opportunities for vocational learning within an ‘occupational’ context (Deissinger 1998).

TVET systems and pathways are more than ‘constructions’ based on political motivations or economic interests, i.e. they have to be looked at as ‘historical entities’, and they even bear the potential—though this is contended by some authors—of revealing a ‘national character’ which corresponds with overarching or organising principles that are not necessarily shared by other countries (Allemann-Ghionda 2004, pp. 23, 51; Deissinger 1998). An important overarching issue, besides institutionalization, seems to be the social and economic understanding of various vocational pathways (Harris and Deissinger 2003), but also the evaluation given to TVET in general, which becomes clearly manifest when we look at the challenges imposed by the European Qualifications Framework. It is understood that countries which differ in terms of their TVET systems and underlying traditions, especially with respect to the relationship between full-time TVET and company-based training, also differ in terms of their capacity to adapt to the European TVET policy agenda, above all when it comes to National Qualifications Frameworks (Young 2003). Both issues will be picked up in the following.

This is especially true for the dual system which, in some countries at least, functions as a more or less traditional apprenticeship training system. Examples for this subtype are Germany, Switzerland, Austria, Denmark or the Netherlands. Even in Anglo-Saxon countries, such as Australia or the United Kingdom, apprenticeships, mostly with the additional label ‘modern’ or ‘new’, have been reinvented in the last two decades (Unwin 1999; Dolphin and Lanning 2011; Steedman 2010), welling up from reform ambitions to establish alternative routes into employment, besides non-formal on-the-job training, traditional school-based TVET programmes or higher education courses that can be too general to serve specific labour market expectations. Hence, in the field of TVET, we encounter a variety of ‘system solutions’, which are different because they follow a ‘national’ or ‘cultural logic’, which means that their manifestations ‘rest on historical foundations’ which have to be understood, among others, by looking at ‘macro-social processes on the one hand and concrete political and institutional contexts on the other’ (Busemeyer and Nikolai 2010, p. 504). A good example is the German dual system, which can only be understood with respect to the history of the late nineteenth century (Deissinger 1994), but also against the background of a specific ‘division of labour’ between the relevant stakeholders operating in the social market economy context of post-war Germany (Greinert 1994).

Against the background of cultural imprints which have left their traces in the structures and the underlying ‘mentalities’ in a given TVET system, it is also *the meaning of TVET* which can differ manifestly between countries, even if they belong to a common cultural sphere, such as Europe. According to Kell (2006) TVET (or VET) can mean...

- a specific pedagogical objective, which has to be realised against existing tensions between ‘education’ and ‘work’ or ‘occupation’ respectively,

- a descriptive term, which stands for individual learning arrangements and processes linked to the pedagogical objective mentioned beforehand,
- a product of such processes, which in some cases can be understood as possessing a holistic quality of competences,
- an overarching term for the organisation of technical and/or vocational learning in the typical strata of modern education systems, i.e. (i) as pre-vocational education at level secondary education I, (ii) as initial vocational education and/or training at level secondary education II, including workplace learning and/or apprenticeships as well as vocationally orientated courses in the higher education sector and (iii) as continuing and adult education.

The terminology and the essential characteristics of the various institutional settings in which TVET can take place normally differ although the term (T)VET has meanwhile entered the international debate, especially on the level of European VET policy, but also in the area of supporting developing and threshold countries to establish well-working TVET systems.

## 5.2 System Perspectives

Despite their cultural character, TVET systems normally are looked at in *institutional terms*, i.e. differences and similarities are associated with structure, institutional responsibilities, communication mechanisms between stakeholders, the role of government and companies or the specific kind of steering innovations and change within the TVET system (Deissinger 2009; Kell and Fingerle 1990; Rahn 2009). Hereby, the focus on ‘learning sites’ is a most relevant one, especially if one considers the wide range of research dealing with workplace learning—hereby indicating that learning in a real workplace setting in a company is seen, both economically and pedagogically, as a favourable setting of TVET. On the other side, there has always been criticism among scholars concerning the ‘hidden curriculum’, which seems to steer workplace learning alongside the specific reproduction interests of firms, whereas school-based TVET, being more closely linked to a manifest pedagogical understanding of learning has traditionally been the ‘favourite’ of TVET researchers, and—in particular in the German context—vocational education theory (Blankertz 1982; Blättner 1965).

In contrast, TVET in the UK or England respectively has traditionally been associated with workplace learning within the context of a ‘market model’ (Greiner 1988), which by no means implies that TVET is only carried out in companies and that it follows a more or less strong determination by purely economic considerations about the benefits of training measures. Two reservations have to be made: Firstly, the UK’s ‘outcomes-based’ approach to TVET (Jessup 1991) has led to more state involvement than ever before in the history of TVET in this country through a ‘very tightly regulated assessment and accreditation system that communicates (...) what is expected of the TVET system’ (Hayward 2005, p. 78).

Secondly, participation in school-based forms of learning in TVET has increased in recent years, partly due to dissatisfaction with both the quality of in-company training and the marginal role, the volatile quality and the lack of career relevance of apprenticeships in many branches of industry (Ryan et al. 2006).

Looking at TVET as a 'system' implies to differentiate between 'structure' and 'function' of the system architecture. Although it seems problematic to use the notion of a well-organised entity for existing social systems in general, or for education systems in particular (including the non-systemic character of the so-called dual system in Germany), it makes sense to stick to the term 'system' for pragmatic, but also for scholarly reasons: System theory helps us to understand the relationship between sub-systems in a given society, their interaction, their specific working principles and the way they establish a 'difference' between themselves and their environment (Luhmann and Schorr 1979). When looking at TVET as a system, the various levels on which it operates become relevant as well: TVET systems are not solely depictable on the 'macro level' (normally associated with institutions, structural features and responsibilities of the various stakeholders), but also need to be understood in their specific pedagogical and/or didactical quality. Kell even differentiates between four system levels, i.e. 'macro-', 'exo-', 'meso-' and 'microsystem'. In the case of TVET, 'macro' and 'micro' represent the structural framework and the learning processes, while 'exo' indicates that there are strong determining systems 'around' the TVET system, in particular the employment system and the education system, and 'meso' stands for the institutions in which technical and/or vocational learning takes place, such as schools or companies (Kell 2006, 460 ff.). It is evident that the links and the interdependence between these system levels render a given system a distinctive and unmistakable shape and quality in relation to other sub-systems.

Another most relevant perspective is looking at *pathways and working mechanisms* which determine the *transition from school via TVET into the employment sector*. A helpful description, which can be specified along the lines of how countries deal with the borders and boundaries between the various sub-systems as a major factor for transition within the education system, comes from 'threshold theory' which contributes to understanding the complex relationships between the sphere where competencies (skills and knowledge) are created (e.g. a school or an apprenticeship) and the sphere of application of these competences (e.g. a workplace or an occupation). This model makes a distinction between 'threshold one' and 'threshold two', each of which stands for specific problems of integration and progression respectively (Mertens and Parmentier 1982; Zabeck 1979). While 'threshold one' represents transition from general school education (e.g. a middle school in Germany or a comprehensive school in the UK) to TVET (e.g. an apprenticeship in the German dual system or a course in a TAFE college in Australia), 'threshold two' marks the borderline between TVET and employment. The problem for any international comparison arises clearly when suggesting that this model is a universal one. The current 'landscape' of traditional and innovative TVET pathways alone feeds doubts that we no longer can trust in a general analytical framework applicable to various national and cultural contexts.

The difficulty becomes especially apparent if one tries to understand the complex mechanisms linking up the education system with employment. The first reservation which has to be made refers to the different functioning of labour markets: While Germany, e.g. is still very strongly characterised by its ‘occupation-structured’ labour markets, which in substantial areas (machinery, crafts, commercial services) are interlinked with training occupations in the apprenticeship system, the UK or Australia have more ‘open’ unstructured labour markets, which also applies to the US with its strong tradition of both ‘internal’ and ‘unstructured’ labour markets (Doeringer and Piore 1971). This means that transition into employment and subsequent career pathways are more or less independent from formal qualifications and therefore rather result from membership to a company or the specific demands of a given workplace.

### 5.3 Comparative Perspectives

One of the most interesting issues in comparative TVET research is the function, and with it, the value given to *workplace learning* as an institutionalised setting of initial skill formation. In Europe, most countries have rather weak apprenticeship systems, which can be described as the traditional model of training for work and life in a company (Zabeck 2009, 414 ff.).

In contrast with countries such as Germany or Switzerland, Anglo-Saxon countries, such as England or Australia, try to cope with ‘historical deficits’ (Deissinger 2008a) and direct their political ambitions towards a systematic revival of the *apprenticeship system* (Ryan 2001). The schemes have become known as ‘modern apprenticeships’ (England) and ‘apprenticeships and traineeships’ (Australia). In both cases, training follows the overarching principles of CBT (competence-based education and training). Whereas in Germany, apprenticeships in the dual system can be described as a ‘mass education system’, countries like Australia and England suffer from the fact that they represent only one type of vocational learning among many, especially informal or weakly formalised tracks into employment/they are part of an ‘open training market’ where full-time and part-time and alternating models exist. Recent apprenticeship innovation policy has led to some kind of formalisation, e.g. through ‘training packages’ (Australia), or ‘National Vocational Qualifications’ (England and Wales). On the other hand, user choice, covering school-based and part-time apprenticeships and traineeships as well as formal training, makes it possible to run an apprenticeship in various modes, e.g. completely on-the-job or off-the-job or with an external training provider (Harris 2001).

Therefore, in contrast with the German type of dual training (Deissinger 2010), apprenticeships in the Anglo-Saxon world are organised in a much more open, volatile way, while weak process regulation obviously corresponds with the ‘competence-based’ approach in the area of skill formation and certification (Winch and Hyland 2007; Smith 2010). What matters here is demonstrated

competence in the performance of work tasks and no substantial educational attainments. In this context, learning on the job in a more or less formalised manner, is still the dominant way of acquiring skills outside the system of further education (a term used in the UK) or TAFE (Technical and Further Education), as it is called in Australia. Skills, in most cases, remain job-specific as they are not based on generally accepted initial training programmes (Winch and Hyland 2007; Ryan 2001; Raggatt 1988; Misko 1999; Hellwig 2008). The following quotation underlines the differences between Germany and the UK in terms of their respective ‘apprenticeship cultures’ (Deissinger 2008a):

A striking difference from Germany is the absence of minimum training periods, such as a three-year programme for bakers. Similarly, apprentices need not take part-time technical education, unless they are MA participants functioning under an NTO framework that requires it – and even then no general education is required. Indeed, „off-the-job“ training in a company training centre or with an external commercial provider is often enough to meet NTO requirements, despite concerns about its quality and relevance (...). The absence of process regulation reflects Britain’s „competence-based“ approach to skill certification. What matters in principle for NVQ certification is demonstrated competence in the performance of work tasks, and that alone. Educational attainments should indeed form part of that assessment if they are needed for competence, but are otherwise to be discarded as superfluous (...) (Ryan 2001, 136 f.).

When looking beyond apprenticeships, the German full-time TVET system is a good example for the multifunctional and multi-institutional character TVET can take. This also means that vocational schools basically serve *three functions* which may be intertwined depending on the course and the institution setting (Deissinger and Ruf 2006):

- *Vocational preparation* (mostly 1–2 years) which means enabling young people to go for an apprenticeship by improving their stakes on the training market
- *Further education* (mostly 2–3 years) which means leading young people to achieve a higher school qualification level (including, e.g., the university entrance qualification)
- *Vocational training* (mostly 2–3 years) which means leading young people to achieve a portable labour-market relevant occupational qualification outside the dual system.

In this chapter, I will focus on two research projects that help us to understand the peculiarity of how sub-systems of TVET function and also the difficulties, when it comes to changing institutional settings, objectives or curricular patterns of already existing TVET institutions (Deissinger 2007; Deissinger et al. 2011; Deissinger 2012).

The *first one* refers to the *different values societies associate with workplace learning as against classroom instruction in TVET*. Whereas countries such as France, Italy or the UK have a well established school (or college) based TVET system and find it hard to attract companies to train young people on a quality-minded base themselves (Ott and Deissinger 2010; Raggatt 1991), German-speaking countries do have strong apprenticeship systems which have survived the

time of intensified industrialisation in the nineteenth century. Against this background, in the German debate on TVET, there has always been an understanding that company-based and school-based training represent different pedagogical logics based on diverging paradigms of learning, while at the same time, vocational schools find themselves in a tension field between skill formation and progression to higher education as pedagogical objectives and legitimising patterns (Rahn 2009, p. 306). Whereas TVET in schools has been associated with a more or less unambiguous pedagogical intention and therefore not with a purely functional understanding of competence, apprenticeship training (and with it the vocational part-time school) is supposed to occur within an economic environment where normally a strong bias on non-educational purposes prevails. However, even for the curricula in the part-time vocational school a didactical understanding is crucial which puts the contents of the occupation besides additional general education on a regular and mandatory basis—quite different from the liberal attitude which characterises apprenticeships in England or Australia (Ryan 2001; Dolphin and Lanning 2011; Winch and Hyland 2007; Deissinger 2009).

Switzerland and Germany have similar TVET systems, although in terms of progression to higher education, the Swiss system, since the 1990 s, has proved to be more open and flexible than the German one since the introduction of the vocational baccalaureate (Gonon 2001). In contrast, Austria has a well developed apprenticeship system, while full-time TVET plays a major role in technical and commercial occupations. In the case of Austria and Germany, it also becomes visible that apprenticeships, though not exclusively, have their roots in the craft sector—in Germany, some 25 % of apprentices are trained in these firms.

When it comes to the UK or France respectively, apprenticeships seem to exist besides full-time TVET, and their relevance for skill formation indeed is strong on the political agenda, but not in reality: Both countries have been struggling for decades to put their apprenticeship systems back on their feet, but without visible success, even in a country like the UK where companies have traditionally exerted major influence in TVET policy. Both countries now seem dominated by strong state control although differences with respect to legitimising the role of the state still are quite remarkable. In Germany, in contrast, full-time TVET plays a minor role against the background of an over-mighty dual system (Deissinger et al. 2011), both loved and supported by the state, employers and trade unions alike.

Although there is no doubt that Germany's high level of educational participation in post-compulsory secondary education in the TVET system is mainly due to the apprenticeship system, both the latter and the full-time vocational schools face challenges which have both a national and an international dimension. Starting in the 1990s, besides globalisation and the changing nature of industrial work organisation (Baethge et al. 1998), Germany's reunification and a slackening economy put strain on the national budget, on the labour market and on the education and training system (Deissinger and Hellwig 2004). Against this background, modernisation issues emerged which stretch from revising existing training schemes and the introduction of 'learning fields' in vocational part-time schools (Bader and Sloane 2000) to the reform of curricula of full-time vocational

schools and thus also touch the relationship between full-time and part-time TVET. The state of Baden-Württemberg, which, like the other 15 German federal states, has its own education system, is a good example for illustrating that full-time TVET in schools is seen as a ‘second-class approach’, when it comes to labour market relevant occupational qualifications. On the other hand, vocational full-time schools certainly fulfil an important and unchallenged function as links between general and higher education. This ambivalence caused the government of the federal state of Baden-Württemberg to widen the practical elements in the curriculum of schools such as the vocational college (Berufskolleg). The ‘system character’ of the German TVET architecture was in so far challenged as vocational full-time schools should become more functional in terms of labour-market relevant qualifications.

Results from a research project into the benefits of practice firms (Übungsfirmen) in vocational full-time schools are revealing in terms of the difficulties of changing the TVET system. The research project was carried out between 2003 and 2005 and looked into the pedagogical and economic functionality of practice firms in the federal state’s commercial vocational colleges (Deissinger and Ruf 2006; Deissinger 2007). This problem required a broad research design which included the internal and the external perspective as well as presumed differences between the two principal stages of training in the vocational college respectively. Research was based both on qualitative (structured interviews) and quantitative methods (questionnaire). Some 1,000 students in vocational colleges and nearly 700 companies from different branches were requested to answer the questionnaires which, in the first case, focussed the didactical benefits of practise firms, such as their impact on student motivation and the perception of competence while working and learning. The company questionnaire was clearly on the acceptance issue, with its ‘system relevance’ on the macro level, both with respect to admission of graduates from vocational colleges to a chamber examination (which is the regular final stage of an apprenticeship) and the relevance of the assistant qualification for a subsequent apprenticeship or full employment (Deissinger and Ruf 2006, 60 ff.)

The research project looked, among others, at three aspects related to the ‘*internal functionality*’ of practise firms (Deissinger and Zabeck 2008):

- the degree of learning motivation of students in comparison to ‘normal’ lessons
- students’ perceptions of the teacher-student relationship in the practise firm
- the self-perception of students in regard to their competence development, especially with respect to social and communication skills.

The study suggested that the practice firm concept seems to feature both positive traits and problem aspects. While students reported a higher degree of motivation than in the classroom, the function of the practice firm in terms of simulating the world of work as realistically as possible obviously received ambivalent ratings from students.



The more politically relevant issue, however, was the question whether practice firms help to make school-based TVET more relevant to the world of work and therefore the assistant qualification more attractive to employers. This ‘*external functionality*’ (Deissinger and Zabeck 2008) had to be matched against the preponderance of the dual system. In this respect, employers still showed their reluctance or at least ambivalence towards full-time TVET: While big industrial companies mostly refuse the assistant qualification, smaller and especially craft firms seem more prepared to accept school-based qualifications, above all when it comes to hiring a young person for a commercial function. On the other hand, a clear majority of firms see, even if they concede that practice firms could be reasonable alternatives to classroom teaching, the ‘socialisation function’ of an apprenticeship as more relevant and valuable for skill formation and job preparation. It also became clear through the project that companies generally are reluctant to accept the first year of the vocational college (BK I) as a real substitute for the first year of an apprenticeship.

It seems that the function of vocational colleges is currently considered to become even more strongly linked for entry into higher education rather than to the purpose of delivering labour market qualifications. Within the scope of the above-mentioned research project, it becomes clear that the ‘academic aspirations’ of students with an intermediate secondary school leaving certificate are best satisfied by vocational colleges. Another very important motive of students for the attendance of a vocational college seems enhancing their own prospects of successfully entering apprenticeship training afterwards (Deissinger and Ruf 2006, p. 169). Most graduates of this vocational full-time school aspire to take up subsequent vocational training in a company, i.e. through the dual system. This means that students realise that the vocational college does not stand for the achievement of a portable labour-market relevant occupational qualification outside the dual system (ibid., 168 f.).

One consequence underlines these tendencies: In Baden-Württemberg, the state government has meanwhile adopted a ‘realistic’ attitude when it comes to the issue of portable qualifications through a vocational college course. Since 2008, the assistant qualification has ceased to be the regular qualification at the end of the 2-year course. In contrast, the polytechnic/university of applied sciences (Fachhochschule) entrance qualification can be achieved by all students without attending additional classes or taking additional subjects. This political step also reveals that cooperation agreements between industry and the state work only when companies can benefit from it. For this purpose, in a number of vocational colleges in Baden-Württemberg, curricula have been aligned with 3 established dual system occupations in the commercial sector (Noack 2011). In the face of a dooming quantitative skills gap at the intermediate level in Germany, companies could become more interested in young people who already have pursued some steps in the vocational school system before applying for an apprenticeship.

The *second example* from research is associated with an European perspective by looking at structures and functions of so-called ‘hybrid qualifications’ (HQ). In this context, the issue of permeability, as a typical European one, focusses the

structural links between different educational sub-systems in a given country. Especially, permeability between vocational and general education has emerged as a major focus of European education and training policies and one of the objectives of the EQF. Permeability and progression in this context mean that vocational qualifications should also bear an educational value as such and should, both formally and informally, enable graduates to proceed to higher education. Some countries in Europe, including the UK, France, Austria and Switzerland, have developed structures of ‘hybridity’, although this does not necessarily mean that the political intention to establish a more diversified and multifunctional TVET system coincides with the traditional pattern of TVET in the various countries (Deissinger et al. 2011). Hereby, ‘hybrid qualifications’ have a ‘hub function’ as they prepare for qualified entrance into working life (in the sense of TVET) and open access to higher education.<sup>1</sup>

In the European context, which includes new approaches to assessment such as RPL (recognition of prior learning) or APL (accreditation of prior learning), *four issues* may be identified as especially relevant for a tradition-based TVET system such as the German one, where apprenticeships have been the long-standing successful mode of integrating young people into skilled employment. Nevertheless, spin-off activities are currently on the way for establishing a German Qualifications Framework (DQR), the first draft of which was published in February 2009. With it, came a number of issues onto the educational agenda which have a strong ‘innovative’, though at the same time, ‘controversial’ character and once again touch the ‘system issue’, both on the micro and the macro level:

- The transfer of an European understanding of competence determining the EQF has to be transformed onto a national semantic level, i.e. there is need to come to terms with the specific national tradition and use of ‘competence’, which, for e.g. in Germany can be described as ‘holistic’ rather than ‘functional’ (Westervhuis 2011). Besides, a ‘competence matrix’ has to be established featuring vertical differentiation in reference levels and horizontal differentiation with respect to various competence dimensions.
- The second issue refers to the description of the matrix units which result from the eight levels and three competence dimensions (knowledge, skills, competences) making up the basic structure of the EQF, while the German framework has now been presented with four competence dimensions (technical competence, methodical competence, social competence, personal competence).
- The third issue deals with existing ‘qualifications’ (certificates) within the national matrix. This means that qualifications (which are normally strongly input-steered as they are based on training times, curricula, examination modes etc.)

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<sup>1</sup> ‘Hybridity’ was the topic of a recently completed EU Leonardo Project entitled ‘Hybrid Qualifications—Increasing the value of VET in the context of Lifelong Learning’ (2009–2011), in which the author participated. Partners in this project were: Alison Fuller (University of Southampton, UK), Josef Aff (Vienna University of Business and Economics, Austria) and Christian H. Jorgensen (University of Roskilde, Denmark)—see also Deissinger et al. 2013.

have to be translated into notions of competence, which have to be aligned with the various levels of the DQR.

- The fourth issue certainly is the most demanding one: Competences that are not normally bundled as qualifications have, in a strong European understanding, to be linked with the levels and range of matrix units that make up the framework. This issue, however, only seems solvable once the unique positioning of existing qualifications is being questioned and/or relations are being established between the ‘regular’ and the ‘irregular’ system of entitlements (including, of course, further training and, above all, the field of informal and non-formal learning).

It becomes clear that the European issue of ‘progression’ is closely linked with the specific internal structures of national TVET systems, which we also have referred to when discussing the different values of full-time school-based TVET and apprenticeships. Apprenticeship countries seem further away from these ‘modern’ issues and policy objectives than countries with either a strong focus on generalised, school-based vocational learning or those where TVET is obviously more located within higher education. The unique positioning of apprenticeships in Germany, on the one hand, has traditionally provoked criticism with respect to the organisation of vocational training and general education ‘according to separate criteria and systems of assessment’ including ‘limited possibilities for progression between them’ (Young 2003, p. 228; Baethge 2007). On the other hand, it may be argued that academic and (non-academic) vocational pathways, in the German case, are well rooted within disjunct, but interdependent sub-systems and that their mutual interaction obviously contributes to stabilising the ‘vocational track’, and with it the TVET system as such, in a stronger way than in other countries (Deissinger 1998).

## 5.4 Methodological Perspectives

There are a number of approaches in comparative research which help us to understand differences and similarities between national education and/or TVET systems by classifying types or models. In the field of *comparative political science*, the study of education systems is closely linked to the ‘character’ of the (welfare) state by looking at ‘how, why, and to what effect different governments pursued particular courses of action or inaction’ (Heidenheimer et al. 1990, p. 3). Research here primarily concentrates on finding out what distinguishes ‘education regimes’ and whether there are ‘clusters’ or ‘families of nations’ which help us to understand the basic mechanisms and impacts of state regulation and interference through variables such as public spending, the distribution of funds between different educational sub-systems or the relationship between social and educational spending (Busemeyer and Nikolai 2010). Hereby, comparative policy research also refers to indicators that are used in the traditional TVET literature, such as aspects of division of labour between state and private stake-holders, the kind of

organisation of TVET, especially vocational training, curricular variations between types of schools or segregation of educational tracks (ibid., 499), but also the ‘deep connection between education and democracy’ (Busemeyer and Trampusch 2011, p. 418)—which certainly has relevance for vocational education, too, if, e.g. one looks at the involvement of non-state stakeholders in the dual system of Germany and the way training regulations come into existence (Deissinger 1996). Clustering shows that three ‘groups of countries’ can be identified: Nordic countries, English-speaking countries and Mediterranean countries. Germany and Austria, hereby, can be assigned to form a specific sub-cluster among Northern European countries with low shares of private spending in general and tertiary education, a high share of citizens with at least an upper secondary qualification, and ‘a strong emphasis on vocational training’ (ibid., 501). It also becomes clear that Northern European countries, including France, Belgium and the Netherlands, are much more heterogeneous compared with the Mediterranean cluster: Here we find strong substantial similarities, e.g. with respect to the level of upper secondary education which ranks ‘well below the OECD average’ (ibid., 502). Criticising existing concepts as too broad, Busemeyer and Trampusch pick up the line of arguments of this stream of comparative policy analysis by referring to the issue of skill formation, in particular. Their terminology distinguishes—drawing from the concept of ‘varieties of capitalism’—between ‘varieties of skill formation’ (Busemeyer and Trampusch 2011, 424 ff., 2012, 8 ff.), namely ‘collective skill formation’ (German speaking countries), ‘liberal skill formation’ (e.g. UK, US), ‘statist (state-run) skill formation’ (e.g. Sweden, France), and ‘segmentalist skill formation regimes’ (Japan as a prominent case), using two dimensions (or criteria) of variation ‘that are helpful in describing the variety of skill regimes’: i.e. the ‘degree of firm involvement’ and the ‘degree of public commitment to vocational training’ (ibid., 12 ff.).

*Other methodological concepts* in TVET also argue on the basis of ‘regulation’ or ‘steering’ mechanisms as crucial comparative criteria, which sometimes can lead to reductionist views, above all with respect to the function of the state (Greinert 1988, 2008; Deissinger and Frommberger 2010; Deissinger 1995). Greinert’s distinction of three basic models of TVET (market, school-based, dual) places the focus on institutional responsibilities, cooperative structures and the role of the state in shaping a TVET system (Greinert 1988). This modelling of the ‘character’ of TVET systems looks at initial training in the first place and does neither fully pay tribute to the complex relationships between different sub-systems of TVET within a specific national context nor to the curricular and didactical dimension of vocational learning.

Therefore, one can maintain that many concepts that exist in comparative TVET system research primarily focus either the institutional (especially state or government) dimension or they focus on the basic relationship between state and markets. From a pedagogical perspective, this present state of the methodological debate is far away from being satisfactory since didactical issues and the underlying cultural imprints of what learning and teaching in TVET means in the various countries run danger of being forgotten or neglected.

It is obvious that a better understanding of this important dimension of TVET requires wider concepts with new criteria and/or dimensions for comparative research. It has to be greeted that the curricular dimension of TVET has recently been picked up by Frommberger, starting off with a comparison of Germany, England and the Netherlands (Frommberger 2004). Frommberger (2012) points to three broad trends in curriculum development across Europe (which could also be used as criteria when it comes to researching the micro level of TVET), namely ‘the structure of the curriculum’ (including the range and intensity of modular approaches), ‘the steering logic underlying the curriculum’ (in particular the paradigm change from ‘inputs’ to ‘outcomes’), and ‘the pedagogic-didactic approach embodied in the curriculum’ (which implies the issue of commitment to learner-centred training and instruction). In a similar formal way, both the concept of ‘qualification styles’ (Deissinger 1995) and the notion of ‘learning cultures’ (Harris and Deissinger 2003) try to remedy the fact that comparative research is too much focussed on institutions.

‘*Learning cultures*’ or ‘*apprenticeship cultures*’ imply the notion that comparative criteria should be defined, that direct our view to differences not just to the organisation and institutional settings of TVET, but also to the didactical and curricular steering, the relevance of TVET for career and life perspectives of young people and the estimation for education and training beyond higher secondary education in schools and tertiary education. However, the primary purpose of comparative studies, in most cases, is to refer to the ‘system dimension’ without asking for the ‘backgrounds’. The latter methodological extension may be called a ‘multi-level’ approach (Schriewer 1987). The concept of ‘learning cultures’ represents such an approach since it offers a methodology composed of five dimensions which widen the research perspective to cultural and societal issues. In the following, these criteria will be illustrated by focussing Germany and Australia as two countries with different cultural imprints and realisation patterns of TVET (Harris and Deissinger 2003; Deissinger 2008b):

- *Strength of, and respect for, vocational education*: This dimension refers to the value given to TVET in a specific national context, including learning in the workplace, within or without an apprenticeship. It is obvious that the selection mechanisms of general education and the range of opportunities of young people to proceed to higher education have an impact on this facet of a TVET system. In the UK and Australia, vocational tracks have traditionally been regarded much lower in value than alternatives in general and higher education, partly due to the structural weaknesses of work-based learning, but also due to a mental and institutional divide between education and training. In Germany, as already mentioned, neither the institutional extension of full-time vocational education nor the critical educational movement, with its basic criticism of the ‘Berufsprinzip’ (occupational principle) during the 1960s and 1970s (Deissinger 1998, 25 ff.) succeeded in really weakening the dual system. Apprenticeships are still culturally and economically stronger than in most other countries in and outside Europe.

- *Knowledge and understanding of vocational pathways:* The dual system with its 'recognised skilled occupations' still takes up more than half of all 16–19 year olds. Unlike in most other European countries, with the exception of Austria and Switzerland, apprenticeships in Germany exist in nearly all branches of the economy, including the professions and parts of the civil service. Small- and medium-sized companies are significant contributors to training opportunities. Apprentices can undertake formalised training independent of their educational background (and even grammar school leavers find occupational training attractive). In Australia, vocational pathways are poorly understood, except in families with an apprenticeship experience. The introduction of traineeships, introduced to encourage early school leavers to enter the workforce and obtain skilled training, and of New Apprenticeships in the late 1990s (Harris 2001), though for the purpose of flexibility, has tended to make understandings of apprenticeship even less clear.
- *Financing of VET:* In Germany, training takes place following the mechanisms of 'a suppliers' market' (Greinert 1994, p. 80), which resembles the more liberal market regimes of the UK or Australia. However, once a training contract has been signed, this means that companies are fully responsible for the quality of the training process. At the same time, one can observe a creeping 'pluralisation' of TVET alternatives outside the dual system, with the 'transition system' as one of the central political building sites of the country. It is also interesting that Australia has been strong in terms of its welfare tradition, initiated as a result of and reinforced by the specific character and size of the country (Münk et al. 2008). Nowadays, employers can receive government funding for training on a large scale. Here, a clear parallel to the UK becomes apparent (Dolphin and Lanning 2011) as 'new' forms of apprenticeship training are linked to a strong financial steering function of the state while 'traditional' apprenticeships have always been a matter of employers.
- *Prime focus of apprenticeships:* The German apprenticeship system may be described as a 'system of training rather than a system of employment', with wages (training allowances) 'that are far lower than adult rates and apprentice rates in Australia' (NCVER 2001, p. 39). Training allowances are the result of collective bargaining without loading too much burden on employers. As the apprenticeship system is seen to be neither part of the school or education system nor a normal sphere of work, the 'system reference' here clearly refers to high quality training and recruitment for intermediate functions in commerce, industry and the craft sector. In Australia, the historical function of apprenticeship has been to train artisans, and this includes both the traditional crafts and the more contemporary trade occupations. Recent changes in the system, also using CBT and 'training packages', have underlined the general approach to training and have helped rise the numbers of apprentices (Smith 2010).
- *Quality assurance of in-company training:* In Germany, apprentices enter a special training contract which is subject to the 1969/2005 Vocational Training Act (Deissinger 1996). As a compromise, the Act did not instal a new training system including the vocational school, but mainly 'consolidated much previous

practise under one Act' (Raggatt 1988, p. 175). The contribution of the Vocational Training Act to systematising and standardising the course of training can be seen in the indenture, the degree to which skill requirements of trainers have become formalised and to the quality-mindedness which characterises both school-based and company-based vocational training. In Australia, critical observers maintain that, with the implementation of training packages in the 1990s, quality assurance has been removed from the VET system. CBT, as mentioned above, which follows a different philosophy', in contrast to the German 'occupational' concept, seems to be responsible for a training organisation which still is mainly 'employer-led' (Harris 2001).

## 5.5 Concluding Remarks

For a clearer and deeper understanding of how TVET systems work, both in social, economic and pedagogical terms, it seems necessary to combine various approaches from various disciplines (education science, political science, economics, history) that deal with classifying and distinguishing these entities. Also, at least from the German perspective, which focuses TVET manifestly, it also seems sensible to widen the cultural perspective to issues of learning and teaching, without losing track of a more institutional perspective, which is typical for economists or political scientists. One of the research gaps, on the one hand, certainly is looking more closely to the way curricula are made, including the underlying pedagogical and didactical understanding. Teacher training, on the other hand, also appears as a scholarly field in which more comparative research is needed, including the culturally determined differences of its social value and status, as well as the national peculiarities of educational thinking and underlying traditions still waiting for an in-depth analysis.

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