



Tools and means to understand different TVET models in developing countries: An approach to the epistemological opening up of international TVET in development cooperation

Stefan Wolf¹

Abstract

The topic of my text is a critical reflection on concepts used in international comparative technical vocational education and training (TVET) research to analyse initial and continuing vocational training in other countries. Specifically, when cooperating on developing and transferring TVET policies, the challenge is to quickly understand the diverse concepts of skills development and TVET in the respective partner countries. Firstly, we must consider the varieties of skills development and TVET models; secondly, we must regard them in their respective contexts. Therefore, I will offer a brief presentation of typologies used in development cooperation to break down the characteristics of vocational education and training in different countries. The main emphasis, however, lies on the heuristic analysis concept of work culture in the context of existing qualification and skills development models. A case study of its use as a heuristic will be critically discussed, the central questions being the scope, limitations, problems and strengths of this tool. The conclusion is that the analysis concept is still too demanding for routine use in development cooperation and needs to be revised by means of a detailed questionnaire and a work guide.

1 Introduction

International cooperation with developing and emerging countries has been a focus of German international policy since the emergence of development politics as a political field in the late 1940s, and then increasingly since the 1960s. Until the late 1990s, the main emphasis was on cooperation in the technical vocational education and training (TVET) domain. Until this point, Germany has been working hard — for decades and in different programmatic forms — to implement the

1 Dr. Stefan Wolf, Institute for Educational Science, TU Berlin, e-mail: s.wolf@tu-berlin.de

dual vocational training concept, which was perceived as the most successful model for developing and emerging economies (Stockmann 2014).

The efforts to transfer German dual vocational training to developing and emerging countries have shown very little evidence of success over the decades; as a result, the programme has been made more flexible, taking a step back from the transfer of the German dual TVET system (Gold 2005).

A decisive success criterion for these activities is to know and understand how TVET works in the respective developing and emerging economies. As we know from the analysis of classical European vocational training models, the form in which TVET takes place is a historical but nevertheless contingent result of social, economic and political processes and thus deeply anchored in societies (Greinert 2017).

Any attempt to understand ‘foreign’/‘alien’ vocational education and training faces a principal challenge: we tend to base this exploration on comparisons intended to simplify orientation. The other possibility is to retreat into the familiar, into what is generally accepted to be right, common sense. Both mainstreaming approaches are problematic, especially when dealing with developing and emerging countries, for the following reasons:

1. Comparisons tend to adapt the seemingly strange, the ‘other’, to familiar patterns of thought and to evaluate it according to one’s own standards. This always involves mutual misunderstandings and misinterpretations. (Georg 1997). Translation cannot quite do justice to specialist terminologies, since TVET concepts are closely linked to the conditions within the country (see Bosch 2016). For example, the German term of ‘Lehrlingsausbildung’ is far different concept as e.g., the English term ‘apprenticeship’ or the French term ‘apprentissage’, and if we use simple translation we will not meet the different concepts in the different countries and will fail to understand each other.
2. Unfortunately, the recourse to what is generally regarded as the right approach, the ‘common sense’ of international development has a very limited capacity to provide insight into TVET practices in developing countries. The idea of that ‘common sense’ of international vocational training in the context of development cooperation has emerged from the interaction of two interest spheres: on the one hand, the state administrations of developing countries — and on the other, the major development agencies (World Bank, Gesellschaft für internationale Zusammenarbeit [GIZ], United States Agency for International Development [USAID], etc.) of the global North with their action and policy agendas pursued since the dissolution of the colonial empires in the 1960s. Little reference was made to the specific conditions of the developing countries. The plan was a development path towards the replication of the

‘Western development model’, with vocational education and training making an important contribution through the provision of the human capital for growth (Georg 2006). In most of the developing and emerging countries, for example, we find a formal, school-based TVET system governed by state bureaucracy. In many countries, its quality is quite low.

This state-bureaucratic vocational training is presently being reshaped by Western development agencies, which want to transform it to a demand-oriented, flexible training model relevant to employment and the labour market — without, however, abolishing school-based, state-bureaucratic control. However, these reshaping concepts of the global North changed over the decades but were subject to historical economic trends and most developing countries have followed these different trends. In scientific literature, this mechanism is discussed as ‘imposed vocational training transfer’. Essentially, only those developing countries that began to build up their own academic and administrative capacities and TVET expertise at an early stage (partly with the support of German universities) — such as South Korea, China and Malaysia — were able to escape this trend.

Because of the limitations outlined above, both mainstream approaches to ‘foreign’ TVET require critical reflexive distance consisting of sensitivity to difference and an ethnographic view (Hüsken 2006; Thole 2010). In addition, there needs to be a change of perspective, one that takes into account the “terminology of the country of comparison” (Georg 1997, p. 5.) and attempts to explore the context of its vocational training institutions.

This is the only way to gain access to an understanding of the intrasocietal connections between vocational training measures and organisations, on the one hand, and other areas of society (such as company recruitment and personnel policy, labour market and career structures, industrial relations, etc.), on the other. (Georg 1997, p. 5)

This ambitious programme to do proper comparison in development politics also requires a theoretical foundation for analytical approaches. It needs a way to understand and communicate the highly complex and often difficult to grasp observations, experiences and perceived realities of ‘foreign’ vocational education and training and to avoid to above sketched simplifications. We propose to rely on two different sources of support:

Firstly, on *typologies of TVET models*, as these allow a comparison to be made using a tried and tested analysis frame, while at the same time permissibly simplifying the complex characteristics of VET for easier communication in an acceptable way. Secondly, in order to understand the above-mentioned ‘intrasocietal connections’ on a below level or meso-level, it makes sense to turn to the *concept of work culture*.

The latter also makes it easier to understand unfamiliar forms of vocational education and training resulting from interrelationships with social subfields. Moreover, it can be used in specific economic sectors, such as tourism or agriculture, to understand the prevailing modalities of education and training. At the same time, the *concept of work culture* could help make plausible assumptions about the effective further development of TVET.

2 Internationally comparative vocational education research: The typologies

Various scientific disciplines have produced numerous international comparative TVET typologies. From this plurality, the present article concentrates on two typologies. It does not claim to explore the full scope of the existing typologies for facilitating communication and understanding of TVET in cooperation with developing countries. In particular, the paper aims to highlight the need for further study of scientific typologies as tools for facilitating understanding of TVET models in development policy.

1. The typology of the ideal types of the classical European vocational training models by W.-D. Greinert, which emerged from a cultural and socio-historical reconstruction of the solutions to the labour force qualification problem in the three European countries Germany, England and France during industrialisation, sheds light on the social regulatory patterns of a society, understood as a social and culturally founded basic current, analogous to Chomsky's generative grammar, which enables the members of society to get along, which is 'good vocational training'. This basic current stabilises the paths of development and at the same time indicates the direction. Greinert's typology clarifies that the paths of development can neither be pursued randomly nor by state or technocratic intervention.
2. The typology of Busemeyer et al. is based on a long research tradition: the comparative political economy of Western welfare states research. It illuminates the design of skills formation systems in initial vocational training through the interplay of business involvement and public commitment.

3 The ideal types of the classical European vocational education models

W.-D. Greinert's concept reformulates the three classical European vocational training models (Greinert 2003; Greinert 2005; Greinert 2017) as ideal types following M. Weber's (2006) analytical approach to the study of society. In his

historical analysis, Greinert (2005) formulates the concept of social regulatory patterns — basic trends or currents that control the development of qualification for employment models. In reality, especially if one takes a detailed look at specific economic sectors or areas of society, alternative regulatory modes can be found in addition to these ideal types (Deißinger 2003). In developing countries with a strong school-based state bureaucratic model, for example, there is also predominantly tradition-based informal mass education (e.g., in Egypt or in many countries south of the Sahara) or we can find in developed countries the real types of German dual apprenticeship or the French alternance model for craft education.

Speaking of control and regulation concept, Greinert asks: “What makes communication partners in the social action system of **vocational education** follow regulations and accept similar patterns of interpretation of their actions?” (Greinert 1995, p. 31, highlighting in the original). His answer is that the social problem can be solved by referring to regulatory patterns.

Regulatory patterns provide a meaningful basis for understanding and establish the legitimacy of social actions. Thus, they facilitate the coordination of complex interactions in a social sub-sector, i.e. TVET or qualification for employment:

The values, norms, attitudes, beliefs and ideals of a society influence the development of vocational education and training systems, work organisation and industrial relations, as well as the more or less stable interrelations of nationally specific qualifications for employment with other social subsystems such as the general education system or the various regulatory patterns of the employment system. (Greinert 2003, p. 281)

Through these regulatory patterns, members of society can then easily agree on what constitutes successful or unsuccessful TVET. Thus, a ‘common sense’ on vocational education and training has been established from the historical process.

With this approach, TVET studies open up a meaning-oriented, socially constructive understanding of culture in its comparative analyses of vocational qualification (Reckwitz 2011).

This assumes a ‘contingency of human life forms’ constituted in systems of meaning. The systems of meaning, in turn, arise from the given historical conditions and necessities in a social process, i.e. the human life forms are consequently “normal, rational, necessary or natural ... in relation to their specific, contingent systems of meaning” (Reckwitz 2011, p. 8).

As a result, the dichotomies or normative settings as postulated by modernisation and political development theories, e.g., between modernity and tradition or conception of teleological ends of the social process, are then consequently obsolete. From a historical comparative perspective, Greinert has identified and described three basic types of classic European vocational training models:

1. In the regulatory pattern of the *tradition* type, ‘traditional, customary legitimate activities’ determine vocational education and training.
2. In the pattern of the *market* type, vocational training is ‘directly determined by the production factor labour and qualification signals from the labour market’ and at least
3. In the pattern of the *bureaucracy* type, vocational training is regulated ‘exclusively on the basis of legal regulations by the state or its bureaucracy’ (all quoted by Greinert 1995, p. 32).

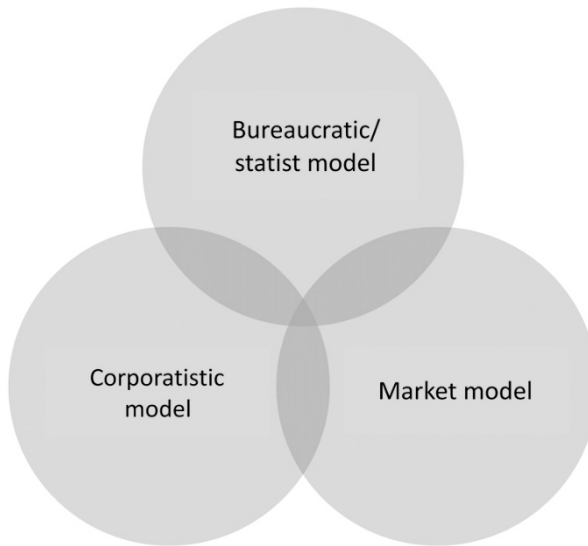


Fig: 1: Ideal types of the classic European TVET models

(Greinert 2017)

In the historical differentiating of the three modern industrial states, the relationship between labour, capital and education can be analytically separated as followed:

In Great Britain, the relationship between labour, capital and education can be described as dominated by the primacy of the economic, in a model of market relationship.

In France, the relationship between labour and capital is dominated by the primacy of the political. The structurally disadvantaged labour force is qualified by an education sector (including vocational training), which is regulated and

financed by the state. The labour force encounters capital in a state-regulated framework.

In Germany, the primacy of the social is dominant. The relationship between labour, capital and education is marked by the mediation of intermediate organisations such as chambers of commerce or associations. Relationships are shaped more in a social negotiation process and less in a contrast or conflict, as in the other two models (see Greinert 2005).

The regulatory patterns described above as the basis for cultural understanding in complex social interactions can be assigned specific legitimisation principles derived from the European history of ideas. These are the three principles that create social stability and regulate social activity: “Tradition (or the professional principle) — liberalism (or the market principle) — rationalism (or the scientific principle)” (Greinert 2005, p. 15).

The corporatistic vocational education model is derived from the principle of tradition, since it is oriented toward agreements and patterns of activities handed down from generation to generation. In this model, we usually find associations (business and trade associations, trade unions and workers’ associations) which will extend classical communities. In Germany, they have a legal basis, but this is not the only possible approach. They can also function as tradition-based, informal structures shaping the respective qualification for employment, as can be found in the Egyptian construction industry (Assaad 1993) or in bazaar training in Afghanistan (GIZ 2013).

The market TVET model is based on the principle of liberalism and builds on the market rules of supply and demand. With the implementation of the capitalist economic system, providers of qualifications (employees) exchange themselves on a labour market with demanders for work services (entrepreneurs) on the basis of the exchange ratio of qualifications for wages. We encounter this type in different forms in all capitalist modes of production.

The principle of rationalism is to be found in the bureaucratic-statist TVET model. In the process of modernisation, bureaucracies have spread widely, developing into rational modern state apparatuses and large enterprises (Weber 2006). We find this type of TVET in state-organised vocational school models worldwide, since the European idea of a bureaucratically rational state administration based on scientific principles has spread internationally via colonialism and development policies (Eckert 2005; Quijano 2010). In developing countries, vocational education and training is usually organised in this bureaucratic form.

The regulatory patterns and legitimisation principles operative in TVET, as well as their interactions with other areas of society (Lutz 1991; Maurice et al. 1980), give structure to the social understanding of shaping the qualification for employment. However, they are not iron cages that determine the behaviour of

social actors in relation to qualification for employment. Rather, they function as framework conditions that are partly determined and partly determinative (Wolf 2018).

4 A comparative political economy typology: Skill formation systems

The second concept comes from comparative political economy. Comparing the relationships between states and enterprises in initial TVET development internationally, this discipline distinguishes between different skill formation systems. In the genesis of this approach, German TVET was of particular relevance (Hansen 1997; Thelen and Bussemeyer 2011). Using it to supplement Greinert's concept can help understand foreign modalities of vocational education and training.

Derived from comparative political economy, the concept focuses on the political design of TVET as part of economic activity. It illuminates the relations between companies and the state.

International comparative political studies — in particular, on the varieties of capitalism (Hall and Soskice 2001) — clearly indicate the structural possibilities for the development of qualification for employment (Bussemeyer and Trampusch 2011b; Thelen 2003).

In general, these studies distinguish between liberal forms of the market economy and those which are characterised by a greater degree of organisation beyond the market rules — the so-called coordinated market economies. The former include the U.S. and Japan; among the latter, there are Germany and the Scandinavian countries. The diverse literature on this research (for an overview, see Bussemeyer and Trampusch 2011a) clearly shows the development of very different concepts of qualification for employment.

This concept distinguishes between different forms of initial qualification for employment, i.e. initial training. In liberal market economies, market-based training activities for qualification for employment can be analytically distinguished into two models. In the liberal model, companies generally invest little in basic training, recruit on the basis of the cognitive and social skills imparted by the general education system and then organise task- and company-specific induction training or other forms of on-the-job-training to cover their qualification requirements (Wiemann et al. 2018). In this type, the focus is often on academic education. It should be noted, however, that with this type of skill formation there could also be variations that do not have an extended and qualitatively attractive higher education, as in some countries of southern Europe or in many developing countries. This case is described as the “the residual model” (Bussemeyer and Schlicht-Schmälzle 2014, p. 57).

Tab. 1: Various possibilities of organising TVET in advanced industrial democracies

<i>Public commitment to vocational training</i>	High	Statist skill formation system e.g. France, Sweden, ...	Collective skill formation system e.g. Germany, Denmark, Austria, Switzerland, ...	Cooperative model of TVET (market/state interplay)
	Low	Liberal skill formation system e.g. USA, Great Britain, ...	Segmentalist skill formation system e.g. Japan	
		Low	High	
		<i>Involvement of companies in initial vocational training</i>		

(Author’s own compilation, based on Busemeyer and Trampusch 2011b, p. 12)

Using Japan as an example, K. Thelen (Thelen and Kume 1999) points out an alternative to the liberal form — namely the segmental form, which relies on greater investment by companies in initial training. Here, companies train people for their own recruiting interests and internal careers. It is important to clearly distinguish this from the collective concept: in Japan, large companies only take care of their own requirements when teaching trainees. They do not consider their whole sector, e.g., the automotive industry.

Coordinated market economies exhibit cooperative forms of qualification for employment. Here, too, two different forms must be distinguished. Germany is exemplary for the collective form. It is characterised by high commitment to continuous training activities — beyond the immediate requirements — on the part of companies, even the smallest ones. In the collective model, industry associations usually find common solutions to overcome the weaknesses of training activities by individual companies, such as poaching by non-training competitors or risky, high-investment training costs. Through the social and economic recognition of training qualifications, the certificates gained can be used on the general labour market, and not only for internal promotion within the company. This validity ensures the mobility of employees and facilitates recruitment by companies (Thelen 2003; Thelen and Busemeyer 2011).

Another cooperative form that can develop in coordinated market economies is the state form of initial qualification for employment. Such qualifications are

often organised as school-based TVET models, provided that the public sector invests in training and is strongly committed to regulate and organise it (Busemeyer and Trampusch 2011b, p. 12). Clearly to say that the school type of vocational training is here not the differentiation criterion as we can also find it in liberal market economies. But mostly public school forms exist there to smaller extent, with low public commitment and regulation power and often work as private business service provider.

In most developing countries, we are facing a mixed form, as we find a formal, state-run vocational training system there, which would correspond to the statist model. At the same time, however, the lack of economic resources and the low societal interest in formal qualifications for employment leads to a reduced material (often contrary to the statements in official policy papers) involvement of the public hand at all levels (secondary, post-secondary and tertiary) of the education system, so that we can call it a residual model.

5 Bridging the two perspectives of the typologies

Although the two typologies originate from completely different scientific disciplines and very different analytical concepts, we can state that a connection can be established between the social regulatory patterns formulated by Greinert (2017 etc.) for the governance of TVET on the one hand and the typology of skill formation systems on the other. We can dare to link them and thus establish an analytical heuristic, thereby facilitating an understanding of TVET models in development cooperation.

We can conclude plausibly, since the specific regulatory patterns open up very specific and limited possibilities of what an understanding between the state and companies can look like in initial vocational education and training. By creating legitimacy for social action, they create a framework that also enables the coordination of complex interactions and facilitates compliance with regulations without direct instructions, as they provide meanings and a sense of social action.

Thus, in societies whose regulatory patterns of vocational education and training are characterised by liberalism and the market, we will find predominantly enterprise-based, liberal models of 'initial education'. There, an organisational space is created in which the rules of supply and demand and the competitive interests of companies dominate.

The Japanese model of employment qualification, which, as already mentioned, differs from the liberal model in its segmental character, with companies tending to invest more in 'initial training', can be understood by combining a liberal attitude and market-based mechanisms with traditions. Thus, we find in the example of the company Toyota a clear connection with the modern, invented

tradition from the shogun realms of Japanese history and the attitude of the samurai warriors in business practice (Lorrinan and Kenjo 1994; Ohno 1988).

The regulatory pattern of rationality and the state bureaucratic design of vocational training, which according to W.D. Greinert forms the basis of the French ideal type, can be found in the etatist model of the skill formation system, which is characterised by a high level of state involvement and low company activity in initial training.

The collective model is based on the regulatory pattern of tradition, which, however, is associated with the primacy of the social, and prefers collective bargaining between social actors to regulate social interaction rather than market mechanisms and bureaucracy.

With the help of the typologies presented here, we can discuss the characteristics and development prospects of TVET on the macro level and could reach shared understanding — despite the cultural limitations of our conceptual apparatus. When communicating with experts from developing and emerging countries, it should be borne in mind that these two typologies are derived from scientifically examining the past and present of the industrialised countries of the global North. Uncritical or unreflected transfer should be avoided in order not to end up in the epistemological impasse of propagating a colonial perception (Melber 2000) of the TVET reality in developing and emerging countries. We believe that international TVET research will evolve toward a post-colonial ethnography of TVET models in developing countries as a methodological solution for overcoming the indicated limitations.

6 Work culture as an analytical instrument to shed light on the societal aspects of TVET

The here proposed approach of a research perspective using selected analysis tools of the typologies of TVET for the evolution of a post-colonial ethnography of international TVET in development cooperation explores the interdependence of qualification for employment at the macro level of social phenomena. This consideration can be made more precise at a lower, the meso-level by using a supplementary analytical instrument. It is based on the analytical approach of W.-D. Greinert, but specifies the interdependence of vocational qualification with other social sub-areas by using an analytical framework of six dimensions. We call it the work culture background of TVET, short ‘work culture’ (Arbeitskultur). The tool is theoretically founded on an interactionist, socio-constructive definition of culture as

A dynamic result of social processes ..., in which social actors compete for their position in society and communities in contested social fields of action. In order to ensure their capacity to act in society, they are forced to interpret, process — both collectively and individually — and reformulate the influences that flow toward them from the material and cultural world if the social process so requires. Thus, the social actor creates new systems of meaning, new symbolic orders or an innovative individual style. (Wolf 2011, p. 549)

This dynamic understanding of culture was adapted for TVET purposes, opening up a theoretically profound possibility for understanding the different forms of TVET practice and the behaviour of social actors in this context (Wolf 2015). It provides a perspective for the epistemic openings of international TVET studies outlined above, e.g., toward a post-colonial historical hybrid perspective in company management (Becker-Ritterspach and Raaijman 2013) — or when considering qualifications for employment (Erwerbsqualifizierung).

The concept of ‘work culture’ was developed to specify and advance the Oxford model (see Phillips 2009, among others) of the stages of policy borrowing in education. It serves to decipher the context in which the training measures are embedded, and which is central for transfer activities (see Barabasch and Wolf 2011). In a nutshell: context matters. While classical concepts of the interaction between TVET and societal subfields describe connections to the general education system and the employment system, the heuristic analytical concept of ‘work culture’ goes further and looks at how the links for example with economic processes are structured (Greinert 2012). The concept was elaborated through an interdisciplinary meta-analysis of existing comparative studies related to the social reproduction of the labour force and the qualification for employment.

This research distils six distinct social dimensions reciprocally linked to the specific forms of vocational training resp. qualifications for employment as shown in figure 3. And all these must be considered in their specific interrelations with qualifications for employment and TVET.

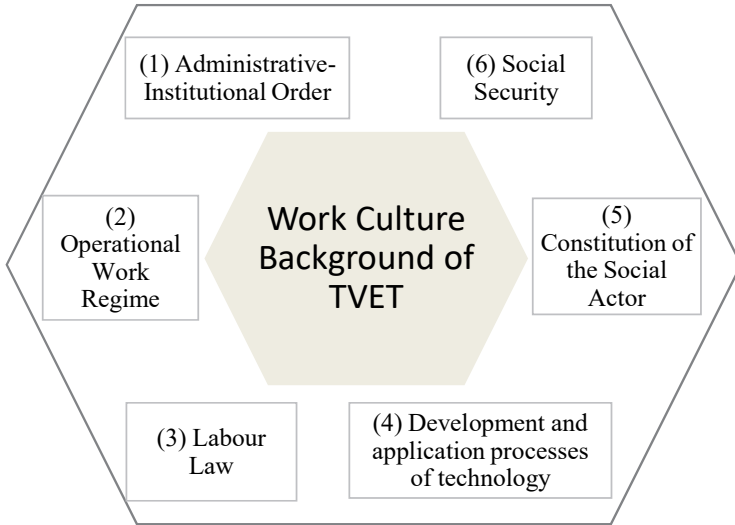


Fig. 2: Work culture and its six partite analytical frame

(Author's own compilation)

Thus, we have a criteria-based analysis frame that structures the observation and exploration of foreign vocational training — for example, during field trips. Each dimension provides specific questions and perspectives on TVET like specific spectacles as we use for seeing things more precisely. The collection of questions helps quick orientation when carrying out desk studies, making observations or conducting discussions with experts on site. However, detailed analysis requires a dialogical approach to avoid drawing premature conclusions and reproducing pre-conceived ideas. The questions are used to discuss with local experts how their own VET was shaped and to develop shared deeper understanding through dialogue. It must be clearly emphasised that the concept of 'work culture' is a heuristic in the sense of the above-mentioned methodological considerations of difference sensitivity and post-colonial epistemology. It is not suitable for statically checking off questions in a report on 'foreign' vocational education and training. The following will illustrate the heuristic tool and shows some questions of each dimension. Nevertheless, it needs to clarify that the 'work culture' concept is a dynamic approach that needs more case studies to develop more broadly. And more general and conceptual it is an approach to use in dialogue with experts and with the reality of the respective country or sector.

1) The first dimension to be considered is the administrative-institutional order of qualification for employment.

The classical/traditional functional analyses of TVET, which is largely determined by T. Parson's structural functionalism concept (e.g., Parsons 1964), only examines this area. With the 'work culture' analysis tool, the focus is on who shapes the concrete TVET design, and which institutions are responsible. The above-mentioned typologies can be used profitably in this context. In France, for example, it is the National Ministry of Education; in Germany, responsibility is shared at federal and state level, including trade unions and creating a complex multi-level governance system. In many other countries, the TVET sector is governed by market mechanisms and varies in its specific form from context to context. Very often, reality presents us with a mixture of different orders, from a school-based formalised system and traditional TVET regulation to a market-driven system of training activities. Additional relevant perspectives to look after are for example the different pathways within the TVET system as well as the dynamics of access and transition to the labour market and/or to further education systems. Examining this dimension we can ask more questions e.g., about the country's or economic sector's certification systems, the role of national qualification frameworks or the implementation of any systematic of a recognition of prior learning. The (non-)existing bridges between the TVET strand and the general school and education system is of relevance here, too. When examining all these, it is crucial to consider not only the formal regulations but also the informal institutional arrangements (Lauth 2017) that influence the specific TVET form.

2) The dimension of operational work regime raises many questions:

- How is the order of work structured?
- Who works with whom and how?
- What are the workers' categories?
- How are the command and communication structure at work? For example how comes the information from the managerial level of engineering to the shop-floor?

Knowledge from industrial relations research should also be included in the investigations to clarify this dimension. Further and deeper questions arise from the recommended dialogical processes using the heuristic tool 'Arbeitskultur' also as any specific study design also can enable researchers to penetrate more deeply into the operational regulations of companies.

Comparative studies, e.g., on 'effet societal' (Lutz 1991; Maurice 1991), have shown that many internal regulatory patterns and their respective cultural systems of meaning are closely linked to the TVET system (Lutz 1976). The recruitment

of labour is also affected, while the differences in the TVET system cause or demand different regulatory patterns and organisational forms within operational activities (Maurice et al. 1980; Regini 1997). This changes the forms of work organisation: the German version is described as flat and task-oriented, while in France, a strict hierarchy combines operational organisation forms with extremely detailed task descriptions (Wolf 2009).

3) Labour law and its impact on TVET provide a third perspective for the analysis of vocational education and its interaction with society. Comparative legal studies (Mückenberger 1998) show the general effects of the interaction, which are reflected in the specific design of labour law: for instance, the social concepts concerning prosperity, social security and freedom. Let us consider a few examples:

While in England labour law regulations are organised on market relations, i.e. freedom and social security are understood as freedom *from* the state, in France the state is the decisive authority. It also guarantees the freedom of political articulation, freedom and security exist here *through* the state. In Germany, legal regulation is the result of collective agreements, such as ‘Tarifautonomie’ (free collective bargaining) or collective labour law, but it may also involve state intervention.

These general effects certainly influence TVET shape, but there are also some very specific interactions, which raise several questions:

- Are there collective labour law provisions (such as works councils in Germany) which enable employees to codetermine training and further education issues?
- How is protection against dismissal regulated; is there job security for formally qualified employees that can positively influence the attractiveness of training?
- How are employment contracts regulated; is there such a category as a ‘trainee’ or other legal constructs for in-company learners?
- What significance do formal certificates have for remuneration and job assignment?

Many other questions will arise in dialogue and are to be asked and an attempt will be made to answer them.

4) A further dimension with considerable influences on TVET form is the field of direct manufacturing or service provision, where new technologies and applications are being developed and used. The long tradition of industrial sociology and comparative management research teaches us that work and cooperation structures are not as rigidly determined by technology as had been previously assumed. Technological-rationalist logic has not been confirmed (Lutz et al. 1958; Knebel

1963). Operational decision-making processes and implementation strongly depend on cultural meanings. They are not purpose-driven — not ‘rational’ in a narrow economic or technological sense. Rather, they are a social interaction whose micro-political and cultural rules determine the participants’ behaviour. The same applies to technological development. Research has shown that the solution best adapted to the social conditions prevails in technology development (Düll and Lutz 1989, for the other corresponding studies, see Wolf 2011). Here, qualified workers have a positive effect on technical innovations (Toner 2010).

However, since the history of technology development in a specific country is complex, the ‘work culture’ concept narrows it down by focusing on the application contexts of technology. It poses the following questions (along with many others):

- Which technologies are used in production, services or on the construction site?
- Who works with advanced technologies in the processing of goods and services?
- Who makes which technical plans?
- To whom are these plans communicated?
- What is the degree of mechanisation and automation?

Here, the analysis methods developed for work- and business-process-oriented TVET research can be profitably used. There is one precondition, though: the study design on which the respective ‘work culture’ analysis is based must enable this deep view of operational reality. Questions to experts are an obvious choice in this regard. Mostly, the deep insight to the reality of companies are limited and often restricted for research.

5) The fifth dimension focuses on the constitution of the social actors. Here, a distinction is made between individual and collective social actors. Some questions are:

- Are there ‘social partner’ as collective actors?
- Are there any (formal or informal) associations of workers? Like the informal guilds in the Egyptian construction industry.
- Are there collective bargaining forms at work and at the shop-floor?

Collective actors — especially trade unions (Wolf 2017), but also employers’ associations — play an important role in TVET design. We often find state-organised employers’ associations in developing and emerging countries. This raises a question: do such associations play a role in TVET as independent social actors,

as voluntary associations of economic actors (on the role of associations in shaping social change, see Streeck and Schmitter 1985) or only as extended arms of the state and its bureaucracy? Voluntary mergers of companies can significantly reduce the entrepreneurial investment risks associated with labour qualification, such as poaching and free-riding by non-investing companies. Also, families and communities can play an important role as collective actors but are often not or only insufficiently considered in TVET analyses. The issue of gender bias — including societies in which women are expected not to work at all or work only in very limited areas — overlaps with the analysis of the individual social actor.

Regarding the individual social actor, the key questions are:

- What social identity and self-conception do workers have?
- Are there processes of professional socialisation?
- How is ‘skilled work’ (Facharbeit) reproduced?
- Is gainful industrial employment regarded as a mere transit station, e.g., to starting a small business (e.g., Blum 1998)?

The questions listed here are not to be understood as a finished list, but the future development of the analysis towards a post-colonial ethnography of TVET requires an openness to further questions that contribute to the identification of social actors and their interrelation with the form of vocational education and training. For example, without this openness it would not have been possible to identify the special role of informal ‘guild structures’ and their relevance for the qualification for employment in Egypt’s construction industry (Wolf 2013).

6) The final dimension addresses social security. Here, we consider the fundamental questions of how society deals with the elderly, the weak and the sick:

- How do these aspects connect to employment qualification?
- Does a permanent job play a special role in social security?
- Does formally qualified skilled work offer special protection if one becomes dependent on these social mechanisms?
- Does it matter whether one has learnt a profession or has earned his/her income as an unskilled worker?
- How is the care of the elderly and sick regulated? Are there state, collective or private care systems? (The latter usually correspond to family associations.)
- How are these related to organised forms of work?
- Is there an advantage regards to social security modalities for formally qualified workers? (Estevez-Abe et al. 2001)

7 Outlook

The first studies using the ‘work culture’ tool are available. They show its flexibility, range and application possibilities (Ioannidou 2018; Pilz and Wiemann 2017; Wolf 2013; Wolf et al. 2016). Discussions with development cooperation experts suggest that this analysis tool is also well-suited to considering individual economic sectors in developing countries, enabling more detailed statements about labour qualification and development prospects.

Especially in discussions with company representatives in developing countries, typologies can be used to complement the tool of *work culture*. This enriches the discussions on workforce qualification and places them on a broader footing than mere business considerations of human resources management.

In our opinion, both analysis tools presented here — the typologies and the *work culture* approach — can also be fruitfully used in the preliminary analyses of development projects related to TVET, be they programmes aimed at employment, economic development or ‘pure’ vocational training. Even if these preliminary analyses cannot explore the complexity of foreign qualifications for employment in all their depth, the tool still helps open up perspectives, avoid hasty conclusions and challenge the colonial perception on TVET in development cooperation.

The concepts presented here can be sharpened further by use in field research. They promote an ambitious undertaking: creating a theoretical and practical foundation for international TVET in development cooperation. The epistemological opening towards sensitivity to difference, the post-colonial ethnographic approach and the corresponding cultural studies perspective, as outlined above, offer sound theoretical foundations on which a joint effort can be built.

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